MASTER

Leveraging challenge-based learning to create a university-based entrepreneurial ecosystem

van der Wijst, Dirk

Award date:
2023

Link to publication

Leveraging challenge-based learning to create a university-based entrepreneurial ecosystem

Master thesis

By:

Dirk van der Wijst

Student number: 1512579

In partial fulfillment of the requirements for the degree of:

Master of Science in Innovation Management

Eindhoven University of Technology

Department of Industrial Engineering & Innovation Sciences

Supervisors:

D. Keskin

J.B. Roca

Company supervisor:

Ákos Wetters

Eindhoven, February 2023

Abstract

Creating a university-based entrepreneurial ecosystem (UBEE) requires the presence of numerous success factors and the constant commitment of the involved actors. To stimulate the creation of such an ecosystem, universities can provide challenge-based learning (CBL). CBL is an experiential, collaborative, active, and project-based education method (Apple, 2010). During CBL courses, student teams work on real-life challenges provided by organizations or societal companies, in a similar context in which start-ups are created. Therefore, students develop their entrepreneurial skills and mindset, learn to work in multidisciplinary teams, and achieve their learning objectives and competencies. Subsequently, CBL can be used to provide entrepreneurial education based on real-life challenges provided by external actors, attract actors to the ecosystem, and promote multidisciplinary teamwork in an open-working environment. In order to improve human capital, achieve critical mass, and stimulate the infrastructure and technology transfer of the UBEE.

To conduct the research for this master thesis, a case study at the Innovation Space Project (ISP) is combined with the design science methodology. ISP is a CBL course hosted in the TU/e innovation Space (IS), focused on entrepreneurship. Since ISP is one of the first TU/e courses that use CBL focused on entrepreneurship, it is used for the case study of this master thesis. Additionally, literature research has been conducted to gain knowledge on the characteristics, mechanisms, and success factors of CBL and UBEE. The findings from the case study and literature research have been synthesized in a set of design principles in order to answer the research questions of this master thesis: "How can challenge-based learning be leveraged to create a university-based entrepreneurial ecosystem?". When going through the available literature, there is no prior research on using CBL education to create a UBEE. However, during this master's thesis, the research has delved deeper into both phenomena, finding opportunities to link CBL characteristics to some of the success factors of UBEEs. When looking at the UBEE success factors, not all factors have been involved in the design principles. Therefore, CBL can be used as a tool to stimulate UBEE creation. However, it should not be limited to CBL only. Concluding, the findings of this master thesis can be used by the supporting staff of ISP and IS to stimulate the UBEE creation by facilitating CBL courses. However, the findings of this research should not be blindly implemented in other UBEEs, as the design principles are based on the literature and case-study findings based on ISP. Subsequently, future research opportunities are highlighted to improve UBEE creation through CBL courses.

Table of Contents

1. Introduction

University graduates and students are expected to have an entrepreneurial mindset to sense, act and utilize uncertainty, and identify and exploit opportunities (McGrath & MacMillan, 2000). Therefore, universities should provide students with the opportunity and tools to develop this mindset. However, due to the limited number of courses students can choose from to complete their studies, providing students with an entrepreneurial mindset takes time and effort. Extracurricular activities or free-elective courses can be used to provide entrepreneurial training and education. Free-elective courses usually attract students from different studies; therefore, multidisciplinarity is promoted. To provide extracurricular support and have an environment available for free elective courses focused on entrepreneurship and innovation, the Eindhoven University of Technology (TU/e) created the innovation Space (IS) in 2015. The innovation Space is the center of expertise for challenge-based learning (CBL) and student entrepreneurship (TU/e Innovation Space, 2022). It is a learning hub for education innovation and an open community where students, researchers, industry experts, societal organizations, and entrepreneurs can exchange knowledge and collaborate to develop solutions to real-world problems (TU/e innovation Space, 2022). In addition, CBL courses are hosted at IS to provide students with societal problems and challenges obtained from surrounding industries. CBL is a collaborative, active, and project-based education method introduced by Apple (2010). Students work on a real-life challenge offered by an organization and learn from identifying and analyzing a problem and designing a solution to solve it (Malmqvist et al., 2015). One of these courses available at the TU/e is the Innovation Space Project (ISP), a CBL course focused on innovation and entrepreneurship.

ISP is a semester-long course where challenge owners (i.e., representatives of organizations, entrepreneurs, faculty, alumni, or external experts) provide a challenge to student teams. Students must be innovative, work in multidisciplinary teams, engage in the project, and have an entrepreneurial mindset. The course is finished with a final pitch to the challenge owners, coaches, and external jury. After this, the student teams and challenge owners can continue working as a student team, create a start-up, or stop with the project. The supporting staff of ISP would like to keep challenge owners and students from the previous semesters involved in the course to create an entrepreneurial ecosystem.

Entrepreneurial ecosystems (EE) are ecosystems where like-minded people cooperate and collaborate to leverage others' knowledge, resources, and networks to increase their value creation (Feldman et al., 2019; Stam, 2015). Universities are essential in creating entrepreneurial ecosystems (Isenberg, 2010; Foster et al., 2013). Therefore, the literature describes EE evolving around universities as university-based entrepreneurial ecosystems (UBEE).

This master's thesis researches how CBL can be used to create a university-based entrepreneurial ecosystem. CBL involves challenges related to business development, requiring entrepreneurial skills and knowledge (Malmqvist et al., 2015). During a CBL course, the challenge owners become important stakeholders and take different roles such as expert, primary customer, or cooperating partner. CBL is an education method hosted in a context similar to the context in which start-ups are created, e.g., requiring an unknown solution for a real-world problem with numerous stakeholders. Therefore, CBL is an appropriate education method for entrepreneurial ecosystems to educate students with an entrepreneurial mindset and entrepreneurial skills and support collaboration with external stakeholders such as the challenge owners. Therefore, to research how CBL education can

be used to create university-based entrepreneurial ecosystems, the following research question is formulated:

Research question: *How can challenge-based learning be leveraged to create a university-based entrepreneurial ecosystem?*

The objective is to create knowledge universities, and course designers can use to leverage CBL to create a UBEE. Therefore, this research uses a design science approach as the overall methodology. Subsequently, a case study at TU/e ISP is conducted to collect evidence from practice. Additionally, literature research is done to substantiate the case study's findings and synthesize the results into a set of design principles. Due to the lack of literature on the intersection of CBL and UBEEs, this study contributes to the existing literature by providing a starting point to leverage CBL to create a UBEE.

This thesis is structured as follows. Chapter 2 discusses the literature on UBEE and CBL education focused on entrepreneurship. Chapter 3 describes the methodology used for this research. Subsequently, chapter 4 discusses the findings from the case study. In chapter 5, the design principles are proposed. Finally, the discussion and conclusion are presented in chapter 6.

2. Theoretical background

The theoretical background of this master thesis report is used to discuss previously done research on university-based entrepreneurship ecosystems and challenge-based learning. Entrepreneurial ecosystems (EE) are ecosystems where like-minded people cooperate and collaborate to leverage others' knowledge, resources, and networks to increase their value creation (Feldman et al., 2019; Stam, 2015). Subsequently, university-based entrepreneurial ecosystems are entrepreneurial ecosystems evolving around a university. Using a university as the centerpiece for an entrepreneurial ecosystem provides external stakeholders from surrounding industries the opportunity to be close to education, research, and innovation. Students can leverage the research and innovation from universities to find solutions for their entrepreneurial initiatives or problems obtained from the surrounding market or external parties, such as entrepreneurs, industry experts, or organizations. Lahikainen (2020) proposes that university research is usually too technical to take to the market. Therefore, students need education on transferring research findings to consumer needs. Active learning methods can be used to educate students and provide them the opportunity to gain experience, for example, through internships or project work. An active learning method that can be used for entrepreneurial education is challenge-based learning. Students work in teams on a challenge, often provided by external stakeholders such as entrepreneurs, industry experts, or organizational representatives with a specific problem. Research on university-based entrepreneurial ecosystems is fairly new. Subsequently, the potential role CBL education can take in creating entrepreneurial ecosystems has not been researched. The theoretical background in this thesis is used to discuss the UBEE and CBL literature. The essential mechanisms, characteristics, and success factors of UBEEs and CBL education focused on entrepreneurship are discussed.

2.1 University-based entrepreneurial ecosystem

The term ecosystem originates from biology, where an ecosystem, also known as an ecological system, is defined as "a biotic community, in its physical environment, and all the interactions possible between the living and non-living factors" (Tansley, 1935; van de Ven & Stam, 2021). Hawley (1950) describes this metaphor to an organizational community by adopting three core features of an ecosystem: "*co-evolution and mutualistic interdependence among a complex system of diverse organizations and actors*". The described biological and organizational ecosystem focuses on co-evolutionary growth and performs differentiated but complementary roles that enable the emergence, growth, and survival of the actors within the ecosystem and the complete ecosystem itself (Astley & Van de Ven, 1983; Astley, 1985; Freeman & Audia, 2006).

An entrepreneurial ecosystem builds on the same principle but focuses mainly on entrepreneurship. The entrepreneurial ecosystem comprises an interactive community of stakeholders such as students, universities, (non-profit) organizations, research centers, experts, investors, governmental bodies, and entrepreneurs within a geographic region (Hsieh & Kelley, 2019). These stakeholders collaborate and cooperate to leverage others' knowledge, resources, and networks to increase their value creation (Feldman et al., 2019; Stam, 2015; Hsieh & Kelley, 2019). Misconceptions regarding entrepreneurship within the ecosystem are dismissed with a quote from Stam (2015) "*Entrepreneurship is not only the output of the system, but entrepreneurs are also important players themselves in creating the ecosystem and keeping it healthy*". Therefore, the entrepreneurial ecosystem's focus is broader than only venture creation. Subsequently, creating and developing networks, mutual relationships, creating and improving institutional capabilities, and fostering synergies between the stakeholders should also be promoted (Badzinska, 2021).

Entrepreneurial ecosystems can be built around different actors, such as organizations, universities, cities, regions, or even countries. These ecosystems usually evolve around unique regional assets such as harbors, airports, cheap labor areas, or universities in which the resources and competencies provide a competitive advantage over other regions (Rice et al., 2014). Therefore, a university with high knowledge, research, and innovation intensity can be the centerpiece of an entrepreneurial ecosystem. Research by Meyer et al. (2020) and Theodoraki et al. (2017) substantiate this by proposing that universities are recognized as an essential source of new technology and new ventures for local entrepreneurial ecosystems. The ecosystem discussed in this thesis revolves around a university, therefore referred to as a university-based entrepreneurial ecosystem (Rice et al., 2014).

University-based entrepreneurial ecosystems consist of stakeholders sharing an entrepreneurial mindset within a local geographic location associated with a specific university (Theodoraki et al., 2017). Meyer et al. (2020) researched the assessment and planning of UBEEs and proposed a stakeholder map for UBEEs. Figure 1 shows the most relevant stakeholders in a UBEE (as indicated outside of the big circle) and the entrepreneurial activities of a UBEE (as indicated with grey circles within the big circle). In the following section, the stakeholders and activities are discussed.
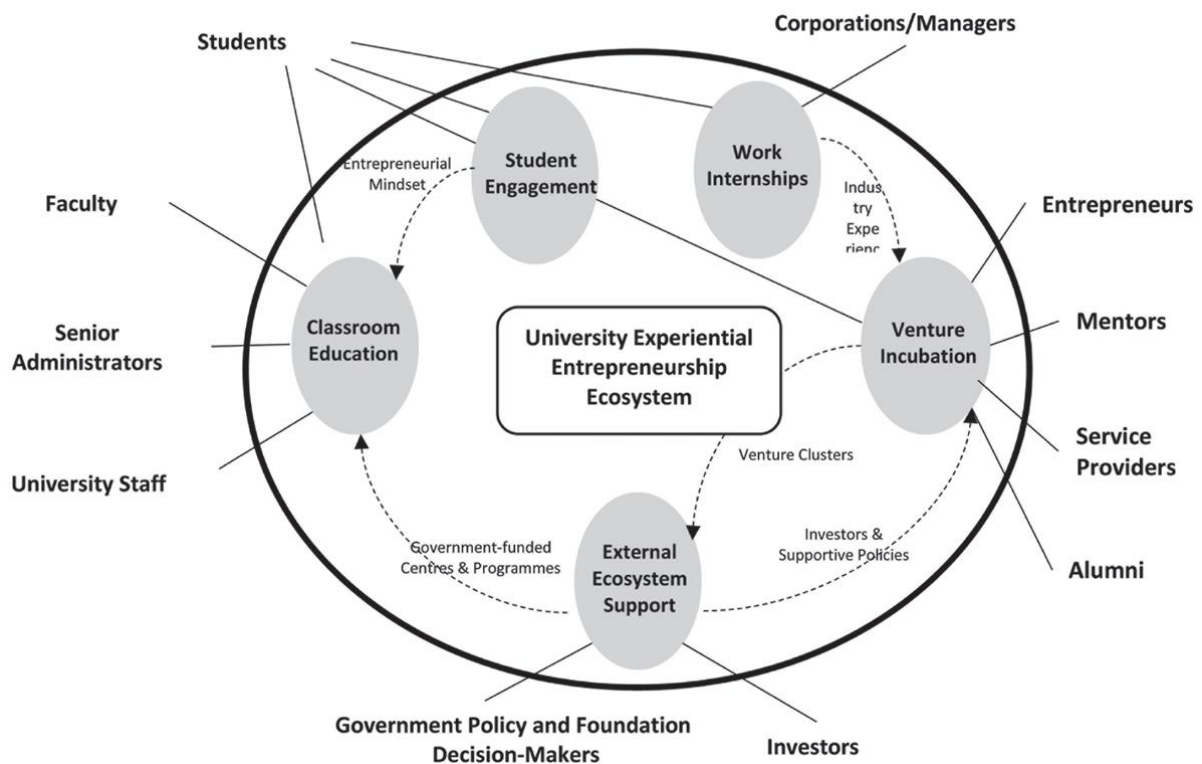
Figure 1. UBEE stakeholder map, (Meyer et al., 2020)

The stakeholders in the UBEE can be divided into two groups: stakeholders within the university and external stakeholders. The internal stakeholders are as follows:

- **Students** from the university on which the university-based entrepreneurial ecosystem is based. These students can be of different levels, e.g., bachelor or master, studies, faculties, or field of study.
- **Faculty** involved in either curriculum or extra-curricular activities focused on entrepreneurship.
- **Alumni** who can take different roles in the UBEE, such as entrepreneurs, mentors, investors, or financial donors or investors to fund entrepreneurial activities.

4

- **Entrepreneurs** can be any of the three before mentioned actors in the system. However, entrepreneurs could also be external actors that come into the ecosystem.
- **University administrators** are the senior officials who established the entrepreneurial culture and policy and are in charge of allocating resources for entrepreneurial initiates. University administrators are referred to as senior leaders in this report.
- **University staff**, the supporting staff of the university that provides support and services to stimulate and support entrepreneurial activities.

The external stakeholders are as follows:

- **Investors,** start-ups usually seek early-stage financing to kick-start their venture. Therefore, investors can be attracted to the ecosystem to invest in these projects.
- **Mentors** who can be experienced industry experts. These mentors provide the actors in the ecosystem with advice on business matters and can form a connection between entrepreneurs, customers, or investors.
- **Corporations and managers** are the external actors that provide experiential learning opportunities to students through, for example, internships. Or act as an information, network, or knowledge source.
- **Service providers** are supporting services for start-ups in the ecosystem. These service providers could be law, public relations, marketing, accounting, or computer hosting firms.
- **Government policy and foundation decision-makers**; these are governmental instances.

The five entrepreneurial activities indicated in the grey circles are **classroom education** and **work internships**, which both form part of the educational experience. **Student engagement** covers extra-curricular activities such as student teams. **Venture incubation** is performed on-campus, and **external ecosystem support** programs, such as government support programs, to stimulate venture creation.

The arrows between the five circles link the activities. Student engagement provides students with an entrepreneurial mindset. Work internships provide students with industry experience. Venture incubation provides the UBEE with venture clusters. The external ecosystem support provides investors & supportive policies to the venture incubation. Additionally, the external ecosystem support provides government-funded centers and programs to support the classroom education.

2.1.1 UBEE mechanisms

Additionally, Meyer et al. (2020) discuss three important mechanisms of UBEEs in their research: technology transfer, venture incubation, and education. First, technology transfer can be described as the transfer of new technologies from the originator to a secondary user. Second, venture incubation can be seen as a mediating element for the cooperation between stakeholders in a UBEE and promoter of entrepreneurial initiatives (Theodoraki et al., 2017). Third, education of the actors within the ecosystem. This is supported by Lahikainen (2020), who proposes that the entrepreneurial activities of a UBEE revolve around curricular, co-curricular, and research activities. Xie & Zhang (2019) and Fetters et al. (2010) discuss the link between education, research, and innovation within a university and its extended community to foster entrepreneurship. Subsequently, UBEEs provide entrepreneurial opportunities for its members and constant education of new entrepreneurs (Lahikainen, 2020). Thus, making it attractive to internal and external university actors to participate in the UBEE. For this master's thesis, the focus is on CBL education and how that

can be used to create an entrepreneurial ecosystem. Therefore, only the technology transfer and education mechanisms will be discussed further. Technology transfer can be described as the transfer of new technologies from the originator to a secondary user. In the context of CBL, students can be the originator of new technologies, when they propose a solution consisting new technologies or innovations to secondary users, in this case the challenge owners. Lastly, venture incubation is essential for a UBEE; however, venture incubation services are usually used in later entrepreneurial stages, when venture creation occurs. During CBL courses, entrepreneurial initiatives are in the starting phase and, therefore, are not yet in need of venture incubation. As the scope of thesis focusses only on the CBL part, and the case-study is conducted on the TU/e ISP course, venture incubation is outside of this thesis scope.

2.1.2   Technology transfer

Technology transfer can be described as the transfer of new technologies from the originator to a secondary user. Universities stimulate technology transfer and act as intermediaries to transform the university's research findings to the market and industry needs (Theodoraki, 2017; Lahikainen, 2020). The problem with research at universities is that the research is usually technical and has a low readiness for the markets (Lahikainen, 2020). To stimulate technology transfer, students and scholars must prepare their research findings according to the market needs. To do so, education and guidance are required. To get the market needs and research findings aligned, Lahikainen (2020) suggests that blurring organizational boundaries and increasing the network strength between the university members and external stakeholders will result in improved technology transfer.

Additionally, students and scholars tend to collaborate with like-minded people in their social network. However, to bridge the gap from research to market, students and scholars need to change their social network to market- and entrepreneurial-oriented networks (Hayter, 2016). Interactions between academics and external experts usually occur through relationships built by senior leaders and company representatives. These relationships between the university- and external stakeholders are found to be an essential aspect of supporting the technology transfer (Lahikainen, 2020). First, to stimulate the technology transfer, education can be used to teach students and other stakeholders mechanisms and entrepreneurial skills to take their research findings to the market. Second, university supporting staff can function as network providers and relationship builders between the stakeholders in a UBEE.

2.1.3   Education

The second UBEE element is an important task for universities in UBEEs: educating students to meet the demands of the surrounding market and industry (Lahikainen, 2020). By deploying different education methods, such as traditional classroom education, active learning, or internships, entrepreneurial education can provide students with entrepreneurial skills, knowledge, and an entrepreneurial mindset. Gibb and Nelson (1996) propose three options for entrepreneurship education: education **for, through,** and **about** entrepreneurship. Education for entrepreneurship focuses on the abilities and skills required to implement ideas and start a business. Education through entrepreneurship is focused on the entrepreneurial mindset of the student, and education is done through practice. The last education method is about entrepreneurship and provides students with an understanding of companies, methods, and general knowledge of entrepreneurship. The second type of education, "through," also referred to as experiential learning, is more effective than traditional classroom education (Corbett, 2005; Mandel & Noyes, 2016; Meyer et al., 2020). In experiential education, students are immersed in the start-up world through different mechanisms, such as guest lectures from entrepreneurs, internships at venture companies, or starting a new venture supported by an industry mentor or university venture incubation.

Hsieh, Kelley (2019), and Lahikainen (2020) propose that entrepreneurial education should be based on the market needs, students gain market exposure, industry experts could mentor students, and problems obtained from the market can be solved. By deploying the market in education, students learn to understand the market openness, potential customers, proof of concepts, consumer acceptance, user experiences, and the commercialization of research (Isenberg, 2010; Suresh & Ramraj, 2012; Hsieh & Kelley, 2019).

In addition to the two discussed mechanisms of UBEE, the available literature has been used to identify a set of success factors for UBEEs. In the following section, these success factors will be proposed and discussed.

2.2 UBEE success factors

In UBEE literature, success factors are used to describe sustainable entrepreneurial ecosystems. Sustainable in this context means a mature, robust, and established entrepreneurial ecosystem that has proven maintainable. In section 2.1, important mechanisms of UBEEs have been discussed, and this paragraph is used to discuss the success factors of UBEEs. Fetters, Greene, and Rice (2010; 2014) did case studies on UBEEs of six different universities. The UBEEs described in the case study have been created through different pathways, although comparable mechanisms are used to create sustainable ecosystems. The success factors of these six UBEEs are a starting point for the following success factors. However, other articles have been used to support and expand the proposed factors by Fetters, Greene, and Rice (2010; 2014). In the following section, eight success factors for creating a sustainable university-based entrepreneurial ecosystem are discussed.

2.2.1 Senior leadership

To create a sustainable entrepreneurial ecosystem, a senior leader committed to the creation and sustainability of the UBEE is required (Badzinska, 2021; Stam, 2015; Graham, 2014). The leader should promote an entrepreneurial culture and a shared vision across the university (Fetters et al., 2010). Isenberg (2010) describes culture as intangible rules, atmosphere, and values. In an entrepreneurial ecosystem, an entrepreneurial culture can be supported by having an entrepreneurial atmosphere, activities, role models, support, and proactive participation in entrepreneurial initiatives (Isenberg, 2010). Additionally, entrepreneurship should become a central part of the university's vision and goal. Second, the senior leader should ensure entrepreneurial initiatives are supported and promoted, successes are celebrated, and financing is available (Rice et al., 2014).

2.2.2 Faculty support

The vision and culture promoted by the senior leader should be substantiated by the university's supporting staff and faculties (Rice et al., 2014). Single leaders can promote entrepreneurship through the shared culture; however, complete faculties should support entrepreneurship to create an entrepreneurial focus in curriculum development, course setup, education methods, research, and relationship management inside and outside the universities. A senior leader that wants to create an entrepreneurial ecosystem should actively search for a team of skilled people in course development, curriculum development, and entrepreneurial education to support his vision.

2.2.3 Constant commitment

Creating a sustainable UBEE requires multiple years of commitment from faculty, senior leaders, sponsors, and program creators (Fetters et al., 2010). To do so, constant

leadership, education to teach all stakeholders the required entrepreneurial skills, and significant resources to cover all expenses are required (Rice et al., 2014).

2.2.4 Financial resources

Long-term funding is required to support all curriculum changes, entrepreneurial initiatives, and general expenses (Brush, 2014). The senior leaders and faculty should continuously pursue additional sponsors, grants, and resources. Financial capital can be obtained through alumni donations, angel investors, governmental funding, or entrepreneurial recycling when entrepreneurs come back into the system after they have sold their venture (Isenberg, 2010; Hsieh & Kelley, 2019).

2.2.5 Innovation

The industry and context in which UBEE operates are constantly changing; therefore, the ecosystem should lead or respond to those changes (Rice et al., 2014). To ensure the success of the ecosystem, constant innovation is required. Improvements in education should be made, programs that add value to the ecosystems should be enhanced, and new initiatives should be supported through experience, networking, and financing. Additionally, courses, methods, or collaborations that no longer add value should be removed.

2.2.6 Infrastructure

The ecosystem infrastructure should be equipped to advance and manage entrepreneurial initiatives, develop the curriculum and education, and promote outreach to venture incubation, networking or financing events, intellectual property providers, and entrepreneurial competitions (Rice et al., 2014; Fetters et al., 2010; Foster et al., 2013; Feldman et al., 2019; Brush, 2014). Additionally, the UBEE should be connected to the university's overall mission and complementary to the internal and external partners (Rice et al., 2014). The infrastructure of the entrepreneurial ecosystem should also contain a physical environment where students, entrepreneurs, supporting staff, teams, and start-ups can proactively work together (Fetters et al., 2010). Hsieh and Kelley (2019) proposed that education and an open learning environment enable (new) members of the ecosystem to enter the UBEE and perceive the importance of entrepreneurship.

2.2.7 Critical mass

Without achieving critical mass, UBEEs are facing various types of challenges. Critical mass can be described as gaining interest from champions, providing solutions for the regional economy and community's needs, and adjusting to the university's sustainable development goals and vision. Additionally, the UBEE should not only impact the university and surrounding community, but it should go further than that (Badzinska, 2021). A partner network with other faculties, divisions, schools, institutes, and universities is required. Subsequently, local, national, and global cooperation and collaborations with alumni, entrepreneurs, organizations, investors, governmental bodies, and industries are needed. To achieve critical mass, the UBEE must get past the pilot stage and create a portfolio of supportive services and educational programs (Fetters et al., 2010). Second, cooperation and collaborations with other entrepreneurial-minded instances should be established to create momentum and gain recognition. To do so, the UBEE should have a similar vision and SDGs to the university.

2.2.8 Human capital

Human capital is needed from students' and entrepreneurs' knowledge, experience, and talent to achieve a sustainable UBEE. Universities in UBEEs aim to educate their stakeholders (Lahikainen, 2020). A constant flow of new human capital is realized by educating and training students to educate them with entrepreneurial skills and provide them

the opportunity to gain experience in interdisciplinary settings (Lahikainen, 2020; Brush, 2014; Hsieh & Kelley, 2019).

To conclude this chapter, creating a UBEE requires numerous factors to succeed. The literature shows that universities usually take a different route to create UBEEs. However, the success factors and distinctive mechanisms are repeatedly being used and proposed as essential for the success of UBEEs. To answer the research question of this master thesis: *How can challenge-based learning be leveraged to create a university-based entrepreneurial ecosystem*? The link between CBL and UBEE needs to be explained and elaborated. Looking at education in UBEEs, no universal entrepreneurial education method is discussed in the literature. However, experiential learning is proposed to be more effective for entrepreneurial education (Corbett, 2005; Mandel & Noyes, 2016; Meyer et al., 2020). Experiential learning is the source of various active learning methods. Frequently used experiential learning methods are problem-based, project-based, task-based, and challenge-based learning (Detoine et al., 2019). An experiential learning method in which a combination of students, supporting staff, industry experts, organizations, and entrepreneurs outside of the university are involved is challenge-based learning. Malmqvist et al. (2015) describe challenge-based learning as an evolution of problem-based learning. Problem-based learning is an educational method where students are posed with a design, research, or diagnostic problem and learn by working on the solution (Malmqvist et al., 2015). Challenge-based learning is more difficult as societal challenges are used, and due to the different stakeholders of these challenges, multidisciplinarity is required. Through the use of societal challenges, the answer or solution is unknown to all actors. Additionally, the context in which CBL is hosted, e.g., having a real-world problem, an unknown solution, and numerous stakeholders, is similar to the context in which start-ups are created. Lastly, CBL education combines challenges with business development, requiring entrepreneurial skills and knowledge (Malmqvist et al., 2015). Student teams work in multidisciplinary teams on challenges usually obtained from surrounding industries, markets, or communities. The challenge providers can be external actors such as industry experts, organization representatives, or entrepreneurs. Subsequently, they can act as primary stakeholders, experts, knowledge, network, or experience provider. Concluding, the type of challenges, often societal problems, the multidisciplinary stakeholders, and the entrepreneurial focus of CBL results in an appropriate learning method for educating entrepreneurship students in a UBEE. In the following section, challenge-based learning focused on entrepreneurship will be discussed.

2.3 Challenge-based learning focused on entrepreneurship

Challenge-based learning (CBL) is an experiential, collaborative, active, and project-based education method introduced by Apple (2010). CBL combines entrepreneurial, self-regulated, organizational, and authentic learning (Leijon et al., 2021). Key characteristics of CBL education are (1) Real-world challenges that aim to bring students closer to the real world and increase motivation and engagement by having real stakeholders. (2) Collaboration focuses on the collaboration between stakeholders such as peer students, supporting staff, industry experts, and challenge providers. (3) Technology is the use of technology for communication between the student teams and the other stakeholders. Online communication can be used as a communication platform, stakeholder management tool, or market exploration. (4) Flexibility focuses on the flexible adoption of CBL approaches combined with other educational methods. CBL is a flexible methodology open to interpretation, augmentation, and innovation (Gallagher & Savage, 2020). CBL education is open to (5) multidisciplinary within the student teams and supporting staff. Additionally, (6) students increase their ability to innovate and create through CBL (Gallagher & Savage,

2020; Martínez, 2019; Yang et al., 2018). Subsequently, (7) the defined challenges should address the educational criteria, to fulfill the required competencies and complete the learning objectives of the participating students. Lastly, (8) global themes should be used for the challenges to stimulate global thinking and develop the mindset of the students further than the limitations of their immediate environment (Gallagher & Savage, 2020). An overview of the eight characteristics of CBL education is pictured in figure 2 (Gallagher & Savage, 2020).

Figure 2. CBL characteristics, (Gallagher & Savage, 2020)

In CBL education, students work on real-world problems called challenges and learn by identifying the problem, analyzing it, and designing a solution while being supported by university staff, mentors, external stakeholders, and challenge owners (Malmqvist et al., 2015; Colombelli et al., 2021). Usually, these challenges are proposed by external stakeholders such as representatives of organizations, entrepreneurs, student teams, or industry experts. Using real problems requires interdisciplinary knowledge and an entrepreneurial mindset (Lazendic-Galloway et al., 2021). Additionally, interdisciplinary cooperation's are required as the challenge providers become essential stakeholders in the project (Pisoni et al., 2020; Nichols & Cator, 2008). Subsequently, students use the knowledge gained during their university career and simultaneously develop their skills, knowledge, and mindset. To make the project successful, students must think innovative, work in multidisciplinary teams, collaborate, and engage in the project (Gallagher & Savage, 2020).

According to the general CBL framework, pictured in figure 3, CBL consists of three phases: **Engage**, **Investigate**, and **Act** (Challenge institute, 2018). The **engagement** phase starts with a challenge. These challenges should be authentic, relevant, and real to motivate students to solve local or global problems (Nichols et al., 2016). In this phase, problem exploration is combined with research about possible solutions for the challenge. In the **investigation** phase, the problem exploration is expanded, and teams start looking for information, valuable stakeholders, or external professionals. The second phase is used to understand what is needed to realize the solution and which tasks should be fulfilled to reach the solution (Colombelli et al., 2021). Finally, in the **acting** phase, the solution development starts based on the research, networking, and investigation conducted in the previous

phases (Gutiérrez-Martínez et al., 2021). Additionally, the teams have to verify if the solution is suitable for the challenge or that it should be adjusted to meet all requirements.

Figure 3. CBL framework (The challenge institute, 2018)

Due to the real challenges obtained from the problems occurring in surrounding industries and communities, CBL can be used as a starting point to solve large open-ended problems (Malmqvist, Radberg, & Lundqvist, 2015). When students work on real problems that require a solution, entrepreneurship will become a natural consequence of CBL education (Martínez & Crusat, 2020). Students must think innovative, keep their stakeholders on board, and be aware of the industry and customer needs (Martínez & Crusat, 2017). Additionally, teamwork is promoted, and students work on their challenges in cooperation with their peers, university supporting staff, and other (external) stakeholders, such as the challenge providers (Detoine et al., 2019). Different education methods can be used to educate students with the required learning objectives and skills. For example, communication training to improve student pitching skills and stakeholder management is essential (Martínez & Crusat, 2017). Additionally, complementary to academic lecturers, workshops, industry and company visits, and guest lectures from entrepreneurs are used to educate students on business subjects and entrepreneurial skills, such as pitching, teamwork, and innovation. Business model creation and market analysis could be educated to students through workshops and project work, where students create their business models.

Important to remark is that the focus of CBL is not limited to entrepreneurship and venture creation. It is used as a learning method to stimulate students' entrepreneurial mindset and improve their skills that are useful in their working career, such as working in multidisciplinary teams, soft skills, critical thinking, creativity, and problem-solving (Colombelli et al., 2021). Additionally, it positively affects the entrepreneurial mindset and skills of participating students (Colombelli et al., 2021). Lastly, a permanent focus on value creation should be promoted. Not all project teams will take their proposal to the start-up phase. However, the target of CBL courses focused on entrepreneurship should be entrepreneurial proposal generation and stakeholder value creation. Using CBL for entrepreneurship is a viable learning method as it introduces all ingredients students need to stimulate their entrepreneurial initiatives, supported by university staff and mentors. Students have to deal with real problems, find innovative solutions, interact with their stakeholders,

and study the feasibility and validity of the proposed solution from the perspectives of their challenge owners and potential customers (Martínez & Crusat, 2020). Therefore CBL seems to be a viable education method to prepare students with an entrepreneurial mindset, stimulate venture creation through the use of real-life problems, and promote multidisciplinary between different actors in the ecosystem in order to improve the value creation.

2.4 Conclusions

This chapter covered the theoretical background of this master thesis. It is used to gain insights into the available literature on CBL and UBEE. First, the UBEE mechanisms are discussed, followed by the UBEE success factors. Subsequently, this section can be used to understand what UBEEs are, which mechanisms and success factors are essential, which actors are involved, and how a UBEE can be created. Second, the CBL framework proposed by the Challenge Institute (2018) and the CBL characteristics are discussed. The CBL framework proposes and discusses the different phases of CBL. The CBL characteristics are proposed to gain knowledge of the distinctive characteristics of CBL. Concluding, the diagram in Figure 4 shows the UBEE mechanisms and success factors, CBL characteristics, and CBL framework.

UBEE mechanisms	UBEE success factors	CBL characteristics	CBL framework
Technology transfer	Senior leadership	Real world challenges	Engage
Education	Faculty support	Collaboration	Investigate
	Constant commitment	Technology	Act
	Financial resources	Flexibility	
	Innovation	Multidisciplinarity	
	Infrastructure	Innovation and creativity	
	Critical mass	Challenge definition	
	Human capital	Global themes	

Figure 4. Theoretical background

3. Methodology

To answer the research questions; How can challenge-based learning be leveraged to create a university-based entrepreneurial ecosystem? A combination of a case study conducted at ISP TU/e and design science methodology is used. A case study is generally used when researchers try to investigate and explain a contemporary phenomenon in depth and within its real-world context (Yin, 2018). Additionally, the researcher has little control over the events, and the research questions "how?" and "why?" are being posed. Case studies are conducted when the researcher wants to understand a real-world case and assumes that the understanding involves essential contextual conditions (Yin, 2018). In terms of this master thesis, an understanding and explanation of the TU/e ISP are required. TU/e ISP has been chosen for the case study as this course is the first CBL course hosted at the TU/e focused on entrepreneurship. The case study provides insights into the use of CBL education focused on entrepreneurship, the cooperation and collaboration between different stakeholders (students, university staff, and external stakeholders), and the steps taken to create a dense network of stakeholders focused on entrepreneurship and innovation. Additionally, research into the motives of the external stakeholders to participate in the course is done. Subsequently, the design science methodology is used to develop design principles from the case study results.

Design science methodology (DSM) is a research method proposed by Simon (1996). Simon (1996) proposed that explaining phenomena, systems, methods, or problems is not sufficient. Instead, a scientific method is needed to know 'what it should be' (Dresch, Lacerda, & Antunes, 2014). Design science methodology provides guidelines for practice as it attempts to connect scientific knowledge and empirical evidence. In other words, DSM tries to solve problems by applying theoretical knowledge to a practical case. The knowledge created can be applied to solve problems in practice (van Aken, 2005). The case study conducted at TU/e ISP facilitates the empirical evidence, and a literature study on UBEE and CBL education is used to provide theoretical evidence. Subsequently, the empirical and theoretical findings are synthesized into design principles (Romme & Endenburg, 2006).

Design principles consist of propositions and ideas supported by theoretical research, which are used to construct detailed solutions (van Burg et al., 2007). In addition, design principles are often used to combine empirical evidence obtained from empirical studies, such as case studies and findings from a literature study (van Burg et al., 2012). The created design principles construct a complete overview of the theory and practice findings. The design principles are then used as means to create a design solution. Due to the lack of previous research on CBL education to facilitate UBEEs, evidence from practice is required to substantiate the available literature. By deploying a combination of design science methodology and case-study, the empirical evidence is leveraged to create a starting point for research on how to use CBL education for UBEE creation.

3.1 Empirical setting

Empirical data is collected through a case study in the course "Innovation Space Project" (ISP), which is hosted in the TU/e Innovation space (IS). TU/e IS is the center of expertise for challenge-based learning (CBL) and student entrepreneurship (TU/e Innovation Space, 2022). It is a learning hub for education innovation and an open community where students, researchers, industry experts, societal organizations, and entrepreneurs can exchange knowledge and collaborate to develop solutions to real-world problems (TU/e innovation Space, 2022). ISP is chosen as the course is the first course at TU/e that uses CBL education focused on entrepreneurship. ISP is a semester-long master's course open to all master students, resulting in a multidisciplinary environment. It combines the design and

engineering of a product, service, or system, and business development to take it to the market. Challenge owners from surrounding industries provide a challenge to the students, which can be used as a starting point for the projects. During the course, students, challenges owners, and supporting staff of TU/e collaborate and work together on the challenge toward the final solution. Education is provided through workshops, group work, self-study, and personal and team development, leaving students in the lead of their learning processes.

3.2 Data collection

Data is collected during the case study, which consists of observations, discussion sessions, and semi-structured interviews.

3.2.1 Observations

ISP has two contact moments between the lecturers and students every week. On either Wednesdays or Fridays workshops are provided. Additionally, on Wednesdays, coaching sessions are hosted. Subsequently, on Fridays, time is scheduled to work on the project for coaching sessions and ad-hoc support. Observations during these scheduled hours are made to understand the course setup and teaching methods and get insights into the student's project work. A logbook was used to make notes of all observations, placed in appendix 6. Questions, doubts, or ideas during these sessions were discussed and answered by asking questions or starting discussion sessions with the students, supporting staff, or challenge owners.

In addition, several meetings between the coaches, challenge owners, and students are hosted during the course. These unstructured meetings are hosted by the two ISP coaches to align the stakeholders' expectations, improve the collaboration between the students and challenge owners, or to gain insights from the students or challenge owners to improve the course. Subsequently, during one of the meetings I proposed discussion points that were discussed in a previous meeting. To gain insights in the improvements that were made regarding the project progress and collaboration between the stakeholders. These meetings were attended to gain insights into the collaborations between the students and challenge owners, expectations of the challenge owners, and changes in collaboration, experiences, and expectations throughout the course. Subsequently, the discussion points and meeting observations were used to construct the interview questions.

3.2.2 Interviews

To substantiate the findings from the observations, semi-structured interviews were conducted. Semi-structured interviews are used to ask questions in a structured way but also be able to ask follow-up questions (Newcomer, Hatry, & Wholey, 2015). In total, 11 interviews were conducted, eight with challenge owners and three with supportive staff members of IS. The interviews took about 15 to 30 minutes and were recorded, transcribed, and coded. For the interviews with the challenge owners, two sets of interview guides were used. This was done since challenge owners from two consecutive semesters were interviewed. The first round of interviews was conducted at the end of the first semester, and the second round of interviews was conducted during the middle of the second semester. The second round of interviewees did not experience the complete course; therefore, some interview questions needed to be changed or removed. The interview guides can be found in appendix 1. These interviews were conducted to get insights into their motives, expectations, and experiences on the course and collaboration with the students and university. There are more collaborating partners in a UBEE. However, challenge owners are the primary external stakeholders, as they also function as network, expertise, and knowledge provider for the students. Additionally, they could become customers, stakeholders, or co-creator of a newly

created start-up. Therefore, the challenge owners are the only external stakeholders of the course who are interviewed.

Additionally, interviews with supporting staff of TU/e innovation Space, active in the business cluster (BC) or extra-curricular cluster (EC), were conducted. The business cluster of IS establishes new collaboration partners in the TU/e innovation Space. These interviews aimed to understand the selection of new challenge owners. An important task for the creation of UBEEs is attracting valuable stakeholders. The interview with the EC is used to understand the challenge owners' selection process, how they are introduced in TU/e IS and what their role is in the ecosystem. The extra-curricular cluster of IS focuses on all extra-curricular activities hosted within IS. The EC facilitates support for students, researchers, student teams, entrepreneurs, and start-ups. Subsequently, student teams that continue with their project after ISP are being supported, coached, and educated by the IS supporting staff. These two interviews were used to get an understanding of the support and facilities that are available within IS.

Additionally, a discussion session was conducted with a student who created a start-up from his ISP project. Discussion sessions are used to discuss topics in an open conversation. The discussion session was conducted to understand the steps between ISP and start-up creation, the support available for start-ups coming from ISP, and their connection to ISP after the course. However, as the scope of this master thesis is focused on the use of CBL to create a UBEE, further steps after ISP will not be researched into detail.

Lastly, the students participating in the course and supporting staff, such as mentors and students assistant, have not been interviewed. However, during the course, either Wednesday or Friday classes have been attended to understand the methods used to provide entrepreneurial skills through the CBL method and the motives to participate in a CBL course. During these sessions, quick discussions were started or questions were asked on topics relevant to the course to the students, supporting staff or challenge owners. The findings from these observations, discussion sessions, and questions are all noted in the logbook.

3.3 Data analysis

The data analysis is done to understand all the collected data. The semi-structured interviews were recorded and transcribed using Sonix artificial intelligence software (SONIX, 2022). Subsequently, the transcripts were read thoroughly and improved where needed, in appendix 7, all interview transcripts can be found. After the transcription of the interview data, coding with the pre-defined codes from the literature study was conducted. The pre-defined codes consist of UBEE mechanisms, success factors, and CBL characteristics. Additional codes have been added when there is no direct link between the pre-defined codes. Subsequently, the codes were grouped into themes, after which a table was created to get an overview of the interview findings. The coding scheme can be found in Appendix 2, Table 1. The findings from the observations and discussion sessions are all noted in the logbook. These findings are used to get an understanding of the course setup, provided support, and educational aspects such as lecturers and workshops.

3.4 Design principles

The design principles are constructed following the CIMO logic proposed by Denyer et al. (2008). The CIMO logic constructs design principles from empirical and theoretical data. CIMO focuses on four different components: Context (C), Intervention (I), Mechanism (M), and Outcome (O) (Denyer et al., 2008). These components are used to create design principles. Design principles using CIMO logic define the *context* of the problems in which a

particular *mechanism* is evoked by introducing an *intervention* to achieve the proposed *outcome*. A table showing the elements of the CIMO logic based on the research from Denyer et al. (2008) is displayed in Table 2, Appendix 3. CIMO is a valuable method for this master thesis project as it not only suggests a solution to a specific problem but also explains how it works and why it leads to the specific outcome. A deeper understanding of the problem is required to create CIMO design principles, thus leading to better solutions. To do so, this master thesis combines both theoretical and empirical findings.

The design principles proposed in chapter 5 are formulated in four steps. First, the interventions and outcomes related to CBL were identified in practice via the case study. Second, the contextual conditions in which these interventions occur were identified. Third, the proposed outcomes were used to analyze the literature on UBEE to create connections between CBL and UBEE creation. Fourth, the literature on CBL and UBEE and case-study findings explain why the interventions will lead to the proposed outcome. Subsequently, these findings are used to substantiate the mechanisms in the CIMO design principles. Concluding, chapter 5 will be used to discuss and elaborate on the constructed design principles.

4. Case-study: Innovation Space Project

The case study for this master's thesis is conducted at the TU/e's Innovation Space Project (ISP). ISP is one of the first CBL courses at TU/e that focuses on entrepreneurship and innovation. The course description on the course catalogue page of TU/e, Osiris, is as follows: *This course aims to develop the competencies of future engineers by identifying solutions thanks to challenge-based entrepreneurship applied in a set of interdisciplinary student teams, working on open-ended assignments in close interaction with high-tech companies and societal organizations. It combines the design and engineering of a product/service/system and new business development. The course involves no lectures, but studio-style group work, self-study, and personal and team development. Several out-of-the-box pressure-cooker-style workshops will be offered, either online or offline. Students are in the lead of their learning processes* (Eindhoven University of Technology, 2023).

ISP is open for all pre-master and master students, resulting in an interdisciplinary classroom full of students from different programs. Innovation and entrepreneurship are promoted through open-ended assignments, or in this thesis referred to as challenges, provided by high-tech companies and societal organizations. Similar characteristics are described in the key characteristics of CBL, where CBL is proposed as an educational method open to multidisciplinary between students and supporting staff (Gallagher & Savage, 2020). Students get educated through group work, self-study, personal and team development, and workshops. Education is focused on the engineering and design of a product, service, or system and the additional business development to take the solution to the market.

To understand the CBL characteristics present in the course, the methods used to educate the students with entrepreneurial and innovative skills, and the steps taken to create a UBEE the case study has been conducted. Coursework during ISP is scheduled on Wednesdays and Fridays. On Wednesdays or Fridays, workshops are provided. Additionally, on Wednesdays, coaching sessions are hosted, and on Fridays, time is scheduled to work on the project, for coaching sessions, and ad-hoc support. In the following paragraphs, a description of the course is discussed. First, the course setup is discussed, followed by an explanation of the working environment. Second, teamwork and the challenges used in the course are discussed. Third, the challenge owners and stakeholder management are discussed. Finally, the chapter presents an overview of interventions derived from the case study, which were used to formulate the design principles in chapter 5.

4.1 Course setup

Education in ISP is provided through a combination of workshops, project work, self-study, and self-development, all focused on innovation and entrepreneurship, in order to stimulate venture creation, which is a characteristic of CBL, being open to flexibility to adopt or combine other learning approaches (Gallagher & Savage, 2020). More specifically, the students gain an entrepreneurial mindset through the course, with the ultimate goal of

creating a start-up. Figure 5, subtracted from the ISP playbook, illustrates the elements of the course in a semester setup (Egresits, 2022).
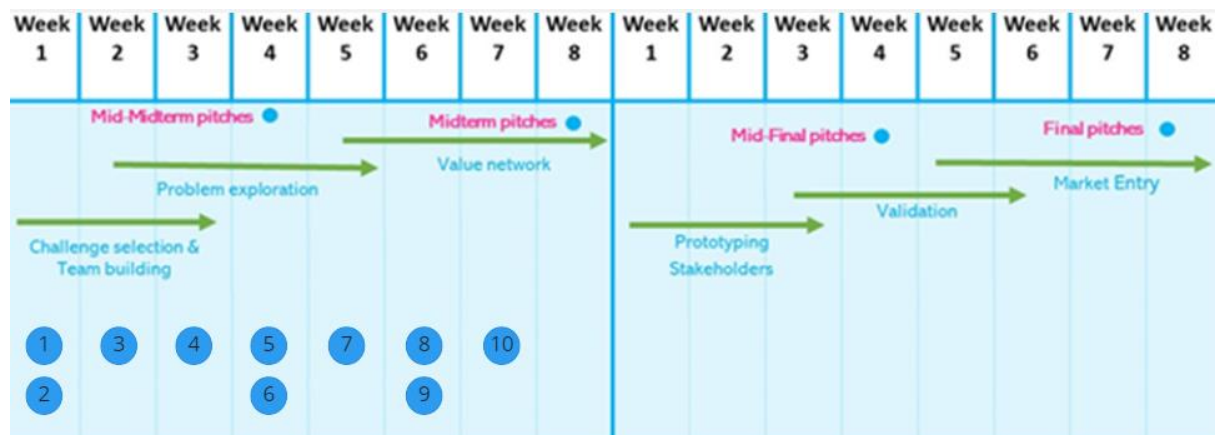
Figure 5. Course schedule (Egresits, 2022)

4.1.1   Project steps

During the course the students go through a number of project steps. Figure 5, show the steps in the blue text underneath the green arrows. The students start their project with the **challenge selection & team building** in which external challenge owners propose real-life challenges for the students to choose from. Additionally, after the challenge selection, the coaches promote the students to create multidisciplinary teams. The second step is **problem exploration**, where students are stimulated to go out and talk to potential stakeholders and look for potential solutions. These two steps correspond to the engagement phase in the CBL framework proposed by the Challenge Institute in Figure 3. This is followed by the **value network**, in which students get a workshop focused on the value network to educate them on how to visualize their stakeholder network and interact with those actors. The literature describes this step as the investigation phase (The challenge institute, 2018). The next step is **prototyping stakeholders**. During this step, the student teams research and test their prototypes with their stakeholders. This step is followed by the **validation** step, in which the prototype is approved or adjusted to the market requirements. In the last step, the students prepare for **market entry**. The last three steps correspond to the acting phase in the CBL framework (The challenge institute, 2018). The course is finished with a final pitch to the coaches, challenge owners, and an external jury. During this pitch, the teams have to sell their product, and they receive their project evaluation.

4.1.2   Workshops

Ten workshops are provided during ISP, either by the coaches or guest lecturers, such as innoApproach, External Student Affairs (ESA), or the TU/e Ethical group (Egresits, 2022). These workshops are represented in blue circles with numbers in Figure 5. The course starts with the **kickoff activities (1)**. During this interactive event, the challenge owners propose their challenges to the students. After that, time is scheduled for the students to ask further questions to the challenge owners, get to know the other students, and understand the different challenges. Subsequently, the ESA provides a **multidisciplinarity workshop (2)** to provide students with an overview of interdisciplinarity within teams and how to deal with it. The third is a **creativity workshop (3)**; this workshop also focuses on interdisciplinary teamwork. Students start working in random teams on problems and gain experience and knowledge on multidisciplinary teamwork. Fourth is the **problem identification workshop (4)**. Previous to this workshop, student teams have been formed. The student teams start

exploring their problem and learn to gain a deeper understanding of the core of the problem by analyzing it through the eyes of different stakeholders. Next, the **prototyping (5) and validation workshops (6)** are provided. During the prototyping workshop, students gain knowledge on prototyping and validation of their project. The prototyping workshop is provided by two technicians from the TU/e IS. Students learn how to prototype their ideas and get insights into the facilities available at the TU/e IS. Additionally, the validation workshop educates students on how to shift their ideas from the classroom to reality by talking to people. First, potential stakeholders need to be defined, after which the solution concept can be validated with potential partners or future customers. This is followed by the **ethics workshop (7)**, in which the students learn about ethical norms and standards through a flipped brainstorm session. During the workshop, the teams do an anti-ethics brainstorm to worsen a problem and make it disastrous. At the end of the workshop, the input is clustered, reframed, and flipped. To educate the students on the importance of their challenges' legal and ethical norms and standards. After that, the **value network proposition workshop (8)** is conducted. Students need to identify which stakeholders they can involve, how to visualize their value network, and their place within the network. Additionally, the teams get educated on how to interact with the stakeholders in their network. In addition to the usual coaching, an **ESA coaching (9)** session is planned. This coaching session reflects on teamwork, team dynamics, and the role of the individual students within their team. Last is a **pitching workshop (10)**; during the course, students must provide progress pitches to their co-students. This is done to help provide the students and their peers with progress updates, ask for help and improve their pitching skills. In addition to practicing the pitches, the workshop is used to elaborate on the structure of a good pitch. After the workshops, students have time to prepare for the pitch rehearsal for the mid-term pitch.

4.1.3   Pitches

During the course, weekly progress pitches from the students to their peers are required. The pitches are one-minute long in which the students provide a progress update and ask for a "call for action". The ISP coaches promote the call for action to have students ask for help from their peers. Peer learning is promoted, and student teams that might have the same problems or work in similar industries can help each other. Additionally, students asking for help from each other leads to cooperation and collaboration between the teams. For example, during one of the progress pitches, two teams found out they were working on similar problems, after which they started cooperating. Additionally, the students practice their pitch skills, which are required for the final pitch. The goal of the progress pitches is based on learning how to pitch, providing progress updates, and asking for help.

Subsequently, the grading of the students is partly done through pitches. Four evaluation pitches are scheduled during the semester: mid-midterm, midterm, mid-final, and final pitch. First, the mid-midterm pitch is presented to the coaches and challenge owners and is used to introduce the problem to be addressed. Second, during the mid-term pitches, the student teams present what they have been working on for the last quartile to the coaches, challenge owners, and an external jury. The validated problem and potential solution should be presented. Third, the mid-final pitch is used to present the business components. Both the coaches and challenge owners are invited. Last, the final pitch is an (investor) pitch in front of the coaches, challenge owners, and an external jury to present the product, service, or system as a prototype or pilot. The attendants provide the pitching team with feedback, and the students receive an evaluation from the jury through a feedback form. The

evaluation form can be found in Appendix 4. Subsequently, the best student team is chosen by the jury and will receive a small present.

4.1.4 Course closure

Additionally to the final pitch, the student teams have to hand in a developed prototype, a final report, and a reflection on the learning objectives. The coaches do the grading of the students through several different criteria:

- Weekly coaching sessions
- Feedback from the challenge owners
- (Final) pitches
- Learning objectives
- Observations done by ESA
- Final report

The last ISP session for the student teams is a reflection and evaluation session. To evaluate and reflect on the learning objectives, the students had to choose their own methods for accessing them. Teams chose to make videos, a rap song, a podcast, and a team did a live performance in front of the classroom. Additionally, the students were asked to provide feedback on the course. This session is used to obtain feedback from the student teams to improve the course, coaching style, workshops, and other aspects of the course. Additionally, students can keep in touch with their challenge owners to proceed with their projects. However, they have to take the initiative as no ISP support is available after the last session. For support, the students either have to go to the TU/e Innovation space or another supporting instance.

4.2 Working environment

The Innovation Space Project is hosted in the TU/e innovation Space. The physical working environment is essential to creating a university-based entrepreneurial ecosystem. In 2015 the TU/e created the innovation Space as an innovation education center and open community where students, researchers, industry actors, societal organizations, and entrepreneurs can explore, innovate, and collaborate in a learning environment (TU/e innovation Space, 2022). The contact moment between the students, coaches, and challenge owners, workshops, project work, and pitches are all hosted within TU/e IS. Additionally, students participating in the ISP can work in the TU/e IS outside the scheduled course hours. Numerous advantages arise while deploying an open-working environment.

First, the student teams have a central working place during the course where all teams work together on their project. Students that work together stimulate cooperation and peer learning. Additionally, numerous student teams are located in the TU/e Innovation space, which makes it easier for students to ask for help or advice. Resulting in an open community where students feel confident to ask their peers for help. Subsequently, students participating in ISP feel connected to the TU/e IS, and therefore students keep coming back to stay within the community. For example, one of the start-ups created after ISP is based within TU/e IS and students from the previous semester hosted last semester's introduction. Additionally, interview findings show that challenge owners experience the environment as pleasant and feel energized when working in TU/e IS with their student team.

In addition to the physical working environment available at the TU/e IS, online communication is supported through multiple channels. Quick communication to share changes in the course setup from the coaches to the students is done through WhatsApp. Official course communication is done through Canvas, the universal TU/e dashboard. Subsequently, when working online or working at the TU/e IS, Miro is being used. Miro is an

online working environment that can be used as a whiteboard (Miro, 2022). For example, during the progress pitches, students can place sticky notes to the presenter's name to indicate improvement points. Last, online communication with external actors, such as the challenge owners, is done through e-mail and Microsoft teams. Gallagher and Savage (2020) describe the need for online communication channels as one of the eight critical characteristics as CBL education.

4.3 Team work

During the scheduled hours, the students are invited to the open-working environment where they work on their projects. At the start of the semester, multidisciplinary teams are promoted during team forming and building, which results in diverse teams with members from different master programs. Additional to the teamwork within the student teams is the cooperation between different teams stimulated through the "call for action" during the progress pitches. Through this, the students ask their peers for help with their projects. Questions or help with network partners, focus groups, or experience on specific topics could be proposed. These calls for action stimulate collaboration between the different students. Subsequently, the collaboration between different stakeholders, in this case, the student teams, is seen as one of the critical characteristics of CBL education (Gallagher & Savage, 2020).

4.4 Challenges

The proposed challenges to the student teams at the beginning of the course are an essential aspect of CBL education. Student teams work throughout the course on their challenge in collaboration with their challenge owners and essential stakeholders. The TU/e has formulated guidelines, and requirements for the challenges IS business cluster. First, the challenge should fit the general CBL requirements. Thus being real, open-ended, applicable to interdisciplinary and multidisciplinary teams, and it needs to be open for an entrepreneurial mindset. Additionally, the projects could result in the creation of a start-up or additional service for the organization that proposed the challenge. So the challenge owners should be open to that possibility as well. Subsequently, the BC set additional requirements, the challenges should fit the university level, and they should contribute to the university's sustainable development goals (SDGs). Concluding, the set requirements as proposed as the general CBL requirements and BC requirements are supported by a few of the key characteristics (1, 6, 7, 8) proposed by Gallagher and Savage (2020).

In addition to the requirements, the challenges should be exciting for the students, as the challenges are published to the students before the course registration closes. Therefore, students see challenges they would like to tackle or companies they would like to work with, resulting in students registering for the course. Challenge owners can use challenges to familiarize students with their organizations or industry. Multiple challenge owners mentioned during the interviews that getting students involved in their industry or gaining brand awareness was essential for their participation.

4.5 Challenge owners

The challenge owners participating in ISP are usually high-tech companies and societal organizations that provide problems for the student teams to work on. Challenge owners have different roles in ISP. Besides proposing a challenge, they function as industry experts, knowledge sources, and network providers. Additionally, they could become the main customer, cooperating partner, or co-creator of a new venture. Subsequently, the challenge owners participating in ISP have numerous reasons for participating in the course. However, the main reason mentioned is being close to the source of innovation, research, and

education and gaining access to the university actors and facilities. ISP is a low-boundary method for organizations or industry representatives to start a collaboration with students and universities and work on their innovative and sustainable goals. Exploring innovation is time-consuming and expensive. While collaborating with a university, costs and time investments can be lowered as participation in ISP is free. Therefore ISP provides challenge owners an accessible way into the university. In addition, students can provide challenge owners access to the university facilities and actors such as professors. To conclude this section, the advantages of participating in ISP, as mentioned by the challenge owners, are as follows:

- Being close to a source of education, research, and innovation
- Educating and attracting students to the industry
- Organization branding / networking
- Accessible way to start exploring
- Stimulating entrepreneurial and innovative mindset of employees
- Gain innovative insights and knowledge
- Getting a solution to the proposed problem
- Getting access to university facilities and actors

During last the 2021-2022 semester, three times as many challenges as there were student teams were proposed. That shows a growing amount of interest from surrounding industries to participate in these courses.

4.6 Stakeholder management

During the case study, the most observed and mentioned problem is unsatisfactory regarding stakeholder management. The difficulty within any multidisciplinary or interdisciplinary environment is the actors' different mindsets, motives, and intentions. Regarding ISP, the challenge owners might start with different expectations in the course. Therefore expectation management is essential. During the introduction with support staff, challenge owners are explicitly informed of the expectations of the different actors participating in ISP. That ensures the challenge owners do not expect cheap labor or a consultancy team. The possible outcomes are communicated to the new challenge owners during the kick-off. Those possible outcomes are: the students can decide to quit the project and leave it as is. Second, the students can choose to create a student team and proceed with the challenge in a similar fashion as they did during the course. Third, the project can be developed into a start-up. The second and third options could be valuable to challenge owners as they could become either the primary customer, co-founder, or shareholder in a newly created student team or start-up. Additionally, during the first weeks of the semester, the student's team work on their problem exploration. After the second week, a meeting with the coaches, student team, and challenge owner is hosted. This meeting allows the students to discuss their problem exploration and findings with the challenge owners and coaches to improve the problem scoping and ensure the expectations are aligned.

In addition to the expectation management of challenge owners, stakeholder management is deemed necessary. Challenge owners are a source of information, knowledge, and network opportunities for the students. However, the challenge owners should know how and when to help their student team. Therefore, student teams should actively update their challenge owners on their progress, needs, and problems. However, during the case study, it became apparent that stakeholder management is the main problem in the collaboration between the student teams and challenge owners. Students lacked the skills and knowledge to keep their stakeholders updated on their progress, resulting in challenge owners that felt the collaboration was only one-sided. The coaches in ISP take a mediating role between the

student teams and challenge owners and should provide support to stimulate and improve the communication between the different actors.

4.7 Conclusions

This section is used to summarize the most important findings from chapter 4. First, the challenges that are used during ISP are obtained from high-tech companies and societal organizations. The challenge owners usually propose problems that they experienced in their organization, community, or industry. Creating a need for a solution, and thus motivating the students to provide a solution. Additionally, besides getting help with their problem, it is attractive for external actors to participate in ISP as it provides a bridge for external actors to the university facilities and actors. Lastly, students get stimulated to participate, when there are attractive companies or organizations involved, or the challenges seem interesting to them.

Second, multidisciplinarity is promoted throughout the course. Starting at the introduction of the course, during the challenge selection and networking session, students are stimulated to work in multidisciplinary teams, cooperate with interdisciplinary actors and create a multidisciplinary student team to work on their project.

Third, the students follow 6 project steps, as shown in Figure 5, in which they start with the challenge selection and team building activities towards the validation of their solution and preparation for market entry. These steps help students go through the CBL course and develop an evidence-based solution, implemented with an authentic audience and evaluated results ready for market entry (The challenge institute, 2018). Additional education is provided through coaching, pitching practice, and workshops. The coaching sessions help students overcome difficulties or struggles during the project work. Subsequently, weekly pitching practice is mandatory for the student teams. As it provides them the opportunity to keep their peer students updated on their progress, ask for help, and practice pitching skills for the final pitch. Lastly, workshops are focused on design, innovation, and business development. In order to stimulate entrepreneurship, and support students to take their idea to the market.

Fourth, the course is hosted within TU/e IS, an open-working environment where students, researchers, supporting staff, and entrepreneurs can work together. The TU/e IS is an important aspect of ISP as it stimulates the involved actors to cooperate and collaborate, and the boundaries to ask for help diminish. Additionally, when the students start the course they can use the TU/e IS facilities and become part of the community. By hosting a shared working environment a shared culture is promoted, making it attractive for the actors to keep involved.

Concluding, the findings from the case study show several important aspects and mechanisms that stimulate participating students to improve their entrepreneurial skills and mindset while working on real-life challenges in a multidisciplinary team with numerous stakeholders on their project. The findings from the case study are used in chapter 5, by synthesizing the findings with the literature to formulate the design principles.

5. Design principles

In this chapter the set of design principles, based on the case study and literature research findings, are proposed. In chapter 4, the case-study findings have been discussed, after which the interventions and outcomes related to CBL were identified. Additionally, the contextual conditions in which these interventions and outcomes occur are identified. Following these steps, the proposed outcomes were used to analyze the literature on UBEE to create connections between CBL and UBEE creation. Lastly, the literature on CBL and UBEE and the case-study findings explain why the interventions will lead to the proposed outcomes. In section 5.1, the design principles will be discussed, substantiated with evidence from theory and practice. Section 5.2 provides a diagram describing the connection between CBL and UBEE.

5.1 CIMO principles

As mentioned before, the created design principles are based and grouped on the characteristics and success factors of CBL and UBEE. The design principles will help create a university-based entrepreneurial ecosystem through challenge-based learning. Additionally, the last proposed design principle summarizes the previous design principles and is used to answer the research question:

> *How can challenge-based learning be leveraged to create a university-based entrepreneurial ecosystem?*

5.1.1 Education & Human capital

The design principles in this section are based on the improvement of human capital for the UBEE. Improved human capital in the UBEE can be realized by educating and training students to teach them entrepreneurial skills and provide them the opportunity to gain experience in interdisciplinary and entrepreneurial settings (Lahikainen, 2020; Brush, 2014; Hsieh & Kelley, 2019).

5.1.1.1 CBL challenge requirements

To ensure students achieve their learning objectives and complete their competencies, educational requirements for the challenges should be met. On the registration page in TU/e Osiris, the following learning goals and objectives for ISP students are proposed:

> *"Students that participate in ISP develop a number of different competencies and achieve their learning goals by actively participating in the course work. Students are expected to contribute to the project work and gain skills in the following objectives. **Approach**, focused on the process, methodologies and tools linked to the content of the project. **Analysis**, focused on exploration, experimentation, and validation. **Synthesis**, focused on decision making and drawing conclusions. **Interdisciplinarity**, focused on synergies, symbioses, and complementary competencies. **Skills** relevant to supporting propositions with evidence validated by peers and stakeholders. And lastly**, personal and team development**, focused on learning process of the individuals and teams. Concluding, students gain skills and competences of future engineers by identifying solutions based on challenge-based learning in interdisciplinary student teams, while working on open-ended projects in close interaction with external organizations and companies."* (TU/e Osiris, 2023).

To ensure participating students in ISP achieve those learning goals and objectives, the CBL challenges should comply with the CBL requirements proposed in the literature and the additional requirements set by TU/e staff. First, the challenges should be authentic, relevant, and real to bring the students closer to the real world and increase motivation and

engagement by having real stakeholders (Nichols et al., 2016; Gallagher & Savage, 2020). In addition to real-world challenges, global themes should be used to stimulate global thinking and develop the mindset of the students further than their direct environment (Gallagher & Savage, 2020). Lastly, Gallagher and Savage (2020) propose that the challenge should address the educational criteria to fulfill the required competencies and complete the learning objectives. Subsequently, in the interview with the TU/e IS BC representative, additional requirements for the challenges are proposed, supporting the evidence from Gallagher and Savage (2020).

> *"It (the CBL challenge) should be open-ended. It should be interesting for an interdisciplinary team of students. They (student teams) should have the freedom to tackle it with an entrepreneurial mindset. And challenge owners should be open to the option that there will be a service developed, supporting the company, so that they (student teams) can start their own start-up."* (Business cluster representative IS, 2022).

> *"Additionally, the challenge should be abstract without strict boundaries, meaning it is a clear open-ended university-level challenge. And it should contribute to our sustainable development goals."* (Business cluster representative IS, 2022).

Concluding, the first design principle in the Education and Human capital chapter is as follows:

DP1.1: When selecting and formulating challenges for a CBL course (C) CBL and university requirements for the challenges should be met to provide education, according to the university standards (I) to ensure students achieve the intended learning objectives (M) to educate the participating students and provide human capital for the UBEE (O).

5.1.1.2 Start-up context

The second design principle in this section is based on real-life challenges and the context in which students work on their projects. In CBL education, students work on problems called challenges and learn by identifying the problem, analyzing it, and designing a solution while being supported by university staff, mentors, and challenge owners (Malmqvist et al., 2015; Colombelli et al., 2021). Usually, these challenges are proposed by external stakeholders such as representatives of organizations or companies, entrepreneurs, student teams, or industry experts. When external stakeholders propose real-world challenges, the students are brought closer to the real world, and motivation and engagement increases as there are real stakeholders involved. Additionally, interdisciplinary knowledge and cooperation are required as the challenge providers become essential stakeholders in the project (Lazendic-Galloway et al., 2021; Pisoni et al., 2020; Nichols & Cator, 2008). Subsequently, having a real-world problem, an unknown solution, and numerous stakeholders, is similar to the context in which start-ups are often created. Students must think innovative, keep their stakeholders on board, and be aware of the industry and customer needs (Martínez & Crusat, 2017). Therefore, entrepreneurship will become a natural consequence of CBL (Martínez & Crusat, 2020). Concluding, when using real-world challenges provided by external actors, students gain entrepreneurial experience, knowledge, skills, and mindset, required to create a start-up. Additionally, they learn to interact and collaborate with different actors and focus on the different requirements of the involved stakeholders. Leading to human capital through the education of the involved actors and critical mass through collaboration with external actors. Therefore, the second design principle is as follows:

DP1.2: When formulating challenges for a CBL course (C) real-world problems experienced by real actors should be used, which simulates the context in which start-ups are often

created (e.g., having a real-world problem, unknown solution, and numerous stakeholders) (I). This brings students closer to the real-world and increases their motivation and engagement (M) stimulating the entrepreneurial skills and mindset of the involved students and support collaborations with external actors (O).

5.1.1.3 CBL framework

The next design principle is based on the CBL framework proposed by The challenge institute (2018) and the project steps taken during ISP. Figure 3 shows the CBL framework and Figure 5 shows the steps taken by the students during the course in the blue text underneath the green arrows. The students start their project with the challenge selection, team building, and problem exploration. These steps are similar to the engage phase of the CBL framework (The challenge institute, 2018). In this phase, the students choose a real-life challenge, form multidisciplinary teams, and start looking for potential stakeholders and solutions. The next phase in the CBL framework is the investigate phase, in ISP the students work on their value network and get educated on how to visualize their stakeholder network and interact with those actors. The last phase is the acting phase, in which students work on their prototyping in collaboration with their stakeholders. Followed by the validation steps to prepare for market entry. Following these steps help the students to propose an evidence-based solution, implemented with an authentic audience, and evaluated results ready for market entry (The challenge institute, 2018).

While following the three phases of the CBL framework, students have to collaborate with the involved actors, gain in-depth knowledge, and solve numerous uncertainties and challenges. Resulting in the development of entrepreneurial skills and knowledge, thus leading to the education of the involved actors. Concluding, phases or steps as proposed in the CBL framework or ISP, help students go through a CBL course and develop an evidence-based solution, implemented with an authentic audience and evaluated results ready for market entry. Therefore, the third design principle is as follows:

DP1.3: When facilitating a CBL course at a university (C) students should follow the steps or phases of a CBL framework to complete a CBL course (e.g., as proposed in the CBL framework by The challenge institute (2018) or used during ISP) (I) to propose an evidence based solution, implemented with an authentic audience and evaluated results ready for market entry (M) stimulating the development of their entrepreneurial skills and leading to human capital for the UBEE (O).

5.1.1.4 Progress pitches

The last design principle in the education and human capital chapter is based on the case-study findings. During ISP, weekly progress pitches are mandatory for the student teams. The progress pitches are 1-minute pitches, presented by a randomly assigned team member without a presentation or visual support. These pitches are used to provide a progress update to the other student teams. Second, students can do a "call-for-action" in which they can ask their peer students for help. Lastly, students are asked to provide feedback to the pitchers in Miro to help them improve their pitching skills.

> *"At the end of the pitch, the presenter ask for a "call for action" in where they ask the other teams for their expertise, network relations, experiences or solutions/ideas for their problems. They use Miro board, and all the teams have their own part/area in the Miro board where the other team members can paste a sticky note with notes or remarks regarding their request during the pitch." (Logbook, 2022).*

> *"Because of the call for action that everyone had to do, the students are required to act as an ambassador and help each other after the pitches, stimulating peer-to-peer learning"* (Logbook, 2022)

Concluding, peer learning is stimulated as the coaches promote the students to ask their peers for help. Additionally, during the reflection and co-creation session at the end of the semester, the students were asked what the coaches should keep in the course. Students mentioned that the progress pitches should stay as they are useful for them to improve their pitching skills and stimulate them to ask their peers for help. The progress pitches help students start collaborations with other teams and stimulate peer learning. Those two mechanisms in turn lead to the education of the involved students, resulting in human capital for the UBEE. The design principle describing the progress pitches is as follows:

DP1.4: When facilitating a CBL course at a university (C) hosting regular progress pitches for the student teams to their peer students (I) provides them the opportunity to share progress updates, ask for help, and develop their pitching skills (M) which in turn stimulates peer learning and collaborations between the student teams (O).

5.1.2 Critical mass

The following design principles focus on critical mass, a success factor of UBEEs. Critical mass can be described as gaining interest from champions, providing solutions for the regional economy and community's needs, and adjusting to the university's sustainable development goals and vision. In other words, to achieve critical mass, cooperations and collaborations with external actors need to be realized (Badzinska, 2021). The following design principles focus on network expansion of the actors in the UBEE and attracting new actors to the ecosystem and thus making steps to achieve critical mass.

5.1.2.1 Collaboration with a university and its actors

At the TU/e, when preparing for a new ISP semester, external actors are selected to propose challenges for the new cohort. Usually the challenge owners, provide challenges obtained from problems in their organization, company, industry, or community. After providing the challenge and being selected by the student teams, the challenge owners start collaborating with their student team. After which they become an important stakeholder, and also function as network, knowledge, and experience provider for the student team. Participating in a CBL course at a university is an accessible way for external actors to start collaborating with a university and its actors on their specific problem. Additionally, when collaborating with the student teams, the external actors are close to university-based research and innovation, making it attractive for them to do so. Two quotes indicating the attractiveness of collaborating with a university and its students are obtained from the interviews.

> *"We are looking for innovation power and perhaps also youth enthusiasm. A lot of people work inside of their own boundaries. However, I miss some fresh, enthusiastic insights from outside."* (Challenge owner 6, 2022)

> *"CBL is a great source to create an accessible way with low capacity requirements to start exploring."* (Business cluster representative IS, 2022)

Participating in ISP is currently free of charge for challenge owners. Making it an accessible method for external actors to get access to the university research and innovation and start collaborating with a student team. Therefore, the following design principle is based on attracting external actors to the UBEE through offering an accessible way to collaborate with a university and its actors.

DP2.1: When selecting and formulating challenges for a CBL course (C) real world challenges offered by external stakeholders (I) create opportunities for them to collaborate with actors within the university and get access to university-based research and innovation (M) in order to attract industry experts, entrepreneurs and organizations in the UBEE (O).

5.1.2.2 Students network provision

The second design principle is based on the network provision of the actors in a UBEE. Advantages of having multidisciplinary actors in a UBEE are the network opportunities and collaborations between the actors. The goal of entrepreneurial ecosystems is to increase the value creation of its actors through collaboration, cooperation, and leveraging others' knowledge, resources, and networks (Feldman et al., 2019; Stam, 2015). Actors can provide network opportunities or mediation between two actors, to stimulate collaborations. During the interviews, one of the challenge owners mentioned that the most important aspect of participating in TU/e ISP was being able to connect with the university actors, such as the professors and researchers.

> *"I want to get institutional support through the students. Implicit knowledge, tacit knowledge, from the professors. There are specific professors, and without being connected to the TU/e, you will not get in touch with them" "Through the students I can get institutional support, because they are insiders (in the university)"* (Challenge owner 8, 2022)

Therefore the following design principle is based on the network opportunities for external actors through the students in the CBL course, in order to attract external actors to a UBEE.

DP2.2: When hosting a CBL course at a university (C) the network of students who participate in a CBL course (I) provide a bridge to the university resources, facilities, and actors (M) and this in turn attracts external actors to the UBEE (O).

5.1.2.3 Challenge owner and challenge selection

The next design principle in the critical mass theme focuses on attracting students to the UBEE. Entrepreneurship is only a small fraction of the educational directions provided by most universities. Therefore, it might be challenging to get students interested and involved in entrepreneurial courses to educate them with entrepreneurial skills and develop their mindset. Challenges that are interesting to students or provided by organizations or companies that students would like to work with, can attract students to CBL courses. Two quotes from the interviews in the case-study provide insights into this phenomena.

> *"You want to collect the challenges in time, as the challenges should be on the website because students also choose the course depending on the available challenges"* (Business cluster representative IS, 2022).

> *"All the others they never heard of, but there are multiple interesting companies. So what I see is that when we did the challenges for Company X, then people choose it because they like to work with Company X"* (Challenge owner 2, 2022)

Therefore, when selecting challenges or challenge owners, they should be attractive to the students. To do so, in TU/e ISP, high-tech companies and societal organizations are selected as challenge owners (Eindhoven University of Technology, 2023). The following design principle focusses on the attraction of students to the UBEE through the challenges and challenge owners.

DP2.3: In a CBL course (C) entrepreneurial opportunities offered by high tech companies and societal organizations (I) stimulates the collaboration between students and external actors (M) making it attractive for students to participate in the course (O).

5.1.2.4 Network expansion during course work

The last design principle of the critical mass chapter is based on the investigation phase of the CBL framework (The challenge institute, 2018). In the investigation phase, the problem exploration is expanded, and teams start looking for information, valuable stakeholders, or professionals. During the workshops, coaching sessions, and project work, students are motivated to go out of the classroom and talk to potential stakeholders. The coaches motivate students to go out and talk to external actors in order to stimulate multidisciplinary collaborations. During the introduction session of the new semester, a quote from a student from the previous semester, on how to get out of your comfort zone is as follows:

> *"By leaving your laptop, and going out of the classroom to go talk to people in the real-world"* (Logbook, 2022).

The students need to go out, talk to new people, and establish collaborations to create an evaluated and evidence based solution (The challenge institute, 2018). Additionally, the network expansion of the students will lead to new interdisciplinary collaborations, which in turn promotes the critical mass as more people outside of the university get involved in the UBEE. Therefore, the last design principle in the critical mass chapter is as follows:

DP2.4: In the investigation phase of the CBL framework (C) students should be stimulated to go out and talk to potential stakeholders for their project (I) to promote network expansion and collaborations between the students and external actors (M) in order to achieve critical mass (O).

5.1.3 Technology transfer

The next design principle revolves around technology transfer. Technology transfer is one of the UBEE mechanisms discussed in literature (Theodoraki, 2017; Lahikainen, 2020). It can be described as the transfer of new technologies from an originator to a secondary user. Universities can act as intermediaries to transfer the university research findings and knowledge, to the market and industry needs (Theodoraki, 2017; Lahikainen, 2020). In the CBL context, when the used challenges are obtained from the market, industry, or consumer needs, a solution can be proposed to the challenge owner, in this context the secondary user. The students can leverage their knowledge and the university facilities to propose a solution to the challenge and become the originator. Therefore, using real-world challenges in CBL courses, obtained from the market, industry, or consumer needs. Provides students the opportunity to leverage their knowledge and the university facilities to propose a solution to the problem. And thus, stimulate the technology transfer in the UBEE. The design principle describing the technology transfer is as follows:

DP3.1: When selecting and formulating challenges for a CBL course (C) real-world challenges obtained from market, industry, or consumer needs (I) provide opportunities for students to leverage their knowledge and university facilities (M) to propose a solution to the problem and stimulate the technology transfer in the UBEE (O).

5.1.4 Multidisciplinarity

An important aspect of CBL is multidisciplinarity, Gallagher and Savage (2020) propose multidisciplinarity as one of the main characteristics of CBL. During the engagement phase of the CBL framework, students start exploring the problem and form multidisciplinary teams (The challenge institute, 2018). The importance of multidisciplinarity in teamwork can be

seen in TU/e ISP as well. All TU/e master students can register for ISP, and thus students from different studies are attracted to the course, resulting in a diverse and multidisciplinary classroom. ISP starts with a challenge selection and team-building session. During this interactive event, the challenge owners propose their challenges, and the students start networking with the other students and challenge owners. During the first session, the coaches promote multidisciplinarity by hosting short meetings for the students in random groups with the challenge owners. Additionally, ESA provides a multidisciplinarity workshop to provide students with an overview of interdisciplinarity and multidisciplinarity within teams and how to deal with it. A second workshop in the team forming phase is a creativity workshop, students start working in random teams on problems and gain experience and knowledge on multidisciplinary teamwork. After these two workshops, the students have to form student teams. Students can pitch themselves and let others know what their strengths and weaknesses are, in order to help the team-formers to choose a diverse and multidisciplinary team. Multidisciplinarity in student teams helps the students expand their network, inside and outside the university. The network expansion of the students results in getting more actors involved in the UBEE and thus leads to critical mass. Therefore the following design principle is based on the multidisciplinarity in the student teams to stimulate the critical mass of the UBEE.

D.P. 4.1: In the engagement phase of a CBL framework (C) students should be stimulated and supported through workshops and coaching to form multidisciplinary teams (I) to educate them on multidisciplinarity and ensure the team members have different knowledge, experience, and networks (M) to stimulate the network expansion through multidisciplinary teams in order to achieve critical mass in the UBEE (O).

5.1.5 Infrastructure

The following design principle is based on the infrastructure of a UBEE. The infrastructure of a UBEE should be equipped to stimulate, advance, and manage entrepreneurial initiatives, develop the curriculum and education, and promote outreach to venture incubation, networking or financing events, and entrepreneurial competitions (Rice et al., 2014; Fetters et al., 2010; Foster et al., 2013; Feldman et al., 2019; Brush, 2014). To stimulate the infrastructure of an ecosystem, it should have a central open-working space for all involved actors (Fetters et al., 2010). While working in an open-environment, shared with students, entrepreneurs, industry experts, student teams, and start-ups, co-learning is promoted and information can be shared more easily as the boundaries to contact other actors diminish. Subsequently, online communication channels can be used to communicate with actors that are unavailable in the direct environment and require short assistance or advice. Hsieh and Kelley (2019) propose that education and an open learning environment enable actors to enter the UBEE and perceive the importance of entrepreneurship. The case-study findings show supporting evidence as the classes, workshops, and teamwork of ISP are conducted within the TU/e IS. Attracting the involved actors to work together on the project and create a sense of community building. Additionally, students from previous cohorts still attend the scheduled class hours of ISP. To help the new cohort or simply be part of the community. Lastly, one of the challenge owners mentioned the TU/e IS as an energized and motivating environment to work in.

> *"I get a lot of energy from the environment. I get the energy to, well, be in Eindhoven myself. To be there live sometimes. And the energy from the culture that is there. And the enthusiasm to tackle problems."* (Challenge owner 6, 2022)

Concluding, when creating an open-working environment available for all involved actors in a UBEE, the boundaries between education, research, and innovation can be diminished, and

a shared culture and community can be built. Therefore the following design principle is based on the infrastructure within a UBEE stimulated through a shared working environment and online communication possibilities.

DP5.1: When running a CBL course (C) online communication channels and physical spaces should be used (I) to create a shared learning environment for the involved actors to communicate, cooperate, collaborate, share information, and co-learn (M) contributing to an effective infrastructure for the ecosystem (O).

5.1.6 Design principles summary

In the previous section of this chapter the design principles have been proposed supported by evidence from the case study and literature research. In order to answer the research question of this master thesis, a concluding design principle has been constructed. By combining the sections of the previously discussed design principles, the following design principle has been created:

To stimulate the creation of an UBEE (C) universities can facilitate CBL courses, based on real-world challenges provided by external actors (I) to provide entrepreneurial education, attract actors to the ecosystem, and promote multidisciplinary team-work between the involved actors in an open-working environment (M) in order to improve human capital, achieve critical mass, and stimulate the infrastructure and technology transfer of the UBEE (O).

In the following section an overview diagram of the design principles is illustrated to provide an overview of the connections between CBL and UBEE creation. Additionally, in Appendix 5, the components of the design principles and the evidence from practice and theory are summarized.

5.2 Conclusion design principles

In the previous section the design principles have been discussed. This section is used to provide an overview diagram of the design principles. The goal of the design principles is to help entrepreneurs, faculty, and university actors to help create an entrepreneurial ecosystem through challenge-based learning. When looking at the UBEE success factors, not all factors have been involved in the design principles. Therefore, CBL can be used as a tool to stimulate UBEE creation, but it should not be the only method to do so. The diagram in Figure 6 shows the mutual links between the design principles. On the left side of the diagram, D.P. 1.1, etc. can be found, which refers to Design Principle 1.1. Additionally, the themes on the left side of the diagram are related to CBL. Lastly, the themes on the right in the diagram are either UBEE success factors or mechanisms, and thus help to create a UBEE.
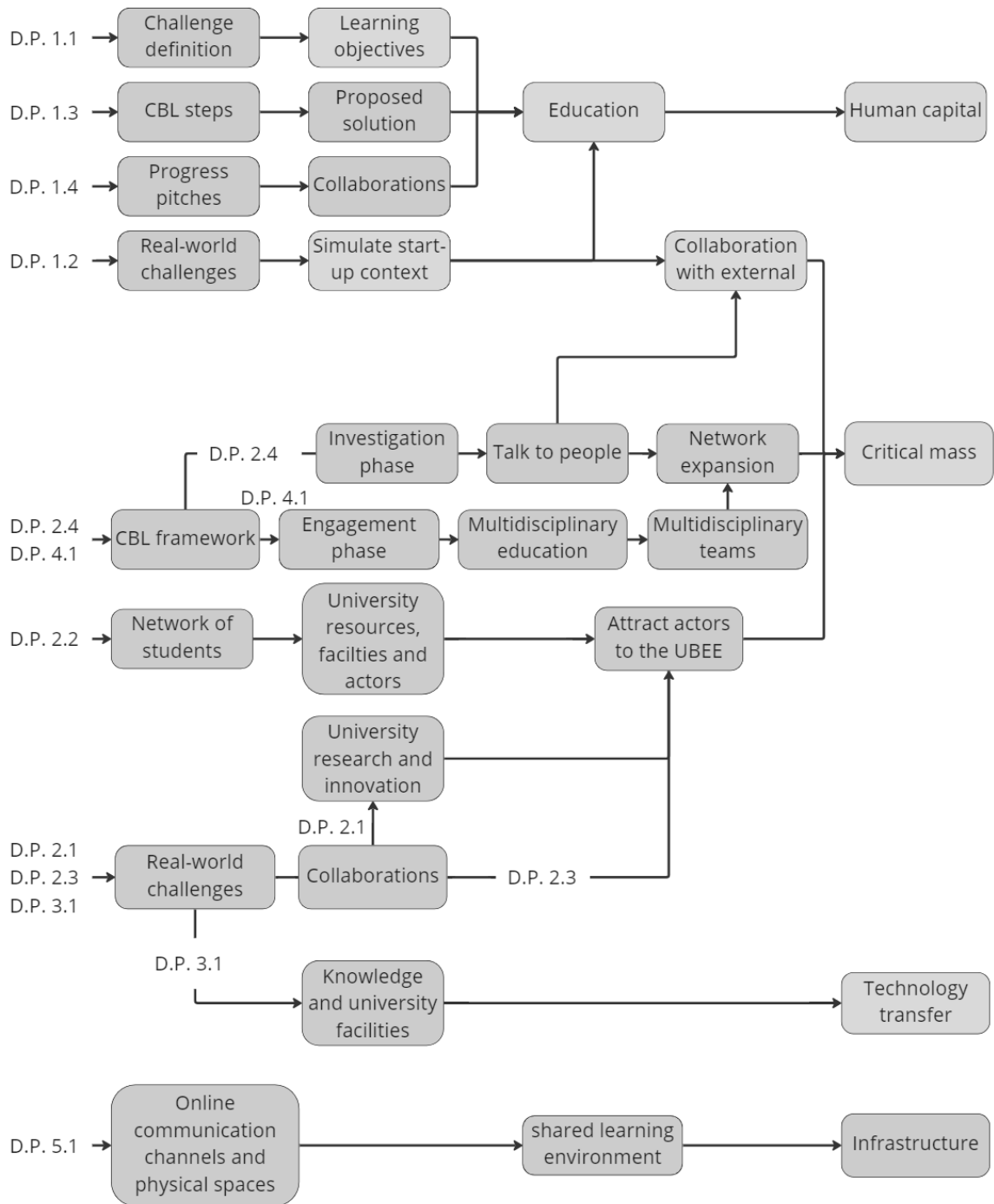
Figure 6. Design principles

6. Discussion and conclusion

The results of this master thesis propose that CBL can be used to help with the creation of a UBEE. Subsequently, a perspective on how to use the CBL characteristics, to stimulate the success factors and mechanisms of UBEE is provided. CBL can be used to educate students to provide and improve human capital, attract actors to the ecosystem to achieve critical mass, and stimulate the infrastructure and technology transfer. Literature on university-based entrepreneurial ecosystems is gaining interest (Rice et al., 2014; Graham, 2014; Hsieh & Kelley, 2019; Badzinska, 2021). And scholars have proposed success factors and mechanisms required for the successful creation of sustainable UBEEs (Meyer et al., 2020; Theodoraki et al., 2017; Lahikainen, 2020; Fetters et al., 2010; Greene et al., 2014). One of the important mechanisms of a UBEE is education (Lahikainen, 2020). A constant flow of new or improved human capital is realized by educating and providing the involved actors the opportunity to gain experience in entrepreneurship in interdisciplinary settings (Lahikainen, 2020; Brush, 2014; Hsieh & Kelley, 2019). However, the extant literature on UBEEs does not describe specific educational methods or frameworks. This master thesis is used to find out if and how CBL can be used to stimulate the creation of a UBEE through conducting the design science method combined with a case study.

The creation of UBEEs depend on the constant commitment of the involved actors while also focusing on the success factors. This research has been conducted to find correlations between the characteristics of CBL and the mechanisms and success factors required for the creation of a UBEE. A set of design principles to stimulate the creation of a UBEE through CBL is provided. These design principles are themed according to the UBEE success factors and mechanisms. First, the education and human capital theme is discussed. Extant literature on UBEE creation does not propose specific entrepreneurial education methods. However, the importance of education in UBEE is recognized by Lahikainen (2020), Brush (2014), and Hsieh and Kelley (2019). The first design principles respond to Lahikainen's (2020) research, on the need to investigate how students are engaged in UBEEs through teaching and research. Design principle 1.1 is proposed to ensure the students achieve their learning objectives and competencies. Requirements discussed in CBL literature should be used (Nichols et al., 2016; Gallagher & Savage, 2020), substantiated by the requirements of the hosting university. Students can develop their entrepreneurial mindset and global thinking could be stimulated by using real-world challenges (Gallagher & Savage, 2020). Subsequently, Hsieh and Kelley (2019) suggest that universities should place greater emphasis on the role played by the market in entrepreneurial education in UBEEs. Design principle 1.2 responds to this suggestion and proposes that real-world problems experienced by real actors should be used to simulate the context in which start-ups are often created. Bringing students closer to the real-world and increasing their motivation and engagement. Additionally to this design principle, D.P. 1.3 suggest the use of a framework to support students going through a CBL course. To help students propose an evidence-based solution, implemented with an authentic audience, and evaluated results ready for market entry (The challenge institute, 2018). The last design principle in the education and human capital chapter is based on peer learning and collaborations within student teams by requiring the students to do regular progress pitches for their peer students. This last design principle is based on the case-study findings, as the pitches took a prominent role in the TU/e ISP course. Therefore, future research could focus on finding additional evidence. The first design principles provide university actors with support and evidence on how to educate students in a UBEE.

Second, design principles based on achieving critical mass for the UBEE are proposed. Attracting external actors and getting surrounding communities, industries, and universities

involved in the ecosystem is referred to as achieving critical mass (Badzinska, 2021). The design principles in the critical mass chapter, 5.1.2, are based on attracting actors to the ecosystem through CBL courses. The goal of entrepreneurial ecosystems is to increase the value creation of its actors through collaboration, cooperation, and leveraging others' knowledge, resources, and networks (Feldman et al., 2019; Stam, 2015). Design principles 2.1 and 2.2 continue on the findings by Feldman et al. (2019) and Stam (2015) and propose that external actors can be attracted to the ecosystem, by making it accessible for them to gain access to the university research, innovation, actors, and facilities by starting collaborations with the student teams and hosting university. Additionally, D.P. 2.3 is based on the case-study findings, in ISP students are attracted to the course, and thus become part of the ecosystem by leveraging the advantages of the challenge owners. Challenges provided by high-tech companies or societal organizations are used to stimulate the interest of students and get them motivated to participate. However, supporting literature is missing to substantiate this design principle. Subsequently, the last design principle is based on the network expansion of the students in a CBL course. Literature on CBL proposes that students need to get out of the classroom to gather evidence and establish new collaborations (The challenge institute, 2018). The last design principle of the critical mass theme supports this statement. As it proposes that students can involve new actors in the ecosystems by starting cooperations and collaborations with them for their CBL project. Based on the criteria for achieving critical mass, the design principles in chapter 5.1.2 continue on research conducted by Fetters et al. (2010) and Badzinska (2021) and propose design principles to achieve critical mass by deploying a CBL course.

Third, technology transfer, proposed as a UBEE mechanism by Lahikainen (2017; 2020) is used as the theme for the next design principle. Technology transfer is the transfer of new technologies from an originator to a secondary user (Lahikainen, 2017; Lahikainen, 2020). D.P. 3.1 proposes that using challenges obtained from real-world problems subtracted from market, industry, or consumer needs provides a need for a solution. When students provide a solution for this need, they become the originator and stimulate the technology transfer by working on their project during the CBL course. Future research needs to be conducted to support this design principle, as the design principle currently only holds when new technologies or research findings are proposed as a project solution.

Fourth, during the case-study multidisciplinarity was shown to be a crucial aspect of ISP. Multidisciplinarity cannot directly be linked to any of the UBEE success factors or mechanisms. However, when zooming in on critical mass, which is described as getting surrounding communities, industries, and universities involved in the ecosystem (Badzinska, 2021). Stimulating multidisciplinarity in a CBL course helps students to start collaborations with new actors, internal and external to the university, and thus get new actors involved in the ecosystem. Therefore design principle 4.1 is based on multidisciplinarity in student teams and the collaborations between the teams and external actors in order to achieve critical mass. However, further research is required to support this with additional evidence.

Lastly, the infrastructure of a UBEE should be equipped to stimulate, advance, and manage entrepreneurial initiatives, develop the curriculum and education, and promote outreach to venture incubation, networking or financing events, and entrepreneurial competitions (Rice et al., 2014; Fetters et al., 2010; Foster et al., 2013; Feldman et al., 2019; Brush, 2014). Fetters et al. (2010) suggest that the infrastructure can be stimulated by having a central open-working environment for the involved actors. Subsequently, Hsieh and Kelley (2019) propose that education and an open learning environment enable actors to enter the UBEE and perceive the importance of entrepreneurship. To support this, design principle 5.1 suggest that a CBL course should be hosted in an open-working environment to stimulate

communication, collaboration, and co-learning between the involved actors in order to improve the infrastructure of the ecosystem.

6.1 Limitations

A contribution to the existing literature on UBEEs is provided by proposing a set of design principles grouped into themes related to the mechanisms (education and technology transfer) and success factors (human capital, critical mass, and infrastructure) of UBEEs. Supporting staff of TU/e IS and ISP can use the proposed design principles to stimulate the UBEE creation through ISP. However, the validity of the proposed design principles is limited due to several reasons. First, using semi-structured interviews to get insights into the expectations, experiences, and future plans of challenges owners is useful. However, there will always be interviewees that are not satisfied, while their statements might be valid, more evidence is needed to create concrete design principles. Therefore, additional interviews should be conducted to enlarge the data set. Second, the diversity of empirical evidence is limited, as the research used a singular university and single CBL course. The TU/e ISP supporting staff can implement the design principles in the course. However, the findings might be invalid or require changes to be implementable in other universities or ecosystems.

Multiple case studies should be conducted on different ecosystems, universities, and CBL courses to substantiate the design principles and propose a general conclusion. Second, a design science methodology provides design principles, however, they will not always work. Environments, industries, or stakeholders might differ, resulting in unpredicted outcomes of the design principles. Third, the design principles are currently valid. However, as Rice et al. (2014) suggested, entrepreneurial ecosystems should be innovative and react actively to changes in their context and environment. The same holds for the proposed design principles, the contexts might change, or new findings might result in improvements in the design principle. Therefore, the suggested design principles should be used with caution and not implemented blindly. Lastly, the validity test that will ensure the outcome of the design principles is adopting them in the CBL course used for the case study of this master thesis.

6.2 Future research

During the case study, a few additional findings were made. However, due to the lack of evidence and literature support, these findings are proposed as future research opportunities. First, external actors can currently participate free of charge in ISP as challenge owners. However, when there is a paid membership or entrance fee for external actors, funding can go to a supportive university employee to improve the support for the challenge owners. Additionally, it will provide funding for entrepreneurial initiatives in the ecosystem. Subsequently, future research is needed to decide how to obtain and distribute the additional funding or entrance fees from the challenge owners. Second, there is a gap between the support student teams get during ISP, and the support available after ISP in the TU/e IS. Within the TU/e IS, sufficient support for student-teams and venture incubation services are available. However, there are still steps to be taken between ISP and becoming a student team, or start-up in TU/e IS. First, a follow-up event supported by the coaches could narrow down the current gap between ISP and TU/e IS. Second, support could be offered to the student teams and their challenges owners, and the possibilities for further collaborations could be explained and discussed. However, as the support, venture incubation, and further steps for students after a CBL course are out of the scope of this thesis, there is no supporting evidence collected to substantiate these propositions.

References

Apple Inc. (2010). *Challenge Based Learning.*

Astley, W. (1985). The two ecologies: population and community perspectives on organizational evolution. *Administrative science quarterly 30*, 224-241.

Astley, W., & van de Ven, A. (1983). Central perspectives and debates in organization theory. *Administrative science quarterly 28*, 245-273.

Badzinska, E. (2021). Providing a nurturing environment for start-up incubation: an explorative study of a university-based entrepreneuerial ecosystem. *European research studies journal*, 15-29.

Brush, C. (2014). Exploring the concept of an entrepreneurship education ecosystem. *Innovative pathways for university entrepreneurship in the 21st century advances in the study of entrepreneurship, innovation and economic growth*, 25-39.

Colombelli, A., Loccisano, S., Panelli, A., Pennisi, O., & Serraino, F. (2021). Challenge-based learning as a practice for engineering education to develop students' entrepreneurial mindset. *SEFI 2021, 49th Annual conference*, 761-776.

Corbett, A. (2005). Experiential learning within the process of opportunity identification and exploitation. *Entrepreneurship theory and practice, 29*, 473-491.

Denyer, D., Tranfield, D., & van Aken, J. E. (2008). Developing Design Propositions Through Research Synthesis. *Organization Studies, 29*, 393-413.

Detoine, M., Sales, A., Chanin, R., Villwock, L. H., & Santos, A. R. (2019). Using challenge based learning to create an engaging classroom enviornment to teach software startups. *Brazilian symposium on software engineering*, 547-552.

Dimov, D., & Romme, G. A. (2021). *Mixing Oil with Water: Framing and Theorizing in Management Research Informed by Design Science.* MDPI.

Dresch, A., Lacerda, D. P., & Antunes, J. A. (2014). *Design science research a method for science and technology.* Springer international publishing.

Egresits, F. (2022). Course schedule ISP. *ISP playbook, highlights*. Eindhoven: Eindhoven University of Technology.

Egresits, F. (2022). *ISP Playbook, Manual to build up the innovation Space project course 1ZM150.* Eindhoven: University of Technology Eindhoven.

Eindhoven University of Technology. (2023, January 11). *OSIRIS Student Mobile*. Retrieved from OSIRIS Student Mobile: https://tue.osiris-student.nl/#/inschrijven/cursus/:id

Eindhoven university of technology. (2023). *Sustainable Development Goals (SDG)*. Retrieved from Eindhoven University of Technology: https://www.tue.nl/en/our-university/about-the-university/sustainability/sustainable-development-goals-sdg/

Feldman, M., S. Siegel, D., & Wright, M. (2019). *New developments in innovation and entrepreneurial ecosystems.* Industrial and Corporate Change.

Fetters, M., Greene, P. G., & Rice, M. P. (2010). *The development of university-based entrepreneurship ecosystems: global practices.*

Foster, G., Shimizu, C., Ciesinski, S., Davila, A., Hassan, S. Z., Jia, N., & Plunkett, S. (2013). *Entrepreneurial ecosystems around the globe and company growth dynamics.* World economic forum.

Freeman, J., & Audia, P. (2006). Community ecology and the sociology of organizations. *Annual review of sociology 32*, 145-169.

Gallagher, S. E., & Savage, T. (2020). Challenge-based learning in higher education: an exploratory literature review. *Teaching in higher education*.

Gibb , Y., & Nelson, E. (1996). Personal competences, training and assessment: A challenge for small business trainers. *Proceedings of the european small business seminar*, 97-107.

Graham, R. (2014). *Creating university-based entrepreneurial ecosystems evidence from emerging world leaders.* MIT Skoltech Initiative.

Gutiérrez-Martínez , Y., Bustamante-Bello, R., Navarro-Tuch, S., López-Aguilar, A., Molina, A., & Álvarez-Icaza Longoria, I. (2021). *A challenge-based learning experience in industrial engineering in the framework of education 4.0.* MDPI.

Hawley, A. (1950). *Human ecology; a theory of community structure.*

Hayter, C. (2016). A trajectory of early-stage spinoff success: the role of knowledge intermediaries within an entrepreneurial university ecosystem. *Small business economics*, 633-656.

Hsieh, R.-M., & Kelley, D. (2019). A study of key indicators of development for university-based entrepreneurship ecosystems in Taiwan. *Entrepreneurship research journal* , 1-17.

Isenberg, D. J. (2010). *How to start an entrepreneurial revolution.* New York: Harvard Business Review.

Lahikainen, K. (2020). Understanding the emergence of the university-based entrepreneurial ecosystem: comparing the university and company actors perspectives. In E. Laveren, R. Blackburg, C. Ben-Hafïedh, C. Díaz-García, & Á. González Moreno, *Sustainable entrepreneurship and entrepreneurial ecosystems* (pp. 92-111). Elgar publishing.

Lazendic-Galloway, J., Reymen, I. M., Bruns, M., Helker, K., & Vermunt, J. (2021). Students' experiences with challenge-based learning at TU/e innovation Space - overview of five key characteristics across a broad range of courses. *SEFI 2021, 49th annual conferance, Berlin*, 1005-1015.

Leijon, M., Gudmundsson, P., Staaf, P., & Christersson, C. (2021). Challenge based learning in higher education - A systematic literature review. *Innovations in education and teaching international*.

Malmqvist, J., Radberg, K. K., & Lundqvist, u. (2015). *Comparative analysis of challenge-based learning experiences.*

Mandel, R., & Noyes, E. (2016). Survey of experiential entrepreneurship education offerings among top undergraduate entrepreneurship programs. *Education + Training*, 164-178.

Martínez, M., & Crusat, X. (2017). Work in progress: the innovation journey, A challenge-based learning methodology that introduces innovation and entrepreneurship in engineering through competition and real-life challenges. *IEEE Global Engineering Education Conference (EDUCON)*, 39-43.

Martínez, m., & Crusat, X. (2020). How challenge based learning enables entrepreneurship. *IEEE Global engineering education conference (EDUCON)*, 210-213.

Martínez, R. J. (2019). Design and implementation of a semester I for mechatronics. *International journal on interactive design and manufacturing* , 1441-1455.

McGrath, R., & MacMillan, I. (2000). *The entrepreneurial mindset: Strategies for continuously creating opportunity in an age of uncertainty. Vol 284.* Harvard Business Press.

Meyer, M., Lee, C., Kelley, D., & Collier, G. (2020). An assessment and planning methodology for university-based: entrepreneurship ecosystems. *The journal of entrepreneurship*, 259-292.

Miro. (2022, April). *About Miro | Meet the team | Our mission*. Retrieved from Miro | Online whiteboard for visual collaboration: https://miro.com/about/

Newcomer, K. E., Hatry, H. P., & Wholey, J. S. (2015). *Handbook of practical program evaluation.* John Wiley & Sons, Inc.

Nichols, M., & Cator, K. (2008). *Challenge based learning white paper.* Cupertine, California: Apple, Inc.

Nichols, M., Torres, M., & Cator, K. (2016). *Challenge based learning Guide.* Redwood City: Digital promise.

Pisoni, G., Segovia, J., Stoycheva, M., & Marchese, M. (2020). Distributed student team work in challenge-based innovation and entrepreneurship (I&E) course. *International symposium on emerging technologies for education. Emerging technologies for education*, 155-163.

Rice, M. P., Fetters, M. L., & Greene, P. G. (2014). University-based entrepreneurship ecosystems: A global study of six educational institutions. *International Journal of Entrepreneurship and Innovation Management*, 481-501.

Romme, A., & Endenburg, G. (2006). Construction principles and design rules in the case of circular design. *Organzation science*, 287-297.

Simon, H. A. (1996). *The sciences of the artificial.* MIT Press.

SONIX. (2022). *Sonix Home*. Retrieved from Automatically convert audio and video to text: Fast, accurate, & affordable.: https://my.sonix.ai/

Stam, E. (2015). *Entrepreneurial Ecosystems and Regional Policy: A Sympathetic Critique.* Utrecht: Routledge.

Suresh, J., & Ramraj, R. (2012). Entrepreneurial ecosystem: case study on the influence of environmental factors on entrepreneurial success. *European journal of business and management*, 95-101.

Tansley, A. (1935). The use and abuse of vegetational concepts and terms. *Ecological society of America*, 284-307.

The challenge institute. (2018). *Framework | Challenge Based Learning - CBL framework.* Retrieved from Challenge Based Learning Welcome - take action. Make a Difference: https://www.challengebasedlearning.org/framework/

Theodoraki, C., Rice, M., & Messeghem, K. (2017). A social capital approach to the development of sustainable entrepreneurial ecosystems: a explorative study. *Springer Science + Business media*.

TU/e Innovation Space. (2022). Retrieved from TU/e Eindhoven University of Technology: https://www.tue.nl/en/education/tue-innovation-space/

van Aken, J. (2005). Management research as a design science: articulating the research products of mode 2 knowledge production in management. *Britsh journal of management*, 19-36.

van Burg, E., de Jager, S., Reymen, I. M., & Cloodt, M. (2012). Design pricniples for corporate venture transition processes in established technology firms. *R&D Management*, 455-472.

van Burg, E., Romme, A. L., Gilsing, V. A., & Reymen, I. M. (2007). Creating university spinoffs: a science-based design perspective. *JPIM special issue "Technology commercialization and Entrepreneurship"*.

van de Ven, A., & Stam, E. (2021). Entrepreneurial ecosystem elements. *Small Business Economics 56*, 809-832.

Xie, Y., & Zhang, W. (2019). *Construction and measurement of university-based entrepreneurial ecosystem evaluation index system: A case study of Zhejiang university in China.* American society for engineering education.

Yang, Z., Zhou, Y., Chung, J., Tang, Q., Jiang, L., & Wong, T. (2018). Challenge based learning nurtures creative thinking: an evaluative study. *Nurse education today*, 40-47.

Yin, R. K. (2018). *Case study research and applications, Design and Methods.* Los Angeles: SAGE Publications, Inc.

Appendix

1. Interview guides

Illustrated in the figures below are the questions used for the semi-structured interviews. The light colors are used as a follow-up question.

How did you found out about the innovation space project?

Why did you choose to participate in the innovation Space project?

Do you have experience with similar collaborations of courses?

What value did you expect to receive?

And what value did you recieve?

Are you going to use the provided solution? How?

What are you future plans with the project and ISP?

Course expert, challenge owner, collaboration with student team, network and knowledge provider.

Tips, remarks or improvement points?

Figure 7. Semi-structured interviews guide (used during the course)

How did you found out about the innovation space project?

Why did you choose to participate in the innovation Space project?

Do you have experience with similar collaborations of courses?

What value do you expect to receive?

Tips? Expecations, suggestions?

Figure 8. Semi-structured interviews guide (used at the start of the course)

2. Coding scheme

Theme	Category	Codes
Challenge definition	Requirements	Open ended Interdisciplinary Open for entrepreneurship Abstract University-level SDGs Challenge owners that want to connect, cooperate, explore and innovate in a learning environment
	Start of the course	Students lose important time when they start fresh with their project. Would be nice if we can create structural collaborations where people easily meet with each other and can quickly learn or get advice from others. "We had a large co-creation session with three groups and it became apparent that we should really have done that right at the start" "Make sure that all the knowledge that is already existing around the university is pulled right at the beginning"
Collaboration	Stakeholder management	"Students should manage the organization they are working for" "Students should keep their client on board" "I would have preferred more contact moments or more frequent updates through email" More involvement from the students. Stakeholder management had to be improved. Students need support regarding stakeholder management. "Would be nice if the students just sent out a few progress update emails" Being transparent and managing the expectations.

	Communication	The roles within the team should be divided right from the start, so there is one person who is in charge of the communication, the other one of overall progress. Interaction between company and student team. Interdisciplinarity. I would have liked it if students kept me in the loop. "It is not only about the solution, it's also about managing the relationship, that might even be more important than the solution in the end" "I can see the difference in quality of the project between people that never sent me progress updates and the ones that do" "Students should really reach out to the challenge owners to pick their brains more" "We are facilitating but the students needed to ask for their needs"
Venture incubation	Transition from ISP to IS	Abrupt ending ISP. Follow-up event. Support for students and challenge owners.
Infrastructure	Support	Coaching. Validation. Relationship provision. Co-learning. Education.
	Working environment (TU/e IS)	Positive energy. It helps if you have face to face meetings. It is more difficult to help students with the network when everything is online. Great culture and environment
Education	ISP focus	Business model development Entrepreneurship
	Challenge owners	

		"Focus on the knowledge we have and possibility to explore for the students, this should be managed and spoken out very carefully" We can provide students with our network, and help them in the right direction with our contacts.
Human capital	Course outcomes for the challenge owners	New knowledge Innovative insights Follow-up with students from our team.
	Knowledge	Get new insights. Fresh knowledge. Improving our insights and knowledge on our data. Finding potential partners Youth enthusiasm Working on SDGs. Fresh insights.
	Innovation	Gain innovative and knowledge capital. Work on innovative goals.
Critical mass	Promotion of industry	Keep students interested to connect to the industry. Get students involved in our industry. Inspiring students in our industry. Educate students for our industry to create talent for the jobs available in our industry. Inspiring new people.
	Company	Using it as a communication method, to introduce our company and industry to students. Promote the organization. Improve marketing. Attracting possible new employees. Improving publicity.
	Networking	Networking. Connecting with Elke and Isabel, be part of the course. Institutional support from the TU/e. Interaction with students and the university.

	Organizational changes	I needed entrance to the university. Stimulate innovative thinking in our company. Stir up the organization. Cultural intervention. "Companies are often trapped in their own R&D maps" Get organizational employees out of the box. I want to be surprised by the outcomes and thinking direction
	Providing support	Helping students to get to the knowledge level of the industry. Motivating students Offering a playground to universities. Helping start-ups Stimulating new ideas, new companies, and new applications.
	Collaboration	Getting access to the university facilities and actors. Collaborate with a university, a source of research, education, and innovation.
	Supply and demand	More challenge owners than student teams

Table 1. Coding scheme case-study TU/e ISP

3. CIMO logic elements

Component	Explanation
Context (C)	The surrounding (external and internal environment) factors and the nature of the human actors that influence behavioral change. They include features such as age, experience, competency, organizational politics and power, the nature of the technical system, organizational stability, uncertainty and system interdependencies. Interventions are always embedded in a social system and, as noted by Pawson and Tilley (1997), will be affected by at least four contextual layers: the individual, the interpersonal relationships, institutional setting and the wider infrastructural system.
Interventions (I)	The interventions managers have at their disposal to influence behaviour. For example, leadership style, planning and control systems, training, performance management. It is important to note that it is necessary to examine not just the nature of the intervention but also how it is implemented. Furthermore, interventions carry with them hypotheses, which may or may not be shared. For example, 'financial incentives will lead to higher worker motivation'.
Mechanisms (M)	The mechanism that in a certain context is triggered by the intervention. For instance, empowerment offers employees the means to contribute to some activity beyond their normal tasks or outside their normal sphere of interest, which then prompts participation and responsibility, offering the potential of long-term benefits to them and/or to their organization.
Outcome (O)	The outcome of the intervention in its various aspects, such as performance improvement, cost reduction or low error rates.

Table 2. CIMO logic components definitions (Denyer et al., 2008)

4. Evaluation form jury

Problem – Solution _/20 *Problem, Solution, Problem-Solution fit*
Value proposition _/20
Business concept fit either as a social or hard-core capitalist entrepreneurship _/20
Value Network and USP _/20
Pitch delivery (introduction + movie) _/20 *Innovativeness, creativity, entertaining* *Demonstration of the prototype and/or the video is to be considered as a plus of 5 points*
Tips & Tops

Questions	Total mark _/100

Figure 9. Evaluation form jury for final pitches

5. CIMO components design principles

Theme	Context	Intervention	Mechanism	Outcome	Case-study	Literature
Education & Human capital	When selecting and formulating challenges for a CBL course	CBL and university requirements for the challenges should be met to provide education, according to the university standards	to ensure students achieve the intended learning objectives	to educate the participating students and provide human capital for the UBEE	Interview - Business Cluster IS TU/e website - Osiris	Nichols et al., 2016 Gallagher & Savage, 2020
	When formulating challenges for a CBL course	real-world problems experienced by real actors should be used, which simulates the context in which start-ups are often created (e.g., having a real-world problem, unknown solution, and numerous stakeholders)	This brings students closer to the real-world and increases their motivation and engagement	stimulating the entrepreneurial skills and mindset of the involved students and support collaborations with external actors		Nichols & Cator, 2008 Mamlqvist et al., 2015 Martínez & Crusat, 2017; 2020 Pisoni et al., 2020 Colombelli et al., 2021 Lazendic-Galloway et al., 2021

	When facilitating a CBL course at a university	students should follow the steps or phases of a CBL framework to complete a CBL course (e.g., as proposed in the CBL framework by The challenge institute (2018) or used during ISP)	to propose an evidence based solution, implemented with an authentic audience and evaluated results ready for market entry	stimulating the development of their entrepreneurial skills and leading to human capital for the UBEE	Logbook, 2022	The challenge institute, 2018
	When facilitating a CBL course at a university	hosting regular progress pitches for the student teams to their peer students	provides them the opportunity to share progress updates, ask for help, and develop their pitching skills	which in turn stimulates peer-learning and collaborations between the student teams	Logbook, 2022	
Critical mass	When selecting and formulating challenges for a CBL course	real world challenges offered by	create opportunities for them to collaborate with actors within the	in order to attract industry experts, entrepreneurs and	Interview: - Challenge owner 6	

		external stakeholders	university and get access to university-based research and innovation	organizations in the UBEE	- Business cluster IS	
	When hosting a CBL course at a university	the network of students who participate in a CBL course	provide a bridge to the university resources, facilities, and actors	and this in turn attracts external actors to the UBEE	Interview: - Challenge owner 8	Stam, 2015 Feldman et al., 2019
	In a CBL course	entrepreneurial opportunities offered by high tech companies and societal organizations	stimulates the collaboration between students and external actors	making it attractive for students to participate in the course	Interview: - Business cluster IS - Challenge owner 2 TU/e website: - Osiris	
	In the investigation phase of the CBL framework	students are stimulated to go out and talk to potential stakeholders for their project	to promote network expansion and collaborations between the students and external actors	in order to achieve critical mass	Logbook, 2022	The challenge institute, 2018
Technology transfer	When selecting and formulating challenges for a CBL course	real-world challenges obtained from market, industry, or consumer needs	provide opportunities for students to leverage their knowledge and university facilities	to propose a solution to the problem and stimulate the technology transfer in the UBEE		Malmqvist et al., 2015 Theodoraki, 2017 Lahikainen, 2020
Multidisciplinarity	In the engagement phase of a CBL framework	students are stimulated and supported through workshops and coaching to form	to educate them on multidisciplinarity and ensure the team members have different knowledge,	to stimulate the network expansion through multidisciplinary teams in order to	Logbook, 2022	The challenge institute, 2018 Gallagher and Savage, 2020

		multidisciplinary teams	experience, and networks	achieve critical mass in the UBEE		
Infrastructure	When running a CBL course	online communication channels and physical spaces should be used	to create a shared learning environment for the involved actors to communicate, cooperate, collaborate, share information, and co-learn	contributing to an effective infrastructure for the ecosystem	Interview: - Challenge owner 6 Logbook, 2022	Fetters et al., 2010 Foster et al., 2013 Rice et al., 2014 Brush, 2014 Feldman et al., 2019 Hsieh & Kelley, 2019

Table 3. CIMO components of the design principles

6. Log book case-study

This appendix shows the logbook used to document all observations during the case study. The observations are sorted by date. However, as the 2021-2022 and 2022-2023 semester is used to make observations, the introduction to ISP is placed at the end of the logbook.

Subsequently, first, the meetings are discussed. Second, the classes, followed by the workshops.

6.1 Meetings

17/03 Train the trainer meeting

The train the trainer meeting is an initiative from Ákos and Gert to introduce CBL education to other teachers and professors and educate them on the possibilities, methods, and advantages. During the meeting, Ákos and Gert prepared a presentation for the other teachers. After this presentation a discussion session was started, where people could share their concerns.

"*CBL is a road that is being created by the students. Opportunities that are being created within one semester could be used to create a new challenge for the next semester*" (Gert Guri)

"We also have lectures, about 15% of the meeting time we have during our course. Those lectures have specific information that needs to get out and the teachers that are giving those are really outstanding." (Jorge)

Jorge, a Biometrics professor is hosting the course "Digital twin healthcare" where teachers from other faculties come to provide lectures. (Double-check when I'm going to use this!).

"We bring the industry early into the course/ study to get clear what they want and expect from the students" "Then they can help us how to improve our cohorts, as they are the decision-makers at the end" (Quote Jorge)

06/04 Challenge owner evaluation and expectation management meeting
- Always after the mid-term pitches
- To see how things are going, what the challenge owners would like to share, and how the students are collaborating with the challenge owners.
- How can we improve, what is going well, and what should be improved?
- All challenge owners should be put together to discuss all the presentations.
- Challenge owners should be here physical because one of the owners wasn't here and missed most of the presentation. The owners can also discuss opportunities with each other, and network.
- Margot thought that she didn't get what she was expecting. Gert explained that she can discuss that with the team, as they are here to help them as challenge owners.
- ABS > felt that some student teams are not focusing on the original challenge, but are using the challenge as a starting point. The students seem to drift off with the challenge, and it doesn't seem to go the original challenge. >>>> The students find their own place in the challenge/problem and also find a solution for themselves to create a start-up.
- "How do you want the student teams to act?" "Should the solution be helpful for the problem the challenge owner is providing?" Or is it more a solution for the problem in general? >>> Original ABS problem or lack of workforce in the Netherlands >>> How is this helping us then in the end of the students go into the general?

- The students identify the problem (out of the challenge) and then come up with a solution.
- The student solutions could, for example, result in a collaboration with the challenge owners. Meaning the challenge owners should (also) focus on the long-term results. So not only focus on short-term, that is not really the focus of CBL education.
- Challenge owners can and should still (even after weeks) give them useful feedback, and steer the students in the way they want, they could for example say "think about our problem, and how we can implement it"
- "Are we a getting a solution for our challenge/ problem or are we more a sponsor of the challenges"
- "What is the nature of the relationship?" >>>> as a stakeholder, you still need to get something out of them.
- The students need and go all around to get innovation, everything that has been done can't be done over or it isn't innovation. However all the students have to get back somehow to the challenge owner, as they need them for the network they are providing.
- "We are getting pulled out of our comfort zone" ABS challenge owner, but don't lose them in the relationship, otherwise you will lose them if you take them to far out of the comfort zone.
- Students should also learn how to manage their stakeholders to take them on board. Challenge owners should act as the main customer, and should draw the line. Show the students they can't do everything they want and should still provide to the stakeholders, as a company you have deadlines, kpi's etc etc etc, push the students back to prove you have those deadlines. Provide information to the coaches if the students don't get it, so they can coach on it.
- "What is the process, what are the students doing, what methods are they doing, and what happens in the workshops?" Everything is quite vague, so we don't know what is happening, and which methods are being taught to the students.
- "The students could provide us more information, more meetings could be scheduled and the challenge owners just didn't know what they were going to present today"
- "The process isn't visible for me" (Challenge owner)
- Akos: we don't teach them anything, just figure it out by yourself how to make it work
- We can't use one specific teaching method, as everyone is taking different learning paths
- The challenge owners don't really know what is going on, what the students are doing and which way they are going.
- Teams should do stakeholder management!!!! (multiple times mentioned)
- ABS > we scheduled a weekly meeting >>>> if that doesn't work out, mention it to the coaches.
- "Is there a document, so we know on what the students focus on which week?" we as the coaches don't know what, and when we are giving them in the workshop.
  The students should look for the information on their own.
- On Fridays are scheduled feedback moments for all teams
  Microscope > zoom in 1000 times, almost no movement is being made
  Day to day > how do you grow as a student
  Exceptional > exceptional steps that students took
- Maybe provide the challenge owners knowledge on what is going on in the course, so they know what to expect from the students

27/05 Meeting Maurits
Maurits Overmans

Created a start-up from a challenge offered by PSV.

After the ISP, they had a minimal viable product (MVP) with which they proceeded and participated in two start-up challenges in Eindhoven. Then they created their start-up, a B.V., independent of PSV. However, PSV is still their main customer.

The agreement between them is (closed book?) collaboration. PSV provides its network, knowledge, and brand name. The start-up offers time, work, and manpower. The agreement they made during the start is 2.5% of revenue is for PSV. Other than that, there are no costs, restrictions, or whatever. The start-up could go to PSV's main competitor, for example, and offer the exact same solutions. However, as they have an agreement and work together in good harmony, they won't do something like that.
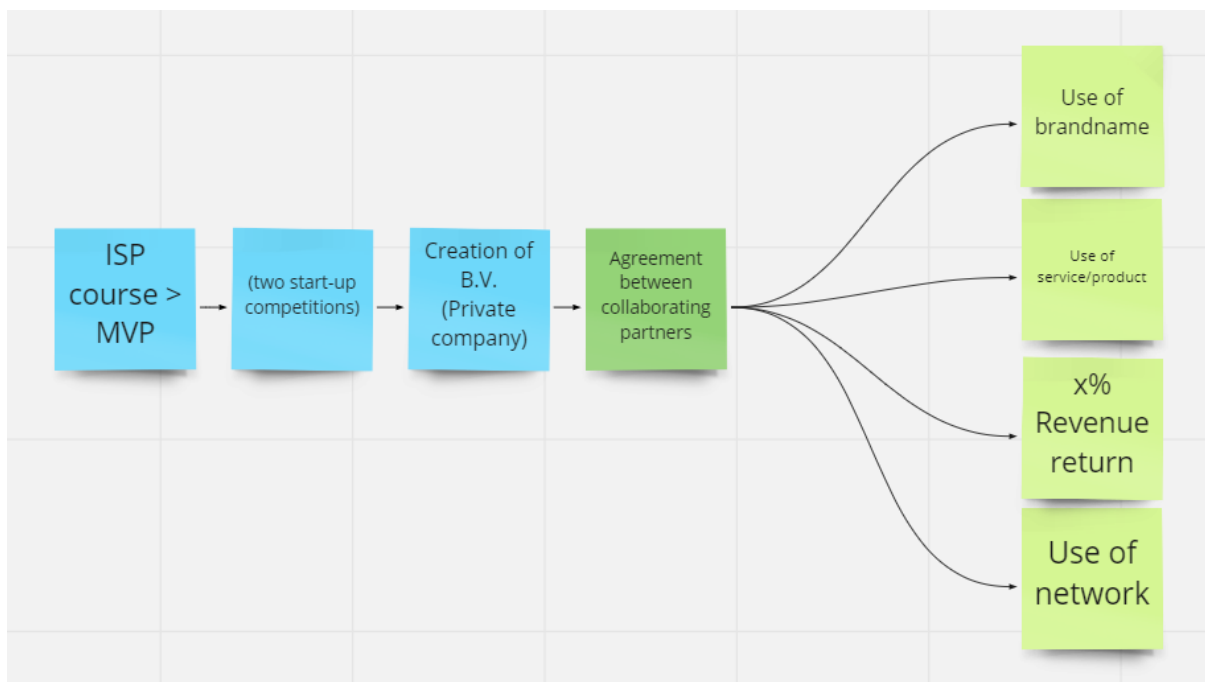

Figure 10. Steps taken from ISP to start-up

15/06 Discussion session challenges owners
- There is still a lack of communication from the students
  > Coaches could get the students more motivated to communicate to the challenge owners > coaching sessions >"have you done so? (Students)"
- "STUDENTS > don't waste time on trying to do everything yourself > go to the challenge owner and information bank
- "more questions > better solution" Kathelijne mentioned that she saw that student teams which contact her more often and ask more questions overall provide better solutions in the end.
- Students should be made clear that they can use the challenge owners as information sources
- Expectations should be made clearly at the beginning of the project, to get alignment between the challenge and the direction the team is going to. This will prevent loss of time which some of the challenge owners experienced.
- Value creation?:
  Elke > students get familiar with the problem, "I find it the most interesting to get into contact with the students. Becoming part of the people within the ecosystem"
  Relationship building, future creation getting people interested in the field

53

Kathelijne > getting students interested, "students are sensors in the field, which we can use"

dafir > we started opportunistically, we expected value, we wanted to learn something from the experience. We wanted to put time in it for them, "are we being used as an educator?" > we expect that the students keep us as a stakeholder > we had a great experience when there was stakeholder management. "it was a great experience" Be clear about we can expect, stakeholder management,

Annet > we expected something different, but it was a solution that was something we wouldn't have thought of, however we might make this project into an student team, Tip? > align expectations at the beginning, Students that have been working on similar projects could be cooperative to share information and findings they did already previously.

- How can we improve the collaborations? With other students, challenge owners, university?
- Kathelijne > great hub, students could learn from others, maybe try to facilitate collaborations/cooperation's with students from other learning hubs.
- Elke > make student teams meet each other. Elke is active in the signify and airflights industry, where they host pitching evenings with student / young professional teams to educate and inspire, but also learn from each other.
- Annet > we had two teams, when they are interacting, it's nice and an ecosystem can be created.
- What was the biggest growth you see in the student team? >>> consultancy skills, they learned way finding, reflection skills (take a step back and see what we can do), intervene with the needs from all the stakeholders (management of the information flow)

23/09 alignment meeting / discussion
Alignment between teams – challenge owners – coaches.

Alignment session, to get everyone on the same page regarding the project.

Friday sessions is more about what's going on, team dynamics, reflect on methods being used (learning). The pitches that are on Wednesday is about the content (progress pitches).

DAF team (Bas (VORIGE KEER al kort gesproken) & Jac:

ILI   -   The team provided possible challenges to Elke for their challenge. However Elke is only the challenge owner, but the team is the one solving their problem. So they are in charge to choose their path and challenge.

The meeting was scheduled to get the different stakeholders of the project on the same page, thus the student team, challenge owner and coaches. However two out of the three teams already had a meeting with their challenge owner prior to the meeting, thus the challenge owner didn't attend the alignment meeting. Challenge owners are the expert in the field and also challenge provider, however some of the challenge owners expect to get cheap labor or a consultancy team during the semester. Nevertheless, the team can pave it's own road and go towards their desired direction. The coaches can be the mediator in this discussion and they should make it clear to the students and challenge owners.

6.2 Classes

23/03 ISP class progress pitches

1 minute progress pitches, over how and what they have been doing in the last week (the pitcher is assigned randomly so everyone has to prepare the pitch)

Just an short pitch, without any presentation or visuals.

At the end of the pitch, the presenter ask for a "call for action" in where they ask the other teams for their expertise, network relations, experiences or solutions/ideas for their problems. They use Miro board, and all the teams have their own part/area in the miro board where the other team members can paste an sticky note with anything regarding their request during the pitch.

Observation first pitch:

- Student used her time to shortly tell everyone how they are doing, how the last mid-mid-term pitch went and asked firstly if anyone knew some specific specialists that could help with their research.

Two teams found out that they had similar problems for their idea/ start-up so they took their pitch together. And they are right now collaboration together, to try to get forces together.

Because of the call for action that everyone had to do, the students are required to act as an ambassador and help each other after the pitches (peer-to-peer).

Observation:

All the students were really interacting with each other the noises weren't too loud, not too much laughter but everyone was really interacting. You could see people going to the coffee machine and talk there to each other, but also at the tables where the groups were sitting and people were just talking with other teams, even team members of the same group were talking to different teams.

Most of the times there was one member waiting at a table, and almost immediately someone else went to them.

06/04 Interim pitch
Jury > 4 professionals are very known with the IS
The students have to give their co-students tips and tops

Pitch usually ends with a call for action again, as there are a lot of professionals in the room.

The teams have about 15 minutes with questions from the jury and challenge owners.

Questions are regarded the projects, and how they could be made into a real product/solution.

Questions are really focused on the future, how do you plan to tackle certain problems, how do you think you could expand the solution to take it to the market. What do you want to get out of it?

"what do you need from the IS to start an student team?" > how to start an student team and how to grow further to a start-up

"Write down your assumptions and validate them"

"How do you make a business case" > how to make it concrete

"who do you want to include in your research" > why interview, survey or include certain people for your workshop or expert pool.

After the pitches there was a tip and top session.

20/05 mid-final pitches
Short pitch (as usual), then question round

Questions:

- At the start of the pitches there is time for the student group, challenge owners and/or coaches to discuss anything, since everyone is here so problems can be discussed with the different stakeholders.
- How are you going to make money?
- Tip: make it more concrete, focus on your client instead of other investors. Whenever you are focusing on your client you will keep al your shares (of the company, when there are investors within your company you have to sell your share in order to get funding), whenever you are losing shares, you will become a puppet of the investors.
- "It is show time, story telling" Its not the moment within the course where you are showing what you are doing, but right now you need to tell a story and sell your product.
- "You only have a few minutes to convince your potential customer" So focus on telling your story and providing evidence. Instead of selling your product and different services.
- "You need to be attractive for the customers and be able to story tell what you are selling"
- "Can it be copied by others?"
- Remarks about the business model one of the project has, focus on how you place yourself in the market and how you are pricing your product.
- How are we focusing our pitch? Should we go for teachers or focus on the "real" stakeholders, for example the investors.
- After one of the pitches, networking was done through the challenge owner. One of them knew a few product owners that could be interesting for their product.

All this above discussed feedback helps students

08/06 Final pitch rehearsal
- The planning wasn't scheduled like this, but to get everyone out of their comfort zone Gert and Ákos choose to host final pitch rehearsal pitches and mentioned this during the previous class.
- The last pitch rehearsal is still used to give feedback to the student-teams. On the next Friday (2-days from now) the teams will see the coaches again and can still get feedback for the next week when the final pitches are. Other students will give tips and tops, only useful feedback, teams are not criticized when their pitch isn't sufficient yet.
- Practical session, also to see if you can stay within the time limit of 4 minutes.

15/06 Final pitches
4-minute pitches, followed by 6 to 8 minute QA. The teams present their final pitch to the other student teams, a jury and other interested people such as TU/e employees.

- Seek (Autonomous walking group, Margot, Annet, Daniel, Thijs)
  Pitch with a role-playing form. A question regarding the revenue was raised, the first team was well prepared with supporting slides.

- Powershare (VDL, Rohni)
  Strong pitch, started with a clear problem, stakeholders, requirements and lastly what they need (subsidies & experts (employees)).
- Team airflow (SITA, Elke, Pegah, Noortje)
- Team flashport (SITA, Elke, Pegah, Noortje)
  The challenge owner is pointing the team into another direction than the main focus they have proposed during their pitch. "The use-case wasn't the best in my opinion" They discussed this already last week, but the team (of course) didn't want to change their whole business model right before the end pitches. Seems to be lack of stakeholder management between the team and the challenge owners. As this should have been discussed way before the last week before the final pitch.
- Craftment (ABS, Nico, Dafir)
  ABS is open to continue the collaboration, Bart? Added to that they should also come to him/them to facilitate the start-up creation.
- Diversaty (NSO, Kathelijne)
  Kathelijne was interested in the solution and seemed open to discuss further plans for investing in setting up the solution.
- Helpal (NSO, Kathelijne, Online)

Kathelijne told the team that governmental parties won't pay start-ups, teams or entrepreneurs money as a profit. They will solely pay for the project, the team should have known this, but apparently didn't do.

22/06 Reflection learning objectives and Co-creation session
The students teams have to give a "demo" about their learning objectives (5). They could show whatever they want in which form as they want.

- Flashport > Rap song
- Powershare > video
- Airport team > gave themselves points out of 3, on the different learning objectives, on all the different objectives they gave examples. Also discussed what they learned during this course.
- ABS team > video, with a different scene for every learning objective.
- Greenroof > made a flyer and explained that during their presentation.
- Seek > Podcast teaser, the podcast will be sent to all other students and coaches.

Co-creation session: 30 minute session where the teams are shuffled and have to co-create improvements for the upcoming semester. Afterwards these will be discussed in the class room again.

- **How can we make ourselves jealous for the next semester.**
- **What is it that should stay?**
- **What is it that could be done better, differently and how to do it?**
  New workshop? What how? Should we remove something?
- **Evolve around the learning objectives. > Formulate a new learning objective?**

- **What shall we keep? :**
  Pizza
  ESA coaching > positive psychology (mentioned multiple times)
  progress pitches
  First two weeks in general, to get to know everyone

Whatsapp group makes sense

Mid-term and final pitches with a external jury (to get feedback from external parties that don't know what's going on)

The freedom we get for the final reflection reports (22/06). (it could be nice if we could do that for the mid-terms as well instead of the reflection report) However don't show (everything) to the new cohort because right now it came from us and we had to start blank and everyone got really creative and did the reflection for themselves, and if you show it to the new students it might be too easy for them.

- **What should we get rid of?**
  Ethics workshop

  prototyping workshop was to early > focus was on physical prototypes but no one made a physical product. Make it more broad towards other prototypes. Maybe after the start of the second quartile.

  Make only one online working environment (either canvas or Miro)

  Only use teams for remote working

- **How do you see the prototyping in relation to the problem?**
  Right now the prototyping workshop was quite early in the process, however it could be changed that there might be two prototyping workshops. The first one around the same time where you make mock-ups and quick prototypes to create a visualization of the problem and the possible solutions. To get a vision on the problem, however this should be made clear to all students as not everyone understood that this time. For the second time real prototyping workshop regarding the final prototype could be hosted.

- Send week schedule on Monday through whatsapp
  But keep canvas or email announcements (Useful in combination with other courses)
- For what should we use Miro?
  Tips and tops
- Add workshop on presentation or pitching (How to give one, non-verbal communication etc)
- Also give feedback on how you gave the pitch (in terms of pitching, not focused on what ever is pitched)
- Workshop about struggles or problems within the team collaboration

What could be a new learning objective?:

- The goal in the first week is to get to know new people
  Would be nice to get a little more structure in the first two weeks, to find out the things you need to know, for example, what do I want to do, what are my strong points and which project do I want to do? Right now you had to meet new people, and do all the other things at once, some students struggled with that.
- Students: we could assess our own work, when we set weekly motives and learning objectives and then we have to discuss and defend the points we make.
  If we create an report with learning points, how, why, and which and then we assess them at the end of the semester.

How to involve and collaborate with the innovation space

- Keep it in that students from previous cohorts do a presentation when the new semester starts

- Also make stands with students from this semester, during the introduction weeks, where the new students can talk to students from previous cohorts and they can tell people whatever they experienced.
- Would be nice that we could talk to all challenge owners as it creates a better picture of the actual challenge than what they tell you during their presentation.
- Workshop > how to talk with stakeholders (stakeholder management)
- Make it clear how to get information > just talk with people instead of article after article

Do you think we should provide more support

- As long as it works it's fine
- However when you see that it isn't working for teams then help them out

Create a community, one team member mentioned that he will be working on the start-up within the IS and is open to support the new cohort. Maybe we could make a list with the people that are open to support the new students, we could do that every Friday.

We could do a connectivity thing, where teams do something nice every week.

Reflections from the teams
Co-creation:

"Can you create an recommendation for new challenges" If you are either proceeding with your team, on your own or for the new challenge owners.

Seek:

- We want to do our thing aside of AWG
- Challenge description:
  - Keeping integration in mind
  - More freedom from challenge owners > have a starting point in terms of tech

Powershare:

- Don't lose the dream
- Concept to pilot
- Keep close contact
- Reevaluate stakeholder relationships after pilot

Flashport: (recommendations for innovations space)

- Airport challenge with an airport as a challenge owner (ask us for possible Schiphol contact)
- SITA & ILI don't have much in common?!
- Our solution has a good potential, and maybe it can be taken over by someone else

Airflow

- Still needs to think if they want to proceed with their project
- Keep in touch with SITA
- Follow-up meetings
- Let's try / investigate!

DiverSATy:

- Talk to stakeholders to validate pilots for serious interest
- Check if building the team and dynamics are possible
- Check if software building part really is feasible
- Talk to Kathelijne to check how she can help us

Craftment

- Broader testing and validation with actual product and multiple workshops
- Clear communication with ABS on what their expectations are, and what we expect from them
- Working out the future dynamics and plan for us and ABS
- Meet with ABS to talk about future
  Entire team isn't going to proceed but Timon and Amy will
- Either continue as team (ISP), freelancer or within ABS

## 6.3 Workshops

23/03 Workshop, value network creation:
- Tell short product/context and ask the class about the stakeholders
- Who are the stakeholders? > go through class, who are stakeholders and what do they do?
- Make visualization of the stakeholders around the product/context
- What do you see? > there are a lot of stakeholders even with an simple product
- What else do you see? > talk about the arrows and stakeholders
- W.I.I.F.M.? What's In It For Me?
- Make sure everyone (all stake holders) gets an arrow, so there is something in it for them.
- A value network is created.
- A pilot network is shown, to implement this in the course, Ákos asks, what do you need and which stakeholders to pilot your product?
- What do you need, who do you need, what is in it for you/me, and do it for yourself? Can you close the arrows, in order to get everyone connected and have an arrow towards everyone?!

After the workshop all students got around 30-40 minutes to think about the workshop and already start working if they want. Two groups right away started drawing on whiteboards.

03/06 ESA meeting
- First a small discussion about whats going on and what they are doing
- "who are your stake holders?"
- Basics of the positive psychology
  Introduction by the ESA host, about positive psychology, short story about some examples
- Positive psychology > doesn't focusses on weakness but focusses on your strengths and talents
- "But what if you don't like it because you're not good at it?"
- 5 pilars > PERMA
  If you use these you will be more happy and successful
- Positive emotions:
  Asked into detail, did the team have any? During the course? As a team? Give an example? What was the effect of it?

- Engagement:
  Flow? > "You lose track of time and space, because you are having a good time"
  Give examples again.
- Relationships:
  "Relationships are reeling important to focus on" "Everyone needs relationships, even if you are shy or want to be on your own" > Do you agree? > new story > students are asked for examples > and then the host is proceeding again.
- Meaning:
  "We need a meaning in life" Or in our work. > "Do you feel meaning in this project?" > Questions are being asked to the different team members
- Accomplishment:
  "Do you need accomplishment in this course?" > "Really connected to flow, as I feel when I've accomplished something I feel I was in Flow" > "Learn by doing, you need to find accomplishment in the end"
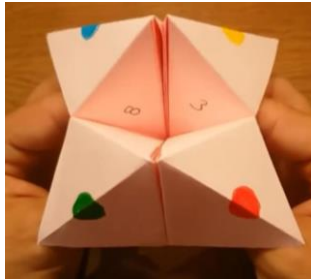
- "Happer"
  Team members have to choose one, and the question that pops up will be questioned to another member. First questions: "*Who in your environment gives you energy?*" Short discussion about the question and the given answer. The host then again is telling a story, by giving examples from her own life and her own experiences.
  > *What accomplishment are you proud of?,* high group interaction again,
  > *For who did you something of value this week?* > what quality of yours does that show?
  > Think about a moment when you successfully implemented one of your qualities, and when did you put them in practice?
- At the end of the meeting they are making a "slinger", "which talent did you get more aware of and will get more focus for the upcoming week". This questions the students have to answer and write on a small piece of paper. The qualities are then again discussed and a short conclusion is given with an nice example.
- Meeting went really into detail about the feelings about the team (members) they have to give examples, maybe even relive the moment, and just discuss the positive things that happened during the course.
- High interaction with the students to get a domino effect, somethings someone mentions something then the host proceeds on it, and asks questions to the other members that didn't tell something yet.
- Good vibes, someone mentions something, and then the others continue on that and expand what is being said, the first persons might not know exactly what they have done.

07/09 Introduction ISP
13:45 Intro

15:00-16:00 Challenge owners intro

16:00-17:30 Speed dating with challenge owners

18:00 Pizza

Introduction, short description about what Ákos and Gert are doing, Fanni what she's doing and for how long.

Equation that Ákos starts the course with: "(A+E+I) * Q+FF = 1ZM150

AQ > Adaptability / agility

EQ

IQ

Introduction from previous cohort students:
"This course has been the best experiences in my education so far"

Real team work, you make friends, multidisciplinary (as most of the students have different backgrounds/studies or even live somewhere else)

You will get out of your comfort zone:

- By presenting
- By managing stakeholders
- By creating something real
- By leaving your laptop > you have to get out of the classroom, talk to people in the rea world

Team that is still working on their project tells how the course went. And how they went through with their project.

Introduction round from all the students

Challenge owner presentations
Short clip of the company, challenge owners are free to substantiate the video

- DAF – Kati brock (presenting the video but not here as a challenge owner) man with grey / dotted shirt is the representative of the DAF
- Mikrocentrem, plastical waste, what can you do with it?
  Merel Hartman, ecosystem manager, there to connect everyone in their ecosystem (600 industry partners)
- Sensai technologies
  Smart punching bag, Sport psychologie, Yama Saraj (Dutch).
- Natascha, developing a platform for decision making for academics.
  Low travel "", sustainability,
- Ili , elke den Ouden (partner with signify)
- Seat to feat grow pack, Otto Kroesen, tussen persoon for 6 companies in total who created a challenge.
- Sayf, Thomas, sustainability on airplanes/ airlines
- PWC, AI training system, Gabrielle, Alex,
- AAG, Ivo de visser, Roger Boersma, Uber health challenge,

7. Interview transcripts

7.1 Interview challenge owner 1

Challenge owner 1:
Alright, shoot.

Interviewer:
OK, so this was the first time you participate in the Innovation space project, right?

Challenge owner 1:
right.

Interviewer:
How did you find out about it?

Challenge owner 1:
We found out about it because.

Challenge owner 1:
We were doing an innovation project within "ORGANIZATION CHALLENGE OWNER 1".

Challenge owner 1:
And then we wanted to to do something, you know, get a bit of an inspiration and then we got into contact with Natalie Kerstens. And no, actually with Bert-Jan Woerdman.

Interviewer:
Umm.

Challenge owner 1:
About uh, I forgot that something else, you know, just today it's just one day and then you go to the to the campus of the the, the, the automotive campus we went and there was kind of a small workshop. So that was also something that innovation space organized for companies. How is it called? I forgot the name for it and anyway.

Challenge owner 1:
So that's how we got into contact and then we got to talk with them and then they asked us, we, you might be interested. It's actually Natalie asked us.

Challenge owner 1:
You might be interested in in the innovation space project as well, and then we looked into it and then we thought like, yeah, well.

Challenge owner 1:
Seems like a good idea.

Interviewer:
Ok.

Interviewer:
And did you participate in similar project or courses at other universities or just workshops?

Challenge owner 1
No, actually, no we didn't.

Interviewer

Nothing. OK. And then why did you choose to participate in the end of the ISP? Like, what did you expect or?

Interviewer
What value did you thought to obtain by participating?

Challenge owner 1
The main reason for us is since we were doing a project within "ORGANIZATION CHALLENGE OWNER 1" to to to promote or to get people more innovative, so to stir up the organization a little bit.

Interviewer
Umm.

Challenge owner 1
That's why we thought if we do a project and we interact with students, we get fresh insights. You know, people in the organization see that something is happening. It might inspire them for us. You know, the result wasn't the most important. We didn't really expect that something would come out of it. That would be, you know, mind blowing or something. But he thought, like, just participating in the process would be a nice cultural intervention.

Interviewer
Yeah.

Interviewer
OK. And then you also mentioned to yeah, get innovation going within company, but.

Interviewer
I can imagine maybe to get students more motivated to get in into that specific sector. Is it also something? Maybe that helps?

Challenge owner 1
Yeah, well, of course, for us to challenge was, uh, the hunt for talent that that was basically that was the challenge we put down. But that was it's not so much geared towards university students because the main problem within "ORGANIZATION CHALLENGE OWNER 1" and the main type of students, they want to attract off from, you know, MBO type of organization schools, they need blue collar workforce. So it's not like you're university educated technical people.

Interviewer
No. Yeah.

Challenge owner 1
It's that's not where the main problem is. So we had the students work on that. It was more that we wanted to the the, the, the. Yeah, the entrepreneurs, the people in fourth within "ORGANIZATION CHALLENGE OWNER 1" that they you know by interacting by seeing what happening that maybe they would.

Challenge owner 1
You know, get out of the box a little bit, start to be into enthusiastic

Challenge owner 1
Get into new insights that that was for us the main reason.

Interviewer

Yeah. And then what kind of value did you expect to obtain at the end of the course from the student teams? Because I remember during the.

Interviewer
Feedback meeting after the final pages, I think it was you all mentioned that at first you expect to maybe get a real solution that could be implemented and then yeah expectations changed because the student team was going different direction than.

Interviewer
Mm-hmm.

Challenge owner 1
No, it wasn't. Not so much that we thought that there would be a really a viable solution coming out. What happened with the student team is that, you know, it's an interaction between the company and the student team and the and the company put forward a challenge a problem. So they say it's like, hey, you know, we have a problem here and you come up with ideas.

Interviewer
Yep.

Challenge owner 1
And.

Challenge owner 1
And and what happened with the student team is that basically they drifted off into something.

Challenge owner 1
That, you know was.

Challenge owner 1
Yeah, *it was like started to be kind of remotely linked the the the question was like how, how, how, how can we do deal with the shortage of of of of of skilled labor*.

Interviewer
Yeah.

Challenge owner 1
And then they went into an area that says like ohh, how can we make a how can we make a automotive education more attractive, you know, in the MBO. And then we thought like, OK, you know, it's still linked to the problem, but this is nice for school. And this is nice for sectors. But this is like really remote. And what do we get out of it? You know, it's like if the MBO in in the yeah, you you you make that more interesting.

Challenge owner 1
And that was for us, like, you know, so are you working on all challenge or just are you taking the solution and making it into an playground for yourself and what you find interesting and that was what we what we when we thought is like OK especially Nico the director he had a bit of a problem. I thought like the process is thinking out of the box so let them go you know it's maybe it's something that we start have to think out of the box as well and.

Challenge owner 1
And but then we discussed and then later they shifted a little bit into a different direction.

Challenge owner 1
And.

Challenge owner 1
And that made it better and then overall, but that is something that I noticed throughout the whole challenge.

Challenge owner 1
Uh, and if it might depend on an organization, but it's what I said in the last meeting as well.

Challenge owner 1
You know, for a company like "ORGANIZATION CHALLENGE OWNER 1", they the investment is quite quite big.

Interviewer
Mm-hmm.

Challenge owner 1
You know, that's actually for us. We really put a lot of effort in it, which spend many hours. We came there, you know, we travelled all the way from from Rotterdam to to Eindhoven for several times. We had weekly meetings with the students.

Challenge owner 1
Nico, I'm an external consultant. You know I'm not cheap, so all the hours that I spent on it, he actually has to pay for it. That costs him several thousands of euros. And so. And that's not a problem. But then from the side of "ORGANIZATION CHALLENGE OWNER 1", we go like, hey, we know we invest so much in it.

Interviewer
Yeah, you want to obtain some.

Interviewer
Yeah.

Challenge owner 1
We want a little bit of return. Come on. It's it's not that we, you know we we are not a sponsor of TU of Eindhoven like ohh you know let's spend like 10,000 15000€ and many hours so that TU Eindhoven can can can be interesting for their students that's that's fine for us as well but hey come on you know it should yeah so.

Challenge owner 1
So that was one of the reasons that we that I also thought like, OK, you know.

Challenge owner 1
The challenge and the student teams, but also I think the program should take a little bit care that the student teams also has to manage the organization that they are working with in the sense I'm a consultant and even if you drift off in another direction.

Challenge owner 1
You know, take care of.

Challenge owner 1
Keeping your client on board because they you know they spend a lot of time and effort, et cetera. So if you want to go in different, you know just weekly meetings, if you want to do

something discussed with them say it's like hey, this is a, be be a consultancy team, you know and consulting is not only about a solution, it's also about managing the relationship that might even be more important than the solution in the end. And that is something that.

Challenge owner 1
I missed a little bit and I thought that could be better and I offered that and then since I'm a consultant, that's where I try to coach the students. So I try to be a little bit in between "ORGANIZATION CHALLENGE OWNER 1" the director and the university and be a little bit more of an independent consultant, more processed consultant that brought them together, says like, hey, you know, take care and then to the company. Nico says ohh yeah. Well, and, you know, try to kind of get them all, keep them all on board.

Interviewer
Yeah, the stakeholder management had to be improved.

Challenge owner 1
Exactly. But what I think is that Gert and Gertos. No, no.

Interviewer
Akos.

Challenge owner 1
Akos. Sorry, Akos. Uh, I think it should be part of part of the program. So I I don't know how much time they spend on it, but I think that part of the issue would be also that the students learn like OK, now you go, I'm going to do a real life problem with organizations.

Interviewer
Yeah.

Challenge owner 1
Just consultancy skills. The basically yeah, you know, give some lectures and and and and and and and coach them on consultancy skills.

Interviewer
Yeah, I think more challenge owners mentioned the same problem. So that's a good point to.

Interviewer
Dig in further and see how to make improvements.

Challenge owner 1
Yeah, because there are three. I think you could say that when it comes to the the, the, the, your Eindhoven challenge, there are three elements that students are that.

Challenge owner 1
That, that, that.

Challenge owner 1
No.

Challenge owner 1
That is part of the challenge. You know, the three elements. First of all, all it's the the the question itself. That's just the content, the, the technique or the question. The question asked it's very you know, you can sit in your desk and you know, go there. That's the content. The second part is the teamwork. How do you work as a team and working on a

solution. And the third part is interacting with your stakeholders and mainly with the challenge holder because they are the ones who are

Interviewer
Yeah.

Challenge owner 1
And yeah, and then, then and and then I know that they go like while we leave it all to the students. Of course you leave it all to the students, but at least provide them a little bit with tools and skills and and and and reflect on that with them.

Interviewer
Yeah.

Challenge owner 1
So I I yeah, just throw them into the into the swimming pool and say, OK, you know.

Interviewer
Yeah.

Challenge owner 1
It's it's, it's it's, it's your thing. Good luck.

Interviewer
That might work, but I feel what I've learned and saw during the course that the students need support regarding stakeholder management because not all the teams that.

Interviewer
Quite a few themes, they lack the skills to really keep the channels owners in the loop and.

Interviewer
Yeah.

Interviewer
Provide them service as a consultant or.

Interviewer
Yeah, well, give them the service. They expect to get.

Challenge owner 1
Yeah. Yeah. And it's also consultancies courses also about you know presentation. So it's also just a few things in it.

Challenge owner 1
All you know, it's a learning experience, so don't take me wrong. I don't think it's wrong, but these are things I notice. I look at it as a as as a consultant that means like.

Challenge owner 1
How do you approach it? How professional are you? And when you sent, you know when update, how do your PowerPoint presentations look? If you do the final presentation and the final pitch and our team won, you know we are really proud of them and that was really nice. But you know, Timo was standing there in his shorts.

Interviewer
Yeah.

Challenge owner 1
You know and and that's it's all fine, but if you would do this as a job and you would have to go to ASML Eindhoven.

Interviewer
Umm.

Challenge owner 1
You're not gonna do your final presentation in your shorts. Come on.

Challenge owner 1
And it doesn't mean that you need to wear a suit, but these things you need to learn if this is like a learning ground about, you know, later on in the big world and if you want to do this and and this is basically it's a pitch for a startup and you might and you're trying to stand in front of angel investors and the jury and says like, hey, you know, we have this great idea. Are you willing to sponsor us and to invest.

Interviewer
True.

Challenge owner 1
You don't stand there within your shorts. You know they this. I'm gonna tell Timo myself as well. And it is fine because I like him and I think it's at cetera. But this is something in terms of feedback that I think due course, you should learn students these types of things as well.

Interviewer
Yeah, they are good points.

Challenge owner 1
Oh, you're freezing. Ohh, no, no, there you are again.

Interviewer
OK. And then any future plans, how was the future plans between "ORGANIZATION CHALLENGE OWNER 1", and the student team or maybe even a new ISP semester?

Challenge owner 1
Yeah, we really like it. You know, we really enjoyed it. Don't get us wrong. We we both Nico and me, we are already participating in the one day challenge for the.

Interviewer
Umm.

Challenge owner 1
Uh Internet of Things start in September, so we put forward a new challenge there as well, and we might.

Challenge owner 1
The.

Interviewer
Yeah.

Challenge owner 1
And we might, uh, participate in the new semester as well. I would have to discuss. And next

week we're going to have a meeting with some of the students because what I said also you in during the final presentation, you know in the end they came up with really nice idea and an idea from what we think that it might be worthwhile to even bring it further and see if we can really start implementing it. But we want to talk with.

Challenge owner 1
With the students first and see you know.

Challenge owner 1
Do they want to go further with it or they just go like, OK, no. Well, that's it. We continue with their studies and it was a nice experience and that's fine as well. Then we maybe we take it ourselves and we bring it further, but we want to discuss with the students first.

Interviewer
Yeah, OK nice.

Interviewer
OK. That was it. Maybe a last point improvement or tip for the course?

Challenge owner 1
No, I think I gave my tips already and so and so in the end I think you know it really nice. I'm actually a big promoter, so I work as a consultant in many companies, so I'm many times I, I.

Interviewer
Umm.

Challenge owner 1
Mentioned this as being very, you know, inspiring very nice et cetera. So don't. So don't get me wrong, I think there is a very high value in it.

Challenge owner 1
And also for companies so. So I'm an ambassador for you already. And I also I mentioned 2 words them that when it comes to now these consultancy skills you know I'm I'm also willing to help in that in the future if there would be any need for that.

Challenge owner 1
But yeah, I do think they're on certain issues that that it kind of could be improved further and well, that's what those are the things I just said.

Challenge owner 1
Alright, good luck.

Interviewer
Yeah, yeah, I hope to be able to make some improvements with my thesis in the end. So thanks for your time and a few weeks I think I will send an e-mail to you about some useful updates, maybe for you as well.

Challenge owner 1
Yeah.

Challenge owner 1
OK, nice.

Interviewer
And just keep you in the loop. OK, thanks.

7.2 Interview challenge owner 2

Interviewer
And faith in English don't know, always need to start then.

Interviewer
OK.

Challenge owner 2
Yeah, there's a recruit.

Interviewer
OK, OK. Yeah.

Interviewer
Umm. So if I'm correct, you have been doing the innovation space project for a few years already, right?

Challenge owner 2
Yes. Yeah.

Interviewer
OK. And how did you find out about the innovation space projects?

Challenge owner 2
Ah, that's a good question.

Challenge owner 2
I think.

Challenge owner 2
At that time we we were working with many people in the the project with the municipality and also Philips Lighting and Hymas which were having a boot camp for new ideas that could be implemented, new applications that could be implemented on the platform that they were running out. But we've connected lighting.

Challenge owner 2
I will thought it would be interesting to see if we can also get some student things in courses involved in those boot camps.

Challenge owner 2
So then I asked my colleagues, do you have a problem with the noise in the background or?

Interviewer
Not on the phone.

Challenge owner 2
OK, because they're cleaning the dishwasher.

Interviewer
Yeah, I can hear something that is fine.

Challenge owner 2
And the so we were looking for courses. So I asked my colleagues in the Intelligent Lighting Institute or who are doing different. Yeah, several courses.

Challenge owner 2
And they had a collaboration with innovation space. So we then used those courses. The Secret Life of flights and the liberation of lights courses.

Challenge owner 2
To actually form student teams that could participate in the in the say the the hack of the boot camps and the and the challenges in the end.

Challenge owner 2
This was a yeah. Kind of.

Challenge owner 2
Try try. I don't know the English word.

Interviewer
Yeah.

Interviewer
Umm.

Challenge owner 2
So they grew, win, win and win. The first prize was actually that the idea would be implemented on the platform of the of the smart lighting in Eindhoven. And so then then I found out that these courses were supported by innovation space. And then I I kind of vaguely heard already from Isabelle what she was up to and that might very well with her. We were looking at things. So that's when.

Challenge owner 2
Don't, we said? Hey, this is tastic idea.

Challenge owner 2
That's really works well with what we're working on. So. So then we kind of intensified your to collaboration and then we claims that we want to have a challenge in each course running in the in the innovation space, so.

Interviewer
Have a fun person.

Interviewer
And yeah, so you did all the collaborations with student teams and courses, challenges with awards, but they also have experience with older universities or similar projects, projects and outside of the University of Andover.

Challenge owner 2
Ohh, we didn't initiate that, but I know that there are more and but it there is little.

Challenge owner 2
For us, there are the universities working with lighting and having a lighting course or lighting related courses. They are very few and so there is not a.

Challenge owner 2
And then yeah, so we work a little bit with.

Challenge owner 2
So the karlova.

Challenge owner 2
It.

Challenge owner 2
But that's not in. Not in education, but more in research that we are collaborating there.

Interviewer
Yeah.

Challenge owner 2
So yeah, not really, I would say. And yeah, the The thing is that for real collaboration, my experience is that it helps if you can have really face to face meeting so.

Interviewer
Yeah.

Challenge owner 2
With international students, we did, of course, in the Euro Tech Collider and last but.

Challenge owner 2
The previous year, that was a kind of a.

Interviewer
Yeah.

Interviewer
Yeah.

Challenge owner 2
Pilot for your deck Collider with international students and it's it's quite difficult if they if the students have to work online and you can only meet them online, it's I find it more difficult to to also help them with the network. So for them it's also not so natural to approach our network with companies or with new specialities.

Interviewer
Yeah. Then everything is online and then it's just an e-mail from someone.

Challenge owner 2
Yeah.

Interviewer
And it's not working really great, I can imagine.

Interviewer
And I remember the.

Interviewer
Feedback meeting after the final purchase I think was you will mention that you sometimes posted patching evenings with student teams or young professional teams to.

Interviewer
Improve the collaboration between them.

Challenge owner 2
Yeah.

Interviewer
And maybe say something about that.

Interviewer
Yeah, elaborate a little bit.

Challenge owner 2
Yeah. So yeah, so it's, uh, intelligent lighting team in innovation space, we realized that we have to do our marketing better. So we a couple of years ago, we started with the student assistant to really look into how can we improve the collaboration with innovation space.

Challenge owner 2
And then we we now have our fourth student assistant, so it's sequence now, and each student assistant I work with the we kind of get the beginning. Say again like what's now the most pressing thing and also what?

Challenge owner 2
Qualities of the student assistance can be best use in that phase.

Interviewer
Yeah.

Challenge owner 2
So this this time with Noortje, we we were discussing that we have a growing amount of students that is choosing the lighting courses and that is working on projects either inside the curriculum in the course or extracurricular in and they don't know each other. So each student and each team kind of starts in Greenfield.

Challenge owner 2
Which is in itself not bad, but sometimes you lose if you have a short course, you lose 4 weeks to figure out how to program. Let's sleep and.

Challenge owner 2
And that that's that's waste so to say. So then we were looking into can we make it more structural collaboration, can we help them not not the collaboration but as an ecosystem where people can easily meet each other and can.

Challenge owner 2
Yeah, no, who is actually already working on lighting and maybe they they can quickly learn or get some advice.

Challenge owner 2
Of colleagues students so that they don't have to waste another four weeks to figure it out themselves.

Challenge owner 2
So that's when we initiated the the light night.

Challenge owner 2
Very say we want to have a a casual occasion where people are.

Challenge owner 2
The where people come together that are working in on lighting project and and they can quickly explain what they're working on. So we have short pitches to start off and then either we have a joint brainstorm or we can have like a multiple short brainstorms where people can then discuss with a project that they find interesting.

Challenge owner 2
They can give some tips, but they can also indicate that they might be willing to work with them and and, because everybody then knows who's working on what, and that makes it much easier to approach people. So you see that then people some groups are saying risk struggling with a mesh network to get these lights.

Interviewer
Umm.

Challenge owner 2
Ohm ohm react on each other. Very. Somebody else is saying, hey, we did that in glow already last year, so.

Challenge owner 2
We I can help you. And so that's how we.

Interviewer
Yeah, it's still well for us.

Interviewer
So close.

Challenge owner 2
Yeah. So we try to make it more.

Interviewer
Umm.

Challenge owner 2
Or a low profile and more informal to meet each other and not that you need to make an appointment with somebody or.

Interviewer
Yeah.

Interviewer
Yeah. And during the meeting, you mentioned that as you already said that you want to become part of an ecosystem and yeah, that's what you also do them with the collaborations.

Interviewer
So what are the exact value propositions you expect to receive from the innovation? Support that and what do you get from it, maybe besides?

Interviewer
They're getting familiar with the problem so students know what they still gain and what.

Interviewer
Yeah, I gotta insight in the lightning industry data maybe order a expectations you.

Challenge owner 2
Yeah. Do our dream man. Then I talk about our dream. Our dream is that we have this vibrant ecosystem.

Challenge owner 2
Related to innovation space, where the the say lighting interested students are critical part of that ecosystem.

Challenge owner 2
Where we have a nice portfolio of interesting challenges that also resonate with with what students find interesting, but also contribute to.

Challenge owner 2
To say the industry and society, so they they should have real added value.

Challenge owner 2
And the way we see it is that.

Challenge owner 2
We are now setting up collaboration with municipalities and with companies.

Challenge owner 2
And companies are really interested in.

Challenge owner 2
And also.

Interviewer
Yeah.

Challenge owner 2
Ohm God hearing new the ideas that students have because they feel that they are very often trapped in their own Rd maps, so they have an idea of where smart lighting is going. They develop products and services for that, but they feel that they are kind of in a in a in a tunnel.

Interviewer
Umm.

Challenge owner 2
And they would like to have. Yeah. Fresh looks and new ideas out of the box thinking.

Challenge owner 2
For applications that they haven't thought of before and also ways of realizing those applications, so the there may be new new ways of sensing things that are much more privacy friendly, for example, or all kinds of stuff.

Interviewer
Yeah.

Challenge owner 2
And So what we aim is to to be able to match or to have a community of students meet also those professionals in the field. And so that they can share our ideas, but also that those professionals actually help the students to to get to the level of knowledge that state of the art in the industry, because what we see is that of course, we have fantastic courses.

Challenge owner 2
And university. But if you look into prototyping for example, then you have no stuff. So then each student team again has to buy some Arduinos and some blacks program. All that strips. And that's the level that we can get.

Interviewer
Umm.

Challenge owner 2
We had a professional systems are of course much more complex, but they allow integration of ICT and and all these things.

Challenge owner 2
Everyone's students to be able to work with professional equipment as well, so that they that they also see how that works, but that they also can build, yeah, say things where lighting is really impressive and not just a few small.

Interviewer
And.

Challenge owner 2
Lights.

Interviewer
I haven't.

Interviewer
As that's like.

Interviewer
An ecosystem where the experts are.

Interviewer
Umm, sharing their knowledge and network for the students with the fresh view on problems and challenges.

Challenge owner 2
Yeah. And that they also provide the say the, the hardware and the software to to make state of the art.

Challenge owner 2
Yeah, installations should say.

Challenge owner 2
Like.

Interviewer
Yeah, that's interesting. So it's maybe a little bit more folks only long term than short term solutions that you might obtain from the student teams.

Challenge owner 2
Yeah, and and ideally, we want student teams to build on the on the previous work. So they, I don't know if you saw the ISBEP project that did the test in the Alumni Ave.

Challenge owner 2
Yuan did his bachelor and project from in ISBEP.

Challenge owner 2
And he, from HDI did, did some research on how can we can we influence The Walking speed of pedestrians with lighting?

Challenge owner 2
And he had to do this from scratch because there was nothing so.

Interviewer
Yeah.

Challenge owner 2
What I didn't hope is we have now some initial findings and then I hope that in the Community of students there is another student that thinks like, hey, this is interesting. I want to do the next step.

Challenge owner 2
And and and then. In this way we kind of build on each others work and not always start again fresh in Greenfield.

Interviewer
Yeah, yeah, makes sense.

Challenge owner 2
But it that you can tap step on the shoulders of the previous one, yeah.

Interviewer
Yeah, exactly.

Interviewer
OK, that's all pretty clear. Any future plans or things you would like to see in the innovations projects?

Interviewer
Or what for future?

Challenge owner 2
Yeah. What I find in in typically in innovation space project, what we are struggling with and as challenge owners is a that it's very much focused on entrepreneurship.

Interviewer
Umm.

Challenge owner 2
And the means that when the students come up with with a nice proposition or concept that.

Challenge owner 2
The.

Challenge owner 2
It focused this in, in my view.

Challenge owner 2
Too much on on the pitch that will be delivered in the end and the learning through iterations and without making anything and without going really into the field.

Challenge owner 2
So.

Challenge owner 2
What I see and and and I know Akos and Heather doing really their their best to to give them a strong learning process. But I see in many cases that once the students have an idea that they throw them back to the beginning and ask like is this really is is there really a problem behind this and and I find that.

Challenge owner 2
Because I think there are many ways to innovate.

Challenge owner 2
And sometimes making something to trigger the discussion.

Challenge owner 2
Is is also a good way? No nobody needed an iPad or mobile phone in the beginning, but when you show them what it is and how it could work and how it improves your life, then people are willing it. And I think it's the same for smart lighting. Yeah. Or maybe it's for any any innovation. So I I would think that in the in the entrepreneurship part you can you could have multiple ways.

Challenge owner 2
Coming to final presentation, so to say a final pitch for investors and one is the more theoretical or?

Challenge owner 2
Direct goes not the right word, but maybe desk study type of thing or paperwork so to say, and I would also like to see one that is more focusing on early prototypes and reflections which stakeholders showing them and and have a discussion.

Interviewer
Yes, we have.

Interviewer
Umm.

Challenge owner 2
And I I don't see that happening in. I speak now. So although we're in innovation space, there is lots of prototyping material, but the prototypes that we get to see are PowerPoint.

Challenge owner 2
And mostly.

Interviewer
Yeah. So I would really like to see more of a product garden.

Interviewer
Something to see or feel what you would be investing in if you were wearing invested 40 page.

Interviewer
Yeah.

Challenge owner 2
Yeah, and and and the typically things like like they lighting and you have to experience them. It's you can't talk about it, you can't explain how you feel below certain lighting scenarios. So the experimentation part could be in my view bigger part of ISP.

Interviewer
Umm.

Challenge owner 2
And of course, students are free to choose sides. So like in the last ISP project, we had the the airport.

Challenge owner 2
Umm.

Challenge owner 2
As it case.

Interviewer
Umm.

Challenge owner 2
Where originally we thought it would be related to lighting, but to students choose otherwise.

Challenge owner 2
Yeah, that's that's OK. But if we have.

Challenge owner 2
I think it will be more interesting for students to try things if we have sufficient stuff where they can experiment with. So it's it's a bit chicken and egg out so.

Interviewer
Yeah.

Challenge owner 2
If it's very hard to make a prototype, you decide to make a a nice presentation or an animated movie or whatever. That's a logical. So I think we should make it easier to experiment with prototypes as well, because I think they will strengthen the discussion with stakeholders as well, and it will be more interesting for stakeholders to come to the university for a meeting because they could see.

Challenge owner 2
Thank.

Interviewer
Yeah, definitely.

Interviewer
OK, that was everything from my side.

Interviewer
Maybe a lot.

Challenge owner 2
So where am I? What's your? I remind me again. What? What was the purpose of your study?

Interviewer
I'm trying to find out how CBL can be used to facilitate the creation of an entrepreneurial ecosystem and then the ecosystem will be around the innovation space project.

Interviewer
And.

Interviewer
Yeah, I will try to find that out and see VL so the course can be used to.

Interviewer
Umm, get stakeholders within the system but also keep them.

Interviewer
Within it. So for example, I think there are a few challenge owners and they don't like the solution they get from the student team and then.

Interviewer
Yeah. And some of the guys, they just quit with, but this building in the.

Interviewer
Bisbee semester and.

Interviewer
Yeah, if I can find out how I can create as much value for all the stakeholders. And you can also keep them within the system.

Interviewer
And then, of course, the collaboration will improve.

Challenge owner 2
Yeah, yeah, I our experiences. So because we started also with challenges from companies in the beginning.

Challenge owner 2
And they are. They are much earlier annoyed if students take another course than than I am as Intelligent Lighting Institute because for me.

Challenge owner 2
There are multiple reasons to collaborate with innovation space, and the solution itself is not per se the most important one. For me, the most important one is that we educate sufficient amount of students in intelligent lighting so that they that that there is enough talent for the for the multiple jobs that are out there and.

Interviewer
Yep.

Challenge owner 2
And there the many of the companies are not known by the students, so signify or Philips lighting in the past is basically the only one that people may know.

Interviewer
Yeah.

Challenge owner 2
All the others they never heard of, but there are melt, multiple interesting companies. So what I see is that when we did the challenges for signify, then people choose it because they like. They like to work with signify. But then during the course they take a different route, which may not be the the choice that signify would have made. So then you see that they lose a little bit of interest.

Interviewer
Umm.

Challenge owner 2
And then then I find it for myself as a kind of intermediate important to actually keep the students motivated to finish their project, even if it's not lighting related.

Challenge owner 2
And to see if we can.

Challenge owner 2
Umm. Somehow connect them if they're interested to connect to the to the lighting ecosystem so that they're not lost forever, so to say.

Interviewer
Yeah.

Challenge owner 2
And I think if if.

Challenge owner 2
If it is theme related, so now we can easily say like we always provide challenge.

Challenge owner 2
And we we find along the way, if the students to choose their path, they can say like, oh, we're we're going to do this.

Challenge owner 2
Then we can say like which stakeholders are important for you to meet. So then we can use the network to say like, hey, if you're going that direction, you should talk to signify or you

should talk to the municipality of Eindhoven or the municipality of protracted is very much interested in what you're doing. So go talk to them.

Challenge owner 2
So then we can use the network to give them the right contact so that they're there is positive energy.

Interviewer
And that's interesting because then you really use the ecosystem that is being built. And I feel that a lot of challenge owners might have different expectations than they maybe should have when they participate in ecosystem that evolves around the university. And if they don't focus on the long term, so not really focus on these solution that they might want to obtain, but really look in the future and.

Interviewer
Go for the collaboration and maybe.

Interviewer
Come out of it then.

Interviewer
Expectation of way better and linen.

Interviewer
Yeah, I said that.

Interviewer
But.

Challenge owner 2
Yeah. And I think if they if it's not because what what you want to avoid in my in my view is if if you go for the direction that challenge owners kind of need to pay.

Challenge owner 2
For project the students which I can understand that there is the need for income uh so I totally agree. But if it becomes A1 on one transaction like I give you money and you give me a group of students that works on my challenge.

Challenge owner 2
Then the expectations that you then it becomes like consulting and there is a kind of.

Interviewer
Yeah.

Challenge owner 2
It's it's. You need a result because otherwise you you feel like you paid for for nothing where where people now already think like this is not delivering too much. They will be really annoyed if they had to pay for it.

Challenge owner 2
So what I would.

Interviewer
Yeah.

Challenge owner 2
Would do or what we're trying to to set up around lighting is that we we do not connect payments to the challenges, but we do connect payments to become member of the ecosystem and to get inside in the results of the multiple projects that run there and that you also know that if there is a project that is.

Challenge owner 2
That that that's interesting for you that that we connect the students to you and so that you kind of.

Interviewer
Yeah.

Challenge owner 2
No, that's maybe you're not called this this semester, but next semester, maybe challenges that are more interesting and closer to my business, which which may may help.

Interviewer
Umm.

Interviewer
Yeah.

Challenge owner 2
So, and we want together basically to in the ecosystem together to make kind of, yeah, road map Ward, Mentary road map so that we know what are the questions out there and that we can use that to create challenges but not the one on one like manipulative retract. Once the solution for this so.

Challenge owner 2
We put that in the challenge.

Interviewer
Yeah, that's interesting.

Interviewer
Umm.

Challenge owner 2
Yeah. And it's, uh, yeah, we we will, we will try and probably fail and.

Challenge owner 2
But then we try again with something else.

Interviewer
Yeah. Yeah. You always drive God.

Challenge owner 2
Yeah. So, yeah, but it's, yeah, I think that is.

Challenge owner 2
The way we're looking at it now, and that's based on trying all kinds of things in the past and each time we do something we think like this was not exactly perfect. So like what can we do better?

Challenge owner 2
No.

Challenge owner 2
There's always something to improve still.

Interviewer
Yeah.

Challenge owner 2
Yeah.

Interviewer
OK. And then I think we are done.

Interviewer
Thanks for your time.

Challenge owner 2
OK. Yeah then.

Interviewer
Will give an update through e-mail when I'm back at university when I've maybe useful findings for you to use as well.

Challenge owner 2
Yeah.

Interviewer
And.

Challenge owner 2
That would be nice, yeah.

Interviewer
Maybe if I want to know more about what you are doing with the Lightning ecosystem than I will contact you again. If that's why I'm for you.

Challenge owner 2
Yeah. Yeah, sure, yeah. And we we have now team ignites, uh. More as a as a.

Challenge owner 2
I see.

Challenge owner 2
I'm the one of the one of the cores of our ecosystem, so the whole ecosystem of lighting, they are the the core of the student part of it.

Interviewer
Umm.

Challenge owner 2
So you can also talk to Norcia if if she's in to see your view, because yeah, she looks at it from the student perspective more than I do.

Challenge owner 2
So that may also be interesting.

Interviewer
Yep, OK.

Interviewer
Thanks.

Interviewer
Yeah.

Challenge owner 2
OK. Thank you and good luck with your study.

Interviewer
Thank you. Bye bye.

Challenge owner 2
OK, bye.

7.3 Interview challenge owner 3 (NL)

Dutch version, used for obtaining CIMO principles, translated version can be found below.

Interviewer: Ja, ik heb nou op m'n mobiel aanstaan. Als goed is werkt dat ook ok. Ok, uhm ik zal nog heel even kort vertellen wat ik precies dan doe. Ik doe onderzoek hoe challenge based learning. Dus dat is de ja methode die gebruikt wordt binnen uh ISP. Hoe die gebruikt kan worden om een entrepreneurial ecosystem op te zetten. Dus uh, het idee is dan rondom Innovation Space project om daar een groot netwerk op te bouwen waar dan de studenten, maar ook oud studenten, uhm de coaches en bedrijven samenkomen om ja probleem stukken op te lossen en uiteindelijk daar ook start ups mee te creëren. Uhm ja dus ben ik daar een beetje aan t kijken hoe dat t gedaan kan worden. Want d'r is natuurlijk al een d'r wordt er veel gedaan natuurlijk binnen Innovation space. Uhm ja en dan wil ik gaan kijken hoe ik dan toch de problemen die er nu zijn beter kan aanpakken en hoe ik daar oplossingen voor kan bedenken om ja iedereen uiteindelijk langer binnen binnen dat netwerk te houden. Even kijken. Uhm jullie hebben als uhm Space office al vaker meegedaan met Innovation Space project toch?

Challenge owner 3: Ja vier jaar. Uh doen we nu al mee.

Interviewer: Ok. En hoe zijn jullie? Ja, bij de Innovation Space Project gekomen.

Challenge owner 3: Nou dat is een goeie vraag. Ik weet dat we altijd al wel contact wat contacten hebben bij het tu Eindhoven. Bij het begin was ik niet bij betrokken want ik heb het overgenomen van een collega twee jaar terug. Maar ik denk dat wij sowieso een partij zijn die een beetje anders is dan andere partijen. Want we zijn natuurlijk een overheidsorganisatie en geen bedrijf. Mm hu. En wij als overheid stimuleren. We hebben eigenlijk meerdere doelen. Wat heel goed aansluit is eigenlijk bij zo'n challenge als dit. Het inspireren van jongeren op het gebied van ruimtevaart. Om dat. Als je kijkt naar de ruimtevaart industrie zijn er heel veel mensen van heel verschillende achtergronden die in die industrie terechtkomen. Mm hu. En juist met zo'n channels heb je dus ook multidisciplinaire mensen die aan zo'n opdracht werken. Wat je eigenlijk ook ziet in het in het leven en het. Als je kijkt naar het dagelijks werkleven heb je ook mensen met heel veel verschillende achtergronden die werken aan oplossingen. En dat één van ons ding is dus het inspireren. Maar ook wij als overheid helpen we ook startups onder anderen. Ja, het is als goeie ideeën. De startups, dat zijn er ook alerlei regelingen, we hebben en in. In Noordwijk doen we Samen met ESA hebben we de SPic waar we mee financieren en waar dus ook mensen een voorstel van hun idee kunnen pitchen. En dan kunnen ze daar een kantoor en het geld ontvangen om hun ideeën uit te werken als startup. En juist met zo'n pool als dit zo opdrachten als dit komen juist leuke ideeën en interessante ideeen innovatieve ideeën naar boven. Mm hu. Dus als wij zelf zullen nooit de aannemer of zo we zullen nooit zoiets kopen natuurlijk. Nee ja, wij wij stimuleren meer uhm dit. En we zijn iets anders dan de andere bedrijven die misschien een probleem hebben en die zoeken een oplossing. Wij willen het meer Gewoon het stimuleren van nieuwe ideeën en nieuwe bedrijven, nieuwe toepassingen.

Interviewer: Ja, misschien wel een betere uitgangspositie om in zo'n project te stappen. Hebben jullie dan ook nog, uhm, binnen andere universiteiten bijvoorbeeld vergelijkbare projecten gedaan? Of doen die nog andere dingen?

Challenge owner 3: Uh ja we hebben wel met meeste universiteiten wel contact, maar meestal doen we wel eens mee met een IV evenement. Laatst hebben we met Twentse hebben we een een hackaton bussaton, dat is naar allerlei bedrijven op bezoek gingen en onderweg in die week deden ze een hackaton. Ja dus, maar niet erg consistent dat we nu al vier jaar lang met een vak erbij betrokken is. Dat is niet wat wij hebben met andere universiteiten.

Interviewer: Nee, ok. Uhm, ja. Uhm, hoe gaan jullie dan? je vertelde dan net dat je Uh dat je in principe student wil inspireren om dan een hele. Diverse groep uh geïnteresseerde mensen te krijgen. Maar wat zijn nog andere dingen wat jullie verwachten wanneer je begint met een nieuw semester? Wat hopen jullie eruit te krijgen?

Challenge owner 3: Ik denk als wij gewoon een groep mensen. Ik denk dat onze drempel wat lager is voor voor. Ik denk alleen al mensen beter dat ze beter bekend zijn wat er mogelijk is, wat ruimtevaart allemaal kan doen, dat ze weten. Oh, er is ook inderdaad een ruimtevaart organisatie ruimtevaart agentschap in Nederland die hiermee bezig houdt en dan is het voor ons daar. Tot nu is dat al eigenlijk al voldoende. Misschien is de drempel als er iets moois uitkomt dat iemand heel erg geïnspireerd raakt. Oh, ik wil nu in de ruimtevaartindustrie werken of we hebben een leuk idee, want in het verleden is er ook een start up uitgekomen. Space C. Volgens mij bestaan ze niet meer, maar ze zijn wel. Ze heb ik wel geprobeerd als ze als een start up. Ja, dat is heel mooi meegenomen. Eh. Maar ik denk alleen al betere bekendheid te hebben. Of uh, betere bekendheid dat mensen meer bij stilstaan. Dit. Er zijn zoveel mogelijkheden met ruimtevaart. Het is niet alleen maar uh. Nou ja hardware, maar je hebt ook satelliet toepassingen. Dat het generiek kan zijn aan maatschappelijke vraagstukken, dat mensen er meer bewust van zijn wat er allemaal mogelijk is, dat dat is voor ons. Ja, het is voor ons al een doel op zich. Ja, het echt meer bekendmaken, inspireren.

Interviewer: Ja vind k uh interessant om te horen dat jullie er zo anders in staan als de normale challenge owner.

Challenge owner 3: Ja en ik denk ook dat ik het ook heel leuk vind eigenlijk is de studenten zelf kiezen dus de challenge uit. En we hebben afgelopen jaar wel heel vaak gehad dat we twee groepjes hadden, dus dat betekent ook dat er gewoon. Er is wel animo bij de studenten om hier meer over te leren of meer over te weten. Mm hu. En op een gegeven moment heb ik gezegd nou, ik wil er eigenlijk liever één. Ja, niet meer twee omdat het ook gewoon te veel tijd kost.

Interviewer: Nee dat snap ik.

Challenge owner 3: Uh, maar dat het is wel een alleen al dit dat ik dit voor verzoeken krijgt. Van Ákos. Mm hu. Uh is t uh is het wel mooi dat er dus wel mensen meer in willen verdiepen? Ja.

Interviewer: Ja, da's leuk inderdaad. Uhm ja. En zoals je net vertelde is er dan ooit een start up uhm uitgekomen? Hebben jullie nog verder vergelijkbare dingen echt eruit gekregen? Dat ze bijvoorbeeld. Ja feedback krijgt van iemand. Ik ben toch later hier nog ingestapt. Of dat misschien met ons idee verder gaan of naar een ander bedrijf toe gestapt van we gaan er mee verder.

Challenge owner 3: Nou ik denk dat wel twee jaar terug dat we één project team die je werk dus werkt aan onderwerp waar. Er was een onderwerp over de luchtkwaliteit en die hebben ook met heel veel gemeentes gesproken. Ook heel veel andere groepen wat al eigenlijk voor ons wel relevante informatie geeft. Van alles. Het is er ook. Zij zorgen ook wel van hoe een gemeente er naar kijkt. Hoe, wat, wat is het probleem van de gemeente? Hoe wil het zo'n gemeente het oplossen? En dat is voor ons wel hele relevante informatie van hoe andere organisaties daarnaar kijken. En dat zal wel. Met verschillende ze hadden met het RIVM gesproken en. En soms is het. En ja, wij hebben ook niet altijd de tijd voor om met iedereen te praten en al met zo'n onderwerp is het wel interessant om te horen en relevant. En daar kunnen we ook echt daadwerkelijk iets mee met die informatie die ze aan de studenten geven. Ja, en dat geeft bij ons ook beter inzicht. Dus dat was wel iets. Eh ja, heel

positief. Mm hu. En hangt heel erg af omdat wij niet en omdat ik heel erg het eigenlijk de studenten zelf wil motiveren, zelf al inspireren wil ik ze niet een afgebakend opdracht geven. Dus om ze met. Onze opdracht is heel breed. Bedenkt, vindt een maatschappelijk probleem, los een maatschappelijk vraagstuk op met behulp van satelliet data. Ook meer om gewoon de studenten dat ze een half jaar ergens aan werken, wat ze zelf ook echt interessant vinden. Ja ja, ik vind dat ook heel belangrijk. En dan? Ja, en dan heb je soms ook gewoon onderwerp wat studenten belangrijk vinden, maar waar ik persoonlijk zelf niet aan werk.

Interviewer: Ja, ik denk dat dat inderdaad wel leuk is. Beetje dat gewoon de studenten heel vrij zijn om dan te gaan kijken van ok, dit kunnen we met die data, hier gaan we ons helemaal op focussen. Maar ja, dan kan ik er wel inkomen dat voor jullie misschien minder directe.

Challenge owner 3: Ja, maar daarom heb ik ook. Ons doel is betere bekendheid en meer inspireren. Ja, en dat. En dat ik daarom ook belangrijk vind dat die studenten ook echt iets doen wat ze zelf ook echt leuk vinden.

Interviewer: Ok, dat waar ik mijn vaste vragen uhm ja, hoe ziet de toekomst eruit voor jullie binnen Innovation Space Protect?

Challenge owner 3: Ah ja, ik ga Ik ga dus. We zijn dus nu nu aan het kijken, want ik weet nog niet of we volgend jaar dus gaan meedoen. Uh. Dat moet ik even nog intern bespreken. Uhm. Meer ook omdat we zelf ook aan het nadenken zijn hoe we willen we beter al alle universiteiten in contact komen, meer erbij betrekken in de ruimtevaart? Ja, en daarom moeten we nog even kijken of dit opdracht nog bij past. Dus ik weet het. Ik weet zelf nog niet of we al of ik, of we hiermee doorgaan of niet wel dat we doorgaan met contact te hebben met TU Eindhoven. Dat in ieder geval. Mm hu. Maar of dat een vorm is van een challenge of dat wij nu bijvoorbeeld bedrijven vragen kom met een opdracht. Dat ligt ook open. Dat wij zeggen nou misschien wilt er een bedrijf in plaats van ons. Ja, of meerdere bedrijven of. Dus daar zijn we nog even aan het kijken. Hoe of wij het gaan doen. Of iemand anders.

Interviewer: Ja, allemaal nog heel open in ieder geval

Challenge owner 3: Het is nog heel open. We zijn er nog wel even over aan na aan het denken. Ja, omdat het bij ons ook. Ja, het is wel een tijdsinvestering die je maakt.

Interviewer: Mmm ja begrijp ik.

Challenge owner 3: Dus we zijn ook aan het kijken. Maar contacten met TU Eindhoven. Dat een samenwerking met TU Eindhoven, dat zeker. Maar we hebben ook andere ideeën. Plannen voor in de toekomst. Dus of het nou hier komt of een of een ander project dan, tijd, wijst het uit.

Interviewer: Ja ja en nog uh heb je toevallig nog wat tips? Uh rondom ISP? Of uhm ja wat jij denkt dit kan verbeterd worden om dan dat ecosysteem. Beter te maken om het langer te laten bestaan.

Challenge owner 3: Ik heb nu wel het idee dat. Door de jaren heen heb ik wel het idee vorig jaar, dus daarom zit ik ook te twijfelen dat er wel veel meer van de challenge owners wordt gevraagd. Dus ook veel meer tijd dan ik wil, ook kost. Ik zie in een groeiende lijn dat het meer tijd kost dan voorheen.

Interviewer: Ja en dat is dan.

Challenge owner 3: Misschien.

Interviewer: In tijd van meetings en dat je naar Eindhoven moet komen.

Challenge owner 3: Ja nou normaal deden we gewoon drie keer per jaar kwamen we en dat was het. Mm hu. En nu merk je toch met dat teams. En nu ook met meer tussentijdse pitches, presentaties. En en en. Doordat je makkelijk nu met teams doet, besteed je er meer tijd aan. Ja, en ik denk dat het misschien wel goed is om nou ook de studenten te zeggen je hebt gewoon je spreek gewoon maximaal zo vaak af op zo vaak contact. Mm hu. Ah ja. Ik merk dat heel veel verschilt per groepje, maar ik merk wel een toenemende lijn dat er meer contact komt. En ik weet niet of dat per se nou goed is, want de uiteindelijke kwaliteit zie ik niet dat het beter wordt, maar het kost hier wel meer tijd.

Interviewer: Ja ja, klinkt logisch. Dus jij zou eigenlijk dan zeggen ik wil gewoon minder contactmomenten en dan wel gewoon die vaste punten waar wij iets terugkrijgen qua progress.

Challenge owner 3: Ja. Nee, dat zou ik denk ik wel mee geven, want ik denk dat het nu makkelijker is met teams en makkelijk om steeds af te spreken. En ik weet dat sommige challenge owners hebben dan elke week een meeting. Ja ik ik ja. Ik weet ook niet of A de studenten daarop zitten te wachten of dat. Ja, ik ben daar nog zelf wat terughoudender in.

Interviewer: Ehm ja t is wel grappig dat je dat zegt want van andere challenge owners een of twee volgens mij zeiden dat ze juist meer feedback wilden krijgen van hun studentengroep omdat ze dan bij een pitch kwamen. Dan wisten ze totaal niet wat er gedaan was in al die tijd en dan was het van ok. Wij krijgen nu de pitch dit is het maar we hebben totaal geen idee wat jullie in de afgelopen weken hebben gedaan. Dus die zeiden juist van wij zouden wel liever meer meetings hebben en meer Feedback krijgen.

Challenge owner 3: Ja, ik denk ook wel dat de staff op de eind op de bij bij de challenge ook wat meer ja. Wat ik wel opmerk, want vorig jaar het prbleem was is dat sommige groepen nemen heel veel contact, want ik heb soms groepjes die heel veel contact of heel veel kleine dan denk ik kom graag iets mee naar mij toe. Als je echt daadwerkelijk iets te laten zien of je hebt iets nieuws met of je echt vragen niet gewoon om een kleine update. Maar ik heb wel één groep gehad, daar had ik heel weinig contact mee vorig jaar en die hebben uiteindelijk iets bedacht. Wij hebben één eis in onze challenge gebruik de satelliet data en probeer daar het probleem mee op te lossen of zeg maar informatie te krijgen voor je probleem. Ja en toen had ik dus één groepje. Die had dus helemaal een probleem opgelost, maar die hadden dus niet satteliet data gebruikt. Dus ik zeg ja je hebt de één requirement en dat is satelliet data en dat was al driekwart van de opdracht. Dus dan denk ik toch. Ehm. Sommige groepen zijn heel erg, die laten niets meer van zich zoals geweten. Sommige eet heel veel en eigenlijk moet je gewoon zeggen je moet gewoon Maxie. Ik zou gewoon liefst ter wille, gewoon vaste momenten of paar keer. Dan stel je vraag het, dan zie je elkaar. Dan moet je gewoon je alles op orde hebben. En dat ook. Daarna had ik ook. Ik had dus ook de staff gemaild van nou ik weet deze studenten zijn nu driekwart. die hebben een probleem Uh bedacht oplossing maar het enigste wat ze niet gebruiken is satelliet data. Ik heb toen ook gezegd dan moeten jullie wel wat strikter ook op zijn dat dat wel een belangrijk.

Interviewer: Ja, dat in ieder geval wel jullie factor van de challenge, meegenomen wordt.

Challenge owner 3: Ja en ik denk dat is iets heel makkelijk zijn. Ik weet niet dan niet of het kan of of wij dan. Ik denk dat zoiets makkelijk ook door de TU Eindhoven. Van dit zijn de requirements he. Je hebt geen satelliet data, maar je doet wel iets voor de ruimtevaart agentschap van de Nederlandse overheid. Doe dan. Ja dus. En dat denk ik, dat had ook. Dat is denk ik ook ontglipt door alles. Of dat ze dat het niet goed naar voren kwam. Maar

toen ik dat zag dacht ik hee, dit is geen uh. Wat? Wat gebruik je nou van satelliet data? Nou, dat was dus niks.

Interviewer: Ja nee. Dat houdt in dat dat makkelijk opgelost kunnen worden als d'r gewoon wat beter gecommuniceerd werd.

Challenge owner 3: Ja dus. Ja dus. Ik denk ja, ik, ik. Het viel me gewoon vorig jaar veel meer op dat er gewoon veel meer momenten zijn en op gegeven moment is het wel omdat ik voor veel bedrijven is dit iets extra's wat je doet. Ehm, zijn wij wel meer voorstander van dat wat laagdrempeliger is dan? Ja, omdat wij ook misschien alweer een andere doel hebben. Ja dus als er elk week meetings zijn dan. Daar hebben wij gewoon geen. Kan ik niet een collega of ik zelf daar tijd voor mij vrijmaken. Dat is. Dat dit toch iets extra is wat je doet naast je werkzaamheden, wat wel heel leuk is.

Interviewer: Mmm ja nee. Ik begrijp wel dat je inderdaad ook gewoon uh je eigen werk hebt waar je je uren in moet steken. Dat je niet elk mailtje of elke korte vraag effe een meeting kan inschieten.

Challenge owner 3: Ja. Dus uh ja dus ik merk ook wel verschil merk wel en ziet dan ook wel kwaliteitsverschil tussen mensen die zich nooit van zich laten horen en mensen die wel veel van je je laten horen. Maar ik kan me herinneren voorgaande jaren toen wij het drie jaar terug als het gewoon drie keer bij de kickoff mid-term en final. En als ik dan zie op de resultaten dat die eruit zijn gekomen dat er start-up uit zijn gekomen, dan denk ik ja, het is. Het kan wel. Ik denk dat het heel erg afhangt van van de groep.

Interviewer: Ja, dat denk ik ook zeker.

Challenge owner 3: Ja ja en uh ja ik moet ik me. En ik ben benieuwd aankomend jaar. Uh of wij of. Ik denk in ieder geval wel dat wij wel een ruimtevaart challenge Komt maar dat we het vragen aan de sector hè. Willen jullie het? Misschien is het ook wel leuk om dat de sector het uitprobeert. Wij hebben heel veel contact met de sector dat die dan we laten weten dit is mogelijk. Wie wilt er een specifieke?

Interviewer: Sharons Ja, ja, dan krijg je misschien ook meer inzicht en specifieke oplossingen waardoor dan mijn meer mensen daarvan kunnen profiteren. Waar je dan ook meer direct resultaat van kan zien.

Challenge owner 3: Ja, dat is zo.

Interviewer: Ja ok dan uh hebben we hem. Ok bedankt voor je tijd. Ik uhm zal van tijd nog wel eventjes een update naar je mailen dat je ook weet wat ik er uiteindelijk uh van gemaakt heb en uh heb uitgevonden.

Challenge owner 3: Ja graag uh denk ik want dat is voor je masterscriptie begreep ik toch. Of. Of is het? Ja klopt. Ik ben wel benieuwd. Hou me al vaak op de hoogte van uh naja wat wat eruit komt.

Interviewer: Ja doe k zeker.

Challenge owner 3: En ja dus ik ik ik ben. Ik ben benieuwd. Uh. Ja ik. Het is wel een leuke vorm van zeker de vorm van hoe dat hele challenge based learning. Dat is wel heel interessant en ook het vorm van het zijn geen ruimtevaart studenten of elektronica, maar gewoon een mix van mensen. Samenwerken. Dat vind ik ook echt heel leuk en merkt toch ook wel dat mensen uh. Dat wil ik nog wel benoemen. Wat ik wel merk is het zijn mensen

die niet echt iets met satelliet kaarten hebben gewerkt en die kijken de toch anders na of interpreteren van omdat ze dat nooit hebben meegemaakt. of gewerkt.

Interviewer: Zeker. Dan krijg je de.

Challenge owner 3: Vertaalslag die zo belangrijk is. Want mensen die weten wat je ziet in een satellietbeeld die ziet het, maar de rest van de samenleving weet niet wat je ziet in zo'n satellietbeeld. Dus ook die mensen die aan zon soort challenge werken dus die komen juist heel goed in die vertaal slagen van die data. Hoe moet zo'n gemeente ambtenaar deze data uithalen? Hoe lezen ze dat? Wat zien ze?

Interviewer: Nee, dat is gewoon. Krijgt gewoon hele andere inzichten denk ik. Als die mensen die niet vastgeroest zitten zeg maar op n specifiek uh ding als het dan ja kan, satteliet data zijn of net wat? En dat is denk ik een dat interessante. Dat gewoon die studenten met een hele frisse blik komen op die ja oplossingen.

Challenge owner 3: Ja, en dat is uh. Leuke ideeën heb ik langs zien komen gedurende een jaar. Wat ze eruit kunnen halen? Ja, voor informatie dus. En hoe ze dat vertalen naar iets praktisch wat jij, ik of je buurvrouw uh begrijpt. Ja, dat is leuk.

Interviewer: Zeker. Nou bedankt.

Challenge owner 3: Succes! Dank je wel.

Interviewer: Fijne dag.

Interviewer: Yes, I now have it on on my mobile. If it's good, that works ok too. Ok, uhm I will briefly tell you what I do exactly then. I'm researching how challenge based learning . So that's the yes method used within uh ISP. How it can be used to become an entrepreneurial establish an ecosystem . So uh, the idea is around the Innovation Space project to build a large network there where the students, but also former students, uhm the coaches and companies come together to solve problem pieces and eventually also start ups with them. to create. Uhm yeah so I'm a bit there to see how that can be done. Because of course there is already a lot is being done of course within Innovation space . Uhm yes and then I want to see how I can better tackle the problems that exist now and how I can come up with solutions to keep everyone within that network longer. Have a look. Uhm, as uhm Space office, you have already participated in the Innovation Space project before, right?

Challenge owner 3: Yes, four years. Uh, we're already doing it.

Interviewer: Okay. And how are you? Yes, joined the Innovation Space Project.

Challenge owner 3: Well that's a good question. I know that we have always had some contacts at tu Eindhoven. I was not involved at the beginning because I took it over from a colleague two years ago. But I think we are a party that is a bit different from other parties anyway. Because of course we are a government organization and not a company. Mmm huh. And we as a government encourage it. We actually have several goals. What fits very well is actually with a challenge like this. Inspiring young people in the field of space travel. Because. If you look at the aerospace industry, there are a lot of people from very different backgrounds who end up in that industry. Mmm huh. And it is precisely with such channels that you also have multidisciplinary people who work on such an assignment. Whatever you actually see in it in life and it. If you look at daily work life, you also have people from many different backgrounds working on solutions. And that one of our things is to inspire. But we as a government also help startups, among others. Yes, it's like good ideas. The startups, there are also all kinds of schemes, we have and in. In Noordwijk we do. Together with ESA we have the SPic with which we finance and where people can pitch a proposal of their idea. And then they can receive an office there and the money to develop their ideas as a startup. And it is precisely with such a pool as this and assignments like this that fun ideas and interesting ideas come to the fore. Mmm huh. So if we ourselves will never be the contractor or something we will never buy such a thing of course. No yes, we encourage more uhm this. And we're a little different from the other companies that might have a problem and they're looking for a solution. We want it more Just to stimulate new ideas and new businesses, new applications.

Interviewer: Yes, perhaps a better starting position to step into such a project. Have you also, uhm, done similar projects at other universities? Or do they do other things?

Challenge owner 3: Uh yes, we do have contact with most universities, but we usually participate in an IV event. We recently had a one with Twentse hackathon bussaton , that is to visit all kinds of companies and on the way in that week they did a hackathon . So yes, but not very consistent that we have been involved with a profession for four years now. That's not what we have with other universities.

Interviewer: No, okay. Um, yes. Uhm, how are you doing then? you just said that you Uh that you basically want to inspire a student to do a whole. Diverse group of uh interested people to get. But what are other things you expect when you start a new semester? What do you hope to get out of it?

Challenge owner 3: I think if we are just a group of people. I think our threshold is a bit lower for . I just think people better that they are better known what is possible, what space travel can do, that they know. Oh, there is indeed a space organization space agency in the Netherlands that is involved in this and then it is there for us. So far, that's actually enough. Perhaps the threshold is when something beautiful comes out that someone becomes very inspired. Oh, I want to work in the space industry now or we have a nice idea, because in the past a start-up has also come out. Space C. I don't think they exist anymore, but they are. I have tried them as a start up. Yes, that's a very nice bonus. uh. But I just think I'm better known. Or uh, better known that people think more about it. This. There are so many possibilities with space travel. It's not just uh. Well, hardware, but you also have satellite applications. That it can be generic to social issues, that people are more aware of what is possible, that is for us. Yes, it is already a goal in itself for us. Yes, really publicize it more, inspire.

Interviewer: Yes, I find it interesting to hear that you are so different from the normal challenge owner .

Challenge owner 3: Yes and I also think I really like it, so the students themselves choose the challenge . And last year we often had two groups, so that also means that there is just one. There is enthusiasm among the students to learn more about this or to know more about it. Mmm huh. And at one point I said well, I'd rather have one. Yes, no more two because it just takes too much time.

Interviewer: No, I get that.

Challenge owner 3: Uh, but it's just this that I get this for requests. From Ákos . Mmm huh. Uh is t uh is it nice that people want to delve more into it? Yes.

Interviewer: Yes, that's nice indeed. Umm yes. And as you just said, did a start up ever come out? Did you really get anything similar out of it? That they for example. Yes get feedback from someone. I got in here later anyway. Or maybe we can continue with our idea or go to another company and we will continue with it.

Challenge owner 3: Well I think two years ago we had one project team that you work so on topic where. There was a topic about air quality and they also spoke with many municipalities. There are also many other groups that already provide relevant information for us. Everything. It's there too. They also care about how a municipality looks at it. How, what, what is the problem of the municipality? How does a municipality like this solve it? And that is very relevant information for us about how other organizations look at it. And it will. With several they had spoken to the RIVM and. And sometimes it is. And yes, we don't always have the time to talk to everyone and with such a subject it is interesting to hear and relevant. And we can actually do something with that information that they give to the students. Yes, and that also gives us better insight. So that was something. Uh yes, very positive. Mmm huh. And it depends a lot because we don't and because I really want to motivate the students themselves, even inspire them, I don't want to give them a defined assignment. So to them with. Our mission is very broad. Thinks up, finds a social problem, solve a social issue with the help of satellite data. Also more simply because the students are working on something for six months, which they find really interesting themselves. Yes, I think that's very important too. And then? Yes, and sometimes you just have a subject that students find important, but which I personally don't work on myself.

Interviewer: Yes, I think that is indeed fun. A bit that the students are very free to go and look like ok, we can do this with the data, we will focus completely on this. But yes, then I can get into that maybe less direct for you.

Challenge owner 3: Yes, but that's why I have. Our goal is to raise awareness and inspire more. Yes, and that. And that's why I think it's important that those students actually do something that they really enjoy themselves.

Interviewer: Ok, that's where my regular questions uhm yes, what does the future look like for you within Innovation Space Protect ?

Challenge owner 3: Ah yes, I'm going I'm going. So we are now looking , because I don't know yet whether we will participate next year. uh. I'll have to discuss that internally. uhm. More so because we are also thinking about how we want to get in touch with all universities, more involved in space travel? Yes, and that's why we have to see if this assignment still fits. So I know. I myself don't know yet whether we already have or whether we will continue with this or not or whether we will continue to have contact with Eindhoven University of Technology. That in any case. Mmm huh. But whether that is a form of a challenge or whether we now ask companies to come up with an assignment. That is also open. That we say well maybe want a company instead of us. Yes, or multiple companies or. So we're still looking at that. How are we going to do it. Or someone else.

Interviewer: Yes, all still very open in any case

Challenge owner 3: It is still very open. We're still thinking about it. Yes, because it is with us too. Yes, it is a time investment that you make.

Interviewer: Mmm yes I understand.

Challenge owner 3: So we're watching too. But contacts with TU Eindhoven. That a collaboration with Eindhoven University of Technology, that's for sure. But we also have other ideas. Plans for the future. So whether it comes here or some other project, time will tell.

Interviewer: Yes yes and uh do you happen to have some tips? Uh around ISP? Or uhm yes what you think this can be improved to then that ecosystem. Make it better to make it last longer.

Challenge owner 3: I now have the idea that. Over the years I do have the idea last year, so that's why I doubt that there is much more of the challenge owner is prompted. So also costs a lot more time than I want. I see in a growing line that it takes more time than before.

Interviewer: Yes and that's it.

Challenge owner 3: Maybe.

Interviewer: In time of meetings and that you have to come to Eindhoven.

Challenge owner 3: Yes well normally we just came three times a year and that was it. Mmm huh. And now you notice with that teams. And now also with more interim pitches , presentations. and and and . Because you now easily do with teams, you spend more time on it. Yes, and I think it might be good to also say to the students you just have you just meet as often as possible on so often contact. Mmm huh. Ah yes. I notice that a lot differs per group, but I do notice an increasing line that there is more contact. And I don't know if that's necessarily a good thing, because I don't see the final quality getting any better, but it does take more time here.

Interviewer: Yes yes, sounds logical. So you would actually say I just want less contact moments and then just those fixed points where we get something back in terms of progress .

Challenge owner 3: Yes. No, I think I'd give that, because I think it's easier now with teams and easy to meet up all the time. And I know some challenge owners then have a meeting every week. Yes I I yes. I also don't know whether A the students are waiting for that or that. Yes, I'm a bit more reserved about that myself.

Interviewer: Ehm yes it's funny that you say that because of another challenge owners one or two I think said they wanted to get more feedback from their student group because then they got to a pitch. Then they didn't know at all what had been done in all that time and then it was ok. We are now getting the pitch this is it but we have absolutely no idea what you have been up to in the past few weeks. So they just said we would rather have more meetings and get more feedback.

Challenge owner 3: Yes, I also think that the staff at the end on the bee at the challenge is also a bit more yes. What I do notice, because last year the problem was that some groups make a lot of contact, because sometimes I have groups that have a lot of contact or a lot of small ones, then I think I would like to bring something to me. If you really have something to show or you have something new with or you really don't just ask for a little update. But I did have one group, I had very little contact with it last year and they eventually came up with something. We have one requirement in our challenge use the satellite data and try to solve the problem with it or say get information for your problem. Yes, and then I had one group. So they had completely solved a problem, but they had not used satellite data. So I say yes you have the one requirement and that is satellite data and that was already three quarters of the assignment. So then I guess. um . Some groups are very bad, they don't leave anything like conscience anymore. Some eat a lot and really you just have to say you just have to Maxie . I would just prefer at will, just fixed times or few times. Then ask your question, then you'll see each other. Then you just have to get everything in order. And that too. Then I had too. So I also emailed the staff of well I know these students are now three quarters. they have a problem Uh came up with a solution but the only thing they don't use is satellite data. I also said then you have to be a bit stricter that that is an important one.

Interviewer: Yes, that at least your factor of the challenge is included.

Challenge owner 3: Yes and I think that is something very easy. I don't know if it's possible or if we do. I think something like this can easily be done by TU Eindhoven as well. These are the requirements . You don't have satellite data, but you do something for the space agency of the Dutch government. Do it then. So yes. And I think that, too. I think that has slipped through everything. Or that she didn't get it right. But when I saw that I thought hey, this isn't a uh. What? What do you use satellite data for? Well, that was nothing.

Interviewer: Yes no. That means that it can be easily solved if there was just a little better communication.

Challenge owner 3: So yes. So yes. I think yes, me, me. It just struck me last year that there are just a lot more moments and at some point it's because for many companies this is something extra that you do. Ehm , are we more in favor of that which is more accessible than? Yes, because we may also have another goal. Yes, so if there are meetings every week then. We just don't have one. Can't I have a colleague or myself make time for me there? That is. That this is something extra that you do next to your work, which is very nice.

Interviewer: Mmm yes no. I understand that you do indeed have your own work where you have to put your hours into. That you can't just throw every email or every short question into a meeting.

Challenge owner 3: Yes. So uh yes, so I also notice a difference, and I also see a difference in quality between people who never let themselves be heard and people who do make themselves heard a lot. But I can remember previous years when we got it three years back when it was just three times at the kickoff mid- term and final . And when I look at the results that they have come out that start-ups have come out, then I think yes, it is. It can. I think it really depends on the group.

Interviewer: Yes, I certainly think so.

Challenge owner 3: Yes yes and uh yes I must me me. And I'm looking forward to next year. Uh either us or. In any case, I do think that we do have a space challenge . Let's just ask the sector, eh. Do you want it? Perhaps it is also nice that the sector is trying it out. We have a lot of contact with the sector that we will let them know this is possible. Who wants a specific one?

Interviewer: Sharons Yes, yes, then you might also get more insight and specific solutions so that my more people can benefit from it. That way you can see more immediate results.

Challenge owner 3: Yes, it is.

Interviewer: Yes ok then uh we have him. Ok thanks for your time. I uhm will email you an update from time to time that you also know what I ultimately made uh of it and uh invented it.

Challenge owner 3: Yes please uh I think because that is for your master's thesis I understood. Or. Or is it? That's right. I am curious. Keep me informed often of uh well what comes out.

Interviewer: Yes, I certainly will.

Challenge owner 3: And yes so me me i am. I'm curious. uh. Yes I. It's a nice form of certainly the form of how that whole challenge based learning . That is very interesting and also the shape of being not aerospace students or electronics, but just a mix of people. To collaborate. I also really like that and notice that people uh. I still want to name that. What I do notice is that there are people who have not really worked with satellite maps and who look at or interpret it differently because they have never experienced that. or worked.

Interviewer: Sure. Then you get the.

Challenge owner 3: Translation that is so important. Because people who know what you see in a satellite image see it, but the rest of society doesn't know what you see in such a satellite image. So also those people who work on such a challenge , so they are very good at translating that data. How should such a municipal official extract this data? How do they read that? What do they see?

Interviewer: No, that's just. I think you just get a completely different view. If those people who are not stuck say on one specific uh thing if it is possible, are satellite data or just what? And I think that's one that's interesting. That those students simply come up with a very fresh look at those yes solutions.

Challenge owner 3: Yeah, and that's uh. I have seen nice ideas come along during a year. What can they get out of it? Yes, so for information. And how they translate that into something practical that you, me or your neighbor uh understand. Yes, that's nice.

Interviewer: Sure. Well thanks.

Challenge owner 3: Success! Thank you.

Interviewer: Have a nice day.

7.5 Interview challenge owner 4

Interviewer
Yes, it's regarding.

Challenge owner 4
Yeah. OK.

Interviewer
OK, so how did you find out about the innovation space project? Because this is the first time you but this very right.

Challenge owner 4
That's right, this happened through one of our challenge team.

Challenge owner 4
Members and that's Aris, who had contacts with Vodafone.

Interviewer
Umm.

Challenge owner 4
They invited us to their 5G hub and that's and we also got in touch with the student organization that organizes the challenges.

Interviewer
OK.

Interviewer
And why did you then choose to participate as well? Goes, I think there are a lot of other similar projects at, for example, Delphi University and other.

Interviewer
Umm. Entrepreneurial hubs. So why did you do it then? To go through the ISP?

Challenge owner 4
Well, to be honest, this was.

Challenge owner 4
More of an opportunity that presented itself rather than the outcome of a a larger research effort on our side.

Interviewer
Yeah. Good.

Challenge owner 4
So didn't we didn't go to any other options we.

Challenge owner 4
Came across this possibility and pursued it.

Interviewer
Yeah. So there's this game on your bot and you went for it.

Challenge owner 4
Yeah, that's right.

Challenge owner 4
No, no.

Interviewer
And do you have any experience with other similar collaborations with students? Nothing at all.

Interviewer
Yeah.

Challenge owner 4
Yeah, I don't on that does you know, and that was also on the team, but I don't.

Interviewer
Umm.

Interviewer
Am what value did you expect to receive?

Interviewer
Because I think.

Challenge owner 4
Well.

Interviewer
I think Annet mentioned that at first you expect something different because the solution wasn't directly something you thought of.

Challenge owner 4
Yeah.

Challenge owner 4
Yeah, the outcome was different from what we expected and that's maybe because we haven't clarified our expectations properly, so.

Challenge owner 4
That being said, there were two outcomes, and I think they're both very useful. One is the knowledge base.

Interviewer
Umm.

Challenge owner 4
Which I do believe we have to pursue and the other is the idea that you could develop an app to help visually impaired people choose between all the different options facilitate the choice.

Challenge owner 4
Umm, in in the world of assistive technology and it can be quite bewildering.

Challenge owner 4
If you start on that path to find out what is the best option for your personal needs.

Challenge owner 4
So I think there is value there. Uh, particularly if there's students who team up with the romanization like Physio, and I think we mentioned that before because they really are reorganization in the Netherlands that helps.

Challenge owner 4
Enabling.

Challenge owner 4
That helps to enable visually impaired people to try to participate as much as possible in society.

Interviewer
Yep.

Interviewer
Umm.

Challenge owner 4
And so, so this was not the outcome that we had envisaged at all, to be honest. But I think it is useful.

Interviewer
Yeah.

Challenge owner 4
Or can become useful.

Interviewer
And.

Interviewer
I was a few years ago. Are you still? Is there something going on with the the app or the ID they proposed to you?

Challenge owner 4
Well, I'm not sure we will work any further on the app. I don't think that that will be our focus, but I think the knowledge base will be part of the continuation and what we're looking to do now is to set up a student team.

Challenge owner 4
In Antonissen as well.

Interviewer
Yeah. And then.

Interviewer
Proceeding with the.

Challenge owner 4
And then go back to the idea of the glasses.

Interviewer
Yeah.

Challenge owner 4
And see how we can expand on what is already existing and how we can develop that form.

Interviewer
Hmm.

Interviewer
OK, that's nice because.

Interviewer
Umm.

Interviewer
For my Jesus. Umm yeah, I'm trying to reset our way. Entrepreneurial ecosystem can be built. So as already say that that our companies and they want to participate either in the ISP course or just create a student team.

Interviewer
And all of that, it won't place where.

Interviewer
Stakeholders can find each other.

Interviewer
Umm.

Interviewer
So yeah, the future plans you mentioned, maybe you want to go for a student team, but.

Interviewer
UM, during the Go creation session there was also last week with these students.

Interviewer
A few of them mentioned that they maybe want to become an expert for the ISP course in the next semester.

Interviewer
Umm.

Interviewer
How would you think about something like that in the upcoming semesters? Not that you really have to say yes or no, but maybe just.

Interviewer
To give an opinion.

Interviewer
To share your expert knowledge or maybe your network, UM, that's available.

Interviewer
Umm. Or just being challenge owner again?

Interviewer
Would you maybe go a little bit deeper and the future if there's any for the ISP?

Challenge owner 4
I don't think I would do another challenge.

Interviewer
Umm.

Challenge owner 4
Because I really think we need to focus on one thing at a time.

Challenge owner 4
And that would then be the student team.

Challenge owner 4
But if there is a continuation in an ISP context, I will always be available for for support and advice.

Interviewer
Yeah.

Challenge owner 4
Does that answer your question?

Challenge owner 4
OK.

Interviewer
Yeah, I think so. But Ghost right now.

Interviewer
I think all the means are available to create the ecosystem, but.

Interviewer
Well, that's structural missing and.

Interviewer
If, for example, challenge owner doesn't like his or her solution, then.

Interviewer
They just quit with it and they don't come back. And the idea of an entrepreneurial ecosystem is even if you don't like the solution, maybe you then can be an expert or share your network as well.

Interviewer
Uh.

Challenge owner 4
Yeah. No, I think that would be feasible.

Interviewer
Yeah, and do it. And maybe if any tips for improvement?

Interviewer

To create an ecosystem and create as much value for the students, but also for other challenge owners to keep them with it within the system.

Challenge owner 4

You mean for this particular idea of the app or in general?

Interviewer

Now just in general.

Interviewer

Yeah. OK. So.

Challenge owner 4

Sorry, could you repeat the question or rephrase it a little bit? I'm not so that's that.

Interviewer

For my tears, I want to create an entrepreneur ecosystem and then the I speak goes will be the base. So everything he falls around the innovation space project.

Interviewer

And then you have the students, the experts that could be, for example, challenge Jones would also the teachers or the coaches and then are the challenge owners which provide the challenge would also have the maybe knowledge and network available.

Interviewer

Umm and a solution that I would like to create could be something like.

Interviewer

An updated study guide for the students to improve.

Interviewer

For example, the stakeholder management, because there was mention a few times during the meeting.

Interviewer

Or, uh, get the expectations better in line with chat with the challenge owners, but it could also be a guideline for new challenge on for example.

Challenge owner 4

OK.

Interviewer

To.

Challenge owner 4

Well, I think a study guide, yeah. Keep it short. I don't make it a huge thing, but I think that would be helpful and one of.

Interviewer

Hmm.

Challenge owner 4

It does at least two things. It should contain. One is for students when they start on the

challenge, really to liaise with other students that are doing similar things or have done similar things. And what we have this large Co-creation meeting with the three groups, it became apparent that we should really have done that right at the start.

Interviewer
Yeah.

Challenge owner 4
So, Umm uh, make sure that all the knowledge that is already existing around the university is pulled right at the beginning and 2nd for student. So and and the guide should also emphasize that student should really reach out to the challenge owners to pick their brains more.

Interviewer
Yeah, indeed. Yeah, that was mentioned a few times during the meeting as well.

Challenge owner 4
Yeah.

Interviewer
Yeah.

Interviewer
OK. Then I think that was it already.

Challenge owner 4
OK.

Challenge owner 4
Bangalore.

Interviewer
I wasn't sure that was really helpful.

Challenge owner 4
OK. Well let me know if there's anything else I can add, but I think for the moment.

Challenge owner 4
Umm.

Challenge owner 4
Just thinking back to our full experience.

Challenge owner 4
So maybe just to elaborate one little further, element is that of communication.

Interviewer
Umm.

Challenge owner 4
I think for us, for a uh, a challenge team challenge student team to be effective is to to divide roles right from the start. So one person will be in charge of communications, the other one of overall progress.

Challenge owner 4

And timetables so that there's always that and then always have a a regular update link with the challenge owner.

Challenge owner 4
And a feedback loop.

Challenge owner 4
Yeah.

Interviewer
Yeah, just give them more into the loop. What's going on within the project? Yeah.

Challenge owner 4
Yeah. And in the big the big issue that I think.

Challenge owner 4
One of the things that played up in this particular case is that.

Challenge owner 4
As we see it, your academic objectives.

Challenge owner 4
Where sometimes not parallel with our challenge objectives.

Challenge owner 4
And we didn't understand that until much later in the project.

Interviewer
Umm.

Challenge owner 4
So I think it is clear it should be clear to the challenge owner right from the start and hopefully clear to you students what the academic objectives are.

Challenge owner 4
So that we don't waste any time if they don't.

Challenge owner 4
If they're not running parallel to the project to the challenge projectives.

Interviewer
Yeah, but what do you mean then exactly so that these students?

Interviewer
UM or learning in parallel with the project? Or that you as challenge owner, know?

Interviewer
What kind of education they are getting at the moment?

Challenge owner 4
Yes.

Interviewer
Yeah.

Challenge owner 4
Well, what's there?

Challenge owner 4
As a participant in a challenge, I think they have academic requirements.

Interviewer
Yeah.

Challenge owner 4
And we are not aware of those, but I think it would be helpful if we had been aware.

Interviewer
Hmm.

Challenge owner 4
Right from the start so that.

Interviewer
Yeah, I think that's a difficult part because they use challenge based learning and everything.

Interviewer
I feel kinda goes with the flow of can say like that. So for example if these students are in a certain phase with any project then they get a workshop about prototyping for example.

Interviewer
Umm yeah, I can imagine that if you as challenge owner don't know that they are getting that.

Challenge owner 4
Yeah.

Challenge owner 4
Put it Sam.

Interviewer
Yeah. Particular workshop. Yeah.

Challenge owner 4
Yeah.

Interviewer
OK. Yeah, that's a good point.

Challenge owner 4
Good.

Interviewer
Yep.

Challenge owner 4
So I think that that would cover most of the learning points. Yeah, and let's hope we can get into the next phase with the student teams as well.

Interviewer
Yes, womanizer.

Challenge owner 4
Like that. This. Yeah.

Challenge owner 4
OK.

Interviewer
OK, thanks for your time. I will let you know and I think a few weeks.

Interviewer
If I have any useful updates for you as well, then maybe will be nice to add and I will let you know in an e-mail.

Challenge owner 4
OK.

Interviewer
OK. Thank you.

Interviewer
Bye bye.

Challenge owner 4
Great. Thank you very much. Bye.

Dutch version, used for obtaining CIMO principles, translated version can be found below.

Interviewer: Yes!

Challenge owner 5: Uhm ja met uh wat ik wil zeggen bedoel je hebt met Bas en met Jacques uh waarschijnlijk dan nog een gesprek uh maar dat zal misschien meer op de inhoud gaan en ik bedoel zij zijn van uh van de de IT afdelingen. Ik ben van uh van HR en uhm ik ben uhm uh eerder door Katy Block.Ik weet niet of je die kent. Ja uhm d'r bij betrokken. Omdat eigenlijk alles wat een beetje met onderwijs te maken heeft. Universiteiten, hogescholen, uh studenten die op zoek willen komen. Uh nou tot de stages etcetera uh raakt allemaal mijn functie. Dus vandaar dat ik ook uh hier uh uhm aan aan aan gekoppeld zit. Uhm de insteek die wij inderdaad hebben met uhm uh met innovation space is. Uh wij. Wij zien zeg maar een soort van uhm parallel qua qua uh uh manier van werken. En dan ik het even heel heel uh zwart wit he. Maar ik bedoel vroeger tussen haakjes zat je met uh in uh klasse uh uh werktuigbouwkundigen en je zat 4 jaar lang met die werktuigbouwkundigen bij elkaar en je dacht dat de hele wereld alleen maar uit werktuigbouwkundigen bestond. Uhm nou vervolgens komen ze hier en uh uh gaan ze in uh in uh in een deel van de fabrieken werken bijvoorbeeld uh en zijn verantwoordelijk voor een productielijn en hebben met een controle uh een purchaser en allemaal lastige mensen van andere disciplines die geen verstand hebben van werktuigbouw.

Challenge owner 5: Uhm maar die be leven wel moeilijk maken. Ja uh te maken. Dus dat is zeg maar uhm uh uh ja de de de de uh de harde werkelijkheid. En dat is natuurlijk wat je bij uh bij innovation space ook meemaakt dat je veel meer interdisciplinair uh aan de slag moet.

Interviewer: Ja precies.

Challenge owner 5: En da's natuurlijk ook met met uh met de teams. Dat zijn natuurlijk ook mooie voorbeelden zijn ook allemaal gemixte teams wat dat betreft qua achtergrond. En ja, dat is wat voor ons de toegevoegde waarde heeft dat dan dadelijk iemand wellicht naar DAF komt en weet. Oké, als ik uh of het nou een race auto is of wat dan ook uh ga uh ga opzetten. Ja dan heb je niet alleen maar een racefanaten nodig maar ook uh iemand die uh die een keer op de rem trapt. Ja precies. Niet letterlijk op de remblokjes. Dus uhm dat is uh uhm. Uh hoe heet t? Uh uh uh voor ons zeg maar heel belangrijkste en en dat zekere naar mijn kant om DAF breder neer te zetten. Dus dat je ook bij de DAF terecht kunt als je niet automotive, uh freak bent uh, maar dat er veel meer is en van van design tot IT, tot service etcetera. Uhm en onze insteek is is ook met wat zo'n master kick-off die we dan laats uh hadden op 1 september.

Challenge owner 5: Ja, dan gaan groepjes aan de slag voor een aantal uren. Mm hu. En de dingen die daar o uitkomen. Het zou wel heel erg slecht zijn of goed van de studenten, maar heel erg slecht zijn voor ons. Als zij in 4.00u tijd een een lumineus idee hebben waar waar wij bij spreken al uh 94 jaar aan t sleutelen zijn. Ja. Uhm. Dus dat. Dat mag nooit de insteek zijn dat je inderdaad zoals je zegt consultants in huis hebt. Die even hier. Uh uh uh zeggen van nou, vanaf morgen gaan we over op waterstof want dat is toch beter. Mm hu. Da's gewoon niet reëel. Uh, dus wij moeten als bedrijfsleven breed vind ik uh bijdragen om een uh en dan bedoel ik t uh positief en uh een playground uh te bieden aan de universiteit aan hogescholen. Om te kijken wat is er nog meer buiten werktuigbouw buiten? H uh uh waar ooit iemand uh mee begonnen is. Dus dat dat is voor ons uh de insteek. Uh. En als dat uh nou een leuk project is en en en het spreekt al een beetje aan ja dan is er ook een kans dat die mensen straks misschien bij DAF komen werken. Nou dan uh is iedereen blij dus uh.

Interviewer: Ja precies dus als ik het goed begrijp een beetje uh ja netwerken als ik het zo kan noemen gewoon wat verbreden van laten zien wat hebben we in huis, wat kun je bij ons

doen? En dan toch ook dat, ja multidisciplinaire, dat je met verschillende mensen samenwerkt. Want dat is ook wel een heel belangrijk dingetje binnen challenge based learning om uh multidisciplinair te werken. Dus dat je vanaf verschillende kanten inzichten krijgt en dan kom je dus uiteindelijk ook op. Ja, totaal ander ideeën.

Challenge owner 5: Ja. Nee. Absoluut. Kijk, want toevallig. Ik had er net nog over uh in in in verband met een bezoek van Fontys Automotive. Uh studenten. Mm hu. Uhm, wij als bedrijven. Dat geldt voor heel veel bedrijven. Uh business to business. Uh uh we hebben een vrachtauto. Nou je ziet achter me staan. Uhm. Dus iedereen kan wel bedenken oh wacht, die hebben vrachtauto's, die maken ze dus ze hebben een productiehal. Punt. Maar dat er 500 IT'ers bij DAF werken. Uh en dat de mensen bezig zijn om om uh uh uh digitale dashboards met elkaar te uh te te connecten. Uh dat je daar uh om misschien wel een soort van communicatiemiddel van kunt maken. Ja dat uh dat bedenk je niet uh uh dat dat D. Daar moet je daarom zeg maar al spelenderwijs met met die industrie in aanraking komen. En zo geldt natuurlijk ook voor Philips en VDL et cetera.

Interviewer: Ja precies. Ja uhm. Jullie hebben al een aantal semesters vaker mee gedaan als DAF toch binnen innovation space? Ja. En ja, ik kom zelf ook van de Fontys Automotive, dus wel toevallig. Ik heb dan ook daar wel eens project van DAF al gezien. Voor mijn Kati ook wel eens voorbij zien komen en doen jullie dan verder nog vergelijkbare projecten binnen andere hogescholen of universiteiten?

Challenge owner 5: Uhm nou niet. Niet in de zin van uh hoe zou ik het zeggen. Uh zoals we het met innovation space doen uh hebben we niet zeg maar copy paste naar Delft of naar uh uh uh een uh een Fontys is of of of wat dan ook. Mm hu. Uh dat is dan toch specifiek hier voor uh voor Eindhoven? Uhm, d'r zijn wel wat ja projecten. Laat ik het zo zeggen. Wat we wel heel vaak krijgen is is uhm uh vanuit HBO tweedejaars en dan moeten ze in n keer in een groepje van uh vier zes man uh moeten ze iets gaan doen en dan uh bellen ze aan uh ja dan zeggen ze van de komende zes weken komen we bij jullie uh het productieproces optimaliseren. Ja. Uhm ook dat is best wel uh ambitieus. Uhm nee en en en en. Da's soms wel lastig voor ons omdat je al met zes studenten uh uh bij spreken op een kantoor zit. Uh die af en toe binnenkomen vliegen? Ja. Uh. Dus wat je ziet is dat wij iets meer neigen naar uh gewoon tussen haakjes een stagiair. Gewoon een afstudeerder die inderdaad vier zes maanden met iets bezig is en daar veel meer de diepgang uh kan krijgen.

Interviewer: Ja precies.

Challenge owner 5: Ja weet je wel, dat soort projectjes uh is. Ja leuk maar uh niet altijd handig. Uh. Maar dat heeft ook te maken met beveiliging, met veiligheid in de fabrieken. Uh waar zitten mensen? Kijk als wij alleen maar een kantoorgebouw hadden, we hebben al minder omkijken naar dan kan weinig uh gebeuren. Dus dat dat is wat lastiger voor ons. Als ik kijk naar andere uhm universiteiten ja dan dan dan zijn we bijvoorbeeld met PhD's. Uh die lopen wel rond bij uh bij productontwikkeling. Mm hu. Uhm. Maar niet niet zo. Uh, zeg maar structureel zoals dat met uh, met innovation space is.

Interviewer: Nee, precies. En hoe zijn jullie daar terechtkwam dan? Wat trok jullie dan binnen DAF? Om dan te zeggen we gaan. Want ik heb ook een aantal challenge owners gesproken. Die ja, die hadden er echt dat uhm verwacht van we krijg iets, dat kregen ze niet, dus toen was dat al klaar. En ja, wat is dan toch bij jullie gebleken van ok, we blijven dit semester op semester doen. Ook al worden we soms misschien niet gekozen als challenge owner blijven toch. Ja, binnen de loop.

Challenge owner 5: Uh sorry. Uhm. Dat heeft uh Kati wel eens gevraagd van uh gaan we bijvoorbeeld op 1 september weer naar de master kick off? Zeg ik ja. Uh ook al hebben we niemand uh die daarna zeg maar bij ons aanbelt. Dat kan uh. Maar die mensen gaan voor

drie jaar bijvoorbeeld bij VDL werken en bellen dan nog een keer aan. Dus uh uh uh het is ook eens zo van uh branding uh uh activiteit uh. Dus je moet sowieso ook met stagiaires na afstuderen. Dan moet je niet mee aan de slag gaan om dan te denken dat je een dag na dat ze afgestudeerd zijn, bij jou aanbellen. Uhm dus veel meer om mensen uh uh het netwerk uh te te te infecteren als t ware met DAF en dat mensen er anders naar gaan kijken of praten etcetera. En op die manier dus uh uh terug gaan komen of dat ze zeggen nou ik vind het verschrikkelijk daar. Uhm. Groot. Ah ja, nee he kan ook he. Ja groot. Anoniem Uh. Ik wil gewoon in een MKB bedrijf met tien man op kantoor zitten en uh een uh en uh en een plantje op mijn bureau et cetera. Mm hu. Uh ja dan is dat ook goed want dan hoeven wij ook niet iemand teleur te stellen die hier gaat weken en een half jaar zegt van ja dit is absoluut niet mijn cultuur dus daar is ook mee te maken. En hoe is het eigenlijk ontstaan? Ja, Katy heeft zelf gestudeerd op de op de TU. Uh vanuit het netwerk uh contact met een professor. Uh volgens mij heeft ze ook van Isabel uh hoe heet ze?

Interviewer: Ja Reymen.

Challenge owner 5: Uh ook volgens mij nog college gehad ofzo. Dus op die manier en vanuit een netwerk uh uh zijn we daar uh mee in contact komen in gerold et cetera.

Interviewer: Ja. Ja dat is dan interessant dat je dan toch weer met dat netwerk terugkomt. En ja, t is natuurlijk ook interessant voor mij om te zien dan dat z'n netwerk gewoon echt veel toegevoegde waarde heeft als je mensen daar de binnen kan houden.

Challenge owner 5: Uh ik ik uh dat zijn echt uh uh wa wat dat betreft een lange termeind. Investeringen klinkt altijd zo zwaar. Uhm maar uh uh nou wat ik net zeg uh uh. Een bezoek van Fontys automotive studenten hier. Ja dan moet je niet uh denken dat voordat ze de poorten gaan ontvangen jij ze krabbeltje eronder zet en dat ze dan zeggen over vijf jaar kom ik terug. Nee. Mm hu? Ja dat hoop ik sommige mensen dan wel hebben. Ja, hier heb ik een presentatie gegeven. Wat krijg ik er nou voor terug? Uhm, maar dat dat is? Ja ze moet natuurlijk in de hele omgeving hier in Eindhoven. Uh moet je bij mij spreken, kennis laten maken met DAF op een goeie manier niet alleen de fabriek laten zien en niet alleen maar uh stoer praten over pk's. En dan gaan mensen anders naar een product kijken of anders naar een werkgever kijken.

Interviewer: Zeker, Ja dat zijn uh dat zijn m'n specifieke vragen al. Heb je nog ja, specifieke verwachtingen of suggesties Misschien voor Innovation Space Project en dan ook vooral richting mij onderzoek dus hoe challenge based learning gebruikt kan worden om ja dat netwerk op te zetten, maar bijvoorbeeld ook andere challenge owners binnen te houden.

Challenge owner 5: Uhm.

Interviewer: Want ik heb bijvoorbeeld een aantal challenge owners gesproken die zei, eentje die zei ik wil niet te veel meetings, met teams omdat het te veel tijd kost. En er was iemand anders die zei dan weer van ja ik hoor bijna niks, ik weet niet wat ze aan t doen zijn. Dus wat ben ik uberhaupt. Als jij een challenge owner voor hun, lever ik enkel die challenge aan en that's it. Of ja.

Challenge owner 5: Ja uh. Dat is lastig, kijk, en het heeft natuurlijk een beetje te maken met met de persoon die je die, die die eraan gekoppeld zit. De opdrachtgever of de begeleider of wat dan ook. De de een Uh uhm ja ik bedoel je iedereen heeft te druk. Maar de andere heeft het dan nog wat drukker die zal zeggen van bel me niet iedere week. Uhm of een andere kant denk ik eigenlijk zeker nu met teams en zo. Uh is een uh gesprekje van een kwartier zo ingepland. Mm hu. Uhm. En kun je best snel effe effe kortsluiten van zit ik nu nog op het goede pad of heb je. Of heb je als bedrijf daar hele andere ideen bij als je hoort wat wat ik als student uh bedacht heb? Uhm ik, ik en Bas ken ik niet. Uh Jacques wel maar die die die

is altijd druk maar die is ook altijd in om ook studenten te begeleiden en en en te laten zien wacht even. Maar nu ga je helemaal de verkeerde kant op of denk daar eens aan, dat soort zaken. Dus ja, dat heeft eigenlijk meer met met. De persoon tegenover je te maken dan met de organisatie? Uhm. Kijk. En dat geld voor alle bedrijven. Uh, als je vanavond in de kroeg staat en ze vragen hoe is het? Ja, druk, druk, druk. Ja, als je dat niet zegt dan klopt er iets niet. Uh dus iedereen uh gaat gewoon mee. Uh maar da's natuurlijk onzin, want ze staan ook een kwartier bij je bij de koffieautomaat uh te ouwehoeren vanochtend over PSV. Dus uhm. Ja ja da da. Daar moet je een beetje uh een middenweg in vinden. Uh wat wat handig is kijk en op het moment dat jij zegt van goh uh beste challenge owner, uh ik wil iedere week uh een half uur uh uh inplannen. Ja dat wordt lastig. Maar als je uh en uh net wat rustiger weg uh af en toe eens een keer een uh contactmoment hebt of een mailtje stuurt. Ik denk dat dat uh echt niet uh van heel veel mensen te veel gevraagd is.

Interviewer: Nee precies.

Challenge owner 5: Maar ja om daar nou echt zomaar een format op te leggen dat uh da's lastig dat uh.

Interviewer: Nee, dat begrijp ik ook. Was ook meer een voorbeeld. Gewoon van dat. Ja, heb ik een aantal keer gehoord. Maar dan uh, zijn we er.

Challenge owner 5: Maar ik kan ze hier bij DAF ook aanwijzen hoor, die gegarandeerd zeggen heb ik geen tijd voor. Uh, dat dat dat is. Ja, ik zeg wel eens wij moeten 250 vrachtwagens per dag bouwen. Mm hu? Uh, als dat gereed is dan gaan we al die andere dingen doen. Als ik dan een keer kom aankloppen en ik zeg van goh, kan er iemand mee met mij naar de TU om presentatie te geven zeg ja wacht effe, eerst 250 vrachtwagens bouwen en morgen weer. En zo blijven we in die korte uh korte termijn cyclus uh hangen. Ja. Uhm dus dat? Dat is soms wel een lastige. Uhm. Maar ja dat uh. Maar laat je daardoor niet afschrikken zeg maar de dat men da altijd druk druk druk heeft dat uh.

Interviewer: Mm hu. Nee dan uhm zijn we er?

Challenge owner 5: Ja, t is ook een beetje denken aan de persoon tegenover je. Kijk uh, even ons voorbeeld. Uh uh. Wij zijn nou ja uh productiebedrijf conservatief. Dat geldt voor uh Philips. Dat geldt voor uh uh VDL. Uh allemaal industriële bedrijven. Uhm en uh uh ja daar uh wij zijn voor nu bezig van. Goh, zouden we sollicitanten via Whatsapp kunnen laten solliciteren? Oh dan uh schiet een paar mensen helemaal in de stress die die willen nog een envelop met een met een postzegel erop bij wijze van spreken. Ja, je hebt er altijd tussen. Dus uh uh. In die zin moeten jullie de de de jonge generatie vanuit die TU af en toe ook even een spiegel voorhouden aan het bedrijfsleven, want luister zo werkt het niet meer. Uh we doen het snel via whatsapp of uh via teams of wat dan ook. Uh het kan allemaal wat, wat informeler, wat sneller en dan uh kun je ook uh hele goeie informatie krijgen.

Interviewer: Ja. Ok. Duidelijk.

Challenge owner 5: Ja. Ja.

Interviewer: Dan uh bedank ik jou voor je tijd.

Challenge owner 5: Vakinhoudelijke technische dingen moet je aan. Uh Jacques en uh Bas vragen. Uhm goed, als je nu al meer informatie nodig heb uh laat maar even weten dan. Uh.

Interviewer: Nee ik heb voor nu wel genoeg. Ik zal als uh uh of een tijd ik effe een uh update doen via de mail. Wat ik er uiteindelijk uit heb gekregen is misschien ook interessant voor jou om te horen.

Challenge owner 5: Ja zeker. Ja, ook omdat er toch volgend jaar weer een vraag gaat komen. Doen we mee? Ja zeg ik dan, dat weet ik nu al. Ja uh maar dan moet ik ook mensen meekrijgen vanuit uh vanuit de business zeg maar uh die dat dan uh gaan doen.

Interviewer: Yes! ok top!

Challenge owner 5: Ok top bedankt.

Challenge owner 5: Doei

Interviewer: Yes!

Challenge owner 5: Uhm yes with uh what I want to say mean you have a conversation with Bas and with Jacques uh probably then uh but that will perhaps be more about the content and I mean they are from uh from the IT departments. I'm from uh from HR and uhm I'm uhm uh rather by Katy Block. I don't know if you know that one. Yep, involved. Because basically everything that has a bit to do with education. Universities, colleges, uh students who want to come looking. Uh well until the internships etcetera uh all touch my function. So that's why I also uh here uh uhm to is linked to . Uhm the approach we indeed have with uhm uh with innovation space . Uh we. We see a sort of uhm parallel in terms of the uh uh way of working. And then I'm very very uh black and white huh. But I mean, by the way, you used to be in uh uh class uh uh mechanical engineers and you sat with those mechanical engineers for 4 years and you thought the whole world was just mechanical engineers. Uhm well then they come here and uh uh they go in uh in uh work in some of the factories for example uh and are responsible for a production line and have a control uh a purchaser and all difficult people from other disciplines who have no understanding of mechanical engineering.

Challenge owner 5: Uhm, but they make life difficult. Yeah uh to make. So that's say uhm uh uh yes the de the the uh the harsh reality. And of course that's what you get with uh at innovation space also experiences that you have to work in a much more interdisciplinary way.

Interviewer: Yes, exactly.

Challenge owner 5: And that's also with uh with the teams. Those are of course also good examples, all of them are mixed teams in that respect in terms of background. And yes, that is what has the added value for us that someone might come to DAF immediately and know. Okay, if I uh uh whether it's a race car or whatever uh uh go put on. Yes then you need not only a racing fanatic but also uh someone who uh who steps on the brakes once. Yes, exactly. Not literally on the brake pads. So uhm that's uh uhm. uh what's your name? uh uh uh for us say very important and and that certain to my side to put DAF wider. So that you can also contact DAF if you are not an automotive , uh freak uh, but that there is much more and from design to IT, to service, etcetera . Uhm and our approach is also with such a master kick-off that we recently had on September 1st.

Challenge owner 5: Yes, then groups will work for a number of hours. Mmm huh. And the things that come out of there oh. It would be very bad or good for the students, but very bad for us. If they have a bright idea in 4:00 am that we have been working on for uh 94 years. Yes. uhm. So that. That should never be the approach that you do indeed have consultants in-house, as you say. The one right here. uh uh uh say well, starting tomorrow we will switch to hydrogen because that is better. Mmm huh. That's just not real. Uh, so we as a business community should contribute uh to a uh and I mean uh positive and uh a playground uh to offer university to colleges of higher education. To see what else is out there besides mechanical engineering? H uh uh what ever someone uh started with. So that's the approach for us. uh. And if that uh well is a nice project and and and it already appeals a bit, yes, then there is also a chance that those people might come to work at DAF in the future. Well then uh everyone is happy so uh.

Interviewer: Yes exactly so if I understand it correctly a little uh yes networking if I can call it that just broadening of showing what we have in house, what can you do with us? And then also that, yes multidisciplinary, that you work together with different people. Because that is

also a very important thing within the challenge based learning to work in a multidisciplinary way. So that you get insights from different sides and then you eventually come up with it. Yes, totally different ideas .

Challenge owner 5: Yes. No. Absolute. Look, coincidentally. I was just talking about uh in in connection with a visit from Fontys Automotive. Uh students. Mmm huh. Um, we as companies. That applies to many companies. Uh business to business. uh uh we have a truck . Well you see standing behind me. uhm. So everyone can think oh wait, they have trucks, they make them, so they have a production hall. Point. But that 500 IT people work at DAF. Uh and that the people are busy to uh uh uh digital dashboards together too uh too connect . Uh that uh maybe you could turn that into some kind of communication tool. Yes that uh don't think about that uh uh that that D. That's why you have to come into contact with that industry in a playful way. And of course that also applies to Philips and VDL et cetera.

Interviewer: Yes, exactly. Yes um. You have already participated more often as DAF for a number of semesters within innovation space ? Yes. And yes, I also come from Fontys Automotive, so it's a coincidence. I have already seen a DAF project there. Before I even see Kati pass by and do you then do similar projects at other colleges or universities?

Challenge owner 5: Uhm not. Not in the sense of uh how would I put it. Uh how we do it with innovation space do uh we don't have say copy paste to Delft or to uh uh uh a uh is a Fontys or or or whatever. Mmm huh. Uh, isn't that specific here for uh for Eindhoven? Uhm, there are some yes projects. Let me put it this way. What we do get very often is uhm uh from HBO sophomores and then they have to all at once in a group of uh four six men uh they have to do something and then uh they call uh yes then they say of the next six weeks we come to you uh optimize the production process. Yes. Uhm that is also quite uh ambitious. Umm no and and and and . That's sometimes difficult for us because you are already sitting in an office with six students uh uh when speaking. Uh who occasionally fly in? Yes. uh. So what you see is that we're leaning a little more towards uh just an intern by the way. Just a graduate who has indeed been working on something for four six months and can get a lot more depth there uh.

Interviewer: Yes, exactly.

Challenge owner 5: Yes you know, that kind of project is uh. Nice but uh not always useful. uh. But that also has to do with security, with safety in the factories. Uh where are people? Look, if we only had an office building, we already have less to worry about then little uh can happen. So that's a bit more difficult for us. If I look at other uhm universities yes then then we are with PhDs, for example. Uh, they do walk around uh in product development. Mmm huh. uhm. But not like that. Uh, say structurally like that with uh, with innovation space .

Interviewer: No, exactly. And how did you get there then? What attracted you to DAF then? Then say we go. Because I also have some challenge owners spoken. Those yes, they really expected that uhm from we get something, they didn't get that, so that was already ready. And yes, what turned out to you that ok, we will continue to do this semester after semester. Even though sometimes we may not be chosen as a challenge remain owner anyway. Yes, within the loop.

Challenge owner 5: Uh sorry. uhm. Uh Kati has ever asked that like uh are we going to the master kick off again on September 1st? I say yes. Uh even though we don't have anyone uh who rings our doorbell afterwards. You can uh. But those people go to work at VDL for three years, for example, and then ring the bell again. so uh uh uh it's also like uh branding uh uh activity uh. So you also have to work with interns after graduation. Then you should not get started and think that you will ring your doorbell a day after they graduate. Uhm so

much more to te people uh uh the network uh to infect, as it were, with DAF and that people will look at it or talk differently, etcetera . And that way so uh uh come back or they say well I think it's terrible there. uhm. Big. Oh yes, no, he can. Yes big. Anonymous Uh. I just want to sit in an SME with ten people in the office and uh a uh and uh and a plant on my desk et cetera. Mmm huh. Uh yes, then that's also good because then we don't have to disappoint someone who goes here for weeks and says yes, this is definitely not my culture, so that has something to do with it. And how did it actually come about? Yes, Katy herself studied at the TU. Uh from the network uh contact with a professor. Uh I think she also has Isabel uh what's her name?

Interviewer: Yes Reymen.

Challenge owner 5: Uh I think I also had a lecture or something. So in that way and from a network uh uh we came into contact with that uh in rolled et cetera.

Interviewer: Yes. Yes, it is interesting that you come back with that network. And yes, it is of course also interesting for me to see that his network really has a lot of added value if you can keep people in there.

Challenge owner 5: Uh me me uh those are really uh uh what a long term end in that regard. Investment always sounds so heavy. Uhm but uh uh well what I just said uh uh . A visit from Fontys automotive students here. Yeah then uh don't think that before they get the gates you put them scribble underneath and they say I'll be back in five years. No. Mmm huh? Yes, I hope some people do. Yes, I gave a presentation here. What do I get in return? Um, but that is? Yes, of course she has to be in the entire area here in Eindhoven. Uh you should speak to me, introduce DAF in a good way not just show the factory and not just uh talk cool about horsepower. And then people start to look differently at a product or look at an employer differently.

Interviewer: Sure, yes those are uh those are my specific questions. Do you still have any specific expectations or suggestions Maybe for Innovation Space Project and especially towards my research so how challenge based learning can be used to set up that network, but also other challenges , for example keep owners in.

Challenge owner 5: Uhm.

Interviewer: Because, for example, I have a number of challenges owners who said, one who said I don't want too many meetings, with teams because it takes too much time. And there was someone else who said yes I hear almost nothing, I don't know what they are doing. So what am I at all . If you are a challenge owner for them, I just deliver that challenge and that's it. Or yes.

Challenge owner 5: Yeah uh. That's tricky, see, and of course it has a bit to do with the person who you are, who who is attached to it. The client or the supervisor or whatever. The the one Uh uhm yes I mean you everyone is too busy. But the other one is even busier who will say don't call me every week. Uhm or some other way I think especially now with teams and stuff. Uh, a fifteen-minute chat is scheduled in no time. Mmm huh. uhm. And it's best to quickly short - circuit if I'm still on the right path or are you. Or do you have completely different ideas as a company when you hear what I came up with as a student? Uhm, I don't know me and Bas. Uh Jacques, but that one is always busy but he is also always in to guide students and and and show wait a minute. But now you're going in the wrong direction or think about that, things like that. So yeah, that actually has more to do with with . Does the person in front of you have to do with the organization? uhm. Look. And that applies to all companies. Uh, if you're in the pub tonight and they ask how are you? Yes, busy, busy, busy. Yes, if you don't say that then something isn't right. Uh so everyone uh just come

along. Uh, but that's nonsense, of course, because they're also talking to you about PSV for 15 minutes at the coffee machine uh this morning. So um. Yes yes da da . You have to find a bit of a middle ground in that. Uh what 's handy look and the moment you say goh uh best challenge owner , uh i want to schedule uh half an hour uh uh every week. Yes that will be difficult. But if you uh and uh just a little quieter uh now and then have a uh contact moment or send an email. I think that uh really isn't uh asking too much of a lot of people.

Interviewer: No, exactly.

Challenge owner 5: But yes, to really just impose a format on it that uh that's difficult that uh.

Interviewer: No, I understand that too. Was more of an example. Just of that. Yes, I've heard it several times. But then uh, here we are.

Challenge owner 5: But I can also point them out here at DAF, they say I don't have time for that. Uh, that's that. Yes, I sometimes say we have to build 250 trucks a day. Mmm huh? Uh, when that's done, we'll do all those other things. When I knock on the door and I say gosh, can someone come with me to the TU to give a presentation, say yes, wait a minute, first build 250 trucks and again tomorrow. And so we get stuck in that short uh short term cycle uh. Yes. um so that? That is sometimes a difficult one. uhm. But yeah that uh. But don't let that scare you, just say that people are always busy busy that uh.

Interviewer: Mm hu. No then uhm are we there?

Challenge owner 5: Yes, it's also a bit of thinking about the person in front of you. Look uh, let's take our example. uh uh . We are well uh production company conservative. That goes for uh Philips. That applies to uh uh VDL. Uh all industrial companies. Uhm and uh uh yes there uh we are busy for now. Gosh, could we let applicants apply via Whatsapp? Oh then uh shoot a few people into the stress who want another envelope with a stamp on it so to speak. Yes, you are always in between. So uh uh . In that sense, you should the young generation from that TU now and then also hold up a mirror to the business community, because listen, that's not how it works anymore. Uh we do it quickly via whatsapp or uh via teams or whatever. Uh it's all possible, a little more informally, a little faster and then uh you can also get very good information.

Interviewer: Yes. OK. Clear.

Challenge owner 5: Yes. Yes.

Interviewer: Then uh thank you for your time.

Challenge owner 5: Professional technical stuff you have to handle. Uh Jacques and uh Bas ask. Uhm well, if you need more information now uh just let me know. uh.

Interviewer: No, I've had enough for now. If uh uh or some time I will do an uh update via email. What I finally got out of it might be interesting for you to hear too.

Challenge owner 5: Yes, sure. Yes, also because there will be another question next year. Are we in? I say yes, I already know that. Yes uh but then I also have to get people on board from uh from the business say uh who will do that uh.

Interviewer: Yes! ok great!

Challenge owner 5: Ok great thanks .

Challenge owner 5: Bye

7.8 Interview challenge owner 6 (NL)

Dutch version, used for obtaining CIMO principles, translated version can be found below.

Challenge owner 6: Ja. Dat moet voldoende zijn.

Interviewer: Yes!

Challenge owner 6 Heb je hem op vliegtuigstand staan?

Interviewer Nee, wel op niet storen, dus dat moet goed gaan. Yes oke dan beginnen we. Uhm, hoe ben jij achter de innovation space project gekomen? Hoe zijn jullie erbij gekomen? Of hoe hebben jullie het gevonden?

Challenge owner 6 Nou we zijn bij de innovation space gekomen vanwege een uh uh een link met volgens mij uh lightyear. Dat was in ieder geval onze interesse? En via via uh. Hebben we een uh uh eigenlijk een soort ja open dag. Uh georganiseerd samen met uh uh een aantal mensen ook van uh van Innovation Space en daar hebben we. Uiteindelijk hebben we bedacht om daar een uh uhm een korte challenge in te stoppen, naast een aantal uh. Leuke bedrijfsbezoeken en bezoeken bezoeken ook van een aantal startups. En vanuit uh vanuit die dag is. Uh nou is er eigenlijk gezegd van dat smaakt naar meer. Vinden we wel leuk vinden we mooi. Uh, we hebben wel een aantal uitdagingen, kunnen we daar iets mee?. En zo zijn we met elkaar verder in gesprek geraakt en hebben we de challenge opgezet.

Interviewer Ja want Dafir vertelde dat ook de reden daarvoor een uh ja, een ander uh challenge of andere vergelijkbaar dingen hebben gedaan. Kun je daar verder nog wat over vertellen? Hoe zijn die andere projecten gelopen? Was dat vergelijkbaar met uh. Innovation Space?

Challenge owner 6 Uuh ja is niet helemaal via. Uh, nogmaals, we zijn gestart eigenlijk met die met die ene dag he. Dus dat was dat was volgens mij een uh een klein dagdeel. Waarin we met de studenten een korte challenge hebben hebben besproken, maar goed dat dat dat dat levert niet zo heel veel op. Dat is meer is kennis maken met elkaar en uh uh en wel zien. En dat vond ik wel heel mooi. Uh dat we eigenlijk binnen een paar uur werden. Wij wel uh verrast zeg maar door. Uh door de studenten. Dat vonden we heel mooi. Dat was ook een van de van de reden om te zeggen van nou, laten vooral hiermee doorgaan. Uhm. En uh, wellicht dat dat zich daar op doel zou hebben. Uh uh. Nou ja, dat als wij in contact zijn gekomen en doordat we deze challenge hebben opgezet zijn we binnen de TUe nog wat breder. Uhm uhm. Nou aan uh in gesprek geraakt laat ik het zo maar zeggen. En dan hebben we dan moet ik effe denken bij een ander onderdeel dat ging vooral over een uh. Dat was meer een module zeg maar. De verduurzaamheid. Ja, daarin studenten uh en meer echt de case hebben moeten beschrijven en een aantal oplossingen hebben aangedragen. Ja, maar dat was vooral een theoretisch. Uh uh deel. Dus dat was meer wij geven aan. Wat ons vraagstuk is. Mm hu. Studenten gaan daarmee aan de slag en komen na een aantal weken met een uh met een uh. Ook met het verslag van onderzoek en een verslag. Ja.

Interviewer Ja, maar dan minder oplossing gericht.

Challenge owner 6 Ja, minder oplossing gericht minder praktijk minder, minder uh uh nou ook momenten. Erin uh, samen een minder uh ja minder praktijkgericht zeker.

Interviewer OK en waarom hebben jullie dan gekozen om uiteindelijk voor de innovation space project? Daarin wel ja, er is vrij lange termijn om daar dan die keuze maken om daarin mee te gaan.

Challenge owner 6 Nou een aantal redenen. Uh, omdat wij best wel op zoek zijn. Uh naar innovatiekracht en naar denkkracht. En uh uh, nou vooral ook. Uh, misschien wel uh jeugdig enthousiasme om het zo maar te zeggen. Mm hu. En wat wij zien, wij zitten in een branch waarin dat redelijk uh, misschien wel wel. Uh, misschien is dat wel in heel veel branches zo waarin ook heel veel mensen werken die denken dat ze uh het allemaal weten en die allemaal binnen bepaalde kaders blijven. Uh acteren. Ja. Zien wij ook wel. Uh onze problematiek vliegen we aan vanuit de kennis die we hebben. En en nou, ik mis daar soms wel echt wel wat frisse, uh enthousiaste blik van buiten. En uh ja, we hebben daar toch best wel een aantal uitdagingen binnen de branche. En uhm, nou ja, ik, ik merkte er nog maar met die ene dag en met de gesprekken die ik heb met uh met innovation space dat dat jullie brengen. Uh gewoon een hele frisse nieuwe kijk op. Uh ook onze business. Uh mee, dat vond ik wel een heel belangrijk uitgangspunt, nou daarnaast een methodiek om binnen een aantal maanden en dan ook met af en toe wat uh uh spannings momenten om te komen tot een uh uh en in ieder geval tot de richting. Mm hu. Nou dat vond ik wel heel mooi. Ik moet je eerlijk zeggen ik krijg heel veel energie. Uh van uh van de omgeving. Ik krijg energie van om, om zelf om in uh in Eindhoven. Uh af en toe even live te zijn. Ja. En energie gewoon van de nou ja, de de cultuur die er heerst. En uh het enthousiasme om iets aan te pakken.

Interviewer Ja zeker. Ik moet zeggen dat ik dat zelf ook wel heb, want ik had t hiervoor nou misschien wel een keer gehoord maar niet actief. Uh kennis genomen dat dat uberhaupt dat vak bestond. En toen ben ik daar dus ook maar gewoon ingestapt met mijn thesis. En toen kwam ik erachter van ja, dit is wel gewoon echt een supergaaf omgeving waar iedereen heel actief samen naar een oplossing zoekt. Waar je in principe alles kan doen wat je wilt is niet heel strikt van ok. We gaan les volgen en that's it. Dus vond ik zelf inderdaad ook wel wat je zegt. Herken ik het wel in. Uhm, dus jullie zochten een beetje innovatie en nieuwe inzichten in problemen. Wat voor andere? Uhm verwachtingen had je van het vak wat voor waardes of output uit je verwacht? te verkrijgen?

Challenge owner 6 Nou ja. weetje, de de de hoop is. Uhm en da's wel een beetje de bedrijfs. Uh gedachte die ik dan misschien meebrengen. Uh uhm. Nou, ik had natuurlijk het liefst een panklare. Uh oplossing gehad. Ja van nou, dit is de richting. Dit is het advies. Uh en dit is de business case eronder. Uhm. Ja zo snel, gaat dat dan weer niet. En dat snap ik ook wel. Maar goed dat? Dat is iets wat wij misschien ook gewoon moeten leren en ontdekken. Noem het maar even verwachtingsmanagement. Misschien moet je dat met elkaar. De eerste keer in ieder geval. Uh uh, moet je dat wel leren? Tenminste wij als business owners.

Interviewer Uhu.

Challenge owner 6 Uhm, een andere keer, een volgende keer zou ik daar wel wat anders in zitten als misschien ook wel een van de van de nou ja, ik kan bijna zeggen de redenen dat je als business owner af zou haken is dat het wellicht iets anders opleverd dan je van tevoren hoopt of of bedenkt.

Interviewer Ja. Ja, dat heb ik van andere challenge owners ook al gehoord. En ik denk dat dat ook wel een belangrijk punt is misschien. Waar ik me dan uiteindelijk op zou kunnen focussen om gewoon wel heel duidelijk te maken naar die challenge owner van ja zo stap je erin. En en dit kun je dan eruit verwachten. En het is niet perse dat je de student echt als ja consultancy inschakelt zeg maar, maar dat het in principe alle kanten op kan gaan.

Challenge owner 6 Nee precies, zeker. Daar zit natuurlijk wel een uh, willen we dan wel een uh valkuil? Ja. Uhm, je gaat als als. Uh als business owner. Ga je met een vraagstuk kom je aan zetten en eigenlijk wil je antwoord op dat vraagstuk. En ja, wat wat wij ook. Nouja mijn collega, Dafir is daar natuurlijk best goed in, want die die heeft al veel ervaring met uh, met studenten teams dus die die. Die heeft wellicht ook wat andere verwachtingen. Van mij

waren de verwachtingen misschien wat wat scherper. Uh, en ik heb mezelf ook moeten bijsturen in dat proces. OK. Uh, zeker in t begin. Laat laat ze maar los. Ja, laat laat ze maar. Maar uh, de breedte ingaan. Uhm. En ik merkte ook wel dat ik in dat proces af en toe wilde bijsturen. Uh h vanuit mijn meer business gedachte. Uh wetend ook wel. Uh uh, kijk je wil, je wil de mix hebben. Ik weet bijwijze van spreken dondersgoed wat wel en niet kan, maar eigenlijk wil ik ook weer verrast worden. En die twee, die mix moet je goed zien te combineren in zo'n process. En ik moet als business af en toe terug in mijn hok en uh, vooral niet te veel mijn historische en m'n huidige kennis inbrengen. Ja. Want daarmee beperk je t ook weer. Ja.

Interviewer Ja, dan ga je gewoon grenzen opzetten

Challenge owner 6 De ruimte hebben om om om te exploreren. Ja, die mix moet je met elkaar zien te vinden en dat moet je misschien aan de voorkant heel goed goed al uitspreken en managen. Waardoor je de verwachtingen ook helder hebt. Uhm ja, en misschien moet je aan de voorkant ook al die verwachtingen ook nog wel zo wel wel wel scherper wegschrijven. Tegelijkertijd wat ik bijvoorbeeld ook ook niet wist. En uh uh, misschien ook nog wel gaandeweg het proces. Het moeten bijsturen is bijvoorbeeld investerings tijd. He, als je begint dan lijkt het alsof het drie maanden aan het werk zijn aan de challenge. Uhu. Nou, in de praktijk vond ik dat wel meevallen. Als je de de snelheid die je soms verwacht die die zat er wat mij betreft uh uh wat minder in. En sommige momenten werd ik weer verrast van ok, dat hebben ze toch wel heel snel voor mekaar bedacht.

Interviewer Ja ja, kan ik begrijpen.

Challenge owner 6 Want ik redeneer vanuit en vanuit een business owner redeneer je. Uh uh bij wijze van spreken als ik een project start, uh daar. Daar is voor refeer ik het aan, dan huur je bij wijze van spreken een bepaalde capaciteit in en die capaciteit die gaat opleveren.

Interviewer Ja, dan heb je gewoon aan het einde van die deadline

Challenge owner 6 In principe vanuit je business. Ja ja. Dus dan weet ik gewoon. En ik spreek vandaag af met jou dat jij over twee maanden dit opgeleverd hebt. En dan zie ik jou fysiek bewijze van spreken. Zie ik jou twee maanden. Uh daar aan uh sleutelen. Mmm. En dan heb je aan t eind wat opgeleverd hier heb je maar heel weinig contactmomenten.

Interviewer Ja.

Challenge owner 6 Waarin je eentje en ook nog in. Vond ik best wel eigenlijk. Een veel te korte tijd wordt meegenomen in uh, hier staan we. OK. Ja dat was dit het dan? Ja. En dat is best wel even zo. Ook alweer. Misschien ook wel weer die verwachtingen. Wat verwacht je nou? Wat verwacht je nou ook van de tussenrapportage? En wat verwacht je nou van uh, de contactmomenten?

Interviewer Ja, maar.

Challenge owner 6 Dan heb ik echt moeten leren zeg maar.

Interviewer Hadden jullie dan bijvoorbeeld liever gehad dat je vaker een contact moment hebt, of dat je meer uhm via de e-mail bijvoorbeeld op de hoogte gehoudt wordt door jou. Ja, studentengroep.

Challenge owner 6 Ja ja, ik had wat meer betrokkenheid. Uh uh, dat zou best best mooi zijn wat mij betreft.

Interviewer Ja. Ja, een beetje.

Challenge owner 6 Misschien ook wel als vanuit twee ledig vanuit misschien wel vanuit uh innovation space. Uh, Soort algemene. Betrokkenheid uh, of of of een link met Challenge owners en vanuit de studenten groepen. Ja. Ja. Ik Denk dat dat zeker zal helpen in in een bepaalde verwachting ook bepaalde verbinding.

Interviewer Mmm. Ja. Ook vaker gezegd dat gewoon die stakeholder management dus gewoon die challenge owner dichtbij houden dat daar veel studenten groepen daar gewoon de kennis in missen en dan. Ja, er was een andere challenge owner. En en die wist ook gewoon totaal niet wat er gebeurde voordat d'r een pitch kwam waar zij dan aanwezig moest zijn. En dan was die pitch en dan was ja, interessant om te zien wat jullie nu hebben gedaan. Maar. Ja. Ja.

Challenge owner 6 Nou dat vond ik ook toch wel bij wij. Wij hebben wel. We hebben misschien zelf ook een beetje op aangestuurd. Volgens mij hadden we elke week hebben we uh op een gegeven moment een overleg ingepland. Uh van een half uurtje en dan wel vanuit de. Dat hebben we wel op gestuurd elke keer. Wij doen niks als het ware. Ja. Uh jullie studenten zeg maar wat je nodig hebt. Zeg maar waar je staat, zeg maar wat je wil hebben en dan verbazen ze me af en toe ook nog wel want dan? In dat overleg kwam niet zo heel veel uit. En dan tijdens de pitch dacht ik van nou. Ja. Ja is best wel verrassend eigenlijk. Ook, denk ik, omdat de studenten ook wel even moeten wennen aan school en natuurlijk ook aan andere. Uh, andere positie ander spel.

Interviewer Ja, je wordt wel redelijk vrij gelaten. Want ze krijgen gewoon elke woensdag bijna elke woensdag is er een workshop en die hangt dan een beetje af van waar zitten we binnen het project. En ja, dan is t in principe gewoon aan je project werken dus. De studenten worden gewoon heel vrijgelaten. Als je daar dan steken laat vallen, dan kan dat natuurlijk ook langer duren voordat iemand erachter komt omdat ze er niet. Ze worden niet aan de hand meegenomen.

Challenge owner 6 Nee, dat klopt. Klopt? Nee, nee. Aan onze kant is het vooral van zeg het maar. Uh, wij kunnen je faciliteren. Maar jullie moeten het doen.

Interviewer Ja, klopt

Challenge owner 6 Maar goed dat is ook wel de bewuste keuze die wij hebben gemaakt daarin.

Interviewer Ja, zeker dat moet ook wel. Want als je dan wel die studenten aan de hand gaat nemen, dan blijf je alsnog binnen je eigen perken werken uiteindelijk. Dus ja ok. Uhm wat hebben jullie qua waarde uiteindelijk uit het project kunnen halen?

Challenge owner 6 Wat bedoel je met waarden?

Interviewer Ja, wat hebben jullie gekregen van het project uiteindelijk. Echt een uhm product om te kunnen gaan gebruiken of alleen die innovatieve inzichten?

Challenge owner 6 Uh ja, ik denk vooral de innovatieve inzichten hebben we gekregen. Uhm, we hebben overigens wel een vervolgs plakken we uh er nog aan. Mm hu. Met uh twee uh. Twee studenten. En dan hebben we uh uh afgesproken om van de innovatieve inzichten en het voorstel wat er ligt om te kijken of we dat ook operationeel kunnen testen.

Interviewer Ja.

Challenge owner 6 Dus de daar komt zeker een vervolg. Of daar komt een vervolg.

Interviewer Ja, want uh uh. Daar had Dafir het ook over dat je daar nog in gesprek gingen. Maar dat gesprek is dus al geweest.

Challenge owner 6 Gesprek is geweest, ja ja gesprek is geweest. En hebben we dan uh aanstaande morgen, morgen een vervolg afspraak met uh. De samenstelling van de groep maakt het soms ook wat lastiger. Dat was voor mij ook wel weer even zoeken. We hadden volgens mij twee Chinese dames en uh. Eén dame die gaat naar het buitenland de twee blijven hier. Dus voor vervolg is het nou. Om dus praktisch ook niet inpasbaar, denk ik. In ons geval hebben er twee gezegd van Nou, wij kunnen tijd vrijmaken om hier toch nog wat verder mee te gaan. Dat vinden wij fijn. Want uiteindelijk, zij zijn daar al echt mee bezig en in Thuis. We vinden het mooi als daar. Nou ja, dat is ook wel eens ook wel mijn wens. Van joh. Ik wil eigenlijk niet alleen maar een paar aanbevelingen hebben en ik wil gewoon een. Ik zou bijna zeggen een werkend concept. Uh ja hebben. En daar gaan we nu mee aan de slag.

Interviewer Ja mooi om te horen

Challenge owner 6 Ja, zeker. Zeker. Nou ja, de de uitkomsten waren hartstikke leuk als. Ja, en dat zag je overigens ook wel, dus ook van onze kant nogal even wennen. Uh en zoeken. Uh uh. Het is nu bijvoorbeeld ontstellend druk en het is ook een hele rare tijd waar we in leven met ze allen. Uhu. Hebben we ook best wel wat. Uh, naar last van is een groot woord. Uh, maar hebben we wel mee te maken? Dus je zag ook dat investeringen van onze kant soms een beetje lastig was. Dus uh.

Interviewer Ja.

Challenge owner 6 Want van twee kanten is dat best Uh uh hier en daar een beetje bijsturen. Uh uh transparant zijn naar mekaar denk ik. En uh verwachtingen goed managen.

Interviewer Ja. Oké en de toekomst? Uh, zijn er al concrete plannen? Ja met uh projectgroep heb je net verteld dan verder misschien de innovation space of andere vergelijkbare. Uh projecten.

Challenge owner 6 Ja wat ons betreft wel. Uh volgens mij. Uh hebben we uh een september uh een vervolg actie staan en uh ja wat ons betreft te blijven we voorlopig Uh zeker in beeld.

Interviewer OK. Goed om te horen. Uh, dat waren meest concrete vragen wel. Heb je misschien nog een laatste tip of uhm opmerking die ik mee kan nemen in mijn onderzoek.

Challenge owner 6 Nou ja, misschien kun je een een uh. Maar goed, dat ga ik aan de invulling denken. En uh kijk, jij hebt volgens mij is vooral jou vraag. Hoe kun je tenminste, dat is mijn interpretatie, Hoe kun je de challenge owners? Voor langere tijd binden dat is misschien wel een van je uitgangspunten.

Interviewer Ja, ik moet gewoon een concrete oplossingen opleveren. Ja, ik zit gewoon een beetje te kijken. In welk gedeelte van mijn onderzoek kan ik de meeste winst behalen? En ja, wat ik merk met de challenge owners als ik een gesprek met de meesten heb is dat er toch wel. Een aantal zijn die zeggen van ja. De verwachtingen zijn anders als wat uiteindelijk opgeleverd wordt. En daardoor merk je wel dat dan vaak challenge owners zijn die maar een keer blijven. En er is in principe genoeg aanbod van nieuwe challenge owners. Maar het is natuurlijk wel als zo'n een challenge owner elk jaar terugkomt, elk semester, dan bouw je wel iets op en dan is er gewoon meer waarde te behalen denk ik. Ja.

Challenge owner 6 Ja, ik denk dat ik dat vooral zit in in t verwachting management aan de voorkant, aan twee kanten overigens. Ik bedoel Uh, ik denk dat je die challenge owner mee moet nemen wat ie kan verwachten wat er uit te halen valt. Maar ook wat zijn verplichtingen zijn. Uiteindelijk heb je als challenger ook gewoon een rol als nou noem het maar uh uh uh mede-opleiders van van uh de student ik bedoel uiteindelijk laten wij de student uh uh een stukje uhm nou ja, kennis maken met het bedrijfsleven.

Interviewer Uhu.

Challenge owner 6 Dat kun je op allerlei manieren invullen. Maar ja, als je uiteindelijk ligt daar van ons ook een bepaalde rol in en dus ik denk twee kanten verwachtingsmanagement doen. Ik denk aan de voorkant heel goed uit te leggen. Uh uh wat er uh wat er aan de hand is. Misschien zou t wel helpen als je een challenge owner die het al een paar keer mee heeft gemaakt, koppelt aan een nieuwe challenge owner bijvoorbeeld. Het zou. Ik ik. Als ik er nu naar kijk, dan zou ik uh heel anders instappen dan de eerste keer. Ja. Met een ander verwachtingspatroon met een ander. Uh uh, misschien wel met een iets aangepaste opdracht met een andere invulling. Uh.

Interviewer Maar zou je dan die challenge owners samen een challenge laten bedenken of gewoon meer als introductie praatje van. OK. Wij hebben nu vijf keer gedaan. Zo en zo staan wij erin.

Challenge owner 6 Ja ik denk dat dat al zou helpen. Uh, ik heb het idee, we hebben het nu vijf keer gedaan en de hier uh de de dit is onze ervaring dit. Dit zou je kunnen verwachten. Uh dit zie je gebeuren. En bijvoorbeeld. Als ik terugkijk dan dan had het misschien best interessant is de uh. Als we als challenge owners uh even een uurtje bij mekaar hadden gezeten bijvoorbeeld. Ja, dat hebben we helemaal niet gedaan. In dat proces. Ja, waarom niet eigenlijk.

Interviewer Ja. Twee keer dan van die feedback meetings, maar misschien wel handig om die ook voor dat alles begint al een keer te starten om gewoon die verwachtingen te bespreken.

Challenge owner 6 Ja, ik weet niet wat je bedoelt met feedback meeting, maar ik heb eigenlijk geen uh. Ik ben een aantal keren live geweest, maar niet een bijeenkomst gehad zeg maar waar we als challenge owner bij elkaar zaten.

Interviewer We hebben een keer tijdens de uhm met mid-term pitches was het volgens mij en daarna zijn ik dacht bij die eerste was je volgens mij ook bij.

Challenge owner 6 Ik was er bij de afsluiting niet bij, dus dat kan wel hoor.

Interviewer Die afsluitingen naar de eind pitches. toen is die ook geweest, maar toen was jij er inderdaad niet. En bij de eerste volgens mij. Toen hebben we ook voor de eerste keer gesproken. Toen was t gewoon. Ja dan komen alle challenge owners samen. Dan wordt er gewoon besproken van ok. Deze verwachting hebben we en. Daar gebeurt niks met wat wij willen. En dat wordt dan doorgesproken. En da's twee keer over de hele periode.

Challenge owner 6 Mmm. Ja oke, ja

Interviewer Ja. Ja, misschien inderdaad wel goed. Om dan te zeggen van we doen hem ook aan een begin zodat gewoon de verwachting met iedereen doorgesproken kunnen worden. Dat dan meteen. Of in ieder geval beter op een lijn ligt.

Challenge owner 6 Ja, ik denk dat dat echt helpt. Ik denk dat dat geldt net wat jij. Je gaat in wezen met een met een noem het maar een opdracht daarnaartoe. Terwijl je. Nou ja, het is natuurlijk maar de vraag of die opdracht natuurlijk ingevuld wordt. Want uiteindelijk, uh, dat heb ik ook gemerkt. Uhm, ik ga met een opdracht daarnaartoe en ik denk dat dan vul ik hem in he. Maar ik kan me voorstellen dat de meeste challenge owners die gaan met een probleem daarnaartoe in de hoop dat t probleem opgelost wordt. Want ja, dat is nou eenmaal uh de kern van het probleem. Ja. Uh, en de hoop dat dat ook nog eens een keer met een hele uh simpele uh uh goedkope makkelijk uh transparante oplossing opgelost wordt. Nou is natuurlijk. Als dat als dat had gelukt, dan hadden we het op een andere manier gedaan. Maar dat is natuurlijk wel de wens. En dan kom je daar. En dan gaan studenten alleen maar die gaan die gaan dirigeren in plaats van dat ze het probleem bij mekaar gaan brengen. Nee eerst gaan ze t nog verder ingewikkelder maken. Ja. Nou dat, dat is wat je denk ik van tevoren, zeker vanuit business gedachte. Ja, wij zijn zo zo veel meer bezig met zoeken naar de snelle oplossing. Want ja, ik heb nu een probleem.

Interviewer Ja. Ja. dat begrijp ik

Challenge owner 6 Ja, die werelden liggen uitelkaar. En ik denk dat je daar met elkaar van tevoren. Misschien iets meer en iets makkelijker eventjes de verbinding moet zoeken. En dan haal je denk al een hoop weg.

Interviewer Ja. Ja, duidelijk.

Challenge owner 6 Ja. Kun je hier wat mee?

Interviewer Ja, zeker. Ik heb nog een paar interviews die ik wil doen. En dan heb ik de meeste challenge owners gesproken. Dan kan ik ook alles gaan verwerken. Maar zo, zonder iets uh verwerkt te hebben merk ik dat er wel gewoon al een. Er zit wel een redelijke lijn en bij iedereen toch over die vooral die stakeholder management dat daarin iets mist. Dus kan ik zeker wel mee. ja.

Challenge owner 6 Oke nou top, helemaal goed.

Interviewer Ja, da's goed. Bedankt voor je tijd.

Challenge owner 6 Maak er iets moois van.

Interviewer Ja, doe ik. Ik zou ook eventjes een update sturen als ik wat verder ben dat jij uh hier ook nog iets van hoort, hoe verder.

Challenge owner 6 Ja. Vind ik leuk. En mocht je een keer een tussen vraag hebben dan. Uh, weet je me te vinden?

Interviewer Yes to. Dank je wel.

Challenge owner 6 All-right, Doei Dirk!

Challenge owner 6 : Yes . That should be enough.

Interviewer: Yes!

Challenge owner 6 Do you have it on airplane mode?

Interviewer No, but do not disturb, so that should go well. Yes okay then let's start. Uhm, how are you behind the innovation space project come? How did you get there? Or how did you find it?

Challenge owner 6 Well we're at the innovation space came because of a uh uh a link with i think uh lightyear . At least that was our interest? And via via uh. Are we having a uh uh kind of a yes open day. Uh organized together with uh uh a number of people also from uh from Innovation Space and there we have. In the end we decided to put a uh uhm a short challenge in it, in addition to a number of uh. Nice company visits and also visits from a number of startups. And from uh from that day is. Uh well, it has actually been said that tastes like more. We like it, we like it. Uh, we do have some challenges, can we do something with them? And so we continued to talk to each other and set up the challenge .

Interviewer Yes, because Dafir told me that the reason for that was also an uh yes, another uh challenge or other similar things. Can you tell us more about that? How did those other projects go? Was that similar to uh. Innovation Space?

Challenge owner 6 Uuh yeah not quite through. Uh, again, we actually started with that one day huh. So that was I think that was a uh a small part of the day. In which we discussed a short challenge with the students , but it's a good thing that it doesn't yield very much. That's more is getting to know each other and uh uh and see. And I thought that was very nice. Uh we actually got within a few hours. We are uh surprised by the way. Uh by the students. We thought that was very nice. That was also one of the reasons to say well, let's keep going with this. uhm. And uh, maybe that's what it's aiming for. uh uh . Well, that once we have come into contact and because we have set up this challenge , we are even broader within the TUe . Uhm uhm . Well, uh got into a conversation, let's just put it that way. And then we have to think about another part that was mainly about a uh. That was more like a module. The sustainability . Yes, in that students uh and more really had to describe the case and came up with a number of solutions. Yes, but that was mainly a theoretical one. Uh uh share. So that was more we give to. What is our issue. Mmm huh. Students get to work on this and after a few weeks come up with an uh with an uh. Also with the report of investigation and a report. Yes.

Interviewer Yes, but less solution-oriented.

Challenge owner 6 Yes, less solution oriented less practice less, less uh uh well also moments. Erin uh, together a less uh yes less practical for sure.

Interviewer OK and why did you choose to ultimately opt for the innovation space project? In that, yes, there is quite a long term in which to make that choice to go along with it.

Challenge owner 6 Well a number of reasons. Uh, because we're quite looking. Uh to innovative power and to brainpower. And uh uh , well above all. Uh, maybe uh youthful enthusiasm so to speak. Mmm huh. And what we see, we are in a branch in which that reasonable uh , maybe . Uh, maybe that's the case in a lot of industries where a lot of people work who think they uh know it all and who all stay within certain frameworks. Uh acting.

Yes. We will see. Uh, we approach our problems from the knowledge we have. And well , sometimes I really miss that fresh, uh enthusiastic view from the outside. And yes, we do have quite a few challenges within the industry there. And uhm, well, I, I only noticed with that one day and with the conversations I have with uh with innovation space that that brings you. Uh just a whole fresh new take on it. Uh our business too. Uh, I thought that was a very important starting point, well, besides that, a method to use within a few months and then also with some uh uh moments of tension to arrive at a uh uh and at least the direction. Mmm huh. Well I thought that was very nice. I have to tell you honestly I get a lot of energy. Uh from uh from the environment. I get energy from om, om myself in uh in Eindhoven. Uh to be live once in a while. Yes. And energy simply from the well, the culture that prevails there. And uh the enthusiasm to tackle something.

Interviewer Yes, sure. I have to say that I have that myself, because I may have heard it before but not actively. Uh took note that that profession existed at all. And then I just went there with my thesis. And then I found out that yes, this is just a really cool environment where everyone is very actively looking for a solution together. Where in principle you can do everything you want is not very strict of ok. We're going to take lessons and that's it. So I did like what you say myself. I do recognize it. Uhm, so you were looking for a little innovation and new insights into problems. What other? Uhm expectations did you expect from the profession what kind of values or output you expected? to obtain?

Challenge owner 6 Well yes. you know, the de the hope is. Uhm and that's kind of the business . Uh thought I might bring with me then. uh uh. Well, of course I would have preferred a ready-to-cook. Uh solution. Yes, well, this is the direction. This is the advice. Uh and this is the business case underneath. uhm. Yes, that's not going to happen that fast. And I understand that too. But good that? That's something we might just have to learn and discover. Call it expectation management. Maybe you should do that together. The first time anyway. Uh uh , do you have to learn that? At least we as business owners .

Interviewer Uhu.

Challenge owner 6 Uhm, another time, next time I would be a little different if maybe also one of the well, I can almost say the reasons that you as a business owner would drop out is that it might yields something different than you hope or think in advance .

Interviewer Yes. Yes, I got that from another challenge owners already heard. And I think that might be an important point too. What I could eventually focus on to just make it very clear to that challenge owner of yes that's how you get in. And this is what you can expect from it. And it's not necessarily that you really engage the student in consultancy, so to speak, but that in principle it can go either way.

Challenge owner 6 No exactly, sure. There is of course an uh, do we want an uh pitfall? Yes. Uhm, you go like if . Uh as a business owner . If you come up with an issue, you come up with an answer and you actually want an answer to that issue. And yes, whatever we do. Well my colleague, Dafir is of course quite good at that, because he already has a lot of experience with uh, with student teams so those. He may also have different expectations. My expectations may have been a bit higher. Uh, and I also had to adjust myself in that process. OK. Uh, especially in the beginning. Just let them go. Yes, let them go. But uh, going into breadth. uhm. And I also noticed that I occasionally wanted to make adjustments in that process. Uh h from my more business mind. Uh knowing too. Uh uh , look you want, you want to have the mix. I know very well what can and cannot be done, so to speak, but I also want to be surprised again. And those two, you have to combine that mix well in such a process . And as a business I have to go back into my cage every now and then and uh, especially not to contribute too much my historical and my current knowledge. Yes. Because that also limits you. Yes.

Interviewer Yes, then you just set boundaries

Challenge owner 6 Having the space to to explore. Yes, you have to find that mix and you may have to pronounce and manage that very well up front. So you also have clear expectations. Uhm yes, and maybe you should also have all those expectations at the front write more clearly. At the same time, something I also did n't know, for example. And uh uh , maybe even during the process. For example, having to make adjustments is investment time. Hey, when you start it seems like it takes three months to work on the challenge . uhh. Well, in practice I thought it was not that bad. If you have the speed you sometimes expect, that was in my opinion, uh uh , a little less. And at times I was surprised again by ok, they figured that out very quickly.

Interviewer Yes yes, I can understand.

Challenge owner 6 Because I reason from and from a business owner you reason. Uh uh so to speak when I start a project, uh there. That's what I refer to, then you hire a certain capacity, so to speak, and that capacity will deliver it.

Interviewer Yes, then you just have at the end of that deadline

Challenge owner 6 Basically from your business. Yes Yes. So then I just know. And I agree with you today that you will have delivered this in two months. And then I see your physical proof of speaking. I see you two months. Uh tinkering with that. mmm. And then at the end you have delivered something. Here you have very few contact moments.

Interviewer Yes.

Challenge owner 6 In which you one and also in. I actually think so. A far too short time is taken into uh, here we are. OK. Yes that was it then? Yes. And that's pretty much the case. Again. Maybe those expectations again. What do you expect now? What do you expect from the interim report? And what do you expect from uh, the contact moments?

Interviewer Yes, but.

Challenge owner 6 Then I really had to learn.

Interviewer Would you have preferred, for example, that you had a contact moment more often, or that you were kept more informed by e-mail, for example . Yes, student group.

Challenge owner 6 Yes yes, I was a little more involved. Uh uh , that would be pretty nice as far as I'm concerned.

Interviewer Yes. Yes a bit.

Challenge owner 6 Maybe also as from two parts from maybe from uh innovation space . Uh, kind of general. Engagement uh, or or or a link with Challenge owners and from the student groups. Yes. Yes. I think that will certainly help in a certain expectation also certain connection.

Interviewer Mmm. Yes. Also said more often that just that stakeholder management so just that challenge owner close that many student groups there simply lack the knowledge and then. Yes, there was another challenge owner . And she also just didn't know what happened before a pitch came where she had to be present. And then there was that pitch and then yes, it was interesting to see what you've done now. But. Yes. Yes.

Challenge owner 6 Well, that's what I thought with us. We do. We may have also directed a bit of it ourselves. I think we had a meeting every week, uh, at some point. Uh of half an hour and then from the. We sent it every time. We don't really do anything. Yes. Uh you students tell me what you need. Just tell me where you stand, tell me what you want and then they surprise me every now and then, because then? Not much came out of that meeting. And then during the pitch I thought well. Yes. Yes, it's quite surprising actually. Also, I think, because the students also have to get used to school and of course to others. Uh, different position, different game.

Interviewer Yes, you are left fairly free. Because they just have a workshop every Wednesday, almost every Wednesday, and it depends a bit on where we are within the project. And yes, then it is basically just working on your project. The students are just very free. If you then fail there, it can of course take longer before someone finds out because they are not there. They are not taken by hand.

Challenge owner 6 No, that's right. Correct? No no. On our side, it's mostly just say so. Uh, we can facilitate you. But you have to do it.

Interviewer Yes, that's right

Challenge owner 6 Anyway, that's the conscious choice we made.

Interviewer Yes, it certainly should. Because if you do take those students by the hand, you will still work within your own limits in the end. So yeah okay. Uhm, what value did you ultimately get out of the project?

Challenge owner 6 What do you mean by values?

Interviewer Yes, what did you get from the project in the end. Really an uhm product to be able to use or just those innovative insights?

Challenge owner 6 Uh yes, I think we mainly got the innovative insights. Uhm, by the way, we do have a sequel , we'll stick uh to it. Mmm huh. With uh two uh. Two students. And then we have uh uh agreed to use the innovative insights and the proposal to see if we can also test that operationally.

Interviewer Yes.

Challenge owner 6 So there will definitely be a sequel. Or there will be a sequel.

Interviewer Yes, because uh uh . Dafir also mentioned that you were still talking there. But that conversation has already happened.

Challenge owner 6 Conversation has taken place, yes yes conversation has taken place. And do we have uh next morning, tomorrow a follow-up appointment with uh. The composition of the group sometimes makes it a bit more difficult. That was a bit of a search for me too. I think we had two Chinese ladies and uh. One lady who goes abroad the two stay here. So now it's time for a sequel. So practically not suitable, I think. In our case, two said Well, we can make time to go a little further with this. We like that. Because in the end, they are already really working on that and in Home. We like it there. Well, that's also my wish sometimes. from yo. I really don't want to have just a few recommendations and I just want one. I would almost say a working concept. Uh yes have. And we're going to get started on that now.

Interviewer Yes nice to hear

Challenge owner 6 Yes, sure. Secure. Well, the results were really nice as. Yes, and you saw that, by the way, so it took some getting used to from our side as well. Uh and search. uh uh . For example, it's incredibly busy right now and it's also a very strange time that we all live in. uhh. We also have quite a bit. Uh, bothered by is a big word. Uh, but are we dealing with it? So you also saw that investment on our part was sometimes a bit tricky. So uh.

Interviewer Yes.

Challenge owner 6 Because from both sides it is best Uh uh adjusting a bit here and there. Uh uh being transparent to each other I think. And uh manage expectations well.

Interviewer Yes. Okay and the future? Uh, are there any concrete plans yet? Yes with uh project group you just told then maybe the innovation space or other similar. Uh projects.

Challenge owner 6 Yes, as far as we are concerned. Uh I think. Uh we have uh a September uh a follow-up action and uh yes as far as we are concerned, we will definitely stay in the picture for the time being.

Interviewer OK. Good to hear. Uh, those were the most concrete questions. Do you have a final tip or uhm comment that I can take with me in my research.

Challenge owner 6 Well, maybe you can a a uh. Well, I'll think about the implementation. And uh look, I think you have is mainly your question. How can you at least, that's my interpretation, How can you take the challenge owner ? Binding for a longer period of time may well be one of your starting points.

Interviewer Yes, I just need to provide concrete solutions. Yeah, I'm just kinda watching. In which part of my research can I make the most profit? And yes, what I notice with the challenge owners if I have a conversation with most of them there is. Some are saying yes. The expectations are different from what is ultimately delivered. And that's why you notice that often a challenge owners who only stay once. And in principle there is enough offer of new challenge owner . But of course it is like such a challenge owner comes back every year, every semester, then you build something up and then there is simply more value to be gained, I think. Yes.

Challenge owner 6 Yes, I think that is mainly due to expectation management at the front, on both sides by the way. I mean Uh, I think you got that challenge owner must take with him what he can expect to get out of it. But also what his obligations are. In the end, as a challenger you also just have a role like well you name it uh uh uh co-trainers of van uh the student I mean in the end we let the student uh uh a bit uhm well, get acquainted with the business world.

Interviewer Uhu.

Challenge owner 6 You can fill this in in all sorts of ways. But yes, if you eventually do, we also have a certain role in it and so I think we do expectation management on both sides. I think to explain very well at the front. Uh uh what's uh what's going on. Maybe it would help if you had a challenge owner who has already experienced it a few times, links to a new challenge owner for example. It would. I I . Looking at it now, I would uh get in very differently than the first time. Yes. With a different expectation with another. Uh uh , maybe with a slightly modified assignment with a different interpretation. uh.

Interviewer But would you take that challenge owners to come up with a challenge together or just more as an introductory talk. OK. We've done it five times now. That's how we are in it.

Challenge owner 6 Yes I think that would help. Uh, I got the idea, we've done it five times now and the here uh the the this is our experience this. You should expect this. Uh you see this happening. And for example. Looking back then it might have been quite interesting is the uh. If we as a challenge owners uh sat together for an hour, for example. Yeah, we didn't do that at all. In that process. Yes, why not actually.

Interviewer Yes. Twice of those feedback meetings, but maybe it's useful to start them once before everything starts to just discuss those expectations.

Challenge owner 6 Yeah, I don't know what you mean by feedback meeting, but I don't actually have a uh. I've been live a number of times, but didn't have a meeting, say where we as a challenge owner were together.

Interviewer We once during the uhm with mid- term pitches I think it was and after that I thought you were also there with the first one.

Challenge owner 6 I wasn't there at the closing, so that's possible.

Interviewer Those closings to the final pitches . it was there then, but then you were indeed not there. And the first I think. Then we also spoke for the first time. Then it was normal. Yes then come all challenges owners together. Then we just talk about ok. We have this expectation and. Nothing happens there with what we want. And that is then discussed. And that's twice over the entire period.

Challenge owner 6 Mmm. yes ok yes

Interviewer Yes. Yes, maybe good indeed. To say that we also do it at the beginning so that the expectation can be discussed with everyone. That immediately. Or at least better aligned.

Challenge owner 6 Yes, I think that really helps. I think that just applies to you. You essentially go there with a with a call it an assignment. While you. Well, it is of course questionable whether that assignment will be fulfilled naturally. Because eventually, uh, I noticed that too. Uhm, I'm going there with an assignment and I think I'll fill it in. But I can imagine that the most challenge owners who go there with a problem in the hope that the problem will be solved. Because yes, that's the crux of the problem. Yes. Uh, and the hope that that will also be solved with a very uh simple uh uh cheap easy uh transparent solution. Well of course. If that had worked, we would have done it a different way. But that is of course the wish. And then you get there. And then students just go and conduct those instead of bringing the problem together. No, they're going to make it even more complicated. Yes. Well that, that's what you think in advance, certainly from a business perspective. Yes, we are so much more concerned with looking for the quick solution. Because yes, I have a problem now.

Interviewer Yes. Yes. I understand that

Challenge owner 6 Yes, those worlds are apart . And I think you'll be there with each other beforehand. Maybe a little more and a little easier to find the connection. And then you think you take away a lot.

Interviewer Yes. Yes, clearly.

Challenge owner 6 Yes. Can you do something with this?

Interviewer Yes, sure. I have a few more interviews I want to do. And then I have the most challenge owners spoken. Then I can start processing everything. But so, without having processed anything uh, I notice that there is already one. There is a reasonable line, and with everyone there is about that, especially the stakeholder management that lacks something in it. So I can certainly join. Yes.

Challenge owner 6 Okay , great, all right.

Interviewer Yes, that's good. Thank you for your time.

Challenge owner 6 Make something beautiful out of it.

Interviewer Yes, I do. I would also send an update when I'm a bit further that you uh hear something about this, the further.

Challenge owner 6 Yes. I like this. And if you ever have a question in between. Uh, do you know where to find me?

Interviewer Yes to . Thank you.

Challenge owner 6 All-right, Bye Dirk!

7.10 Interview challenge owner 7

Interviewer
Umm.

Interviewer
Yes, I think it's recording.

Interviewer
OK. Then we can start.

Interviewer
What's this first time that you participated in the Innovation Space project?

Challenge owner 7
Uh, yes.

Interviewer
OK. And how did you find out about it?

Challenge owner 7
I was I did a PDN that you. So I was quite familiar with the process.

Interviewer
Hmm.

Challenge owner 7
And uh, yeah, I contacted Elka den ouden. That's how I knew what to project.

Interviewer
Umm yeah, because you provided a challenge together with Elke, right?

Interviewer
Yeah.

Challenge owner 7
Right, yes.

Interviewer
And then why did you choose to participate in the course as challenge owner? Because I think there are a lot of different universities and yeah, opportunities that where you could do something similar and.

Interviewer
Yeah, of course. You mentioned that you did the PhD, but how would you want or why did you want to participate in this particular course?

Challenge owner 7
What was mainly because I knew Elke and Isabel and it was nice to be back again with them. Do something together. That's my main. I liked to be a part of it again

Interviewer
OK. And did you participate in something similar in the past?

Interviewer
At other universities for example

Challenge owner 7
We also in company? We also work with Delft, so mainly we work with uh Delft. We have different courses in aerospace ecosystem design.

Challenge owner 7
Project.

Interviewer
Hmm.

Challenge owner 7
So that's the main university we work with.

Challenge owner 7
And of course, because it's closer to our company, we are based in Den Haag.

Interviewer
Yep.

Challenge owner 7
And.

Challenge owner 7
Yeah. And we are in the aerospace industry or aviation industry, not aero space, aviation industry and that's more related to work with Delft. So if I did it with TU/e, it was mainly because of myself and my background. I was there. I had some connections.

Interviewer
Yeah. And then at Delft, is it also Challenge based learning courses or could you maybe elaborate more?

Challenge owner 7
Ohh as I know it's not called challenge based learning but I think it has similar setup.

Challenge owner 7
So it's, uh, some master courses or bachelor courses, and it's not six months. It's just their normal master or bachelor courses that they have.

Challenge owner 7
And.

Challenge owner 7
Uh, and they they work by challenges. So we we had a case.

Challenge owner 7
Uh, I don't know if you call it a challenge still, but if we had a case and like so, we introduced them the case our problem and they come up with some solutions.

Interviewer
OK.

Interviewer
And what kind of value did you expect when you started with the Innovation Space project, what did you expect to obtain at the end of the course?

Challenge owner 7
Uh, well, I think in general it depends on the case.

Challenge owner 7
Uh, But what is nice is to to also show something to the company because you spent quite some time with the students and it's nice to to have something to demonstrate to the company that they also created this kind of value for us.

Interviewer
Umm.

Interviewer
Yeah.

Challenge owner 7
So it's not that we had some, you know, we spent some time we we did something and at the end of well nothing. So what's in it for the company, that's how some managers see that.

Interviewer
Umm.

Challenge owner 7
it's it's nice to have something tangible, like product a prototype.

Interviewer
Yeah.

Challenge owner 7
Something if it's solid and something that it's possible to show.

Challenge owner 7
And people are not specially in companies, they are not interested to read an report or something. Uh so.

Challenge owner 7
It's nice to have a one minute 2 minutes outcome.

Interviewer
Yeah. So really a solution or maybe prototype.

Interviewer
That could be implemented.

Challenge owner 7
Yeah, not not to be implemented. So it's not that the company ohh, or at least in my case, I'm talking from myself or my company.

Challenge owner 7
It was not that we looked for a solution from students or we wanted really something.

Interviewer
Umm.

Challenge owner 7
Out of it to for students to solve a serious problem for us, it's not really the motive.

Interviewer
Umm.

Challenge owner 7
But I you spent quite some time, so you know you in the company also you say that, yeah, I had this meeting. I I was there. I did this and at the end it's nice to say that this is the outcome and then of course sometimes you get some insights from students sometimes they have some creative ideas and then they they bring some insight some input.

Challenge owner 7
And sometimes they don't, because also in company there are quite a lot of ideas.

Challenge owner 7
Uh.

Challenge owner 7
it depends.

Challenge owner 7
Depends, but also there are quite a lot of innovative ideas. Also in companies we have innovation hub, we have open platform to to just people share their ideas.

Interviewer
Umm.

Challenge owner 7
It is from the company, but at least in my company it's itself is like an innovation hub.

Interviewer
Yeah.

Challenge owner 7
Uh, it's a young company, so there are a lot of innovative ideas, so.

Interviewer
Mm-hmm.

Challenge owner 7
Ohm.

Challenge owner 7
Yeah.

Interviewer
OK.

Challenge owner 7
I don't know if I answered your question or ask it again and I can elaborate on it again.

Interviewer
I think it's clear.

Interviewer
Did you get that value that you expect because you had the flashport and air flow team right?

Challenge owner 7
Yes.

Interviewer
And they had the an application for the navigation and to see what you can bring to the airport or the airplane and.

Interviewer
Is it useful for you as a company or?

Interviewer
Is there anything you can do with the?

Interviewer
the end results of your team?

Challenge owner 7
Uhm.

Challenge owner 7
The teames that uh, I I was working with, they were not really communicating that much.

Challenge owner 7
So they didn't share what they are doing or they didn't share anything about their process. Did they do any research? Did they or even the process have they didn't share with us. So just in the final pitch, they showed it on the screen and that, yeah, I was. I was in. I was traveling.

Challenge owner 7
Uh, I was there for, I think all the events, but the last one I missed because I had a business travel. I was not in the Netherland. So I joined on online and I saw something, but I they didn't really send any results.

Challenge owner 7
Uh, one of the teams? Yes, they, they they send the video.

Interviewer
Umm.

Challenge owner 7
Uh, so that was nice. And I circulated it in the company and I asked them.

Challenge owner 7
Uh, yeah. If you want to go on with the project, I can link you to some product owners who can help you to to turn it into something more useful with more business value.

Challenge owner 7
Uh to to kind of translate it to something that can turn into a startup or something?

Interviewer
Umm.

Challenge owner 7
And our company.

Challenge owner 7
Is, uh, in general, they acquire a lot of startups, so I thought it's really good for student teams to.

Challenge owner 7
To be a part of to kind of connects to to this company.

Interviewer
Yep.

Challenge owner 7
Uh, especially that I was. I had this connection with Elke and Isabel and I did it mainly for friendship or our relations, not for the company. So.

Challenge owner 7
They didn't connect really, and I don't know why and.

Interviewer
The studen teams?

Challenge owner 7
The student teams, yes.

Challenge owner 7
Uh, I don't know why and.

Challenge owner 7
Also, for example, it was mainly from my side to ask them how it's going or if you need anything or.

Challenge owner 7
UM.

Challenge owner 7
Uh, yeah. Like to to propose to do something. Do you need a meeting? So they didn't do this proactively

Interviewer
Uh.

Interviewer
Yeah. So you had to really ask for anything to get from student?

Interviewer
Yeah.

138

Challenge owner 7

Yeah, I think, uh, it's, it's not that I was. Uh, like pinging every week. No, but the only two three times that it happened, it was from my side they never. Never. Yes, it was never from their side.

Interviewer

No. Yeah, I understand. It would be nice if they at least keep you in the loop as a challenge owner. So you know what's going on.

Challenge owner 7

Yeah, I think it's more motivating or at least you know, what's the value of their work, because if they have a picture of, uh, if they have a sorry, I have a meeting in 5 minutes. If I if if they have a picture of like 20 minutes at the end.

Challenge owner 7

You know they can. They can do it in two days.

Interviewer

Umm.

Interviewer

Yeah.

Challenge owner 7

Can do the work in one week. They can do it in six months, so it's nice to know what's the process they they that they they went through because to create a small app or something, it's really something you can do in one week or in six months. It it's important. What's the thought behind behind it.

Challenge owner 7

That's.

Interviewer

Yeah, yeah, I understand.

Challenge owner 7

Yeah, that's. I think that's just an experience that you're challenge owner could have to to know that you are caring or.

Interviewer

Yeah.

Interviewer

Umm.

Challenge owner 7

But at least me I spend a lot of time to for the challenge itself. Maybe not during the the challenge with students, it was just few meetings, but before that, to prepare the the case.

Interviewer

Yeah.

Challenge owner 7

I spent some days on it because we changed it. We recorded the video page, so I think I worked maybe more than students.

Interviewer
Yeah.

Challenge owner 7
Sometimes I had this feeling that, OK, I spent more time and I think I even didn't get a presentation from them, so.

Interviewer
Yeah, I understand your point of view.

Interviewer
And then the last point or any future plans for the ISP?

Challenge owner 7
Uh, yeah, maybe depends, but I don't think I spent that much time to prepare the challenge again or I I may do.

Interviewer
Yeah.

Challenge owner 7
Don't know, really. It's it's like 50/50, but last time I I felt I spent a lot of time to prepare the challenge and well at the end it's something more. It's like a contribution from the company to students.

Challenge owner 7
That's the can, and to be honest, with Delft the project we have with Delft.

Challenge owner 7
Uh, we don't spend time to to prepare the challenge.

Interviewer
Umm.

Challenge owner 7
So we stay open. We have a very open challenge and they they don't make it difficult for us to participate. And of course they know us that they and they know that you are really good support for students. So we have this kind of relation with them.

Challenge owner 7
But during the challenge, students have a lot of questions and they really work with the company, so they really work with us. They try to create something that is valuable for the business, for the industry.

Challenge owner 7
And so they take more more of our time during the challenge after when they are working. They have like every week or sometimes they have two times per week meetings with us.

Interviewer
Umm.

Interviewer
Yeah.

Challenge owner 7
Which takes time. But do you see that how much they learn where they exit the case, they know perfectly how the airport work or the borders work or the aircraft works depending on what they're doing. So that's.

Interviewer
Yeah. And you also know way better. What's going on with the team than during the last course, the ISP.

Challenge owner 7
Exactly, for example, with this teams, uh, they had, I think for navigation.

Challenge owner 7
Uh, well, well, I told them that this is not really viable business or.

Interviewer
Umm.

Challenge owner 7
It exists the order you have even better solutions in SITA or something, and you can change it to to add something to hardware devices. For example we give them. I gave them a hint, but then in final presentation I saw is just the the the previous idea. So it was like that. Yeah we have this cool idea and this is a cool idea.

Challenge owner 7
Uh, so it's for them. Of course. It's a cool student project or for themselves it's good to pivot the idea to if they want to be entrepreneurs.

Interviewer
Yeah.

Challenge owner 7
Probably you should listen to the market or to competition and see what is the need, what brings value. So I think that's something that can help them themselves.

Interviewer
Yeah. OK. Good points. Think they are useful.

Interviewer
Then that was it. I think

Interviewer
Maybe a last improvement point for the innovation space or for me to remember for a?

Interviewer
Yeah. Improving either collaboration for you as a challenge owner or for the students.

Challenge owner 7
I think what I just mentioned, it's good to keep the challenge owner updated about the process. So uh.

Challenge owner 7
He doesn't have to if they don't need. If they don't have any question, or if don't don't have.

Interviewer
Umm.

Interviewer
Yeah.

Challenge owner 7
They don't need any meetings. It shouldn't be. It's not that it's obligatory because we also are busy, so it's not that we are really waiting for, for meeting. No, it's just commitment and we say OK, now we have to really be committed. So it's not that we wish for it, no.

Challenge owner 7
But it's nice to at least every month to send an e-mail. That's yeah, a few bullets points. We did this. We did that. So we know that. OK. They are doing something or they're alive. They're good. They're doing well. So something like this is good because I kind of lost even the the.

Challenge owner 7
The time like I didn't know. OK. Is it midterm? Is it? Is it final midterm. And I was like, OK.

Interviewer
Yeah.

Challenge owner 7
I didn't hear anything from them, so good luck.

Challenge owner 7
Yeah.

Interviewer
OK. Thanks.

Challenge owner 7
You're welcome.

Challenge owner 7
Hope I could help.

Interviewer
Yeah, definitely. I will send an update in a few weeks. I think when I've maybe also some useful information for you just to give an update.

Challenge owner 7
Thank you. That's nice.

Interviewer
OK.

Interviewer
Thanks.

Challenge owner 7
Good day and good luck with your thesis.

Interviewer
Thank you. Bye bye.

Challenge owner 7
Have more questions? Bye.

Interviewer
Yeah.

7.11 Interview challenge owner 8 (NL)
Dutch version, used for obtaining CIMO principles, translated version can be found below.

Interviewer: Yes! hij neemt op.

Challenge owner 8: Good morngin, challenge based learning. Ja. Uh ja. Ik uh. Wat mijn verwachtingen zijn? Uhm kijk, ik zoek, ik zoek en ik zocht institutionele steun via de TU. Mm hu. Echter, ik heb niet aan de TU gestudeerd. Ik heb wel bij TU Sport gebokst destijds. Ik kom uit Eindhoven en ik had zo'n concept. Uh, zo'n start up idee. Zo'n slimme bokszak ontwikkelen en daarmee mentaal en fysiek weerbaarheidstraining toegankelijker toegankelijker maken voor een breder publiek. Ik had eerder aangeklopt bij TU. Maar ja, ik ving bot en dat was gewoon moeilijk. Een uh willen ze mij helpen. En uhm ja, nu met die challenge based learning en met die ISP vak uh kan ik met die studenten uh wisselwerking vinden? Uhm. Dus dus kijk je hebt in Eindhoven. We heb je dus dat uh Brainport en de gedachtegoed van triple helix dus uh over high private sectoren en academia. En nu willen ze dus ook de burger bij participeren bij betrekken of de maatschappelijke middenveld bij dat hele innovatie uh regio in regio. En ik denk dat dat in het kader van dat uh multiple helix uh uh de de challenge based learning heel goed past. Uhm. Ja het is nog uh v prille begin fase. Mm hu.

Interviewer: Uh ja want hoe dan? Hoelang ben je al bezig met jouw start up als ik zo kan noemen?

Challenge owner 8: Ja, maar mijn start up? Ja da's een beetje natuurlijk ook. Uh uh wanneer je dat meet. Precies, ik ben naar 2000, uh achttien was dat en zeventien ofzo. Dat ik zo'n concept bedacht met zo'n hackathon. Uh. Maar goed, dan moet je daar dan ook in Eindhoven misde ik echt Uh, dat incubatie programma dus da's het is heel klein en uh is natuurlijk ook een heel eigen hechte netwerk. Ons kent ons. Ja en al gauw ja miste ik gewoon ondersteuning en uh was ik een beetje om eens mijzelf uitgewezen. En uh ja, ik miste gewoon de ingangen bij TU zeg maar. Ik heb daar al gesport, maar ja, dan mis ik wat instituties met faculteiten. Miste ik.

Interviewer: Uh, begrijp ik.

Challenge owner 8: Dus in Eindhoven probeerde ik op mijn eigen houtje, maar dat lukte niet. Dus ik ben. Ik ben uitgeweken naar Parijs. Ik was uh, ik deed vrijwilligerswerk bij zo'n tech for Good conferentie en bij de borrel. Mm hu. Heb ik zo'n ouwe man en dat bleek de voormalige premier van Griekenland te zijn. Mmm. En nog toevallig uh keynote speaker. En hij was indruk onder de indruk van mijn verhaal. Want ik vertelde ik heb uh in Eindhoven opgegroeid, maar ik ben van uh vluchteling komaf ik kom van origine uit Afghanistan. Mm hu. Uh ja, ik heb t van jongsafaan met boksen opgepakt en ik heb bij de TU ook nog gebokst. En uh ja, ik heb in de ontwikkelingssamenwerking gewerkt, in Kosovo, Congo, in Afghanistan en ik zie daar mogelijkheden om. Uh. Uh box therapie en uh uh automatisering daar daarin brengen en daarmee die kost uh uh kost effective interventie voor in de gezondheidszorg of voor meer community building en voor noem maar op. En uh ja ja, hij was dan onder de indruk van mij. Hij vertelde dat over mij in zijn toespraak. En daardoor uh de directrice bij dat station. He zo'n groot innovatiecentrum moet ze een keertje opzoeken.

Challenge owner 8: Ja. Uh ja, die bood mij aan van kom naar Parijs. Uh ja, we willen jou steunen. Halsoverkop ben ik naar Parijs uitgeweken. En dat was vlak voor dat Covid. Dus dat kwam ook nog tussendoor. Dus vandaar dat mijn project wat uitgelopen is. Maar nu zit ik bij uh ecole polytechnique innovatielab. Dat is uh een uh prestigieuze technische universiteit. En uh ja ik had uh daarover geklaagd van in Eindhoven soms provinciaal. Ik had in een een Eindhovens dagblad daarover beklaagt van uh ja het is alleen maar uh ons kent ons en die boeren die wil maar niet helpen en ik denk dat ik concept heb. Ja ja ik maar ik ecole de

polytechnique dat is een beetje de MIT van Frankrijk. Mm hu. Uh waarom lukt het niet in Eindhoven? Uh, ik kom. Ik hoor hem nog steeds officieel. Ja, ik kreeg daardoor heel leuk uh bijval van de de mensen. En uh ja dus. Dus uh via via via studenten ben ik daar uh uh ja meer te weten gekomen over dat de

Interviewer: Dat uh.

Challenge owner 8: ISP vak en het Eindhoven uh uh in uh uhm wat is t uh artificial intelligence system instituut dus de ze dus daar heb ik uh de hele lange omweg heel uh omweg echt echt hele lang omweg en t kost mij bloed, zweet en tranen en heel veel tijd ben ik toch wel bij TU terechtgekomen en en da's toch. Enerzijds vind ik dat wel jammer, want omdat wij soms ook mentale barrières hebben, of mentale vooringenomenheid en cognitieve bias, noem ze dat ook wel eens.

Interviewer: Ja, het had niet zo lastig hoeven zijn in principe.

Challenge owner 8: Ja, soms. Nou gewoon laag verwachtingspatroon van oh iemand van migranten komaf denk oh die moet alleen maar shoarma bakken weet je wel. Uh of of vrouwen. Of je moet saaie om mee innoveren en dus. Dus daarom denk ik dat dat wel zo'n open innovatieve ruimte waar mensen van verschillende disciplines en verschillende komaf uh sociaal cultureel gender bij elkaar komen, elkaar uh ontmoeten en wisselwerking vinden. Zou dat daarom? Uh, ik vind het wel op eerste. In eerste instantie gezegd vind ik dat wel een mooie mooi initiatief. Ik ik, ik. Uh ja dus t is de tweede keer dat ik die student spreek. Uh dus ik heb mijn challenge voorgelegd. Mm hu. Parallel aan dat challenge based learning heb ik andere studenten gevonden. Die zijn ook bezig om een studententeam aan het opzetten.

Interviewer: En ze dat dan ook op de TU in Eindhoven.

Challenge owner 8: Jaja, TU Eindhoven studenten die zijn een studente team aan het op zetten. Ik ben heel erg geïnteresseerd in sport, maatschappij en opkomende technologieën. Ik denk dat we daarin een einddoel we veel te weinig mee doen aan. Uhu. Ik zit in Parijs en in Parijs komen de Olympische Spelen in 2024. Er wordt heel veel geïnvesteerd in de sportinfrastructuur, maar ook sociale cohesie verbeteren en inclusie en emancipatie beweeg stellen met sport. Daar is nog heel veel mee bezig en ik denk dat dat vanuit Eindhoven ook daar daaraan kunnen bijdragen. Groei van social, uh design, noem maar op. Uhu. Ik sprak met uhm, de voorzitter van Dutch Design Foundation. Hij. Ja vond het ook leuk als wij dan zeg maar als Dutch Design uit Eindhoven een stukje innovatie kunnen exporteren. Ja, dat zou goede PR zijn. Dus wij mogen volgende maand bij Dutch Design Week ons concept tentoonstellen. En dan bied ik aan die studenten van die Challenge based learning ook een podium van he. Vertel over je waar jullie mee bezig zijn, jullie onderzoeksresultaten en ik heb voor hun de link gemaakt met uh jeugdwerk Dynamo ik weet niet of je jeugdwerk kent dat is een.

Challenge owner 8: Zorgorganisatie in Eindhoven?

Interviewer: Ja klinkt goed! En uhm ja, je vertelt dan dat je eigenlijk wilde beginnen in Eindhoven en dan uiteindelijk toch naar Parijs uitgeweken. Nou ja, ik begrijp dat je natuurlijk zo'n kans niet kan laten liggen. Maar waarom heb je dan toch uiteindelijk die drang gevoeld om toch terug naar Eindhoven te willen en dan ja, specifiek nou met de Innovation Space Project mee te doen?

Challenge owner 8: Ja, ik heb in Parijs heb ik wel steun gevonden, dus ik zit hier ook nog officieel en ik doe hier de software met name. Ja, in Eindhoven, bij Brainport, bij de TU. Bij high-tech campus krijg ik allemaal te horen van wat spreek ik goed Nederlands, maar ik krijg niet echt uh werd ik niet verder geholpen. Dus als je naar jezelf kijkt, als je dat aanhoort, dan

ga je inzien van he, dat is helemaal geen compliment, die mensen hebben gewoon uh ja dan moet je die verder helpen of die die die bij jou gewoon hele lage verwachtingspatronen hebben. Maar goed, dat terzijde. Ik ben uit frustratie inderdaad uitgeweken naar Frankrijk en hier is men bezig met een inhaalslag. Maar ja, hier en hier zie ik wel van hee, Nederland is toch wel al. Op heel veel gebieden lopen wij voorop en de taal. Ondanks de taal kom ik wel veel verder institutioneel gezien. Maar goed voor echt met de klanten, wisselwerking, interactie. Uh zit daar toch wel voor mij een barriere maar ook cultuur. Frankrijk is toch wel heel anders en stroperig. En bureaucratie. Maar goed, ik heb mijn bedrijf hier opgezet. Uhm. Ik heb dus mij focus op de kunstmatige intelligentie en beeldvorming technologie. Ik heb een Franse compagnon gevonden. Ik heb nu bij École Polytechnique, innovatielab. Dat gaat heel goed. Ecole Polytechnique is. Uhm. Partner met Technische Universiteit Eindhoven, Munchen, Stockholm Denemarken met de Eurotech alliances. Alleen is via de Europese samenwerkingsverbanden toch wel terugkom terecht gekomen bij een ja kwam ik in TU Eindhoven weer terecht tegengekomen en officieel ben ik nog in Nederland geregistreerde. Ik woon nog in Eindhoven. Dus ik kom sowieso elke dag, elke maand na Eindhoven mijn post ophalen. En uh ja, het scheelt ja. Dankzij dat artikel in Eindhovens Dagblad waar ik beklaagde over de . Ik stuur daar een link.

Interviewer: Ja, ik had hem gezien.

Challenge owner 8: En toen kreeg ik eigenlijk hele leuk bijval en toen vertelde ze mij over dat de Challenge Based Learning Eindhoven arteficient uh intelligence System instituut. En er schijnt een nieuwe organisatie te zijn. Dat heet de gate. In eerste instantie bij de naam de gate dacht ik van ja was er meer een bevestiging van zie wel die die die die ontwikkelde barrières Voor mensen zoals mij, de gate. Maar goed, nu vertelde ze maar nee nee, hett gaat dan uh over de gate, de vliegveld dat we je gewoon helpen stijgen. Maar dat is eigenlijk de bedoeling dat er één uh loketje is waar je terecht kan. En ook als het niet de TU student of of medewerker mag je daar ook terechtkomen. Dat zou voor alle Eindhovenaren. En uh dus ik heb er nou uh gezegd van hee ja. Uhm. Ik laat me ook niet wegpesten. Ik wil ook daar bemoeien en mee doen. Want uh. In het Eindhovens Dagblad heb ik ook beklaagt van mensen uit de volkswijken. Gewoon onmogelijk om tussen te komen. Uh, je ziet in Eindhoven ook qua start ups. Er zit bijna niemand van migranten komaf of iemand van kleur die een oprichter is van een startup. Ja goed, ze hebben daar ook heel veel over diversiteit. Ik denk van ja. Ze praten over mij, maar niet met mij. Maar. Mm hu?

Interviewer: Ja heb je.

Challenge owner 8: En uh mee bemoeien en gewoon uh daartussen gaan zitten en uh. Nee nee. Maar ik kreeg heel leuk bijval, ook uit het mijn van ondernemers en regio.

Interviewer: Ja heb je denk ik toch wel effetjes uh wat los kunnen krijgen.

Challenge owner 8: Ja ja ja soms dan moet je trammelant maken. En alles komt goed. Dus ik met uh via Parijs heb ik een koevoet gepakt om deuren open te trekken want nu. Nu zijn ze heel erg geïnteresseerd wat ik in Frankrijk doe, want d'r zijn ook heel veel met uh hier gebeurt heel veel op gebied van artificial intelligence en uhm dus ja goed ze uh d'r is ook uh nadelen aan Frankrijks en stroperig bureaucratie en en uh minder innovatief dat dat zie je. Dat waardeer ik nou ook meer aan Nederlander dus daar ben ik ook wel heel heel uh a heel uhm. Toch mooi gegooid en uitgepakt dus ik wil een onderdeel van productontwikkeling in Nederland doen, met name uhm met name de hardware, zeg maar de product ontwikkeling en de elektronica, embedded systems, firmware, materiaalonderzoek. Ik denk dat de TU veel meer. Ja, meer uhm ja. Expertise in heeft en in Frankrijk uh hier zijn ze heel goed in wiskunde en uh kunstmatige intelligentie. Ja en in Frankrijk ben ik ook voor een vorm voor een markt zeg maar. He Dus hier kan ik dat vermarkten. En Eindhoven en da's toch focus meer op R&D denk ik.

146

Interviewer: En uh. Ja, maar misschien.

Challenge owner 8: Ik probeer wisselwerking te vinden. Dat is. Ja ja enigszins ben ik ook agnostischer aan het worden, want als ik in Tokyo uh hulp krijgen dan ga ik naar Tokyo, dus daarin moet je ook uh een klein beetje opportunistisch zijn en en kijken waar mogelijkheden liggen. En ze boden mij aan met het challenge based learning om daar aan te haken. Ik uh ik zeg daar geen nee tegen.

Interviewer: Nee nee snap ik. En da's ook mooi dat je dan misschien in combinatie nog kan leggen van wat je hier in Eindhoven krijgt en dan in Parijs kan gebruiken uiteindelijk.

Challenge owner 8: Ja ja, zo is dat ja. Met de Europese Unie zouden ze dat, Dat, ja, dat, dat, dat, dat, dat. Daar zijn heel veel kansen en mogelijkheden. Je moet net de ingangen weten. Te vinden, mijn aanwezigheid in een ecosysteem in Parijs dan kan ik ook mooi inzetten als uhm als leverage kan ik ook waarde toevoegen. Ik denk dat het heel complementair is met uh.

Interviewer: Ja, zeker.

Challenge owner 8: Eindhoven brainport uh, want eigenlijk francofonie, dat kennen wij niet. Geografisch is het niet zo heel ver en zo'n vier vijf uur ben je in Parijs. Maar uh cultureel. Uhm ja, kennen wij ze niet daar waar we dat dat daarin? Nee ja, da's voor ons meer een tourist uh oord. Uh dan uh business. Maar goed ze zijn bezig met inhaalslag op het op gebied van tech en innovatie. En ze hebben heel progressief beleid op gebied van Charles? Van uh sociale uhm inclusie qua zeker naar tech en innovatie hoek en er is nagenoeg heel veel van die bazen van die innovatie clubs en zo. Uhm zijn uh vrouwen dus daar zijn ze al heel veel bezig met gender en emancipatie. Ik denk misschien is dat ook meer nodig in Frankrijk, want er is ook heel veel issues. Zodoende.

Interviewer: Ja, klinkt uh interessant. Dan heb ik bijna alles al wat ik wilde. Weet alleen nog een laatste vraag specifiek over Innovation Space project. Wat zijn jouw verwachtingen? Wat je uiteindelijk? Terugkrijgt van de studententeams. Of jouw specifieke team? Wat hoop je daar uit te krijgen?

Challenge owner 8: Nou goed in eerste instantie gewoon extra handjes. Ik heb inmiddels. Ja, weet ik waar wat waar een markt behoefte is. Ik heb industrie expertise. Ahum. Ik miste gewoon net capaciteit voor de productontwikkeling. Uh dus ja ik uh. Stiekem wil ik gewoon gewoon handjes die mijn mensen kunnen helpen met bij de productontwikkeling. Mm hu. Want ik moet ook even dat proces afwachten, want zij moeten ook natuurlijk eerst ook uhm, dat hele innovatieproces van design thinking en noem maar op. Dat moet zij ook allemaal, Dat is mijn verwachting. Is in eerste instantie uhm wat bij gelegd. Dus ik uh. We zijn niet enkel voor productontwikkeling maar het hele proces afwachten. Maar voor mij is gewoon de verwachting institutionele. Institutionele steun via de studenten krijgen kijk kennis en dan bedoel ik impliciete taalkennis tacit knowledge van de hoogleraren. Je hebt de specifieke hoogleraren. Een voorbeeld. Ja, als je niet via de TU studenten komt van buiten, ja, kom je niet met hun in aanraking.

Interviewer: Of nee, dat is inderdaad lastig.

Challenge owner 8: Dus dus. Dus ik gebruik die studenten ook om institutionele steun te krijgen via de TU. Want soms wordt ik stikjaloers zie ik van al die studenten teams. Die doen echte, ja geweldige dingen. Maar tegelijkertijd bij TU heb ik boks, ben ik bokskampioen geweest, ben ik met een auto van Eindhoven naar Afghanistan gaan om daar half jaar kinderen boksles te geven met de bokshandschoenen die ik bij TU sportcentrum kreeg. En

dan waterkrachtcentrale gebouwd, schooltje daar gebouwd. Maar ja, die zichtbaarheid, die ondersteuning. Dat krijg je niet omdat je niet aan de TU formeel gebonden bent.

Interviewer: Ja, da's dan jammer inderdaad.

Challenge owner 8: Ja en uh dus. Dus in die zin uhm, maar mijn verwachting is uh institutionele steun en ook uh gewoon partners vinden en en uh kennis en uh onderzoek van TU uh valoriseren meenemen in mijn startup. Uhm ja da's eigenlijk een wisselwerking vind ik. Ik heb uh daarin dat is mijn verwachting.

Interviewer: Ja dus eigenlijk gewoon in dat entrepreneur ecosysteem terechtkomen. Om daar dan uiteindelijk, ook al is misschien niet direct iets uit te krijgen, maar wel binnen te zijn.

Challenge owner 8: Ja je wilt in dat ecosysteem je je invechten in dat ecosysteem ons primier Rutte die zegt van ja, ik kan er niks aan doen dat er arbeidsmarkt discriminatie is voor de mensen van migranten komaf of mensen van kleurtje. Die mensen moeten zich maar leren invechten dus. Voor mij is dat, toch ook een beetje mijn manier om mij in te vechten. En misschien heb ik het niet zo heel erg nodig in Eindhoven. Uh, maar tegelijkertijd denk ik van hij ergens heb ik toch een klein beetje van hee uhm, misschien als ik dat zo negatief heb ervaren hoe dat innovatie ecosystem in Eindhoven een klein beetje uitsluitend is. Misschien hebben andere mensen van migranten komaf ook precies daar last van. Misschien ja, kan ik. Uhm. Ja. Ook deuren openen voor andere mensen. Ook vertegenwoordiging brengen. Ik kan enerzijds klagen dat er een probleem is, maar anderzijds je kan daar ook zelf onderdeel van oplossing zijn dan daar om mee te doen. Je moet dan aan tafel. Kun je ook dit soort, dit soort de soorten issues aankaarten? Want soms mensen uh we doen het goed, maar die bevatten dat God niet. Hoe jij dat ervaart? Nee ja selectief uh zijn maar ze zijn. Heel bewust bezig met , ik stuur je even een artikel uh een vriend van mij uh heeft dat geschreven is uh ook een een fransoos en uh oud hoogleraar een leraar aan het TU. Mm hu. Vincent Merk Een hele mooi artikel over dat challenge based learning en hij merkte dat van challenge based learning de link naar uhm. Uh uh naar uh uhm diversiteit en inclusie. Uhm ik vind een heel mooi artikel. Dat is misschien ook interessant van jou onderzoeks kop. Wil je mij nog één keer vertellen over jou, jouw problem statement wat je aan het onderzoeken bent?

Interviewer: Ja, ik uhm wil dus gaan kijken hoe specifiek challenge based learning gebruikt kan worden om uhm ja een entrepreneurial ecosystem uhm niet per se op te zetten maar wel te behouden.

Challenge owner 8: Dus uh verbetere, how to foster entrepreneurial ecosystem en how ok en hoe dit bijdraagt. Positief of negatief? Ja jij onderzoekt daar de correlatie en je doet kwalitatief onderzoek of als.

Interviewer: Ik uhm doe een combinatie van uh literatuuronderzoek. Dus wat is er al? Ja, d'r is nog niet heel veel literatuur beschikbaar. Sowieso niet op de connectie tussen challenge based learning en de ecosystems. Dus ik wil daar een verband gaan vinden in de literatuur. En dat doe ik dan in combinatie met een case-study rondom Innovation Space Project omdat ja daar gebeurt het in principe al. Maar ja.

Challenge owner 8: Ik heb uh ik heb ook in Eindhoven afgestudeerd. Ik heb het in Tilburg gestudeerd. Mijn onderzoek deed ik bij Brainport Industries en ik onderzocht naar uhm machts dynamiek tussen OIM uh eind leverancier, eind producent en toeleveranciers. Dus Brainport is zeg maar club van toeleveranciers. Er zijn in de supply chain zeg maar heel veel R&D werk wordt ook down-stream in die supply chain uitbesteed. Dus ja, ik keek entreprneurship en die hightech supply chain zeg maar. En uhm dus daar kwam ik ook wat meer te weten over uh ja ecosysteem denken en uh. Mm hu. Entreprneurship in die nieuwe

uh hightech supply chain. Uhm er is één ding mij bijgebleven. Uh, ook een beetje vanuit mijn eigen behoefte of wellicht frustratie social embeddedness. Zoek dat woord social embeddedness. Uhm, dat je ingebakken zit in het ecosysteem. Je hebt in Eindhoven woorden zoals ons kent ons, dat heeft historisch een betekenis. Of ouwe jongens krentenbrood. En ken je dat? Nee, nee, nee. Maar da's dat, dat, dat. Dat is wel heel belangrijk voor zo'n ecosysteem dat er onderling vertrouwen is.

Interviewer: Ja, zeker.

Challenge owner 8: Ja, je hebt daar heel onderling heel sterke gunfactor en onderling sterke vertrouwen in elkaar. Enerzijds is dat bevorderend voor innovatie van dan heb je lagere transactiekosten, daarbij snellere UH transacties en lage transactiekosten. Maar anderzijds kan het ook innovatie belemmeren. Want mensen van buiten kunnen ja dat uh, dan ben je bijna bezig met incest, dan ben je alleen maar bezig in je eigen kring. En en uh navelstaren noemen ze dat wel eens dus. Dus uh dus uhm met zo'n social embeddedness. Dus ik ben maar ja, ik ben uit Eindhoven opgegroeid voor mij. Uh, ook al ben ik van migranten komaf, ik ik. Ik zeg tegenwoordig kom uit eindhoven dat is mijn mijn thuis. Dan ben je toch wat ook een nieuw entrend En mensen kennen jou niet. Jou, ooms en tantes en neven niet. Dus ja, dan is er ook. Is ook zeg maar barrières voor een nieuw entrance he. En zo'n challenge based learning. Uhm daar kunnen ze interacteren. Dus ook al die actoren binnen de EU. Dus met studenten of hoogleraren kunnen ze op een informele manier wisselwerking vinden met mensen buiten dat institutionele ivoren toren. Dus dat is een beetje waar ik naar kijk, waar ik ook een geïnteresseerde in ben en kun je misschien ook dat in jouw onderzoek scope meenemen over social embeddesness en lowering barrières voor entrepreneurship.

Interviewer: Ja ja. Op zich is dat al een beetje wat ook. Ja, wat ik tegenkom in literatuur. En nou met de case study, want in principe challenge based learning. Dan komen dus bedrijven. Wat je ook zegt, die zitten gewoon met hun kennis zeg maar. Die lopen gewoon stroef omdat ze zich dood staren op bepaalde problemen waar ze niet uitkomen. En dan kom je dus bij de student aan. Die staan helemaal buiten jouw probleem en jouw kennis, dus die kunnen dan met hele nieuwe inzichten komen. Alleen doel van die. Dat ecosysteem is dan wel om uiteindelijk toch die challenge owners in ieder geval binnen te kunnen houden om dan wel die trust en ja, embeddeness dus te kunnen behouden en dat we daar korte Netwerk te hebben. Alleen die studenten, die provide dus wel nieuwe verse kennis. En denk dat daarom juist die combinatie, van challenge based learning en z'n ecosysteem heel nuttig kan zijn.

Challenge owner 8: Ja, absoluut, absoluut absoluut. Kijk dan heb je in zo'n ecosysteem, dan heb je ook een netwerknode. Mensen die de netwerk onderhouden, dus eigenlijk bijna gatekeeper zijn zeg maar. Ja en via die studenten die challenge base learning. Uhm ja, krijg ik dan meer legitimiteit? Bijna als ik zou zeggen ook al veranderendt Ook al breng ik, Ik ben die student aan het bedienen. Dus da's ook heel veel. Ja, credibiliteit. Dus da's dus da's dus dat is een beetje hoe ik daar naar kijk. Uh, via die studenten kan ik dan institutionele steun krijgen om dat er dan mensen insider zijn. Snap jij? Omdat die mensen insider zijn anders. Da's een beetje hoe ik dat ervaar, maar misschien zit ik ernaast. Uh, maar heel interessante onderzoeken. Dirk. Ja, ik uh ja, laat maar weten als je mensen nodig hebt of als je iets nodig hebt. Wisselwerking.

Interviewer: Ja, dat doe ik zeker.

Challenge owner 8: Challenge based learning ik ben een beetje aan het lobbyen. Of dat ook in Parijs bij Ecole Polytechnique te krijgen, want ecole polytechnique is hun MIT ze hebben ja, heel veel status en heel veel prestige en ook ook geld denk ik. Uh want je wordt gesponsord door zo'n oud alumni van hun. Zo'n miljardair dat ja die hebben zo'n hele ja uh

innovation space opgezet, dat is enkele jaren geleden. Uh. Maar goed dat dat ziet dat het heel erg hiërarchisch is, want Ecole polytechnique zijn militaire academie uh uh militaire status en dus dat zijn uh uh anders heel anders dan Eindhoven en zetten in die Europe tech Alliance. Beste 5 of 6, beste technische universiteiten in Europa. Uh ja, volgens hun zelf. Dus daarin wordt er op Europees gebied op gebied van research al onderzoek naar gedaan of aan wisselwerking samen uh onderzoek gedaan? Misschien uh kunnen we jou scope meenemen dus houdt me zeker op de hoogte?

Interviewer: Ja ga ik doen. Als ik uh wat duidelijks uit me onderzoek heb dan stuur ik sowieso een mailtje of misschien nog een keer een meeting en om uh een en ander te laten weten.

Challenge owner 8: Ja ja ja. Ja ja. Uh en uh. Je doet je master in Innovation Management of Information Science Wat doe jij?

Interviewer: Innovation Management.

Challenge owner 8: Innovation management, heel interessant? Ja, laten we contact onderhouden en uh zie jou vast wel hier en daar in Eindhoven.

Interviewer: Yes gaan doen. Bedankt voor je tijd.

Challenge owner 8: Graag gedaan Jo.

Interviewer: Fijn weekend daar.

Interviewer: Yes! he picks up.

Challenge owner 8: Good morning, challenge based learning. Yes. uh yes. I uh. What are my expectations? Uhm look, I search, I search and I looked for institutional support through the TU. Mmm huh. However, I did not study at the TU. I did box at TU Sport at the time. I'm from Eindhoven and I had such a concept. Uh, such a startup idea. Developing such a smart punching bag and thereby making mental and physical resilience training more accessible to a wider audience. I had knocked on the door of TU before. But yeah, I was blunt and that was just hard. An uh they want to help me. And uhm yes, now with that challenge based learning and with that ISP course uh can I find interaction with those students? uhm. So look you have in Eindhoven. So we have that uh Brainport and the philosophy of triple helix so uh about high private sectors and academia. And now they also want to involve citizens in participating or civil society in that entire innovation, uh region by region. And I think that fits very well in the context of that uh multiple helix uh uh the challenge-based learning. uhm. Yes it is still very early stage. Mmm huh.

Interviewer: Uh yes because how then? How long have you been working on your start up if I can call it that?

Challenge owner 8: Yes, but my start-up? Yes, that's a bit natural too. Uh uh when you measure that. Exactly, I'm at 2000, uh eighteen that was and seventeen or something. That I came up with such a concept with such a hackathon. uh. Anyway, then you also have to be there in Eindhoven I really missed Uh, that incubation program so that's very small and uh is of course also a very own close network. We know us. Yes and soon yes I just lacked support and uh I was a bit expelled for once. And uh yes, I just missed the entrances at TU so to speak. I've already played sports there, but then I miss some institutions with faculties. I missed.

Interviewer: Uh, I see.

Challenge owner 8: So in Eindhoven I tried on my own, but that didn't work. So I am. I moved to Paris. I was uh, I volunteered at such a tech for Good conference and at drinks. Mmm huh. I have such an old man and that turned out to be the former prime minister of Greece. mmm. And coincidentally uh keynote speaker. And he was impressed with my story. Because I told you I grew up uh in Eindhoven, but I am from uh refugee origin I am originally from Afghanistan. Mmm huh. Uh yes, I picked up boxing from an early age and I also boxed at the TU. And uh yes, I have worked in development cooperation, in Kosovo, Congo, in Afghanistan and I see opportunities for that. uh. Uh box therapy and uh uh bringing automation there and with that that costs uh uh costs effective intervention for healthcare or for more community building and so on. And uh yes yes, he was impressed with me. He told that about me in his speech. And because of that, uh, the director at that station. She should visit such a large innovation center one day.

Challenge owner 8: Yes. Uh yes, he offered to come to Paris. Uh yes, we want to support you. I fled to Paris in a hurry. And that was right before that Covid. So that came in between. So that's why my project has run out a bit. But now I'm at uh ecole polytechnique innovation lab. That's uh a uh prestigious technical university. And uh yes I had complained about that from Eindhoven sometimes provincially. I had complained about this in an Eindhoven newspaper from uh yes it's just uh we know us and those farmers who don't want to help and I think I have a concept. Yes yes I but I ecole de polytechnique that is a bit the MIT of France. Mmm huh. Uh why doesn't it work in Eindhoven? Uh, I'm coming. I still hear him

officially. Yes, I got very nice uh support from the people because of that. And uh yes. So uh through students I learned more about that uh uh yes

Interviewer: That uh.

Challenge owner 8: ISP course and the Eindhoven uh uh in uh uhm what is uh artificial intelligence system institute so the they so there I have uh the very long detour very uh detour really really long detour and it costs me blood, sweat and tears and a lot of time I ended up at TU anyway and that's it. On the one hand, I think that's a shame, because sometimes we also have mental barriers, or mental bias and cognitive bias, that's what they sometimes call it.

Interviewer: Yes, it shouldn't have been so difficult in principle.

Challenge owner 8: Yes, sometimes. Well just low expectations of oh someone from migrant origin think oh he just has to bake shawarma you know. Uh or or women. Or you have to be boring to innovate and so. So that's why I think it's such an open innovative space where people from different disciplines and different backgrounds uh social cultural gender come together, uh meet each other and find interaction. Is that why? Uh, I like it at first. First of all, I think it's a great initiative. I i i. Uh yeah so it's the second time I've spoken to that student. Uh so I submitted my challenge. Mmm huh. Parallel to that challenge-based learning, I found other students. They are also setting up a student team.

Interviewer: And she does that at the TU in Eindhoven.

Challenge owner 8: Yes, TU Eindhoven students who are setting up a student team. I am very interested in sports, society and emerging technologies. I think we have an end goal that we do far too little with. uhh. I am in Paris and the Olympic Games will be held in Paris in 2024. A great deal is being invested in sports infrastructure, but also improving social cohesion and encouraging inclusion and emancipation through sport. There is still a lot of work to be done on this and I think that from Eindhoven can also contribute to that. Growth of social, uh design, you name it. uhh. I spoke with uhm, the chairman of the Dutch Design Foundation. He. Yes, it was also nice if we, as Dutch Design from Eindhoven, could export a piece of innovation. Yes, that would be good PR. So next month we can exhibit our concept at Dutch Design Week. And then I also offer those students of that Challenge-based learning a podium. Tell about what you are doing, your research results and I have made the link for them with uh youth work Dynamo I don't know if you know youth work that is one.

Challenge owner 8: Healthcare organization in Eindhoven?

Interviewer: Yes sounds good! And uhm yes, you say that you actually wanted to start in Eindhoven and then eventually moved to Paris. Well, I understand that of course you can't pass up such an opportunity. But why did you finally feel the urge to go back to Eindhoven and then yes, specifically to participate in the Innovation Space Project?

Challenge owner 8: Yes, I did find support in Paris, so I'm still officially here and I mainly do the software here. Yes, in Eindhoven, at Brainport, at the TU. At high-tech campus I get to hear all about what I speak Dutch well, but I don't really get uh I wasn't helped further. So if you look at yourself, when you hear that, you start to see that hey, that's not a compliment at all, those people just have uh yes then you have to help them further or those who just have very low expectations with you. Well, that aside. I did indeed move to France out of frustration and they are catching up here. But yes, I can see here and here, the Netherlands is already there. In many areas we are leading the way, including the language. Despite the language, I do get much further institutionally. But good for real with the customers, interaction, interaction. Uh, there's a barrier there for me, but also culture. France is very

different and syrupy. And bureaucracy. Anyway, I set up my business here. uhm. So my focus is on artificial intelligence and imaging technology. I have found a French partner. I now have innovation lab at École Polytechnique. That's going really well. Ecole Polytechnique is. uhm. Partner with Eindhoven University of Technology, Munich, Stockholm Denmark with the Eurotech alliances. Only through the European partnerships did I come back to a yes I came across again in Eindhoven University of Technology and I am officially still registered in the Netherlands. I still live in Eindhoven. So I come to pick up my mail every day, every month after Eindhoven. And uh yes, it hurts yes. Thanks to that article in Eindhovens Dagblad where I complained about the . I'll send a link there.

Interviewer: Yes, I saw him.

Challenge owner 8: And then I actually got very nice support and then she told me about the Challenge Based Learning Eindhoven arteficient uh intelligence System institute. And there seems to be a new organization. That's called the gate. At first with the name the gate I thought yes there was more confirmation of that see those who developed barriers For people like me, the gate. Anyway, now she told me no no, it's about the gate, the airport that we'll just help you ascend. But that is actually the intention that there is one uh counter where you can go. And even if it is not the TU student or employee, you can also end up there. That would be for all Eindhoven residents. And uh so I said uh hey yes. uhm. I don't get bullied either. I also want to get involved in that. Because uh. In the Eindhovens Dagblad I also complained about people from the working-class neighbourhoods. Just impossible to intervene. Uh, you also see start-ups in Eindhoven. There is hardly anyone of immigrant origin or anyone of color who is a founder of a startup. Yes, they have a lot about diversity there too. I think yes. They talk about me, but not to me. But. Mmm huh?

Interviewer: Yes you have.

Challenge owner 8: And uh get involved and just sit uh in between and uh. No no. But I received very nice support, also from the mine of entrepreneurs and the region.

Interviewer: Yes, I think you were able to get something loose after all.

Challenge owner 8: Yes yes yes sometimes you have to make trammelant. And everything will be okay. So I with uh through Paris I grabbed a crowbar to open doors because now. Now they are very interested in what I'm doing in France, because there are also a lot with uh here a lot is happening in the field of artificial intelligence and uhm so yes well they uh there is also uh disadvantages to France's viscous bureaucracy and uh less innovative that you see. I appreciate that more about the Dutch, so I'm very very uh a very uhm there. Still nicely thrown and unpacked, so I want to do a part of product development in the Netherlands, especially uhm especially the hardware, say product development and electronics, embedded systems, firmware, material research. I think the TU much more. Yes, more um yes. Has expertise in and in France uh here they are very good at math and uh artificial intelligence. Yes and in France I am also in favor of a form for a market. Hey So here I can market that. And Eindhoven and that's focus more on R&D I think.

Interviewer: And uh. Yes, but maybe.

Challenge owner 8: I try to find interaction. That is. Yes, I'm also becoming somewhat more agnostic, because if I get help in Tokyo, uh, I'll go to Tokyo, so you have to be a little bit opportunistic and see where opportunities lie. And they offered me the challenge-based learning to tap into that. I uh I won't say no to that.

Interviewer: No no I understand. And that's also great that you might be able to combine what you get here in Eindhoven and then eventually use in Paris.

Challenge owner 8: Yes yes, yes it is. With the European Union they would do that, that, yes, that, that, that, that, that. There are many opportunities and possibilities. You just need to know the entrances. I can also use my presence in an ecosystem in Paris as well as leverage, I can also add value. I think it's very complementary with uh.

Interviewer: Yes, sure.

Challenge owner 8: Eindhoven brainport uh, because we don't really know francophony. Geographically it is not that far and you are in Paris in about four to five hours. But uh culturally. Uhm yeah, don't we know them where we put that in there? No, that's more of a tourist place for us. Uh then uh business. But hey, they are catching up in the field of tech and innovation. And they have very progressive policies on Charles? From uh social uhm inclusion in terms of sure to tech and innovation angle and there is almost a lot of those bosses of those innovation clubs and stuff. Uhm uh women are there so they are already very busy with gender and emancipation. I think maybe that is needed more in France, because there are also a lot of issues. Thus.

Interviewer: Yeah, sounds uh interesting. Then I already have almost everything I wanted. Just know one last question specifically about Innovation Space project. What are your expectations? What do you end up with? Gets back from the student teams. Or your specific team? What do you hope to get out of that?

Challenge owner 8: Well at first just extra hands. I have now. Yes, I know where what where a market need is. I have industry expertise. ahem. I just lacked capacity for product development. Uh so yeah I uh. Secretly I just want hands that can help my people with product development. Mmm huh. Because I also have to wait for that process, because of course they also have to uhm, that whole innovation process of design thinking and so on. So should she, that's my expectation. Initially, uhm, something was added. So I uh. We are not just for product development but waiting for the whole process. But for me the expectation is simply institutional. Institutional support through the students get look knowledge and I mean implicit language knowledge tacit knowledge from the professors. You have the specific professors. An example. Yes, if you do not come in contact with students from outside the TU, yes, you will not come into contact with them.

Interviewer: Or no, that is indeed difficult.

Challenge owner 8: So so. So I also use those students to get institutional support through the TU. Because sometimes I get jealous of all those student teams. They do real, yes great things. But at the same time at TU I have boxing, I was a boxing champion, I went with a car from Eindhoven to Afghanistan to give boxing lessons to children for six months with the boxing gloves I got at the TU sports center. And then built a hydroelectric power station, built a school there. But yes, that visibility, that support. You don't get that because you are not formally tied to the TU.

Interviewer: Yes, that's a pity indeed.

Challenge owner 8: Yes and uh. So in that sense uhm, but my expectation is uh institutional support and also uh just finding partners and uh including knowledge and uh research from TU uh valorising in my startup. Well, I think that's actually a trade-off. I have uh in that that's my expectation.

Interviewer: Yes, so basically just end up in that entrepreneur ecosystem. To finally get there, even if it may not be possible to get something out of it immediately, but to be inside.

Challenge owner 8: Yes you want to fight in that ecosystem our primier Rutte who says yes, I can't help that there is discrimination on the labor market for people of migrant origin or people of color. Those people just have to learn to fight. For me, that's also kind of my way of fighting myself. And maybe I don't need it that much in Eindhoven. Uh, but at the same time I think of him somewhere, I still have a little bit of he uhm, maybe if I have experienced it so negatively, how that innovation ecosystem in Eindhoven is a little bit exclusive. Perhaps other people of immigrant origin are also affected by this. Maybe yes, I can. uhm. Yes. Also opening doors for other people. Bringing representation. On the one hand I can complain that there is a problem, but on the other hand you can also be part of the solution yourself than there to participate. Then you have to sit at the table. Can you also address these types, these types of issues? Because sometimes people uh we do it right, but they don't understand that God. How do you experience that? No yes selective uh but they are. Very consciously busy with , I'm just sending you an article uh a friend of mine uh wrote that uh also a french and uh old professor a teacher at the TU. Mmm huh. Vincent Merk A very nice article about challenge based learning and he noticed that from challenge based learning the link to uhm. Uh uh to uh uhm diversity and inclusion. Umm, I think it's a very nice article. That might also be interesting from your research headline. Would you like to tell me one more time about you, your problem statement that you are investigating?

Interviewer: Yes, uhm I want to go and see how specifically challenge based learning can be used to uhm yes not necessarily set up an entrepreneurial ecosystem uhm but to maintain it.

Challenge owner 8: So uh improve, how to foster entrepreneurial ecosystem and how ok and how this contributes. Positive or negative? Yes, you research the correlation there and you do qualitative research or if.

Interviewer: I uhm do a combination of uh literature research. So what's up? Yes, there is not a lot of literature available yet. Certainly not on the connection between challenge-based learning and the ecosystems. So I want to find a connection there in the literature. And I do that in combination with a case study on the Innovation Space Project because yes, in principle it is already happening there. But yes.

Challenge owner 8: I have uh I also graduated in Eindhoven. I studied it in Tilburg. I did my research at Brainport Industries and I investigated uhm power dynamics between OIM uh end supplier, end producer and suppliers. So Brainport is like a club of suppliers. In the supply chain, so to speak, a lot of R&D work is also outsourced downstream in that supply chain. So yes, I looked at entrepreneurship and that high-tech supply chain so to speak. And uhm so that's where I also learned a bit more about uh yes ecosystem thinking and uh. Mmm huh. Entreprneurship in that new uh high-tech supply chain. Uhm there is one thing that stayed with me. Uh, also a bit out of my own need or perhaps frustration social embeddedness. Look for that word social embeddedness. Uhm, that you're ingrained in the ecosystem. In Eindhoven you have words like us, know us, that has a historical meaning. Or old boys currant bread. And do you know that? No no no. But that's that, that, that. That is very important for such an ecosystem that there is mutual trust.

Interviewer: Yes, sure.

Challenge owner 8: Yes, you have a very strong mutual trust factor and mutual trust in each other. On the one hand, this promotes innovation and you have lower transaction costs, faster UH transactions and low transaction costs. But on the other hand, it can also hinder innovation. Because people from outside can do that uh, then you are almost involved in incest, then you are only busy in your own circle. And, uh, navel-gazing is what they sometimes call it. So uh so uhm with such social embeddedness. So I'm just yes, I grew up in Eindhoven for me. Uh, even though I'm from immigrant backgrounds, me me. I say

nowadays I come from Eindhoven that is my my home. Then you are also a new entrend And people don't know you. Not you, uncles and aunts and cousins. So yes, then there is. Is also say barriers for a new entrance huh. And such a challenge-based learning. Uhm there they can interact. So also all those actors within the EU. So with students or professors, they can interact informally with people outside that institutional ivory tower. So that's kind of what I'm looking at, which I'm also interested in and maybe you could include that in your research scope about social embeddesness and lowering barriers to entrepreneurship.

Interviewer: Yes yes. That in itself is a bit of a thing. Yes, what I come across in literature. And now with the case study, because in principle challenge-based learning. Then come companies. Whatever you say, they just sit with their knowledge so to speak. They simply don't walk because they stare at certain problems that they can't solve. And then you arrive at the student. They are completely outside your problem and your knowledge, so they can come up with completely new insights. Only purpose of that. That ecosystem is in order to ultimately be able to keep those challenge owners in, in order to be able to retain that trust and yes, embedness and that we have a short Network there. Only those students, who therefore provide new, fresh knowledge. And I think that's why that combination of challenge-based learning and its ecosystem can be very useful.

Challenge owner 8: Yes, absolutely, absolutely absolutely. Look, if you have such an ecosystem, you also have a network node. People who maintain the network, so in fact they are almost gatekeepers. Yes, and through those students who use challenge base learning. Uhm yes, will I get more legitimacy? Almost as I would say even though changing Even though I bring, I am ministering to that student. So that's a lot too. Yes, credibility. So that's so that's so that's kind of how I look at that. Uh, through those students I can get institutional support because there are people insiders. Do you understand? Because those people are insiders different. That's kind of how I experience that, but maybe I'm wrong. Uh, but very interesting studies. Dirk. Yes, I uh yes, let me know if you need people or if you need anything. Interaction.

Interviewer: Yes, I certainly do.

Challenge owner 8: Challenge based learning I'm lobbying a bit. Or get that in Paris at Ecole Polytechnique, because ecole polytechnique is their MIT, yes, they have a lot of status and a lot of prestige and also money I think. Uh because you're sponsored by one of those old alumni of theirs. Such a billionaire that yes, they set up such a whole yes uh innovation space, that was a few years ago. uh. Good thing that sees that it is very hierarchical, because Ecole polytechnique have military academy uh uh military status and so they are uh uh very different from Eindhoven and put in that Europe tech Alliance. Best 5 or 6, Best Technical Universities in Europe. Uh yes, according to them. So research is already being done in the field of research in this area, or research is being done on interaction with each other? Maybe uh we can bring your scope so be sure to keep me posted?

Interviewer: Yes I will. If I uh have something clear from my research, I will send an email anyway or maybe another meeting and to let uh know.

Challenge owner 8: Yes yes yes. Yes Yes. Uh and uh. You are doing your master's degree in Innovation Management or Information Science. What do you do?

Interviewer: Innovation Management.

Challenge owner 8: Innovation management, very interesting? Yes, let's keep in touch and uh I'm sure we'll see you here and there in Eindhoven.

Interviewer: Go do yes. Thank you for your time.

Challenge owner 8: You're welcome Jo.

Interviewer: Have a nice weekend there.

7.13 Interview representative business cluster IS (NL)
Dutch version, used for obtaining CIMO principles, translated version can be found below.

Business cluster IS representative: Ik. Weet het zelf van mijn afstuderen ook dat je dan dit. Je kan niet alles onthouden. Ik moet er wel bij zeggen dit is nog een concept vorm dus dit is in ontwikkeling en nog niet uitgerold. Dus we kunnen nog. Het één en ander kan er nog aan veranderen, maar dan weet je in ieder geval waar we mee bezig zijn. Ja.

Interviewer: Ja. Dat is prima.

Business cluster IS representative: Uhm wacht, ik zal het even op groter scherm doen dan. Klein momentje. En dan deel ik wel even. Zie jij het scherm nu? Top! Uhm, dit is dus het het partnership model wat we waar we mee bezig zijn. Dit is goed om te weten dat deze slides zijn opgesteld voor bedrijven, dus echt puur ook in terminologie, dus ook afgesteld op woordkeuze die voor bedrijven aantrekkelijk zijn. Uhm wij. Uhm uhm. Met het opstellen ontwikkelen hiervan zijn we in gesprek gegaan met bepaalde challenge owners die al langer met ons samenwerken. Bijvoorbeeld de DAF en de New Ways, maar ook wat nieuwe bedrijven die geïnteresseerd zijn in samenwerking om juist te kijken van okay, als er uhm ja, als er zonder kennis instapt, hoe kijk je tegen innovation space aan en waarom? Wat vind je dan belangrijk om uit een partnership te halen? En voornamelijk de ja, de bedrijven die ook echt de intentie hebben om op langer termijn samen te werken in plaats van één keer een challenge aan te bieden. Mm hu. Uhm. En daarin zien we eigenlijk een tweeledige wens. Aan de ene kant is het uhm innovation space een learning environment waar je op een hele laagdrempelige manier kan innoveren. Dus bepaalde projecten die bijvoorbeeld nog niet de corebusiness zijn van een bedrijf of bepaalde afzetmarkten, of bepaalde manieren om technologie te gebruiken of gebieden die ze willen verkennen. Daarvoor is challenge based learning een heel mooi middel om dat op een laagdrempelige manier, met zo min mogelijk capaciteit natuurlijk van zichzelf al te kunnen exploreren.

Business cluster IS representative: Uhu. Uhm. Aan de andere kant ook uhm een goede manier om de sustainable development goals die bedrijven nu uh veelal uh uh in hun strategisch plan opzetten of in ieder geval onderdeel moeten maken van hun van hun werkzaamheden. Dat ze die op deze manier daar dus steeds aan kunnen bijdragen. Want die SDG's die zijn uh uh steeds belangrijk in in de KPI's die bijvoorbeeld die een bedrijf ook binnen een jaar of meerdere jaren wil halen. En dan zien ze dit ook een uhm als een goed middel om zo uh projecten aan projecten te werken die bijdragen aan hun uh sustainable development goals. Dat zijn een beetje de twee grote dingen. Daarna zijn er ook wat kleinere uh wensen die zijn uitgesproken bijvoorbeeld uhm bedrijven die willen een partnership met Innovation Space omdat ze op die manier dichter staan bij een plek waar innovatie wordt ontwikkeld. Dus op de hoogte worden gehouden van ontwikkelingen in studententeams, maar ook zo een link hebben naar onderzoek uhm en dergelijke. En daarnaast is het ook een verfrissende manier voor werknemers om het onderdeel te zijn van projecten dan naast hun dagelijkse werkzaamheden. Verrijkt het hun blik natuurlijk ook. En uh, kunnen werknemers op die manier ook zichzelf steeds ontwikkelen. Dus wat zijn dat. Is deze slide voor onder meer de introductie van waarom zou je het willen? En bij name dat uh uh de grote maatschappelijke vraagstukken die daar willen vooral aan bijdragen binnen Innovation Space.

Business cluster IS representative: En aangezien die steeds meer complex worden en verschillende disciplines bij komt kijken is uhm, Innovation Space ook een goede plek om dat op een systematische manier aan te pakken. En zoeken we dus ook partners die dit willen, Dus die echt willen verbinden, samenkomen, exploreren en innoveren binnen een learning environment. Ja, en daarin zie je dus ook dat de missie is om verschillende soorten partijen te betrekken. Dus uh high tech bedrijven van groot tot startups, beleidsmakers en uh ook de connectie met research maken en uhm innovatieve student teams en students. Dus het is wat overstijgender dan alleen CBL. Maar het begint natuurlijk allemaal bij challenge based learning. En daarom is het uh. De diepte van de samenwerking gaat dus wordt eigenlijk opgebouwd door verschillende lagen en die lagen bestaan uit exploreren door onderwijs. Evolving through expertise en excelling through engagement. De laatste is meer community. En de eerste laag is bijvoorbeeld een Die is voor jou het meest bekend, want daar valt een ISP ook onder. Dat is echt het exploreren door en door educatie en ik denk dat dat dat ook goed is in de expectations management van bedrijven dat het challenge based learning echt wordt gebruikt als uhm manier van exploreren in plaats van dat je een duidelijke of een een heel erg afgebakend oplossing zoekt voor een vraagstuk. De vraag is belangrijker en dan de de oplossing.

Interviewer: Ja precies, maar ja, dat hoor ik toch wel van sommige challenge owners. Dat hun er dan ingaan en dan aan het einde zeggen van is leuk, maar we hebben nu niet perse iets aan deze oplossing. En daar is in principe gewoon die verwachting van hun die compleet verkeerd is. Want hun gaan er dan in van okay, wij hebben gewoon goedkope werknemers, paar studenten van de uni maken voor ons goedkoop een oplossing.

Business cluster IS representative: Nou ja, dat is sowieso niet de bedoeling, want als je. Dat is meer iets voor een stage, zeg maar een ja. Uh, als jij daar zo instaat en ik denk dat dat ook misschien. Daar kom ik later ook op terug. We hebben bijvoorbeeld bij uhm alle deelnemers van de TU e contest willen we ook een kickoff dag organiseren en daarin krijg je ook een uitgebreide presentatie van wat is Innovation Space? Wat kan je allemaal binnen Innovation Space doen? En ik denk dat die kickoff dagen misschien ook wel interessant zijn dat voor bedrijven duidelijk wordt van wat kan je verwachten, waar? Niet alleen binnen challenge based learning, maar ook daarbuiten. Maar als je kijkt naar alleen challenge based learning dat je ook de verschillen ziet. Dat er ook duidelijk gecommuniceerd wordt wat de verschillen zijn tussen vakken. Want een ISP heeft natuurlijk veel meer de focus op het business model, ontwikkeling en entrepreneurship en dat is gewoon anders dan ik heb challenge owners die bijvoorbeeld waarvan ik al meteen kan inzien van dit past veel beter bij een Innovation Space Bachelor eind project of een een vak wat, wat technischer is, want bij ISP moet je niet altijd een een, een, een technische. Uhm. Ja een fair uitgewerkt technische oplossing verwachten. En verwachtingsmanagement is één, maar ik denk ook meer. Het op langer termijn nadenken is ook een tweede. En we willen dus ook naar een partnership model waarin een challenge owner dus één keer gratis een challenge kan aanbieden binnen een vak. Maar als hij dat vaker wil doen, dat het dan een betaald partnership is. En die inkomsten worden dus ook gebruikt om die coördinatie beter te kunnen faciliteren. Dus ook als je niet alleen het he. Uhm, zorgen dat een challenge goed land binnen een binnen een vak, maar ook dat na wordt gedacht. Open nou als je meerdere challenges laat landen binnen verschillende vakken. Hoe sluiten die op elkaar aan? Hoe kan je bijvoorbeeld voortborduren op een op een challenge dat je bijvoorbeeld eerst de ene kant belicht en dan

de andere kant bijvoorbeeld eerst begint met een ISP en dan daarna een IS-bep doet of parallel eraan. En dat je dan bepaalde sessies organiseert waarin de verschillende studenten die eraan werken ook een stukje kennisoverdracht hebben. Uhm, en ik denk dat dat ook heel erg waardevol is omdat. Nu is het heel erg een tijdslimiet of een periode waarin studenten daaraan werken en dan een eindpresentatie. Dan is het echt ook een beetje klaar. Het is geen opvolging en ik heb daar laatst ook met Maurits over gehad van Aristoteles. Die zei ook van er zit gewoon een heel groot gat tussen mensen die klaar zijn met ISP en mensen die verder gaan omdat start up uit kan rollen en er. Je kan daarin ook studenten meer ondersteunen. Als je een follow up event hebt van je ISP dan hoeft niet eens zijn om dat idee wat je binnen ISP hebt ontwikkelt verder te gaan. Het kan ook zijn van we zijn geïnteresseerd in de challenge owner of zelfs. Want dat is ook altijd het nadeel dat vaak zijn is er van het team maar een klein aantal die door wel een aantal die niet door willen en dan is het moeilijk om zoiets voor te zetten. En als daar al iets meer ondersteuning wordt gegeven dan wordt er ook meer waarde gecreëerd voor de challenge owner zelf. Want nu is het heel veel begeleiding tijdens ISP, maar daarna valt het eigenlijk gewoon stil. Terwijl we willen eigenlijk.

Interviewer: Ja, voor zichzelf.

Business cluster IS representative: Ja, en je zou dus als je. Een bepaald partner betaalt, partner bent en je wil meerdere challenges aanleveren of in ieder geval dat er daarna ook begeleiding is, dan kan je dat op die manier ook faciliteren. Je kan niks beloven en dat is altijd wel een goede om. Wel altijd te communiceren. We beloven niks, maar we kunnen wel door middel van het partnership model meer ondersteuning bieden dat het een grotere kans van slagen of wat meer diepte bereikt kan worden binnen een challenge.

Interviewer: En hoe zit dat nu dan met die challenge owners? Is nu gewoon alles gratis instappen?

Business cluster IS representative: Alles is gratis. En ook omdat steeds meer vraag is vergeleken met aanbod. Want zoals je misschien had gemerkt bij de huidige ISP semester. Wij hadden uiteindelijk negen challenges aangeboden en er konden maar drie gekozen worden omdat er zo weinig studenten waren. Mm hu. En er is dus gewoon veel meer vraag vanuit bedrijfsleven, onderzoek en dergelijke om een challenge te leveren dan dat er student aan kunnen werken. Dus het is ook niet gek als we daar een andere structuur maken dat ze één keer ja een challenge kan indienen. En als je dat vaker wilt doen dan wordt je een betaal partner maar dan krijg je, het is niet puur dat we er geld voor vangen en dan en dat het hetzelfde blijft. Maar er wordt daar ook meer ondersteuning geboden in hoe challenges op elkaar kunnen aansluiten en hoe dat kan. Ja, dat beetje meer kan overgedragen worden en er ook een bijvoorbeeld een follow up event kan zijn.

Interviewer: Uhu. Dat vroeg ik me ook af dan die challenge owners die er nu allemaal waren bij de nieuwe kick-off van ISP. Wat gebeurt er dan met hen als ze uiteindelijk niet gekozen worden?

Business cluster IS representative: Dan krijgen ze een mailtje van Helaas ben je niet gekozen. In februari starten we weer. Wil je dat je dat je challenge weer mee doet? Weer aanbieden aan een aantal willen dat wel, hun willen dat niet.

Interviewer: Wel ja. Ik kan me op zich dan ook wel inbeelden voor zo'n bedrijf en hun dan de moeite doen, ik weet natuurlijk niet hoeveel moeite is voor zo'n bedrijf, maar om dan mee te doen. Nou uiteindelijk toch niet gekozen worden dan natuurlijk ook al vrij snel. Dat ze dan denken okay, het is klaar, we zijn het niet geworden, we gaan door.

Business cluster IS representative: Het scheelt wel weer dat ze vaak al een zo'n. Challenge formulier al hebben ingevuld en naar de kick-off zijn geweest. Het is makkelijker om voor de tweede keer natuurlijk iets aan te leveren, want dan heb je het al helemaal uit gedefinieerd. Maarja inderdaad het is wel weer een in februari, duurt nog effe dus uhm dat is niet interessant. Het zou wel interessant kunnen zijn als het meer op korte termijn is, maar bijvoorbeeld een PDN? bootcamp heeft ook nog niet zoveel deelnemers. Wel merken we dat het nu wel makkelijker qua doorstroom is dat we bijvoorbeeld Challenges hadden voor de master kick off die de halve dag waren. En dat die makkelijker door worden dat die challenge owners makkelijker weer mee willen doen met een ISP of een ISBEP. Dat het veel laagdrempeliger is. Maar daarom wil je ook passend. Daarom wil je ook niet zoveel challenge challenges aanbieden, want je wil één of twee misschien een derde meer hebben. Maar je wil niet dat er negen challenges worden aangeboden, maar drie gekozen kunnen worden door het gebrek aan studenten.

Interviewer: Ja, precies. Maar hoe gaat dat selectieproces? Hoe kiezen jullie of iemand überhaupt in aanmerking komt om mee te doen? Want nu was dat natuurlijk wel met die negen challenges op zo weinig studenten.

Business cluster IS representative: Nou, dat is gewoon puur omdat het tegenviel. Dat was gewoon een lastige dat dat het aantal studenten blijft. Ook iets wat je moeilijk kan veranderen, want het aantal studenten is gewoon heel erg laat dat zich ingeschreven is gewoon. Dat is laat bekend. En je wil natuurlijk wel challenges op tijd verzamelen, want je wilt de challenges op de website hebben omdat studenten kiezen ook het vak op basis van de challenges die er zijn. Dus dat blijft ook een ding wat gewoon lastig is. Ehm. Maar ja. Het scheelt wel weer dat een ISBEP deadline bijvoorbeeld eerder is dan een ISP. Dus je ziet soms ook dat als ze afvallen bij de één dat ze dan door worden gezet naar de ander. Maarja, is natuurlijk ook goed. Wel, je expertise management is dan wel belangrijk omdat het wel een verschil is qua vakken. Maar goed, dit is het CBL gedeelte. Uiteindelijk willen we het opbouwen in lagen en natuurlijk ook hoe verder hoe meer je de diepte ingaat qua samenwerking. Je krijgt er meer voor terug, dus je legt er ook meer voor in. Dus naast de op een voortbordurend op de Exploring education heb je dus ook die evolving expertise.

Business cluster IS representative: We zien namelijk dat Challenge Owners. Daar valt nog veel te halen dat ze eigenlijk de challenges. Ook willen verrijken met expertise zit binnen

161

het studententeams en researchers en met focussen dan wel op het verrijken van Challenge Based van challenges in plaats van het koppelen van expertise aan externe partners omdat je dan ook in het vaarwater zit van andere partijen op de TU. Maar dit zou in de vorm van bijvoorbeeld elk kwartaal een Q&A sessie met alle teams die binnen een CBL vak aan een challenge werken, dat die gekoppeld kunnen worden aan studententeams en relevante researchers om meer inzichten te krijgen. En juist het dat faciliteren van die sessies is waar je dus ook in investeert. Want natuurlijk heeft een student ook zijn eigen netwerk binnen de TU. Maar vaak zien we wel dat die drempel hoog is. Om die kennis te betrekken bij de challenge wordt vaak bij best wel laat gedaan. Dus wij willen dat stimuleren door van die Q&A sessies of. De vorm is nog niet, staat nog niet vast, maar door middel daarvan kennis te betrekken vanuit studenten, teams en researchers bij de challenge.

Interviewer: Ja, want dat volgens mij zei ook een challenge owner dat tegen mij die het had over dat eerst paar weken. Dat is in principe gewoon verloren tijd omdat soms op een project waar andere studenten al op hebben gewerkt daar dan opnieuw onderzoek naar moeten doen. Ja, en als je zo dan inderdaad samen kan voegen of betrekken in ieder gevallen. Heb je al die paar weken sowieso speling natuurlijk, omdat dat hele vooronderzoek al gedaan is.

Business cluster IS representative: Ja. Misschien ook het uitnodigen van oude studenten die betrokken zijn bij de challenges?

Interviewer: Ja.

Business cluster IS representative: Ja.

Interviewer: En ik weet dan ook niet hoe het met de challenge zit, of er soms oude challenges gebruikt worden om dan vervolgens weer een nieuwe te maken.

Business cluster IS representative: Ja, of op voortborduren met een andere invalshoek. Maar je zou bijvoorbeeld ook omdat je. Daarom willen we ook nu een partnership model ontwikkelen waarin je ook gradaties van partners hebt. En dan betaald partnership zodat je dit meer kan faciliteren. Want al die coördinatie of het organiseren van dat soort sessies kost natuurlijk ook tijd. Want iemand moet dat doen, dus daar moet wel geld heen. En je kan bijvoorbeeld die student die eerder aan een challenge hebben gewerkt kan je bijvoorbeeld. Als je het tijdens een lunch doet, kan je een gratis lunch aanbieden. Ja, daar heb je ook weer. Meer incentive als student om daarom steentje bij te dragen.

Interviewer: Ja ja, ik kan natuurlijk ook wel begrijpen dat die studenten dan ook denken van ja oké is leuk, maar ik heb nu ook gewoon weer mijn vakken. Een drukke agenda.

Business cluster IS representative: Maar daarom bijvoorbeeld tijdens de lunchtijd een gratis lunch zou bijvoorbeeld een interessante manier zijn. Uhm, dus dat is de volgende laag. En dan hebben we de laatste laag is echt meer het onderdeel zijn van het Innovation Space netwerk. Dus dan heb je niet alleen. Dan ben je niet aan het alleen het voortborduren op je challenges, maar ook ben je onderdeel van het netwerk. Dus kan je ook geïnspireerd raken door bijvoorbeeld word uitgenodigd voor bepaalde netwerk borrels waar studenten teams aanwezig zijn. Je krijgt een een newsletter en je bent. Onderdeel van echte community.

Interviewer: Ja.

Business cluster IS representative: En daarom willen we ook meer dat de strategische planning onderdeel maken. Is er nu iemand een een IO van Isabel is ook bezig met het met een paper over open road mapping. Dat kan wel interessant zijn. Om hier onderdeel van te maken. En zo heb je dan de verschillende lagen. De. En zo creëer je ook meer waarde voor een challenge owner. Want ik kan me voorstellen jij bent voornamelijk geïnteresseerd, gefocust op ISP. Maar je creëert natuurlijk meerwaarde als het als het vakoverstijgend is en niet alleen vakoverstijgend, maar dat je ook bepaalde expertise erbij haalt en onderdeel kan zijn van een community.

Interviewer: Jazeker, dat vond ik. bij mij vooral denk ik ook dan binnen ISP dat challenge owners na één keer weggaan. En ja, dan mis je dus gewoon heel veel op omdat je niks op kan bouwen inprincipe. En. Ja en uiteindelijk wil ik ook wel gewoon als het allemaal rondkrijg wel een aanbeveling doen van OK, het gaat deze richting op, dan kun je dus ook Innovation Space zelf erbij betrekken om toch wat groter te maken. Want ja, het gaat bij mij wel specifiek om ISP maar.

Business cluster IS representative: Ja, maar het kan wel. Het kan wel interessant zijn om te kijken binnen deze laag, want dit is natuurlijk overstijgende, maar binnen deze laag. Voor SP kan ook als conclusie hebben of als aanbeveling. Ik zie dat. Dat het vak overstijgend moet zijn of dat een challenge owner zich moeten betrokken moeten voelen bij de innovatie space community. En dat kan je ook, bijvoorbeeld bij een future research of zo. Nog een stuk als als onderdeel van je onderzoek opnemen. Dat hoef je zelf niet allemaal uit te pluizen, maar als jij uit je interviews ziet van hé, er is weinig commitment, dat moet op een andere manier inzetten, dan zou je dat ook op die manier kunnen beschrijven in je onderzoek.

Interviewer: Ja zeker.

Business cluster IS representative: Zijn er bepaalde dingen die jij hierbij ziet? Hey, dit kan interessant zijn voor die entrepreneurial community. Ik bedoelde bijvoorbeeld net die dat het follow up event kan wel interessant zijn als dat. Uh als dat er plaats vindt omdat het dan niet meteen zo. Presentatie afgekapt klaar, dat het meer ook begeleid wordt want nu is het vaak zie je dat de challenge owner zelf nog contact zoekt met de student na de eindpresentatie.

Maar ja, dat gaat natuurlijk wel moeizaam, want studenten hebben weer verder vakken, dus het is denk ik ook wel interessant als wat meer vanuit de Innovation Space wordt georganiseerd.

Interviewer: Ja, ik heb gisteren Madis gesproken en straks Bart even kort. Hoe het verder binnen innovation space gaat voor student teams of startups en hoe dan eventueel die transformatie van ISP naar startup gaat. En ja hun zeggen beide er is heel veel beschikbaar. Alleen krijg ik toch het idee dat na ISPs heel abrupt einde vak zoek het maar uit. Maar als je iets wil weten kun je altijd vragen maar er is verder geen support. Ja en misschien zou het wel goed zijn om dan. Daarna nog één keer een meeting in te schieten om gewoon weer met die coaches de challenge owners en studenten of zo dan gewoon te bespreken. Hoe gaan we verder? Want naar die laatste presentatie. Is natuurlijk niet heel veel tijd om, dan is het allemaal druk. Sowieso een drukke dag.

Business cluster IS representative: Gewoon een follow up event? Ja. Een.

Interviewer: Ja ja, ik krijg gewoon het idee er wel genoeg support. Alleen na het vak is het wel gewoon klaar en moet je wel zelf aan de bel trekken.

Business cluster IS representative: Maar daar moet dus ook iemand op zitten. Ik denk dat dat, weet je, dat blijft ook altijd. Je kan ook maar zoveel aanbieden als. En er moet natuurlijk ook wat in worden gestopt. Ik kan niet voor niets allemaal extra dingen aanbieden en ik denk dat het goed is als er gewoon een dedicated iemand hier op zit zeg maar. Maar daarom is het ook interessant om dat zo op te bouwen. En dat is inderdaad als je meer dan één. Je kan het ook zo daar. Of ja hoeft niet alleen als je meer dan één cahllnge aanbiedt, want je organiseert het toch, Dus je kan het ook weer voor degenen die één keer aanbieden. Het organiseren. Maar of ja trouwens. Je kan ook voor partners doen. Ze zou je kan ook.

Interviewer: Stel dat zo'n project niet doorgaat volgens mij was er nu ook zo'n groepje. Er wilden twee mensen misschien nog door. Hun zouden dan bijvoorbeeld ook gewoon nog een meeting kunnen hebben met die challenge owner van Okay. We zetten een nieuwe challenge op dat wij als challenge owner gaan functioneren en dan kunnen hun dus in principe ook gewoon door met een project.

Business cluster IS representative: Ja, ik denk dat.

Interviewer: Dat je door pakt.

Business cluster IS representative: Zo'n follow up event is. Gewoon heel erg interessant. En dan ook want je hebt ook mensen die misschien niet zo'n succesvolle challenge hebben, maar wel willen aanhaken bij een andere.

164

Interviewer: U. Het is gewoon interessant om. Iedereen langer binnen te houden. Als een challenge owner bijvoorbeeld niet eruit krijgt wat hij wil. Maar die studenten zijn wel positief op hun project dat ze dan alsnog gewoon door kunnen gaan. Ja um binnen innovation Space Project was ook bij de kick off. Oud studenten die dan effe een praatje deden van Okay, dit hebben wij geleerd, dit waren onze verwachtingen. Ja. Dat vond ik ook een goeie. Dat zou ik niet per se weten, hoe dat dan binnen innovation space species doorgezet kan worden. Maar het is wel goed om studenten te betrekken binnen je kick off. Want ik heb persoonlijk zelf altijd als dan van oud studenten of studenten dat geloof je meer dan gewoon een professor of iemand die boven je staat. In principe ja, z'n verhaaltje komt doen.

Business cluster IS representative: Ja, je kan dan. Je kan op zich ook wel een algemene kick off dag hebben.

Interviewer: Ja.

Business cluster IS representative: Moeten we even bekijken. Wat heb jij verder nog van mij nodig?

Interviewer: Eh, ja, ik was vooral benieuwd wat er met de challenge owners gebeurde na dat ze niet gekozen worden. Maar daar heb je verteld ja. Ja, misschien Selectieproces van de challenge owners. Gaan jullie zelf op zoek of wordt het gewoon aangeboden door bedrijven?

Business cluster IS representative: Beiden. Bij Business Collaboration Cluster hebben we dus dat we challenges ophalen bij bedrijven. En dat kan zijn door bijvoorbeeld Ik ga naar conferenties voor leads, maar ook via het Research Institute. Via via. Op allerlei manieren komen leads binnen, maar zij kunnen ook. We hebben ook promotie via LinkedIn en kanalen, waarin we dus mailtjes ontvangen op het Business Collaboration cluster E-mail. Vervolgens is er vaak een kennismakingsgesprek waar je in algemeenheid vertelt over wat in de innovation space speelt en daar doe je ook een stukje verwachtingsmanagement. Als ze inderdaad een challenge aanbieden dat het open ended is, dat de dat de vraag belangrijk is en dat je niet dat het geen goedkope arbeidskrachten is van studenten. Helaas glippen er natuurlijk altijd wel wat. Challenges tussendoor die toch wel stiekem niet helemaal alignen, maar we zitten daar wel steeds dichter op dat het gewoon duidelijk is. Mmm. En vervolgens als bepaalde deadlines is voor vakken, dan contacteren we ze van he. Voor het ISBEP moet het formulier ingevuld worden, voor die tijd kunnen wij het invullen en als ze daarbij hulp nodig hebben ondersteunen we ze daarbij.

Interviewer: Ja en dan van challenges. Zitten daar eisen aan waar het aan moet voldoen? Of is het gewoon heel persoonlijk qua bedrijf?

Business cluster IS representative: Ja de algemene CBL eisen, dus het moet open ended zijn. Het moet interessant zijn voor een interdisciplinair team van studenten. Ze moeten de vrijheid hebben dat ze met een entrepreneurial mindset het kunnen tackelen. Dus ze moeten openstaan dat er een een misschien een service ontwikkeld wordt die ondersteunend is aan het bedrijf zelf, zodat ze bijvoorbeeld een eigen startup kunnen opzetten.

Interviewer: Ja.

Business cluster IS representative: Dat zijn allemaal dingen die we die we communiceren. Daarnaast moet het ook van voldoende abstract niveau zijn dat het niet te afgekaderd is, dat het wel echt een een duidelijk open ended universitair niveau heeft. Mm hu. En wij zitten bij. We kijken daarbij ook of het bijdraagt aan de Sustainable Development Goals. Als we zeg maar afwegen of een challenge geschikt is of niet. Ja, dat het wel bijdraagt aan een hoger maatschappelijk doel. We gaan niet een dat past gewoon niet binnen de universiteit om, bijvoorbeeld een sigarettenmerk of zo.

Interviewer: Nee oke. Ja, en dan misschien laatste vragen nog aan het einde van zo'n project. Of een vak, wordt er dan ook nog gekeken naar zijn challenge owner van voldoet die uiteindelijk aan onze verwachtingen? Gaan we ermee door? Hoe gaat dan verder? Stel dat zo'n bedrijf nog een keer mee wil doen.

Business cluster IS representative: Dat is wel lastig. Dat is dat. Dat is zeg maar allemaal. Dat proces gaat best wel informeel. Dus vaak we hebben gewoon contact met binnen ISP met een Ákos en een Gert van hoe gaat het nou? En dan ook het is het gaat ook natuurlijk omdat je natuurlijk in hetzelfde gebouw werkt en we gaan niet een challenge opnieuw aanbieden. Als we al geluiden hebben gehoord van Ákos en Gert dat het niet ideaal samenwerken is, maar er is nog geen formeel proces voor. Ik denk dat dat wel interessant kan zijn om bijvoorbeeld een feedback form zo'n standaard feedback form te hebben of iets wat gestuurd kan worden waarin je meer informatie kan halen. Ik weet wel dat. Ákos en Gert gaan altijd met challenge owners rond de tafel om feedback te verzamelen om hun eigen vak te verbeteren. Mm hu?

Interviewer: Ja.

Business cluster IS representative: Maar ik denk dat het voor business collaboration cluster ook wel interessant kan zijn als het meer meer een formele vorm krijgt zodat het er wel echt. Er een een feedback form ingezien kan worden.

Interviewer: Ja. Ja, misschien ook wel lastig, maar er zou op zich wel een idee kunnen zijn denk ik nog.

Business cluster IS representative: Ja, en we proberen altijd niet dezelfde challenges binnen het zelfde vak achtereenvolgend te hebben. Dus niet dat je in september een challenge van DAF hebt en in februari ook een challenge van DAF in ISP. Dan probeer je. Als het een challenge is dan probeer het in ieder geval in een ander CBL vak.

Interviewer: Ja.

Business cluster IS representative: Maar ik denk dat we dat ook wel meer. Dat het dat op zich niet erg is als het betaalde partners zijn, want we willen gewoon dat het niets overspoeld wordt. Dat er genoeg variaties en variatie is.

Interviewer: Ja, maar ik denk als de betaalt is, dan is er misschien toch net een grotere drempel. En dan gaan bedrijven ook beter over nadenkt van ja, wat verwachten wij eruit en wat willen we eruit? Nee, ze zijn misschien ook gewoon soms goudzoekers die denken van ok, we geven een challenge, we zien wel wat eruit komt.

Business cluster IS representative: Ja, en ik denk dat er ook meer commitment is. Als je er natuurlijk voor betaalt dan hij. Wil je er ook, dan ben je ook veel meer commitment dan wanneer je gewoon gratis een aantal werknemers ernaartoe stuurt.

Interviewer: Ja. Okay, duidelijk dan.

Business cluster IS representative: Ik denk dat dat ook wel interessant voor je kan zijn als onderdeel van wat als een partner betaalt. Dan sta je er toch anders in, dan heb je vaak wel. Net zoals wanneer je bijvoorbeeld naar een evenement gaat. Je hebt heel veel mensen die bijvoorbeeld voor gratis evenementen ook €3 vragen, puur zodat een deelnemer zich meer committed voelt. Nu is het een hele psychologisch spelletje achter, dus ik denk dat het qua ook invloed heeft op de samenwerking die je hebt.

Interviewer: Ja, dat denk ik zeker.

Business cluster IS representative: Dit is ook een reden waarom investeerders ook een deel van hun eigen budget van founders vragen. Een pure commitment die je dan hebt?

Interviewer: Ja. yes, die heb ik opgeschreven, dus ga ik dadelijk meteen even iets over lezen of ik daar nog iets nuttigs mee kan.

Business cluster IS representative: Top.

Interviewer: Dan heb ik hem denk ik wel ja.

Business cluster IS representative: En als je verder nog korte vraagjes hebt of lange vragen mag ook, maar ik kan me voorstellen dat het is tegen je deadline aan. Wil je soms even iets snel valideren en heb je te veel stress om een formele meeting op te zetten? Je kan me altijd via teams een berichtje sturen en ik ben heel vaak in Innovation space.

Interviewer: Ja, dat is prima.

Business cluster IS representative: Ook als je even. Ook al is het niet business collaboratie cluster gerelateerd, maar heb je zoiets van hey, ik twijfel hierover. Ja ik heb heb ook mijn thesis geschreven binnen IM dus dan. Als je een keertje ergens feedback over wil dan kan je me altijd bereiken.

Interviewer: Ja top! Ok, bedankt.

Business cluster IS representative: Geen probleem. Succes in ieder geval. Ik weet dat de. De laatste loodjes zijn het zwaar is, maar uiteindelijk is het allemaal wel waard. Ja. En probeer niet alles meteen perfect te doen. Het helpt ook als je gewoon dingen op papier zet en dan daarna structureert.

Interviewer: Ja.

Business cluster IS representative: Succes met schrijven.

Interviewer: Dank je.

7.14 Interview representative business cluster IS (EN)

Business cluster IS representative: Me. Know the self of my graduation also that you than this. You can't remember everything. I have to say this is still a concept form so this is in development and not yet rolled out. So we can still. A few things can still change, but then you at least know what we are doing. Yes.

Interviewer: Yes. That's fine.

Business cluster IS representative: Uhm wait, I'll do it on a bigger screen then. Little moment. And then I'll share. Do you see the screen now? Top! Uhm, so this is the partnership model we're working on. It is good to know that these slides have been prepared for companies, so they are also purely in terminology, so also adapted to word choice that are attractive to companies. Um us. Uhm uhm . In drawing up this development, we entered into a discussion with a certain challenge owners who have been working with us for some time. For example, the DAF and the New Ways , but also some new companies that are interested in cooperation to look at it from okay, if uhm yes, if they step in without knowledge, how do you view innovation space and why? What do you think is important to get out of a partnership? And especially the yes, the companies that really have the intention to work together in the long term instead of offering a challenge once . Mmm huh. uhm. And in that we actually see a twofold wish. On the one hand it is uhm innovation space a learning environment where you can innovate in a very accessible way . So, for example, certain projects that are not yet the core business of a company or certain markets, or certain ways of using technology or areas they want to explore. That's what challenge is for based learning is a very nice means of being able to explore this on its own in an accessible way, with as little capacity as possible .

Business cluster IS representative: Uhh . uhm. On the other hand, uhm also a good way to implement the sustainable development goals that companies now uh usually uh uh set up in their strategic plan or at least have to make it part of their work. So that they can always contribute to it in this way . Because those SDGs are uh uh increasingly important in the KPIs that , for example, a company also wants to achieve within a year or several years. And then they also see this as a good way to work on projects that contribute to their uh sustainable development goals. Those are kind of the two big things. After that, there are also some smaller uh wishes that have been expressed, for example, uhm companies that want a partnership with Innovation Space because in this way they are closer to a place where innovation is developed. So be kept informed of developments in student teams, but also have a link to research uhm and the like . In addition, it is also a refreshing way for employees to be the part of projects beyond their day-to-day work. Of course it also enriches their view. And uh, employees can also develop themselves in this way . So what are those. Is this slide for the introduction of why would you want it? And especially that uh uh the major social issues that want to contribute to this mainly within Innovation Space.

Business cluster IS representative: And since these are becoming more and more complex and involve different disciplines, uhm, Innovation Space is also a good place to tackle this in a systematic way. And so we are also looking for partners who want this, ie who really want to connect, come together, explore and innovate within a learning environment. Yes, and you can see that the mission is to involve different types of parties. So uh high tech companies from large to startups, policy makers and uh also making the connection with research and uhm innovative student teams and students . So it's a bit more transcendent than just CBL. But of course it all starts with a challenge based learning . And that's why it's uh. The depth of the collaboration is actually built up through different layers and those layers consist of exploration through education. evolution through expertise and

excelling through engagement. The latter is more community. And the first layer is, for example, a Die that is most familiar to you, because that also includes an ISP. That is really exploring through and through education and I think that is also good in the expectations management of companies that the challenge based learning really is used as a uhm way of exploring instead of looking for a clear or a very demarcated solution to a problem . The question is more important than the solution.

Interviewer: Yes exactly, but yes, I hear that from some challenge owner . It's nice for them to go in and then say 'no' at the end, but this solution doesn't necessarily help us right now. And there's basically just that expectation of theirs that's completely wrong. Because they then assume okay, we just have cheap employees, a few students from the uni make a cheap solution for us.

Business cluster IS representative: Well, that's not the intention anyway, because if you. That's more of an internship, say a yes. Uh, if that's how you put it in there and I think you might too. I will come back to that later. For example, we have at uhm all participants of the TU e contest , we also want to organize a kick -off day in which you will also receive an extensive presentation of what is Innovation Space? What can you do within Innovation Space? And I think those kickoff days might also be interesting because it becomes clear to companies what to expect , where? Not only within challenge based learning , but also beyond. But if you look at only challenge based learn that you also see the differences. That there is also clear communication about the differences between subjects. Because an ISP has of course much more focus on the business model, development and entrepreneurship and that is just different from my challenge owners who, for example, of which I can immediately see this fits much better with an Innovation Space Bachelor final project or a subject that is a bit more technical, because with ISP you don't always have to have a one , one, a technical one. uhm. Yes expect a fair technical solution. And expectation management is one thing, but I also think more. Thinking in the long term is also another matter. And so we also want to move towards a partnership model in which a challenge owner can therefore offer a challenge within a course once for free . But if he wants to do that more often, that it is a paid partnership. And that income is also used to better facilitate that coordination. So even if you're not the only one. Uhm, making sure that a challenge lands well within a profession, but also that it is thought through. Now open if you land multiple challenges within different boxes. How do they connect to each other? How can you, for example, build on a challenge that you first expose one side and then the other side, for example, first start with an ISP and then do an IS bep or parallel to it. And that you then organize certain sessions in which the various students who work on it also have a bit of knowledge transfer. Uhm, and I think that's also very valuable because. Now it's very much a time limit or a period in which students work on it and then a final presentation . Then it's really ready. It is not a succession and I recently discussed this with Maurits from Aristotle . He also said there is just a very big gap between people who are done with ISP and people who move on because start up can roll out and there . You can also support students more in this. If you have a follow up event from your ISP then you don't even have to continue that idea what you have developed within ISP. It could also be that we are interested in the challenge owner or even. Because that is always the disadvantage that there are often only a small number of the team who do not want to continue and then it is difficult to continue something like this. And if a little more support is given there, more value is also created for

the challenge owner himself. Because now it is a lot of guidance during ISP, but after that it really just falls silent. While we actually want to.

Interviewer: Yes, for himself.

Business cluster IS representative: Yes, and you would so if you. A certain partner pays, if you are a partner and you want to submit multiple challenges or at least that there is also guidance afterwards, you can also facilitate that in that way. You can't promise anything and that's always a good thing. Always communicate. We don't promise anything, but we can offer more support through the partnership model that it has a greater chance of success or more depth can be achieved within a challenge .

Interviewer: And what about that challenge owner ? Is everything just getting in for free?

Business cluster IS representative: Everything is free. And also because more and more demand is compared to supply . Because as you might have noticed with the current ISP semester. In the end we had offered nine challenges and only three could be chosen because there were so few students. Mmm huh. And so there is simply much more demand from industry, research and the like to deliver a challenge than students can work on it. So it is not surprising if we create a different structure there that she can submit a challenge once. And if you want to do that more often then you become a paying partner but then you get, it's not just that we collect money for it and then and it stays the same. But there is also more support there in how challenges can connect to each other and how that can be done. Yes, that little bit more can be transferred and there can also be a follow up event for example.

Interviewer: Uhh . That's what I was wondering about the challenge owners who were all there now at the new kick-off of ISP . What happens to them if they are ultimately not chosen?

Business cluster IS representative: Then they will receive an email from Unfortunately you were not chosen. We will start again in February. Do you want to join your challenge again ? Offering it again to some who want it, they don't want it.

Interviewer: Well, yes. I can imagine myself for such a company and then make the effort for them, of course I do n't know how much effort is involved for such a company, but to participate. Well in the end not being chosen then of course quite quickly. That they then think okay, it's done, we didn't make it, we continue.

Business cluster IS representative: It makes a difference that they often already have one of these. Have already completed the challenge form and attended the kick-off. It is easier to submit something for the second time, of course, because then you have already defined it

completely. It is indeed February again, it will take a while so uhm that is not interesting. It could be interesting if it is more in the short term, but for example a PDN? bootcamp also doesn't have that many participants yet . We do notice that it is now easier in terms of throughput that we had, for example, Challenges for the master kick off that were half the day. And that they become easier because of that challenge owners want to rejoin an ISP or an ISBEP more easily . That it is much more accessible. But that's why you also want appropriate. That's why you don't want that much challenge challenges , because you want one or two maybe a third more. But you don't want nine challenges to be offered, but three can be chosen due to the lack of students.

Interviewer: Yes, exactly. But how does that selection process work ? How do you choose whether someone is eligible to participate at all? Because now that was of course with those nine challenges on so few students.

Business cluster IS representative: Well, that's just because it was disappointing. That was just a tricky one that the number of students remains. Also something that is difficult to change, because the number of students who are registered is just very late. That is known late. And of course you want to collect challenges on time, because you want to have the challenges on the website because students also choose the course based on the challenges that are available. So that's also one thing that's just hard. um . But yeah. It makes a difference that an ISBEP deadline, for example, is earlier than an ISP. So you sometimes see that if they lose weight with one, they are then passed on to the other . Mary , of course, is also good. Well, your expertise management is important because it does make a difference in terms of subjects. Anyway, this is the CBL part. Ultimately, we want to build it up in layers and of course the further you go in depth in terms of collaboration. You get more in return, so you put in more for it. So next to the on an elaborating on the Exploring education , so you also have that evolving expertise.

Business cluster IS representative: We see that Challenge Owners . There is still a lot to achieve that they actually meet the challenges . Also wanting to enrich with expertise is within the student teams and researchers and with focusing or on enriching Challenge Based challenges instead of linking expertise to external partners, because then you are also in the waters of other parties at the TU . But this would take the form of, for example, a quarterly Q&A session with all teams working on a challenge within a CBL course , which could be linked to student teams and relevant researchers to gain more insights. And it is precisely that facilitating those sessions that you invest in. Because of course a student also has his own network within the TU. But we often see that the threshold is high. Involving that knowledge in the challenge is often done quite late. So we want to stimulate that through those Q&A sessions or. The form has not yet been established, has not yet been determined, but by means of it involving knowledge from students, teams and researchers in the challenge .

Interviewer: Yes, because I think that also said a challenge owner that to me who talked about that first few weeks. In principle, that's just wasted time because sometimes on a project that other students have already worked on, you have to research it again. Yes, and if you can indeed merge or involve in this way, in any case. Do you have any slack in all

those few weeks, of course, because that entire preliminary investigation has already been done.

Business cluster IS representative: Yes. Perhaps also inviting old students who are involved in the challenges ?

Interviewer: Yes.

Business cluster IS representative: Yes.

Interviewer: And I don't know about the challenge , whether old challenges are sometimes used and then create a new one.

Business cluster IS representative: Yes, or build on from a different angle. But you would also, for example, because you. That is why we now also want to develop a partnership model in which you also have gradations of partners. And then paid partnership so that you can facilitate this more. Because all that coordination or organizing such sessions also takes time, of course. Because someone has to do that, so money has to go there. And you can, for example, be that student who has previously worked on a challenge . If you do it during lunch, you can offer a free lunch. Yes, there you have again. More incentive as a student to contribute to that .

Interviewer: Yes yes, of course I can understand that those students also think that yes ok is nice, but now I have my courses again. A busy schedule.

Business cluster IS representative: But that's why, for example, a free lunch at lunchtime would be an interesting way. Um, so that's the next layer. And then we have the last layer is really more part of the Innovation Space network. So then you are not alone. Then you are not only building on your challenges , but you are also part of the network. So you can also be inspired by, for example, being invited to certain network drinks where student teams are present. You get a one newsletter and you are. Part of real community .

Interviewer: Yes.

Business cluster IS representative: And that's why we want to include more than just strategic planning. Is anyone an IO of Isabel is also working on it with a paper on open road mapping . That could be interesting. To be part of this. And so you have the different layers. The. And this way you also create more value for a challenge owner . Because I can imagine you are mainly interested , focused on ISP. But of course you create added value if it is

cross-curricular and not only cross-curricular, but that you also bring in certain expertise and can be part of a community.

Interviewer: Yes, I thought so. with me especially I think within ISP that challenge owners after one exit. And yes, then you just miss out on a lot because you can't build anything in principle . And. Yes and in the end I just want to make a recommendation from OK when it all comes together, it's going in this direction, so you can also involve Innovation Space yourself to make it a bit bigger. Because yes, for me it is specifically about ISP but.

Business cluster IS representative: Yes, but it is possible. It can be interesting to look within this layer, because this is of course transcending, but within this layer. For SP can also have as a conclusion or as a recommendation. I see that. That the profession must transcend or that a challenge owner should feel involved in the innovation space community. And you can do that too, for example with future research or something. One more piece if include as part of your research. You don't have to figure it all out yourself, but if you see from your interviews that hey, there is little commitment, that has to be deployed in a different way, then you could also describe it that way in your research.

Interviewer: Yes, sure.

Business cluster IS representative: Are there certain things you see here? Hey, this could be interesting for that entrepreneurial community. For example, I just meant that the follow up event could be interesting like that. Uh if that takes place because then it doesn't immediately. Presentation truncated ready, that the more is also guided because now it is often you see that the challenge owner himself still seeks contact with the student after the final presentation . But yes, that is of course difficult, because students have further courses, so I think it would also be interesting if more is organized from the Innovation Space.

Interviewer: Yes, I spoke to Madis yesterday and Bart briefly. How it goes within innovation space goes for student teams or startups and how that transformation from ISP to startup may go. And yes they both say there is a lot available. But I still get the idea that after ISPs very abrupt end, just figure it out. But if you want to know something you can always ask but there is no further support. Yes and maybe it would be good to then. After that, one more time to shoot a meeting to just take the challenge with those coaches owners and students or so just to discuss. Where do we go from here? Because to that last presentation. Of course, if you don't have a lot of time, it's all busy. Anyway, a busy day.

Business cluster IS representative: Just a follow up event? Yes. A.

Interviewer: Yes yes, I just get the idea there is enough support. Only after the course is it ready and you have to ring the bell yourself.

Business cluster IS representative: But someone has to sit on that too. I think that, you know, that will always be. You can only offer as much as. And of course something has to be put into it. I can't offer all kinds of extra things for nothing and I think it's good if there is just a dedicated someone on this. But that's also why it's interesting to build it that way. And that is indeed if you have more than one. You can do it there too. Or yes not only if you offer more than one cahllnge , because you organize it anyway, So you can also do it again for those who offer once. Organizing. But yes anyway. You can also do for partners. She could you too.

Interviewer: Suppose such a project does not go ahead, I think there was now such a group. Two people might still want to go through. For example, they could just have a meeting with that challenge owner of OK. We are setting up a new challenge that we as a challenge owner start functioning and then in principle they can continue with a project.

Business cluster IS representative: Yes, I think so.

Interviewer: That you keep going.

Business cluster IS representative: Such a follow up event is. Just very very interesting. And that's because you also have people who may not have such a successful challenge , but who do want to join another.

Interviewer: You. It's just interesting to. Keep everyone inside longer. as a challenge owner , for example, does not get what he wants out of it. But those students are positive about their project that they can still continue. Yes um within innovation Space Project was also at the kick off. Former students who then had a chat from Okay, this is what we learned, these were our expectations. Yes. I thought that was a good one too. I wouldn't necessarily know that, how does that work within innovation space species can be continued. But it is good to involve students in your kick off. Because I personally always like old students or students, you believe that more than just a professor or someone who is above you. Basically yes, his story comes to tell.

Business cluster IS representative: Yes, you can then. You can also have a general kick-off day in itself.

Interviewer: Yes.

Business cluster IS representative: Let's have a look. What else do you need from me?

Interviewer: Eh, yes, I was especially curious what happened to the challenge owners happened after they are not chosen. But there you said yes. Yes, maybe Challenge selection process owner . Are you going to look for it yourself or is it simply offered by companies ?

Business cluster IS representative: Both. At Business Collaboration Cluster we therefore have to collect challenges from companies. And that can be through, for example, I go to conferences for leads, but also through the Research Institute . Via via . Leads come in in all kinds of ways, but they can too. We also have promotion via LinkedIn and channels, in which we receive emails at the Business Collaboration cluster Email. Then there is often an introductory meeting where you talk in general about what is happening in innovation space and that's where you also do a bit of expectation management. If they do indeed offer a challenge that it is open ended , that the question is important and that you do not believe that it is not cheap labor from students . Unfortunately, there are always things that slip. Challenges in between that secretly don't align completely , but we are getting closer and closer to it that it's just clear. mmm. And then if there are certain deadlines for courses, we will contact them. For the ISBEP, the form must be completed, before that we can fill it in and if they need help, we support them with this .

Interviewer: Yes and then from challenges . Are there requirements that it must meet? Or is it just very personal in terms of company?

Business cluster IS representative: Yes the general CBL requirements, so it must be open ended . It should be interesting for an interdisciplinary team of students. They should have the freedom to work with an entrepreneurial mindset to tackle it. So they have to be open to the possibility that a service is developed that is supportive to the company itself, so that they can set up their own startup, for example .

Interviewer: Yes.

Business cluster IS representative: Those are all things we that we communicate. In addition, it must also be of a sufficiently abstract level that it is not too boxed in, that it really has a clearly open ended university level . Mmm huh. And we're with you. We also look at whether it contributes to the Sustainable Development Goals . As long as we consider whether a challenge is suitable or not. Yes, that it does contribute to a higher social purpose. We don't deal with something that just doesn't fit within the university, for example a brand of cigarette or something.

Interviewer: No okay . Yes, and then maybe last questions at the end of such a project. Or a profession, is his challenge also being looked at owner of does it ultimately meet our expectations? Are we going through with it? Then how does it go on? Suppose such a company wants to participate again.

Business cluster IS representative: That is difficult. That's that. That's all. The process is quite informal. So often we just have contact with within ISP with a Ákos and a Gert of how are you? And then it is also natural because you work in the same building and we are not going to offer a challenge again. If we have already heard from Ákos and Gert that it is not ideal working together, but there is no formal process for this yet. I think it could be interesting to have a feedback form such as a standard feedback form or something that can be sent in which you can get more information. I know that. Á kos and Gert always go with a challenge owners around the table to gather feedback to improve their own craft. Mmm huh?

Interviewer: Yes.

Business cluster IS representative: But I think it could also be interesting for the business collaboration cluster if it takes on a more formal form so that it really does exist. A feedback form can be viewed .

Interviewer: Yes. Yes, maybe also difficult, but I think there could be an idea in itself.

Business cluster IS representative: Yes , and we always try not to have the same challenges within the same box consecutively. So not that you have a challenge from DAF in September and also a challenge from DAF in ISP in February. Then you try. If it's a challenge , at least try it in another CBL box.

Interviewer: Yes.

Business cluster IS representative: But I think we can do that more. That in itself it's not a big deal if they're paid partners, because we just don't want it to get flooded. That there is enough variations and variation.

Interviewer: Yes, but I think if the payment has been made, then there might be a bigger threshold. And then companies also think better about yes, what do we expect from it and what do we want out of it? No, maybe they are just gold diggers sometimes who think ok, we'll give a challenge , we'll see what comes out.

Business cluster IS representative: Yes, and I think there is also more commitment. If you pay for it, of course. If you also want to be there, you are also much more committed than if you just send a number of employees there for free.

Interviewer: Yes. OK, clear then.

Business cluster IS representative: I think that could also be interesting for you as part of what if a partner pays. Then you are different, then you often have. Just like when you go to an event, for example. You have a lot of people who also charge €3 for free events, for example, purely so that a participant feels more committed . Now it's a whole psychological game behind it, so I think it also influences the collaboration that you have.

Interviewer: Yes, I certainly think so.

Business cluster IS representative: This is also a reason why investors also ask founders for part of their own budget . A pure commitment that you then have?

Interviewer: Yes. yes, I wrote that down, so I'm going to read something about it right away to see if I can do something useful with it.

Business cluster IS representative: Great .

Interviewer: Then I think I have him.

Business cluster IS representative: And if you also have short questions or long questions, that's okay, but I can imagine it's close to your deadline. Do you sometimes want to validate something quickly and are you too stressed to set up a formal meeting? You can always send me a message via teams and I'm often in Innovation space .

Interviewer: Yeah, that's fine.

Business cluster IS representative: Even if you have a moment. Even though it's not business collaboration cluster related, but you're like hey, I doubt about this. Yes, I also wrote my thesis within IM, so then. If you ever want feedback on something, you can always reach me.

Interviewer: Yes, great! OK thanks.

Business cluster IS representative: No problem. Anyway, good luck. I know the. The final stretch is tough, but in the end it's all worth it. Yes. And don't try to do everything perfectly right away. It also helps if you just put things on paper and then structure them afterwards.

Interviewer: Yes.

Business cluster IS representative: Good luck with your writing.

Interviewer: Thank you.

Interviewer

Yeah, that's sorted OK for my thesis. I'm doing research? How dance based learning can be used to facilitate the creation and the maintenance of an entrepreneur ecosystem.

Interviewer

So my main focus is on innovation space project, but

Interviewer

I spoke to a few students that started in startup after the course.

Interviewer

And.

Interviewer

I think one of them, he mentioned that the participated into startups sessions or similar courses to get going with the startup.

Interviewer

So I was interested in the yeah, extra curricular part of the innovation space.

Interviewer

Because I think there's a big part of these startups that go from ISP to being actual on start-up.

Interviewer

She was interested in yeah.

Interviewer

Some actual information or anything, you can tell me about it.

Extra-curricular cluster representative 1

OK, who are you doing, your thesis with can you remind me quickly?

Extra-curricular cluster representative 1

Yeah, yeah, yeah.

Interviewer

Duygu is my supervisor and Akos is from ISP and he's my yeah mentor supervisor.

Extra-curricular cluster representative 1

Yeah, I gotcha OK, Umm Yeah, there.

Extra-curricular cluster representative 1
So.

Extra-curricular cluster representative 1
Let's see what can I do for you?

Extra-curricular cluster representative 1
I would say that.

Extra-curricular cluster representative 1
It has happened.

Extra-curricular cluster representative 1
So let's start with.

Extra-curricular cluster representative 1
It has happened has it happened systematically enough.

Extra-curricular cluster representative 1
To be thought of like uh constantly happening, not yet.

Interviewer
Mm-hmm.

Extra-curricular cluster representative 1
But we hope to get there.

Extra-curricular cluster representative 1
Umm the work that the akos and Gert, mostly do at the level of say ISP.

Extra-curricular cluster representative 1
OK, so.

Extra-curricular cluster representative 1
Let me maybe explain it like this, I I think of it through to be honest pretty statistically.

Interviewer
Hmm.

Extra-curricular cluster representative 1
And on the way to explain what I mean by statistically. I can even show you because I earlier this day, I put it somewhere into a?

Extra-curricular cluster representative 1
I have a small graph.

Extra-curricular cluster representative 1
It's a bit like this.

Extra-curricular cluster representative 1
Let me share my screen.

Extra-curricular cluster representative 1
So I think that the.

Extra-curricular cluster representative 1
The numbers are something like this that you would.

Extra-curricular cluster representative 1
Can about the curricular level?

Interviewer
Mm-hmm.

Extra-curricular cluster representative 1
And also at extracurricular level such as the honors.

Interviewer
Umm.

Extra-curricular cluster representative 1
Uh you would use CBL to basically get thousands of people engaged with the new version of learning.

Interviewer
Yep.

Extra-curricular cluster representative 1
And I think that is all done under the the not one and only necessary, but like very strong.

Extra-curricular cluster representative 1
Targets of just making better engineers educating better engineers.

Interviewer
Umm.

Extra-curricular cluster representative 1
Not necessarily starting businesses or not necessarily.

Extra-curricular cluster representative 1
Even that's a set of value creation, although that's something important.

Extra-curricular cluster representative 1
Umm to make a challenge good you have to have that element. I think but ultimately educating many better engineers, but the nice thing about it is that if you do it with enough people.

Interviewer
Umm.

Extra-curricular cluster representative 1
That will almost for sure that we have a long history to show that it does and vertically. It will turn into kind of two things one is it will turn into student teams, so student teams are.

Extra-curricular cluster representative 1
Well, here, I call them as tough multi-year moon shot project so people self-challenging.

Extra-curricular cluster representative 1
They are not necessarily entrepreneurial they are in the sense of they are an entrepreneur in the sense of behavior, but not.

Interviewer
Umm.

Extra-curricular cluster representative 1
Uh in the sense of goal and that many of them don't seek to actually be ventures or spin off or make money with something they want to usually demonstrate.

Extra-curricular cluster representative 1
Thinker.

Extra-curricular cluster representative 1
And.

Extra-curricular cluster representative 1
Yeah, well learn really.

Interviewer

Yeah, but uh these teams usually going further and then starting and startup or is it the most of the case are really a student team that.

Interviewer
Just want to prove that point or do research on a specific.

Interviewer
Point.

Extra-curricular cluster representative 1
Umm in some some sense both answers are correct.

Extra-curricular cluster representative 1
You in order for A Team.

Extra-curricular cluster representative 1
To turn into a startup I think you need a couple of things.

Extra-curricular cluster representative 1
One is you need.

Extra-curricular cluster representative 1
There to be members at the certain time moments.

Extra-curricular cluster representative 1
That are interested and wish to push the startup aspect of it or the startup possibility opportunity of it.

Interviewer
Umm.

Extra-curricular cluster representative 1
And at about the same time, you would need the team to have been mature enough in their technology development or in the demonstration activities to give enough kind of like.

Extra-curricular cluster representative 1
Technological sauce to those possible founders in actually making a spin off So what we see mostly what happens is that when a team makes a spin-off it's one year's team members.

Extra-curricular cluster representative 1
One year's board for example.

Interviewer
Mm-hmm.

Extra-curricular cluster representative 1
They do a spin off but the student team stays.

Interviewer
Yeah, yeah.

Extra-curricular cluster representative 1
And other people and next year's boards, perhaps so forth, will just continue on developing.

Extra-curricular cluster representative 1
Their projects in the context of that.

Extra-curricular cluster representative 1
Umm student team, so.

Interviewer
No.

Extra-curricular cluster representative 1
In total is at this point we would have we have, I think 29.

Extra-curricular cluster representative 1
All student teams.

Extra-curricular cluster representative 1
Umm a few means that they are, they are have sort of a multi year capacity. We've seen them be able to exist for multiple years and they have enough strategic focus.

Extra-curricular cluster representative 1
Uh and people and so forth to actually pull something off.

Extra-curricular cluster representative 1
And then there's another 12 or so trials trials are smaller. They haven't yet proved themselves to be able to exist for longer or do something significant to say.

Interviewer
Umm.

Extra-curricular cluster representative 1
And I think the history of the student teams program overall has generated.

Extra-curricular cluster representative 1
I don't know 30, 40 startups or so.

Interviewer
OK.

Extra-curricular cluster representative 1
Some of them started off with the idea of becoming a start right away such as speeco or Habel for instance.

Extra-curricular cluster representative 1
All those are spin offs from student teams where the student team actually still exists.

Extra-curricular cluster representative 1
The biggest ones are actually that.

Extra-curricular cluster representative 1
Sometimes the student use spins off and ceases to exist as a student team, but does exist as a as a venture Now, I think all of those are technically possible.

Interviewer
Yeah, and then.

Interviewer
Are the start-ups staying within the innovation space the ecosystem?

Interviewer
That evolves around innovation space.

Interviewer
Or do they really?

Interviewer
Go off as an startup or venture and really do their own thing.

Extra-curricular cluster representative 1
It depends.

Extra-curricular cluster representative 1

I think they really do their own thing if they if they incorporated become startups. I think they will do their own thing, but some stay very close to innovation space nevertheless.

Interviewer
Umm.

Extra-curricular cluster representative 1
Because they enjoyed the community aspect of it.

Extra-curricular cluster representative 1
Yeah.

Extra-curricular cluster representative 1
Yeah, at the moment aristotle for example, that is in every way a solid company.

Extra-curricular cluster representative 1
Recently also raised some funds not extreme amount, but nevertheless.

Extra-curricular cluster representative 1
Enough to be considered properly.

Extra-curricular cluster representative 1
Uh.

Extra-curricular cluster representative 1
As a as a startup.

Interviewer
Umm.

Interviewer
Yeah.

Extra-curricular cluster representative 1
But they are still in our community very active actually and they are presently still also at innovation space building in matrix physically so.

Extra-curricular cluster representative 1
Whilst, you have others whose focus clearly turns the airport is an example of this is that or speeco is another example.

Extra-curricular cluster representative 1

that have been part of the community in the development process product development process and then at the time of like pushing the market side of things.

Interviewer
Yeah.

Extra-curricular cluster representative 1
They start they start just having other attention, which is logical and then they kind of fade away from the community, which is also logical.

Extra-curricular cluster representative 1
Because the community is predicated on absolutely voluntary participation now so.

Extra-curricular cluster representative 1
If you don't participate, and you do other things, great all the more power to you.

Extra-curricular cluster representative 1
It's just then you're not really a part of the community anymore. You know what I mean, and since the like.

Interviewer
Umm.

Extra-curricular cluster representative 1
Community means doing things with the community.

Interviewer
Yeah, yeah makes sense.

Extra-curricular cluster representative 1
Not just not just being on a list then so yeah.

Interviewer
Yeah.

Interviewer
Ok now because Aristotle, they started with an innovation space project.

Interviewer
Let's say there's an project within ISP and they want to become a startup is there any supports they can ask or receive from the innovation space because.

Interviewer

I think what I'm going to with my research is in office space project. There's a lot of support and motivation to go towards creating a startup.

Extra-curricular cluster representative 1
No.

Interviewer
And then when he course is finished.

Interviewer
Then this support is a kind of done.

Interviewer
At least from Akos and Gerts part.

Interviewer
And then of course, they can say within innovation space, but I don't know how they support or.

Interviewer
If that, even is any support for them.

Extra-curricular cluster representative 1
Sure, there would be support yes.

Extra-curricular cluster representative 1
it's it's somewhat the same somewhat different.

Extra-curricular cluster representative 1
Umm it would be given mostly.

Extra-curricular cluster representative 1
In the form of I would say coaching.

Interviewer
Umm.

Extra-curricular cluster representative 1
Uh also network access when it comes to partners.

Extra-curricular cluster representative 1
For example, you contest or something like this so.

Extra-curricular cluster representative 1
That's all available.

Extra-curricular cluster representative 1
Uh when it comes to coaching it would be given perhaps still somewhat by Gert for instance, or Akos.

Extra-curricular cluster representative 1
But but then new people will be added as well such as myself.

Extra-curricular cluster representative 1
Uh we work very closely also with Bart…. Heights who is part of the gate.

Extra-curricular cluster representative 1
So we often performed this coaching together actually.

Extra-curricular cluster representative 1
Now to keep the teams on track whatever they want to achieve.

Interviewer
Yeah.

Extra-curricular cluster representative 1
Umm yeah go towards their first customer who knows. Huh you think can be all sorts of validation goals. We call it validation circle meeting. That's something we do every every two weeks in the evening tomorrow evening is one example again.

Extra-curricular cluster representative 1
And we seek for opportunities for them where we can.

Extra-curricular cluster representative 1
Uh and some of the structural relationships. We have for example, with the municipality or something like that.

Interviewer
Nothing.

Extra-curricular cluster representative 1
And that if we can, we can uh we can try to insert them often also the.

Extra-curricular cluster representative 1
The original challenge owner kind of does the same hopefully.

190

Interviewer

Umm.

Interviewer

Yeah.

Extra-curricular cluster representative 1

And I I think that's uh.

Extra-curricular cluster representative 1

First off you can become a student team OK, so and that's actually the logical thing to do. Other ISP if you wanna continue. You have two ways. Three ways really way #1 is to become a student team at innovation space.

Interviewer

Umm.

Extra-curricular cluster representative 1

You can do that.

Extra-curricular cluster representative 1

Just student team can be entrepreneurial have an entrepreneurial goal, there's nothing wrong with that.

Extra-curricular cluster representative 1

And you can stay as student team pretty much as long as you want to be an active member and you are actually an active member of the community.

Interviewer

Yeah.

Extra-curricular cluster representative 1

And that also you gets you know, basic community access, but also some coaching and support of that kind.

Interviewer

Yea, but one quick question.

Extra-curricular cluster representative 1

Yeah.

Extra-curricular cluster representative 1

Yeah.

Interviewer

Being within the community can the students just work on their own project or how should I see being within the community.

Extra-curricular cluster representative 1

Yeah, being within the community is mostly a matter of learning from each other.

Extra-curricular cluster representative 1

And having some fun on top of the everybody's individual projects.

Extra-curricular cluster representative 1

And community mostly forms in the sense that we train we provide trainings, which are free to all the community members.

Interviewer

No.

Extra-curricular cluster representative 1

Sometimes they are restricted in the sense that they are not enough spaces, but generally speaking, there free so you can get extra training.

Extra-curricular cluster representative 1

The Thematic Training Project management training for example, acquisition sales training training training for pitching these sorts of things.

Extra-curricular cluster representative 1

Uh training on intellectual property stuff like that.

Extra-curricular cluster representative 1

Umm and that's one place where people who train together, they also.

Interviewer

Yep.

Extra-curricular cluster representative 1

Have social interaction together with that have meals have drinks that kind of stuff.

Extra-curricular cluster representative 1

Then we have dedicated community days.

Extra-curricular cluster representative 1

And several events per year, Christmas party this sort of stuff you know.

Interviewer

Umm.

Extra-curricular cluster representative 1

Kick start days we had two weeks ago.

Extra-curricular cluster representative 1

As start off the academic year and then on top of that. We have peer learning sessions, where we pick a couple of topics and voluntary members of various teams come together to share experiences.

Extra-curricular cluster representative 1

And with co-location you have also a great learning effect between people who are kind of working together. Even if they are different teams. So here for instance, we would have the paddock system in the matrix.

Extra-curricular cluster representative 1

We have from now on 9 so there's we have 8 offices in Traverse, where about 10 teams are located.

Interviewer

Yeah.

Extra-curricular cluster representative 1

And then there are five or six teams located in the momentum building, so in three different buildings. We have a colocation principle for teams and we see that it very, very strongly supports teams learning from each other particular things, especially a team is struggling with accounting and other team helps them this kind of stuff a team is struggling with engineering problem and other team is willing to help them team is struggling with lack of machine, or whatever another team is helped them so this is quite a lot and if you are.

Extra-curricular cluster representative 1

Startup or entrepreneurial type of student team all of that is also available to you.

Interviewer

Umm.

Extra-curricular cluster representative 1

And you have to prove yourself to some extent to be able to use the space you can use the space but you you can't have like permanent.

Extra-curricular cluster representative 1

Facility to yourself.

Extra-curricular cluster representative 1
Umm at the very beginning so that's not available to everybody. But if you do prove yourself.

Extra-curricular cluster representative 1
And you we, we see that you're serious then that's also possible. We have more or less enough space to give at this. This this point is not really a crisis.

Interviewer
Ohh yeah.

Extra-curricular cluster representative 1
That is, it is possible, yeah, it's possible yeah.

Interviewer
Makes sense to prove yourself because and

Interviewer
the for example, the challenge owners when the course is finished. They won't be a real part of the community of course, but

Extra-curricular cluster representative 1
Yeah.

Interviewer
especially the students from ISP they probably need their challenge owner as stakeholder, customer or partner within their team or project.

Extra-curricular cluster representative 1
Yeah, yeah.

Interviewer
How would what would that place be within the community?

Extra-curricular cluster representative 1
So.

Extra-curricular cluster representative 1
I would say that we have two types of relationships with challenge owners or companies and partners in in general.

Extra-curricular cluster representative 1
One does the type of relationship that innovation space has with them?

Extra-curricular cluster representative 1
Which may be because there are a challenge owner and that's just the part of the community invited to events?

Extra-curricular cluster representative 1
TU contest stuff like that.

Interviewer
Umm.

Extra-curricular cluster representative 1
And we're also deepening that offer right now.

Extra-curricular cluster representative 1
Thinking in terms of what for example, lifelong learning, we might be able to organize for members of those organizations.

Extra-curricular cluster representative 1
So you know space developing us from new offerings towards them, but that's not the scope of your thesis of course.

Extra-curricular cluster representative 1
Umm but the other aspect is that what teams do with them one-on-one in direct relationships. That's actually much more because.

Extra-curricular cluster representative 1
Across everything.

Extra-curricular cluster representative 1
At this point, I think we have.

Extra-curricular cluster representative 1
Definitely more than 500 sponsors.

Interviewer
Mm-hmm.

Extra-curricular cluster representative 1
Or partners who are somehow involved with teams.

Extra-curricular cluster representative 1
And these are relationships that I don't control and often I don't even know.

Interviewer
Yeah.

Extra-curricular cluster representative 1
I mean, I can look at sponsor lists, but what is exactly.

Extra-curricular cluster representative 1
The the deal there is for the team themselves to do with sponsor.

Extra-curricular cluster representative 1
So we help teams find sponsors partners collaborators.

Interviewer
Umm.

Extra-curricular cluster representative 1
And we try to train them to keep them in the sense of stakeholder management, the ability to create value continuously.

Interviewer
Yeah.

Extra-curricular cluster representative 1
And sometimes we support them for example, with going out with a trade fair exhibition or something like this.

Interviewer
Umm.

Extra-curricular cluster representative 1
We support them together with collaborators often, such as that the TV commode is the team recently came back from a almost an 8 week trip to the United States, which was organized together with partners.

Extra-curricular cluster representative 1
So the partner sponsors something we sponsor something and together we figure out how to make it a success.

Extra-curricular cluster representative 1
And together we also share the PR value, which was enormous so.

Extra-curricular cluster representative 1
These sort of win win type of situations, we try to design them for the teams but not for each

196

of those relationships per se. Those are for teams to figure out themselves so I think it is mostly for them to keep warm contact with the challenge owners.

Interviewer
Yep.

Interviewer
Umm.

Extra-curricular cluster representative 1
And also the figure out what does it mean and as you said maybe sometimes they're customers. Sometimes they can be collaborators. Sometimes they can be shareholders to you so and all of these are possible and sometimes combinations like you. Aristotle's case. More than one of those things. It's the way their relationship would best way has developed so.

Interviewer
Yeah.

Extra-curricular cluster representative 1
UM.

Extra-curricular cluster representative 1
There's no like rule to it. There's very case by case, but at the same time, it's still thankfully works, in my impression.

Interviewer
Yeah, OK.

Interviewer
That's quite clear actually.

Interviewer
I don't think I have any more specific questions.

Extra-curricular cluster representative 1
Van.

Interviewer
So yeah,

Extra-curricular cluster representative 1
Keep keep in mind also that at the same time, like I said that there are basically three things you can do when you come out of an ISP or maybe out of a use line or maybe an honest track or so.

Interviewer

Umm.

Extra-curricular cluster representative 1

And you want to be entrepreneurial. One is to become student team and be in a relatively safe environment. In this regard and still a learning environment our main priority is learning.

Extra-curricular cluster representative 1

It is not startup creation, although it's nice if startups are created that's the way I would put it.

Interviewer

Yeah.

Extra-curricular cluster representative 1

And I think with enough learning there will be an inevitable number of some startups that emerges from it sooner or later anyway.

Extra-curricular cluster representative 1

So I am not concerned with trying to facilitate new startups being born.

Extra-curricular cluster representative 1

Umm I'm trying to provide everybody the best learning experience.

Extra-curricular cluster representative 1

And and the best training isn't really like exceptional people and then for sure. Some of them will create startups.

Extra-curricular cluster representative 1

But then

Extra-curricular cluster representative 1

a different approach might be to go to the gate.

Extra-curricular cluster representative 1

Which is also a fine fine way to go?

Extra-curricular cluster representative 1

Some startups are incubated at the gate gate really supports.

Interviewer

What is the gate exactly.

Extra-curricular cluster representative 1
The gate is another.

Extra-curricular cluster representative 1
Uh.

Extra-curricular cluster representative 1
Uh unit of TUe.

Extra-curricular cluster representative 1
The idea of the gate is to really support valorisation by commercialization.

Extra-curricular cluster representative 1
And.

Extra-curricular cluster representative 1
That would be the logical thing to do.

Extra-curricular cluster representative 1
Like the main main task that the gate does is that when professional researchers of TU invent something they gate organizes how that invention is Valorised.

Interviewer
Yeah, yeah.

Extra-curricular cluster representative 1
And in that sense, they would be considered the technology transfer office.

Extra-curricular cluster representative 1
That's if a physicist uh invents a laser new type of laser or whatever.

Interviewer
Hmm.

Extra-curricular cluster representative 1
It will be the gates like how to patent it who to sell it to a license, it to whether we create a spin-off organization or not all these questions, the gate would be.

Extra-curricular cluster representative 1
Working without inventor, then to figure out how to do it.

Extra-curricular cluster representative 1

The gate also does student support they have two people specifically follow that actually student dot entrepreneurship support.

Extra-curricular cluster representative 1
And they are.

Extra-curricular cluster representative 1
I think also quite good coaches and they can help student teams.

Extra-curricular cluster representative 1
Uh.

Extra-curricular cluster representative 1
Y'all gotta move towards.

Extra-curricular cluster representative 1
Especially this standard standard problem solutions like.

Extra-curricular cluster representative 1
What's the product market fit at first of? What's the problem solution fit anyway? What's the product market fit.

Interviewer
Umm.

Extra-curricular cluster representative 1
How to approach your first customer?

Extra-curricular cluster representative 1
How to get more staff how to get funding these standard Extra-curricularquestions for very early stage startups?

Extra-curricular cluster representative 1
And.

Extra-curricular cluster representative 1
That those two people we work quite closely with the innovation space as well because oftentimes teams are somewhere in between.

Interviewer
Umm.

Extra-curricular cluster representative 1
It would be like for instance, if a team of ours.

Extra-curricular cluster representative 1
Uh say they have 27 members and they've developed some integrated product like a car or a drone or something like.

Interviewer
Yeah.

Extra-curricular cluster representative 1
But then four of those people in particular wish to take a part of the car and turn that into a startup.

Extra-curricular cluster representative 1
Like the battery system for example, so they themselves created the better system. Now they interest is that commercialize it.

Extra-curricular cluster representative 1
Break the market, then this would be a situation where it's kind of logical for both of us to support the team, but for just different purposes.

Interviewer
Yeah, yeah.

Extra-curricular cluster representative 1
So, in a space supports the team as an integrated product as a student learning environment.

Extra-curricular cluster representative 1
The gate would support the team from the commercial aspect of that particular subsystem and this is something that.

Extra-curricular cluster representative 1
I anticipate will work relatively well in the upcoming future.

Extra-curricular cluster representative 1
Umm and then the third option is to do neither of those things take your idea totally somewhere else.

Extra-curricular cluster representative 1
Uh affiliate with no one or alternatively affiliate with some external incubator or accelerator

program. And there's plenty to choose from. There as well. Maybe it's little more labs. Maybe it's rock start you know it can be anything so.

Interviewer
Yeah.

Interviewer
Umm.

Extra-curricular cluster representative 1
I think all of those are possible options. I think to get to that last third option. It's good to be we don't call it incubation. But in in in a in essence. It is a little bit like that, so that to still be with us for a small while until you're mature enough to actually go to these externals because there, you need to be more mature and usually out of the ISP you wouldn't come that mature yet. So you need some time nine months, 12 months, whatever in between like it also was with Aristotle that you need to develop more products you need to become known in industry.

Extra-curricular cluster representative 1
Network, a bunch.

Extra-curricular cluster representative 1
Uh maybe find some customers get some funding and then you can really think of yourself as a startup so.

Extra-curricular cluster representative 1
It's uh it's a process.

Interviewer
Yeah, True Yeah, but

Interviewer
this it makes a lot more sense to go from ISP to innovation space and then maybe do the gate for example, but.

Interviewer
Yeah, you do it option, I wouldn't see anyone from ISP going directly.

Interviewer
Out of the university and doing their own thing.

Extra-curricular cluster representative 1
May.

Extra-curricular cluster representative 1

It's difficult to say up front for all possible ISP scenarios.

Extra-curricular cluster representative 1

But I I tend to agree with you, that most likely at the moment, the finishing the course, particularly at that moment.

Extra-curricular cluster representative 1

Uh you're not yet mature to really be a startup.

Extra-curricular cluster representative 1

But then you can think of it also like this that some startups are born also outside of course, is completely.

Interviewer

Yeah, true.

Extra-curricular cluster representative 1

And those those startups are starting neatly in the external environments at their inception and they still make it through so.

Extra-curricular cluster representative 1

It's I think very much possible that from ISP. Someone would go. The question is would they want to go to the external environment.

Extra-curricular cluster representative 1

For the internal one feels safer in the beginning, yeah, most likely it does feel a bit safer, so perhaps you stay for a while.

Extra-curricular cluster representative 1

But sooner or later, you have to go to the external environment and we ourselves. We will also interested because you're not really a startup if you don't have a product and customers. I think so.

Interviewer

No.

Extra-curricular cluster representative 1

Yeah.

Extra-curricular cluster representative 1

But one of the benefits to stay uh for some while at least is that product development can be greatly pushed and boosted by being at innovation space.

Extra-curricular cluster representative 1
Especially if it's mechanical products or something with a physical interface. Let's say.

Extra-curricular cluster representative 1
Since the tools and the technical advice on campus for sure help you more than if you were alone.

Interviewer
Yeah.

Interviewer
Yeah, true.

Interviewer
Umm.

Extra-curricular cluster representative 1
Like where would you get the space to build a drone for example, it's better if you do it here plus you can also use the 3D printing and the mechanical workshops in the welding and the cutting and whatever, so and some battery support safer to do it here than to do it on your own lots of these sorts of arguments also hold.

Interviewer
Yeah, and then one last question what happens when an alumni has a great idea and wants to be part of innovation space again? Can you go to innovation space as alumni?

Interviewer
Not studying anymore at the university or when you're finished with your studies then done.

Extra-curricular cluster representative 1
So.

Extra-curricular cluster representative 1
We would most commonly that's not really policy. I would say, but my first instinct personally would be that instead of becoming a student team.

Interviewer
Yep.

Extra-curricular cluster representative 1
Because that is really a student team, so the word student actually matters there.

Extra-curricular cluster representative 1

Umm student teams, sometimes they have alumni as members, but to have them completely as alumni.

Interviewer
Yeah.

Extra-curricular cluster representative 1
Does not make a lot of sense it is meant as an education or a vehicle for TUe students and students of sometimes other institutions as well. Like Fontys and Suma. For instance, and Avans and Hoge school Tilburg and a few others are involved with some students here and there.

Extra-curricular cluster representative 1
But uh if you are completely alumni and you want to start a startup then I think at the university can help you to the extent of the gate in that case.

Extra-curricular cluster representative 1
The gate goes who defines its scope for Student entrepreneurship as beyond just students. But I think they say something like student and alumni of no more than three years ago.

Interviewer
Yeah makes sense.

Extra-curricular cluster representative 1
So recent graduates are included in the support possibilities.

Interviewer
OK, clear.

Extra-curricular cluster representative 1
OK.

Extra-curricular cluster representative 1
Success then what can I say?

Interviewer
Yeah was clear explanation of everything I needed so.

Extra-curricular cluster representative 1
Alright.

Extra-curricular cluster representative 1
Regards.

Interviewer

Think we're finished maybe I have new few questions in the upcoming weeks. But then I'll just send an e-mail out.

Extra-curricular cluster representative 1

Yes, sounds good.

Interviewer

OK thanks.

Interviewer

Bye. Bye.

Extra-curricular cluster representative 1

OK sure thing.

Dutch version, used for obtaining CIMO principles, translated version can be found below.

Extra-curricular cluster representative 2: Zie om door te gaan. Als die motivatie goed is dan uh is t enige wat hij hoeft te doen is het op te vangen. Mm hu. En dat is ook vrijwel het enige wat we echt hoeven moeten doen op dit moment bij CBL projecten. En het is gewoon het opvangen van de de projecten die zeggen wij willen doorgaan. En wij hoeven daar zelf niet actief nog iets bij aan bij te dragen. Mm hu.

Interviewer: En wat is er dan voor support beschikbaar hebben? Binnen innovation space project. Ja, ze hebben dan de twee coaches natuurlijk, maar er worden toch wel workshops gegeven om ze de goeie richting op te sturen.

Extra-curricular cluster representative 2: Ja. Uhm, maar dat is voornamelijk ook de focus op t project zelf in het vak, niet direct op het opzetten van een startup heb ik zelf het gevoel. Mm hu. Uhm wij zijn gewoon altijd bezig met het opleiden van mensen en dat is het belangrijkste. We gaan er niet van uit dat de mensen die nu uit hun vak komen meteen een startup op kan zetten en miljonair worden.

Interviewer: Nee, nee, nee.

Extra-curricular cluster representative 2: Het gaat erom dat ze die ervaring ooit hebben gehad en dat als ze nu op hun bek gaan. Mm hu. Dat ze hierna wel succesvol kunnen worden.

Interviewer: Ja.

Extra-curricular cluster representative 2: Dus het is gewoon het opleiden van mensen en een vorm daarvan is is Challenge based learning en een vorm daarvan is studententeams.

Interviewer: Ja, want dat verteld Madis ook dat. Niet per se gericht is binnen innovation space project om echt bedrijven te starten. Nee. Nou ja, da's wel interessant om te horen. Had ik niet per se verwacht. Ik dacht als je dan vanuit Innvation space project doorgaat, dan gaat wel vaak de richting op.

Extra-curricular cluster representative 2: Maar uh we zien het vaker dat ze het willen proberen. Mm hu, dat is in ieder geval geïnteresseerd zijn. Uhm of het uh daadwerkelijk komt. Hebben er tot nu toe een gehad. Durf ik bijna zeker te zeggen, aristotle. Die daadwerkelijk ook doorgegaan zijn. Ja uh en het doorgezet hebben en dat is gewoon omdat je moet er echt de passie voor hebben en precies het juiste team op het juiste moment bij elkaar verzamelen.

Interviewer: Klopt.

Extra-curricular cluster representative 2: Uhm, dus het is het gaat inderdaad gewoon om het opleiden.

Interviewer: Mm hu. En is er dan ook nog ruimte voor die challenge owners binnen Innovation space? Die spelen natuurlijk een belangrijke rol binnen het vak? Die kunnen uiteindelijk dan customer uh ja, uhm kunnen nog samenwerking hebben of uhm gewoon een zijtak. Ja. Worden zeg maar. Uh, hoe gaat dat dan verder?

Extra-curricular cluster representative 2: Uhm redelijk vrij. Uh. Wij sturen niks aan die studenten teams en start ups dus dan moet je het zien. Zij komen bij ons, wij faciliteren. Dus iedere vraag of ieder probleem die zij hebben is een probleem van ons. Dat proberen we mee te op te lossen, maar op een manier dat ze dezelfde van moeten leren of op hun bek moeten gaan.

Interviewer: Ja.

Extra-curricular cluster representative 2: Uhm. Wat uiteindelijk ook eindigt in leren. Mm hu. Dus wij sturen ook niet met de partners met wie zij omgaan, met welke klanten ze hebben. Als er een challenge owner is en die wil graag klant blijven, dan proberen wij dat te steunen totdat t zeg maar een probleem kan worden. Mm hu dus bijvoorbeeld als dat gaat over IP of zo, dan laten we het volledig vrij totdat het daarover gaat, dan gaan we ermee kijken. Kijk, hoe kunnen we dit zo goed mogelijk oplossen? Ja.

Interviewer: Dus eigenlijk is het gewoon allemaal heel vrij. Totdat zelf de studententeams.

Extra-curricular cluster representative 2: Totdat.

Interviewer: Vragen, dit willen wij.

Extra-curricular cluster representative 2: Ja, totdat ze de ervaring missen om t goed op te lossen.

Interviewer: OK. Ja, dan is t echt wel een heel eind duidelijk al.

Extra-curricular cluster representative 2: Ja, het is heel erg simpel. Ja. Want je misschien beter kunt doen. Is gewoon met bijvoorbeeld aristotle praten. Die zijn uit de ISP gekomen, die hebben al dat hele traject meegemaakt. Ja, kun je meer vertellen over de overgang.

Interviewer: Ik heb al eens met Maurits kort gesproken daarover dan bij hun is gaan. Maar ik was dan toch benieuwd. Ja vanuit jullie kant hoe het dan verdergaat.

Extra-curricular cluster representative 2: Ja, heel simpel. Het zelfde als ieder ander studentteam dat bij ons aan komt met ja we hebben een geweldig idee. Uh t enige wat verschilt is de manier waarop wij t binnenhalen en. Ja dat is het.

Interviewer: Ja, maar zit dus niet per se een link tussen ISP en innovation Space zelf, behalve dan dat daar studententeams uit voortkomen.

Extra-curricular cluster representative 2: Nou ja uh uh in principe het uh het is het innovation Space project. Dat is ook het is opgezet door innovation Space. Daar zitten altijd links. Sowieso omdat ik bijvoorbeeld met Gert en Akos dagelijks praat. Mm hu. Uhm. Maar ook gewoon omdat wij altijd aanwezig zijn bij de jury. Dus d'r zitten altijd als er iets uitkomt dan wordt het opgevangen. Maar daar kun je zeker van zijn. Verder qua ondersteuning. Iedereen is altijd vrij om mee te doen bij de dingen die wij organiseren vanuit uh extracurriculaire activiteiten. Dus als wij een workshop hebben is iedereen vrij. Daar zie je vaak wel dat daar minder gebruik van gemaakt wordt. Als ze zouden kunnen is ook niet per se een slecht ding.

Interviewer: Uh.

Extra-curricular cluster representative 2: Het ligt er ook aan. Hoe ver ben je al op een moment dat je in het vak zit? Want wij.

Interviewer: Dan? Zouden daar dan ook de ISP studenten al aan mee kunnen doen?

Extra-curricular cluster representative 2: Ja Altijd. Ja, alles, alles wat wij organiseren is ook meteen geopend voor die student.

Interviewer: Ja.

Extra-curricular cluster representative 2: Dus als ze er naar vragen. Maar. V Uh, d'r zit vaak nog een een klein niveauverschil tussen de activiteiten die wij organiseren met daar heb ik het niet over pitch-trainingen. Maar als je gaat kijken naar bijvoorbeeld acquisitie of

zo, dan gaan ze er al van uit dat je al met partners gepraat hebt, dat je al weet hoe het gaat. Uh ja, dat je al een product hebt in ieder geval.

Interviewer: Ja, er moet dus wel echt al iets zijn waar je aan werkt om.

Extra-curricular cluster representative 2: Ja. Dus uh, in t tweede semester zou dat een goede activiteit zijn, want dan heb je het allemaal een keer meegemaakt ervoor? Zit er ook al een verschil tussen wat zij aankunnen en wat wij bieden?

Interviewer: Ok duidelijk. Dan hebben we hem.

Extra-curricular cluster representative 2: Een heel simpel ja.

Interviewer: Zet ik hem uit.

Extra-curricular cluster representative 2: See to continue. If that motivation is good then uh all he has to do is catch it . Mmm huh. And that's pretty much all we really need to do at the moment with CBL projects. And it 's just absorbing the the projects that say we want to continue . And we don't have to actively contribute to that ourselves . Mmm huh.

Interviewer: And what's available for support then? Inside innovation space project. Yes, of course they have the two coaches, but workshops are given to steer them in the right direction.

Extra-curricular cluster representative 2: Yes. Uhm, but that is mainly the focus on the project itself in the profession, not directly on setting up a startup I have the feeling. Mmm huh. Uhm we are just always busy educating people and that is the most important. We do not assume that the people who now come out of their profession can immediately set up a startup and become millionaires.

Interviewer: No, no, no.

Extra-curricular cluster representative 2: The point is that they once had that experience and that if they go nuts now . Mmm huh. May they become successful after this.

Interviewer: Yes.

Extra-curricular cluster representative 2: So it's just educating people and a form of that is Challenge based learning and one form of this is student teams .

Interviewer: Yes, because that 's what Madis says too. Not necessarily aimed at innovation space project to really start Extra-curriculares . No. Well, that's interesting to hear. I didn't necessarily expect it. I thought if you come from Innvation space project continues, then it often moves in the right direction.

Extra-curricular cluster representative 2: But uh we see it more often that they want to try it . Mm hu, at least that's being interested. Uhm whether it actually comes uh. Have had one so far . Dare I say almost certainly, Aristotle . Which actually went ahead. Yeah uh and persevering and that 's just because you have to really have the passion for it and get just the right team together at the right time .

Interviewer: Right.

Extra-curricular cluster representative 2: Uhm, so it's really just about educating .

Interviewer: Mmm hu. And is there still room for that challenge owners within Innovation space ? Of course they play an important role in the profession? They can eventually be customer uh yes, uhm can still have cooperation or uhm just a side branch. Yes. Be say. Uh, how's that going then?

Extra-curricular cluster representative 2: Uhm fairly free. uh. We don't send anything to those student teams and start-ups, so you have to see it. They come to us, we facilitate . So any question or problem they have is our problem. We try to solve that, but in a way that they have to learn the same from them or have to go nuts.

Interviewer: Yes.

Extra-curricular cluster representative 2: Um. Which eventually also ends in learning . Mmm huh. So we don't steer with the partners they deal with, which customers they have. If there is a challenge owner and he would like to remain a customer, then we try to support that until it can become a problem. Mm hu so for example if it's about IP or something, then we'll leave it completely free until it's about that, then we'll take a look with it . Look, how can we solve this as best we can? Yes.

Interviewer: So basically it's all very free. Until the student teams themselves.

Extra-curricular cluster representative 2: Until.

Interviewer: Questions, this is what we want .

Extra-curricular cluster representative 2: Yes, until they lack the experience to solve it properly.

Interviewer: OK. Yes, it's really quite clear then.

Extra-curricular cluster representative 2: Yes, it's very simple. Yes. Because you might be able to do better. Just talking to Aristotle , for example . They came from the ISP, they have already been through that entire process. Yes, can you tell us more about the transition.

Interviewer: I already spoke briefly with Maurits about this before I went to them. But I was curious anyway. Yes from your side how it goes then.

Extra-curricular cluster representative 2: Yes, very simple. The same as any other student team that comes to us with yes we have a great idea. Uh the only thing that differs is the way we get it and. Yes that is it.

Interviewer: Yes, but there is not necessarily a link between ISP and innovation Space itself, except that student teams arise from this.

Extra-curricular cluster representative 2: Well uh uh basically it uh it's the innovation Space project. That is also what it was set up by innovation Space . There are always left . In any case, because I talk to Gert and Akos every day, for example . Mmm huh. uhm. But also simply because we are always present with the jury. So they are always there when something comes out, it is collected . But you can be sure of that. Also in terms of support. Everyone is always free to participate in the things we organize based on extracurricular activities. So when we have a workshop everyone is free. You often see that it is used less. If they could, that's not necessarily a bad thing either.

Interviewer: Uh.

Extra-curricular cluster representative 2: It also depends. How far are you already at a time when you are in the profession? Because we.

Interviewer: Then? Could ISP students also participate in this ?

Extra-curricular cluster representative 2: Yes Always. Yes, everything, everything we organize is immediately open to that student.

Interviewer: Yes.

Extra-curricular cluster representative 2: So if they ask about it. But. V Uh, there is often a small difference in level between the activities that we organize. I'm not talking about pitch training. But if you look at, for example, acquisition or something like that, they already assume that you have already talked to partners, that you already know how things are going. Uh yes, that you already have a product in any case.

Interviewer: Yes, so there must be something you're working on already.

Extra-curricular cluster representative 2: Yes. So uh, in the second semester that would be a good activity, because then you've been through it all before? Is there a difference between what they can handle and what we offer?

Interviewer: Ok clear. Then we have him.

Extra-curricular cluster representative 2: A very simple yes.

Interviewer: I'll turn it off.