

# University–Company Collaboration in the National Innovation System from the Perspectives of Micro-Entrepreneurs

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**Abstract:** The way we view collaborative projects influences how project practices are built. According to the National Innovation System (NIS), the innovative process is organized into projects. In most research, collaboration has been approached and analyzed by examining, for example, the innovations, interactions, and actions of the collaborators. However, prior to the present study, university–company collaboration has not been examined through the lens of project management in the NIS. The perspectives of companies and especially micro-enterprises in the NIS are under researched.

The role of micro-enterprises in university–company collaboration is growing, although there are many challenges. National systems of innovation tend to be rigid and bureaucratic, especially for the agile innovations of micro-enterprises. The background is influenced by different projects approaches whose significance for practices and innovation is not recognized.

This empirical study approaches university–company collaboration from the perspectives of companies, focusing on micro-entrepreneurs that are willing to grow and develop. Data was gathered through interviews with big companies and micro-entrepreneurs who have participated in university-company collaboration project in Finland. Data has been analyzed by using content analysis. The framework for the micro-enterprises data analysis derives from an earlier study on companies' point of and project approach in NIS.

A strong understanding of project management is essential for organizations engaging in collaborative projects, as it will help them develop the innovative processes in their projects and at the micro-enterprise level.

**Keywords:** innovation, project management, micro-entrepreneurs, innovation systems, project practices

## 1. Introduction

An increasing number of collaborative projects between universities and companies have become subject to measurement and improvement (Bruneel et al, 2010), which is important to the organization of innovative processes in the NIS (Lundvall, 1992; Nelson, 1993; Cooke et al, 1997; Caloghirou et al, 2001; Cohen et al, 2002; Perkmann and Walsh, 2007). There are many challenges involved in collaboration, the most important of which are related to processes, outdated structures, and system inefficiencies (Bruneel et al, 2010; Uudistuva Suomi 2015–2020, 2014). Innovation is not even considered possible in rigid and bureaucratic structures (Dougherty, 2006). Too often, collaboration is examined separately from the context in which it takes place, such as the forms of organizations involved (Fagerberg et al, 2005). University–company collaboration has not been studied through the lens of project management, despite the special features of “projectification” that affect the content of the collaboration (Packendorff, 1993).

The NIS has been experiencing a paradigm shift over the last 10 years, particularly in Finland (Viljamaa et al, 2009; Pekkarinen and Harmaakorpi, 2011). The NIS is an institutional, political environment consisting of economic and societal actors and linked to economic and educational policies (Nelson, 1993; Lundvall et al, 2002; Sharif, 2006; Lundvall, 2010). The central task of the NIS is to produce knowledge for commercial use and combine education with the economy (Sharif, 2006). However, the system is transforming into an innovative environment of networks in which the interest is shifting from the products to the processes (Miettinen et al, 1999; Lundvall et al, 2002; Sharif 2006; Löppönen et al, 2009; Viljamaa et al, 2009).

The links between universities and industries are multifaceted (Geisler and Rubenstein, 1989; Perkmann and Walsh, 2007; Ankrah and Al-Tabbaa, 2015). Perkmann and Walsh (2007) described three levels of university–industry connections. The lowest level includes weak interactions, such as the commercialization of intellectual properties, publications, and conferences. The middle level is comprised of mobility, such as human-resource

transfer and academic entrepreneurship. The highest level consists of research services and research partnerships. The present study concentrates on research partnerships as high-level interactions between universities and companies. University–company collaboration involves a variety of interactions, not only knowledge transfer, as has been traditionally attributed to such partnerships (Bakhshi et al, 2008).

University–company collaboration is typically utilized by large companies (Laursen and Salter, 2004). Small and medium-sized enterprises (SMEs) or micro-enterprises have traditionally found it very difficult to participate in university–company collaboration, at least in Finland (Uudistuva Suomi 2015–2020, 2014). Last year, the role of SMEs and micro-enterprises in the NIS has grown. For example, Business Finland, national business developing company, reported that 77% of companies funded in 2016 have been SMEs and micro-enterprises (Härmälä, 2017).

The clear majority of SMEs are micro-enterprises, which account for about 93% of all enterprises in the European Union (Muller et al, 2016). Micro-enterprises refer to a type of firm that employs fewer than 10 people and whose annual turnover and/or annual balance sheet does not exceed 2 million euros (Reid, 1995; European Commission, 2003). Micro-enterprises are a significant source of economic growth and play an important role in innovation and the economy in general (Storey, 1994; Fielden et al, 2000). Empirical research has shown that small firms create a higher proportion of new jobs than large firms (Carree et al, 2015). In the European Union, net job-creation rates decrease with each increase in firm size (de Wit and de Kok, 2014), and micro-enterprises accounted for 37% of total employment growth in 2015 (Muller et al, 2016). Compared to larger firms, micro-enterprises are intrinsically different in terms of organizational characteristics and approaches to challenges and obstacles (O’Dwyer and Ryan, 2000; Kelliher and Henderson, 2006).

There is a notable lack of academic studies on university–company collaboration. This phenomenon has largely been examined from a normative point of view (see Pertuze et al, 2010; Perkmann and Salter, 2012), and research partnerships have been studied through the lens of the NIS (see Caloghirou et al, 2001; Cohen et al, 2002; Carayol, 2003; Fagerberg et al, 2005; van Beers et al, 2008; Lundvall, 2010; Nieminen et al, 2011). It is also popular to analyze university–industry relations in general (see Perkmann et al, 2013; Ankrah and Al-Tabbaa, 2015) or define the barriers to collaboration (see Bruneel et al, 2010). Several studies have investigated the role of universities in research partnerships and the differences in corporate culture between the educational and industrial sectors (Gibbons et al, 1994; Etzkowitz and Leydesdorff, 2000; Etzkowitz, 2003). Although the financier point of view is well represented in previous research, few academic studies focus on the perspectives of companies, especially micro-enterprises, in university–company collaboration (Fagerberg et al, 2005). The innovation practices of micro-enterprises is significantly under researched as well (Faherty and Stephens, 2016).

University–company collaboration typically takes the form of a research project, but there is a gap in the literature concerning project management in this context. Projects as a specific form of organization has not identified, yet project management is seen as one of many issues in university–company collaboration (Kapsali, 2011; Ankrah and Al-Tabbaa, 2015). Understanding the nature of projects and the way in which a project is seen has thus far been relegated to the periphery (see Engwall et al, 2003; Perkmann et al, 2013; Ankrah and Al-Tabbaa, 2015). The present study analyzes these concepts from the perspectives of micro-enterprises involved in collaborative projects with universities.

## **2. Theoretical background**

The ways in which a project is seen affects how it is managed (Packendorff, 1993; Lundin and Midler, 1998; Söderlund, 2004b). Project research is key to understanding and developing modern organizations (Söderlund, 2004b). In knowledge-intensive work and rapidly changing environments, where complex products and services are developed, projects are the preferred working mode (Hodgson and Cicmil, 2007; Hoverfält 2012, p. 11). Projects are considered part of the shift from permanent to temporary structures and functions (Engwall et al, 2003).

Projects are rooted in major industrial processes, which are controlled through engineering (Morris, 1994). They are considered the most effective way to achieve a goal (Lundin and Midler, 1998). Mainstream project-management theories are based on the Project Management Institute’s (PMI) classic definition of projects (Packendorff, 1995; Engwall et al, 2003). According to this definition, the project is seen as an effective, task-oriented method for fulfilling unique goals and needs, and the main steps include planning, controlling, and

evaluating (Packendorff, 1995; Hoverfält, 2012, p. 12). However, classic project studies are narrow and overly project-centric, as projects are seen only as tools without context (Shenhar and Dvir, 1996; Engwall et al, 2003; Hoverfält, 2012).

Today, the use of projects as a working mode has been increasing and becoming more complex, which must be considered in the project research field (Söderlund, 2013). Along with the classic project approach, an organizational view has emerged in this field, called the “temporary organization” (Engwall et al, 2003). Temporary organizations are based on descriptive, practice-centered ontology, while the classic approach is based on positive ontology (Geraldi and Söderlund, 2017). As the present study aims to identify the project approaches used in university–company collaboration from the perspectives of micro-entrepreneurs, the differences in the project practices of permanent and temporary organizations will also be studied (see Lundin and Söderholm, 2013).

Although projects are not merely twofold (i.e., permanent vs. temporary), the principles of provisional organization are usually presented in the classic project approach (see Engwall et al, 2003; Hoverfält, 2012). The intention behind the temporary organization is to expand into the mainstream (Engwall et al, 2003). Temporary organizations concentrate on the relationship between the project and the “parent organization,” not on defining the project itself (Engwall et al, 2003; Söderlund, 2004).

According to Engwall et al (2003), the four pillars of a temporary organization include:

- the social construction of project boundaries,
- natural uncertainty in project missions,
- a high degree of embeddedness in project management, and
- the expectations and mission-driven patterns of its projects.

The social construction of project boundaries refers to the idea that a project is not a given entity, as it is seen in the classic approach (Engwall, 2003). As such, project boundaries are compromises that are constructed over the duration of the project. A team is formed around a task, but its members have other “homes” outside the temporary organization (Lundin and Söderholm, 1995). Mainstream projects are based on planning and specification, which are executed by specific practitioners (Engwall et al, 2003, pp. 118–119).

The classic project approach underlines the need to remove uncertainty, as it is highly undesirable (Engwall et al, 2003). In contrast, the temporary-organization approach views uncertainty as a natural part of projects. Temporary organizations also consider the parent organization, as well as the time before and after a project. The project is not an island; it is in close contact with the surrounding organization and reality (Engwall et al, 2003, pp. 111–112).

### **3. Data and methods**

The present study is empirical, and the data consists of interview responses by five micro-entrepreneurs who have participated in collaborative projects with universities. The data will be compared with previous data consisting of eight interviews with ten interviewees from large companies. The initial interviews were carried out in December 2007 and November 2008, with additional rounds in 2010. The previous data illustrates the aforementioned paradigm shift in the NIS. The signs of a new paradigm are reflected in the present material, but this phenomenon is only beginning to emerge in the literature. The interviews thus represent the first phase of the phenomenon (Viljamaa et al, 2009).

The data is constructed in interaction with researcher. Researcher is interpreter throughout the process, not just a passive finder (Alvesson & Kärreman 2007; Gherardi 2000). The purpose of the data is to give a meaningful theoretical interpretation for the university-company –collaboration from the companies point of view.

#### **3.1 Research sample**

The micro-entrepreneurs operate in different industries, including travel and leisure, information and communication technology, and more traditional industries. They all have experience in university–company

collaboration and have participated in one or more projects. Three of the micro-entrepreneurs have employees, while the remaining two are solo entrepreneurs.

The previous sample consists of interviewees from large companies who are experts in university–industry collaboration. They are responsible for deciding whether their companies participate in such projects and have many years of experience working in collaborative projects (Welch et al, 2002). Among the interviewees are experts in technology, design, sociology, marketing, and sales. They have worked in R&D-related managerial positions at various companies in the mobile telecommunications sector, the printing industry, traditional industries, and innovative technological industries. This has been attempted to seek scope and diversity, as well as time coverage for building a business perspective.

### **3.2 Data collection**

The first interviews are non-structured with experts. The content included predetermined topics intended to guide the discussion, so the interviews sought to achieve a broad understanding of the interviewees' experiences and ideas regarding the collaborative projects. The four topics addressed in the interviews include: a) experiences and practices before the project started, b) experiences during the project, C) experiences regarding the project results, and d) achievements and practices after the project ended (Engwall 2003, p. 791).

In the present study, the interviews were conducted by phone and lasted from 30 minutes to 1 hour, during which the interviewees discussed their own experiences of the collaborative projects. In the previous study, the duration of the interviews ranged from 45 to 90 minutes and were recorded and subsequently transcribed verbatim for analysis.

### **3.3 Data analysis**

The interviews were analyzed using content analysis (Strauss & Gorbun, 1998; Miles & Huberman 1994; Erikson & Kovalainen 2008). The stages of analysis included coding, categorization, and thematic definition (Strauss & Gorbun 1998; Saldana 2013). Atlas.Ti and Nvivo has been used as an analyzing tools.

Open coding based on grounded theory, and it has been a lead setting in the first interview analysis (Strauss & Gorbun 1998). Process has been spiral, and included two rounds of coding. After coding categories has constructed based on conceptualization, and to find differences and similarities (Erikson and Kovalainen, 2008). Last stage of analysis has been making four descriptive themes (Saldana 2013).

Analysing the second data, micro-entrepreneur interviews, the first coding stages has been similar. The categories have since become goal-oriented; that is, they have been arranged by the contextual practices and issues emerging from the interviews (Kivinen and Ristelä, 2000; Luomanen, 2010; Ruusuvaori et al, 2010). The analysis based on conceptualizing of first data. This technique is not purely data-based, nor is it theory-based (Erikson and Kovalainen, 2008; Strauss & Gorbun 1998). The contents of the interviews therefore do not reflect reality as if it is an object that can be found; rather, a contextual view of collaborative projects from the company perspective is formed through analysis (see Gherardi, 2000; Gherardi and Nicolini, 2001; Pihlström, 2007, p. 160).

## **4. Findings**

### **4.1 The classic project approach: before the paradigm shift**

Projects are key to the inner workings of an organization. Defining the project implicitly also defines the regular activities of its parent company (Johansson et al, 2000; Lundin and Steinhörsson, 2003). According to the data collected, the concept of the project has changed alongside an emerging paradigm shift in the NIS. The NIS currently consists of two project approaches that focus on the perspectives of large companies, which generate structures that define the existence and function of a project (Pekkarinen and Harmaakorpi, 2011).

The classic project approach emphasizes design, the goals remaining, predefined working methods, and the importance of reporting (Packendorff, 1993), which the company views as an image of the project produced by the NIS. This is contrary to the fact that design, control, and reporting are seen in the literature as atypical for innovation (Dougherty, 2006; Lovio, 2009).

#### 4.1.1 Project planning

Generally, in the NIS, funding for a research partnership project between a university and a company is based on the project's plan. When examining a cross-section of the innovation paradigm, the significance of project planning is highly evident, as the project's success is largely monitored in relation to its plan and mission (Cooke et al, 1995; Edquist, 1997; Innovaatiotoiminnan vaikutukset, 2008). From a company perspective, project planning must also meet strict goals in content creation, not just project management.

"And even in Tekes, there is, unfortunately, the spirit that when you read the project plan, then you have to do it, even if it is quite unattractive." (Interview 3, research director)

According to the NIS, the starting point of a project consists of the implementation of an approved plan (Cooke et al, 1997; Cooke, 2001); however, project plans are often drafted up to a couple of years before the start of the project. During this time, the company may experience extensive changes in operation, and the plan may no longer be feasible.

"That is a bad project, which is really stiff and where you have to commit to the plan for four years, which you have written three years before the start of the project, after which the business goals have changed and the priorities are, and still, it is obligatory to do what it will be time to do." (Interview 12, micro-entrepreneur)

Defining content in advance is an atypical innovation activity, as the primary goal is to create new content (Dougherty, 2006). In the classic project approach, however, designing and planning are key starting points for a project, which form the prerequisites for success as well as the project's metrics (Packendorff, 1995; Hoverfält 2012, pp. 10–13). These practices hamper innovation and prevent the project from developing new content (Dougherty, 2006).

#### 4.1.2 Working methods

The NIS paradigm initially emphasized a linear model of innovation (Enquist, 1997; Cooke, 2001; Pekkarinen and Harmaakorpi, 2011). The literature describes the practices of the NIS and the linear model (Lundvall et al, 2002). However, such formal structures create challenges for companies. In most cases, the progress of a project is measured through project meetings between the collaborators. All of this is intended to eliminate uncertainties in the process (Viljamaa et al, 2009); however, securing a linear process will lead to weak innovations. According to evaluations of collaborative projects between universities and companies, their impacts appear to be weak (Uudistuva Suomi, 2015–2020, 2014). In the literature, predefined actions are seen as challenges in collaboration. Uncertainty and cyclical activities are, according to the present study, the basis of innovation (Koski, 2001; Lundvall et al, 2002; Pavitt, 2005).

"...Then also responsible for the company that the results are really going ahead, not just drinking coffee and knocking it off, whether it's a good research. But that's why you should know that you do not..." (Interview 11, business development director)

Following the linear innovation model, the NIS emphasizes the transfer of knowledge, and its practices have been built around enhancing this activity (Brown and Duguid, 2001; Hautamäki, 2008, p. 66). The forum for the official launch of a project consists of a management team with pre-appointed personnel. The content of the project is formed elsewhere, and there is no need for a practical interface.

#### 4.1.3 Project reporting

"And then, when it is practically revealed that it is something concrete to be able to see and build, of course in cooperation with others, then it is quite a challenging thing." (Interview 4, development director)

There are few opportunities for companies to make use of the information generated in collaborative projects (Kaufmann and Tödting, 2001; Bruneel et al, 2010). The transfer of information by various means is ineffective. The challenges lie not only in the quality of the results or how they correlate with the plan, but also in their exploitation. The results are not expected to be ground-breaking and can hardly be utilized commercially (see Kankaala et al, 2007, pp. 73–75). Companies must therefore adapt the project results to fit their own needs, because the results are born outside their practices.

“So that I can double the page report, or even the five-page report in Word format, so I can throw it into the garbage from the point of utilization.” (Interview 3, research director)

Collaborative projects are like external organizations, so the results must be transferred from one organization to another. The NIS directs the transfer of information in very traditional ways: via reports and presentations. This is seen as very problematic and contributes to poor results (Cohen and Levinthal, 1990; Kaufmann and Tödtling, 2001).

## **4.2 University–company collaboration from the approach of establishing a temporary organization**

The concept of a project is based on concrete practices (Gherardi and Nicolini, 2000; Gomez et al, 2003). In part, those involved in a project will rebuild the practices produced by the system, which broadens the concept of collaborative projects between universities and companies.

The previous data shows a transformation in the NIS, from a linear innovation model toward a network model (Miettinen et al, 1999; Lundvall et al, 2002; Sharif, 2006; Löppönen et al, 2009; Viljamaa et al, 2009). According to the data, the linear innovation model is linked to the classic project approach; however, companies are trying to shape their practices into modes that are more appropriate and productive for university–company collaboration. In doing so, these companies follow a project approach that differs from the mainstream; they are establishing temporary organizations.

### *4.2.1 The importance of interaction*

Innovation is largely based on advances in technology. The introduction of new technology has led to innovations that follow a very straightforward path from one organization to another (Chesborough, 2006). Despite the fact that the innovative process is more complex than a simple linear model, the phase-out concept has continued to dominate collaborative projects, and the phases were seen to end and come next, although they could repeat the process (Cooke, 2001; Lundvall et al, 2002; Chesborough, 2006). The underlying concept of information has also remained unchanged, as information is considered to move from one stage to the next (Gherardi and Nicolini, 2000).

“Well, actually, at least I have to take advantage of such a project of ways, which suits me. I do not know whether it has changed in culture as a whole, or is it just that it has been the case that such practices work.” (Interview 5, research manager)

In collaborative projects, companies typically develop practices rather than content. According to the interview data, the development of innovative processes is not essential, but challenges in the project practices are considered very important. Interaction and situated learning are emphasized in the innovative process, and experiment-driven innovation is an effective way to develop this process (Nooteboom, 2000; Lovio, 2009). The development of such practices has deepened the nature of collaboration, from the simple procurement of services to a true research partnership (Geisler and Rubenstein, 1989; Perkmann and Walsh, 2007).

“But through the projects, it has been learned that, okay, there are some opportunities to do something and it is understood that the stoics are now much better than in history. And it has revealed the challenges and other things that it has.” (Interview 3, development manager)

Companies are learning how to carry out collaborative projects via their experiences. Project managers are developing ways to obtain the most use out of a project and the organizations involved. The innovative process is gradually shifting from the traditional transfer of knowledge toward the interactions between collaborators and the modes of action. The change builds the transformation of the paradigm of the innovation system described (Viljamaa et al, 2009). This phenomenon is especially emphasized in the micro-entrepreneurs’ responses, which indicates that their participation and interactions in the project are very important.

“So it’s nothing like sparring and peer support, and then there’s information going to change and that hey, I could do it like you’re not doing. That’s the way it is, though. If you are participating and active. That it requires it to do something to get it.” (Interview 12, micro-entrepreneur)

#### *4.2.2 The social construction of project boundaries*

With these gradually changing practices, the project’s boundaries will also be restructured (Engwall, 2003). Collaborators other than those who were initially assigned will become involved in the project. This extends the concept of the project into the temporary-organization approach.

“And then usually in the way that the end result is presented in such a way that the audience is that the audience is as wide as possible. For example, if my team were so responsive, it was a person in the project, so the whole team was able to listen to the results.” (Interview 5, research manager)

The aim is to integrate the results into the company’s daily operation and practices by involving as many employees as possible in the project, at least in its progression. Information is thereby constructed contextually (Lave and Wenger, 1991; Yanow, 2000). Nooteboom (2000, p. 54) also discussed this point while emphasizing the attitude of the adoptive person, who re-invents and associates information with organizational routines and structures. However, the traditional structure of the NIS has prevented this, as it removes information from its context and forces it into its own objective entity, report, or transferable pre-information packet.

#### *4.2.3 The natural uncertainty of projects*

“...Especially projects should be...more like extensive, and they should be like...you don’t know the result in advance, or it is not necessarily known whether the result is as useful or not. ...Companies can specifically try. Not so much money to go but in the future I can really produce a lot. If in a way they dare to get enough.” (Interview 6, chief specialist)

Companies see innovation as a creative, searching process that needs space to evolve (Koski, 2001). According to the data, the goals set in collaborative projects are limiting or somewhat unnecessary, which may not be as planned. This perspective has also been raised in the literature regarding the NIS; that is, the cause and effect of research, technology, and innovation does not produce innovations, and the effectiveness of this approach has come under question (Lundvall et al, 2002; Harmaakorpi and Melkas, 2008). It is now understood that networking and interaction are key elements of innovation (Lundvall et al, 2002).

“...I see very important the importance of raising my people’s competence and general education and knowledge in the area. That it has such a function. ...On a personal level, I would like to be great, so it is, I think it is of great importance because people look at things from a different point of view, ventilate their ideas, network with new people, try new methods.” Interview 5, Research manager

According to the data, participation, interaction, and personal relationships are highly sought in university–company collaboration, in addition to the official project results (Kanunda et al, 2007). The challenges of achieving the official results are compensated by the situated learning and development of individuals.

“...You have not come to a surprise in the negative direction that has come, there have been many boys who did not initially even think that it could be born.” (Interview 3, development manager)

In practice, the preconditions for innovation (i.e., insecurity, interaction, and complexity) have created challenges in the innovative process (Dougherty, 2006; Bruneel et al, 2010). Company attitudes toward innovation have gradually become more flexible, which has incited changes in the prevailing paradigm. The systematic and gradual nature of the innovative process is being questioned (Mutanen and Parjanen, 2008). From the company perspective, the importance of the results has decreased, while the importance of the process has increased (Viljamaa et al, 2009).

## **5. Discussion**

The present study provides data extracted from interviews with micro-entrepreneurs who have experience in university–company collaboration, along with a description of the changes that have taken place in the NIS of

Finland over the past 10 years (Viljamaa et al, 2009; Pekkarinen and Harmaakorpi, 2011). These changes indicate that the rigid structure of the NIS has been ineffective, even to the point of inhibiting innovation (Chesborough, 2003; Chanal, 2004; Fagerberg, 2005). The foundation of a collaborative project should be practice and innovation, not bureaucracy (Dougherty, 2006; Hautamäki, 2008).

University–company collaboration projects, having special projects features that also affect the content of the activity, like one such feature is the emergence of innovations (Packendorff, 1997). According to the data, companies construct their own innovation-supporting practices instead of relying on those defined by the NIS. This paradigm shift mirrors the differences between the classic project approach and the establishment of temporary organizations (Engwall et al, 2003). Understanding these differences in the context of university–company collaboration will help us parse the emerging challenges to project flexibility, openness, and process orientation (see Table 1).

**Table 1:** Factors that inhibit/support innovation activities and project approaches

Inhibit	Support
Bureaucratic planning	Natural uncertainty
Closed structure	Open structure
Results-oriented	Process-oriented
Classic project approach	Temporary organizations

The formal structure of the NIS is based on the classic project approach, which emphasizes project planning, a closed structure regarding the project and its assigned participants, and the importance of the results and their evaluation through the realization of the project’s objectives. The classic project aims to enhance and control its participants in the border region, as well as prioritize a strict adherence to the objectives and practices of the project (Blomquist and Packendorff, 1998; Engwall et al, 2003).

Based on a preliminary analysis, micro-enterprises emphasize a casual attitude toward process-oriented and uncertainty in university–company collaboration. In practice, this means that the companies emphasize interaction between the project participants. Interaction appears as concrete meetings and shared practices and peer support for different ways. Throughout the shared practices situated learning, or learning through action is constructed (Gherardi and Nicolini, 2001).

In addition to this, natural uncertainty is underlined by micro-entrepreneurs. Natural uncertainty is, above all, flexibility with regard to objectives and plans of projects. The plans and aims should update during the project process from the micro-entrepreneurs point of view. Keeping originally plans and implement the project without reflection and interaction, appears really irrational for the companies. Here is a conflict between NIS official project approach and companies way to view projects.

The NIS therefore creates a different field of operation for collaborative projects between universities and companies. According to the data, the formal, bureaucratic structure of the NIS has been partially constrained in such projects, which have been actively pursued through practical measures. The factors emerging from this paradigm shift are linked to differences in the classic project approach and the temporary-organization approach. During the transition, both aspects are present, which causes much of the challenges in collaborative projects. The project approach offers a conceptualization and way to improve NIS from the micro-entrepreneurs point of view.

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