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THE STRATEGIC FORMATION OF PROJECT NETWORKS: A RELATIONAL PRACTICE PERSPECTIVE

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THE STRATEGIC FORMATION OF PROJECT NETWORKS: A RELATIONAL PRACTICE PERSPECTIVE[1]

Abstract:
This article develops a relational practice perspective on the strategic formation of project networks as organizational forms, based on structuration theory and an in-depth case study of a European researcher and his project network. Project networks are defined as strategically coordinated sets of longer-term, project-based relationships. As project entrepreneurs advance in their careers from project partners to network coordinators, they learn to apply and combine certain practices through which they gradually transform part of their emerging professional networks into strategically coordinated project networks. These practices include: making and renewing project-based contacts, pooling potential project partners, and maintaining core project partnerships. This study advances our understanding of the institutional embeddedness of network agency and the micro-foundations of networks as organizational forms in project businesses and beyond.

Key words: Project network, relational practices, project entrepreneur, strategic agency, network formation, network coordination, network pools, structuration theory

INTRODUCTION

In many businesses, such as film, advertising, software and research, projects are an important form of organizing and collaborating (Lundin & Söderholm, 1995). Professionals in project businesses, such as designers and researchers, typically collaborate on a temporary project basis, work in a variety of teams over time and pursue careers across firm boundaries (Arthur & Rousseau, 1996; Dowd & Kaplan, 2005). This dynamic involves a permanent challenge: how to continue careers and collaborative relationships beyond any particular project. In face of this challenge, networks of firms and professionals develop as social infrastructures in project businesses. These networks help field participants exchange knowledge and contacts, and pursue project-based careers (e.g. Faulkner & Anderson, 1987; Jones, 1996; Antcliff et al., 2007). This study contributes to the better understanding of the development of such networks.

More precisely, I examine the micro-processes leading to the constitution of project networks as organizational forms, focusing in particular on the interplay between network constitution and the career of project entrepreneurs. I define project networks as strategically coordinated sets of longer-term, yet project-based relationships (Windeler & Sydow, 2001; Manning, 2005). Project entrepreneurs are actors who pursue project opportunities, recruit teams and maintain longer-term network relationships around project tasks**.** Whereas several studies have examined network dynamics in project businesses in more general (e.g. Soda et al., 2004; Ferriani et al., 2005), only little attention has been paid to the specific properties of project networks as organizational forms and drivers of their emergence. This is partly because most network studies – including

[1] I would like to thank the four anonymous reviewers for their thorough and detailed review of earlier versions of the paper and their very constructive comments.

those of entrepreneurial networks (e.g. Elfring & Hulsink, 2007) – have focused on networks as opportunity structures, while neglecting the contextual embeddedness of network relations and the role of strategic agency in network formation (see also Ibarra et al., 2005). This paper therefore, on the one hand, looks at the strategic conduct of project entrepreneurs as a key driver of network formation. On the other hand, I take the various contexts within which project entrepreneurs pursue careers (see e.g. Jones, 2001) and develop network relations into account: projects, organizations, the organizational field and the network itself.

Structuration theory (Giddens, 1984) serves as a sensitizing device to guide the analysis of project network formation. It sensitizes for the embeddedness of strategic agency in institutional and relational contexts. Based on structuration theory and empirical data, I develop a relational practice perspective on project network formation. I define relational practices as regularized activities entrepreneurs engage in to build and manage relationships in particular institutional contexts. I investigate the development and interrelation of these practices in European education research, by looking at network strategies of a European researcher in his entrepreneurial career. Findings may stimulate future research in two ways. On the one hand, they advance our understanding of network formation and career-making in project businesses. On the other hand, they show how structuration theory can help better understand the constitution and micro-foundation of networks as organizational forms.

PROJECT NETWORKS AS ORGANIZATIONAL FORMS

Project networks have been studied in particular in film production, but also in construction and the software industry (e.g. Windeler & Sydow, 2001; Eccles, 1981; Grabher, 2004). Often times, they have been examined as rather boundaryless relational structures in project industries (see e.g. Jones, 1996). In contrast, I focus on entrepreneurial project networks as organizational forms. Organizational forms classify organizations – here: network organizations (Podolny & Page, 1998; Borgatti & Foster, 2003) – into groups of organizations that are similar in terms of control structures and coordination mechanisms (Romanelli, 1991). Based on previous studies, I define project networks as strategically coordinated sets of longer-term project-based relationships between legally independent actors (see also Windeler & Sydow, 2001; Manning, 2005). Their project-based reproduction, yet longer-term sustainability, and their strategic coordination make them distinct network forms of organization.

Insert Figure 1

To study project network formation in a particular context, certain properties need to be recognized from previous research. Most importantly, prior studies suggest that project networks as organizational forms are strategically built up and coordinated by project entrepreneurs (DeFillippi & Arthur, 1998), e.g. film producers, who seek project opportunities and assemble teams from project networks they build up over time. Project networks are typically structured into pools of potential project partners (see Figure 1). Entrepreneurs maintain these pools to reduce dependency on particular partners. Pools are often segmented into interconnected sub-pools of actors of certain types, e.g. script writers, directors and camera operators in film production. Project partners are selected from pools for their resource potential. As they get involved in projects, they reproduce their resource potential for future project collaborations (see Figure 1; see also Windeler & Sydow, 2001; Manning, 2005). Parallel to these pools, longer-term stable constellations may develop between particular partners that reflect mutual trust and interdependence. In TV production, for example, producers and clients develop stable ties, based on successful prior collaboration and in the shadow of future projects in similar or related collaborative contexts (Ferriani et al., 2005; Manning & Sydow, 2008).

Project networks are further shaped by two important social contexts: organizations and organizational fields (see Figure 1; see also Manning, 2008). Though individuals play a key role as carriers of expertise and trust (e.g. DeFillippi & Arthur, 1998), it is often organizations, e.g. film production firms, that provide the capacity to coordinate project networks. For example, they help entrepreneurs buffer risks and access expertise and other key resources (see e.g. Grabher, 2004). Surprisingly, the role of organizations in the constitution of project networks has rarely been examined. Therefore, I explicitly discuss their role in project network formation later on. Finally, project networks and their participants are typically embedded in organizational fields. Fields refer to areas of institutional life that are constituted and reproduced by organizational and individual actors who share domains of activity and recognize one another (DiMaggio & Powell, 1983). Here, I focus on professional project businesses where actors primarily collaborate on a project basis, such as in construction, film-making, consulting and research. Fields not only enable and constrain project opportunities, but they also serve as repositories of knowledge and collaborative practices (Grabher, 2004).

STRUCTURAL CONDITIONS, STRATEGIC AGENCY AND NETWORK FORMATION: A STRUCTURATION APPROACH

To analyze project network formation, I advance a network analytical perspective that accounts for the multi-contextual embeddedness of network agency (see Figure 1) and that differs from, yet complements conventional approaches. Most studies on network formation, including the formation of entrepreneurial networks, focus on the emergence of relational structures and certain structural characteristics of networks, e.g. size, density, diversity or composition of strong vs. weak ties (see e.g. Koka et al. 2006; Hite & Hesterly, 2001; Elfring & Hulsink, 2007). They argue that, depending on their structural features over time, networks can provide access to certain resources, e.g. legitimacy, contacts and ideas. This perspective provides important insights into network formation, but it also has some major limitations. On the one hand, it often abstracts away from the institutional contexts, i.e. the very systems of status relations, practices and meanings, within which networks are formed. On the other hand, strategic agency is often neglected as a driver of network formation (Emirbayer & Goodwin, 1994; Koka et al., 2006; Padgett & Ansell, 1993). In particular, the very activities entrepreneurs engage in not only to build and structure, but also to coordinate network relationships and to establish networks as organizational forms are not well understood.

To better understand the role of context and strategic agency in network formation, I develop a relational practice perspective based on structuration theory. Structuration theory is a social theory, developed by Anthony Giddens (1984, 1979), which focuses on the recursive interplay of agency and structure. Structure is understood by Giddens as sets of norms, rules and resources which are contextually embedded and more or less institutionalized. Social actors more or less mindfully apply norms, rules and resources in interaction, and, in doing so, impact on the continuous flow of events. They monitor the impact of their own and others' behaviour while they (co-) produce, more or less intentionally, the very structural conditions – in terms of institutionalized norms, rules and resources – under which they act (Giddens, 1984). For its processual and multi-level perspective, structuration theory has been used repeatedly in organization and network research (Whittington, 1992; Barley & Tolbert, 1997; Sydow & Windeler, 1998; Kilduff et al., 2006; Pozzebon, 2004; Manning, 2008).

One central concept in structuration theory is that of social practices. These are more or less context-specific, regularized activities actors repeatedly engage in by referring to schemas, norms, and resources of power. By engaging in social practices, actors legitimize and give meaning to their actions, and contribute to the reproduction of the very institutional structures that enable and constrain their actions. I argue that social practices also play an important role in forming and coordinating network structures. In other words, I do not see network structures – like many network scholars would do – merely as "regularities in the patterns of relations among concrete entities" (White et al, 1976, p. 733-734). Rather I seek to analyze them as institutionally embedded network features which result from the continuous application of what I call ‘relational practices’. By that I mean more or less context-specific, regularized activities actors engage in to build and coordinate network relationships. As actors engage in relational practices, they help (re-) produce network relationships along with the very rules and resources they refer to when constituting and coordinating these relationships.

To analyze this process in the context of project network formation, I conduct an institutional analysis and a complementary analysis of strategic conduct. An institutional analysis focuses on the institutional contexts within which social practices and relations are embedded. More precisely, I look at the structural conditions, in terms of norms, rules and resources, that guide and get chronically reproduced through agency (Giddens, 1979: 80). Structural conditions can be more or less specific to certain contexts of interaction, e.g. projects. At the same time, they relate to wider systemic environments, e.g. organizational fields. Over time, conditions within particular contexts, e.g. projects, get reproduced along with norms, rules, and resources in systemic environments, e.g. organizations, networks and fields, in which these contexts are embedded. This basic proposition is key for understanding and analyzing project networks as embedded organizational forms.

A complementary analysis of strategic conduct focuses on how agents shape the very structures and practices that guide their actions, by drawing on and transforming rules and resources (Giddens, 1979: 80). Giddens conceives strategic agency as a continuous flow of conduct, linking past, present and potential future activities (see similar Emirbayer & Mische, 1998). Strategic agency is both structured and structuring: it is patterned by social practices agents apply (see also Pozzebon, 2004), and it has the potential to transform structural conditions. In particular when conditions are contradictory or ill-defined, actors have the opportunity to transform or bring about new structures and practices (Whittington, 1992; Seo & Creed, 2002; Fligstein, 2001), including new organizational forms. This potential, however, depends on the ability of actors to apply institutional power and social skills to persuade and mobilize others to cooperate (DiMaggio, 1988; Fligstein 1997). To apply power and bring about change, agents need to be ‘strategically positioned’, e.g. by taking certain roles or status positions. Thereby they associate their own and others’ positions with institutional norms and resources (see Giddens, 1984, p. 83). The changing position of project entrepreneurs vis-à-vis others in the process of project network formation will therefore be an important aspect of the analysis.

THE STRATEGIC FORMATION OF A PROJECT NETWORK IN EUROPEAN EDUCATION RESEARCH

Based on an inductive case study, I now examine the process of project network formation in greater detail. Case studies are a suitable means to analyze complex and little understood phenomena (Yin, 2003), such as the formation of project networks as organizational forms. The objective of this case study is to elaborate a relational practice perspective on project network formation to inspire future research. Structuration theory serves as a sensitizing device. It helps focus on the recursive interplay of agency and structure.

According to Siggelkow (2007), cases should be special to give interesting insights about a particular phenomenon, while allowing for analytical generalization and theorizing to inform future research (Yin, 2003; Eisenhardt, 1989). The case under scrutiny is a project network formed by an entrepreneurial researcher together with affiliated partners in the field of European education research. Projects in this field are designed to develop and evaluate concepts and tools for facilitating learning and qualifying in schools and companies across Europe. It is one of many research fields for which project funding is now available in the EU. It is to some extent a typical project business where participants collaborate on a project basis and pursue project-based professional careers. However, European education research is a rather young field. Unlike in the film or construction industry, project network relations are only just establishing. The case therefore gives the unique opportunity to understand how project networks initially develop as an organizational form and how institutional conditions and strategic agency shape this process. Findings may stimulate studies in other emerging project businesses.

In particular, I focus on one European researcher – the Focal Actor (FA) – who was the first to establish a project network in his field. I identified his project network by conducting a descriptive analysis of project-based relations between researchers involved in European education research between 1995 – the year in which EU-funded research started – and 2003 – the end of the time period under scrutiny. During this time, projects were funded in three waves: (1) 1995-1997, (2) 1997-2000, (3) 2000-2003. Altogether, 29 projects were funded by the EU in one of these funding periods. 209 researchers from 19 European countries participated in at least one project. The 29 projects together with the very researchers and institutions these researchers are affiliated with demarcate the field of European education research from 1995 to 2003. To analyze this field and to identify FA's project network, I used a project participation database of

EU-funded education research which has been maintained by a European researcher whom I also selected as one of my expert interviewees.[2]

The initial analysis of project participation data revealed that FA participated in ten projects and made project-based contacts with 59 other researchers – more than any other researcher. Active project participation by itself however would not qualify FA as a potential project network coordinator. As noted earlier, project networks are characterized by longer-term sets of project-based ties and strategic coordination. Figure 2 shows with whom European researchers, including FA, collaborated repeatedly over time between 1995 and 2003. The figure was created with NetDraw (Borgatti et al., 2002) based on an actor-actor matrix of joint project participation (Breiger, 1974). A tie represents one or more project collaborations across at least two funding periods (left graph) and across all three funding periods (right graph). Figure 2 indicates that FA formed longer-term project-based relationships with a number of researchers – a key feature of project networks. FA further holds the most central position (in terms of direct ties) which is a first indicator of his strategic role. A qualitative analysis however is needed to better understand how FA formed and coordinated his project network over time. Figure 2 also indicates that most researchers who participated repeatedly and engaged in forming project-based ties, including FA, are affiliated with university research institutes. I explain later on how important these organizations have been in supporting project engagement and coordination in this field in general and in FA's entrepreneurial career in particular.

Insert Figure 2

The following analysis of FA's project network formation combines quantitative with qualitative evidence. Such an approach increases validity and allows for triangulation of findings in case study research (Yin, 2003; Eisenhardt, 1989). On the one hand, I will analyze FA's ego-network of project partnerships using descriptive measures which illustrate how properties of FA's ego-network changed over time. Findings indicate to what extent FA successfully managed to enable repeated project collaborations. On the other hand, I will analyze the process of FA's project network formation based on interviews with key informants: FA himself; and three field experts who know FA and his research partners in person. The first expert is a leading researcher of the institute FA worked at; the second is a representative of the ECE – an important field institution

[2] I would like to thank Dr. Sabine Manning for providing her database of EU projects, and for her help in contacting interview partners. Without her support this study would have not been possible. For more detailed information on the database as well as related documentation of EU projects and EU research, in particular on vocational education and training, please visit this website: http://www.b.shuttle.de/wifo/vet/networks.htm.

(see below); and the third is a former project partner of FA's and coordinator of EU-funded projects. The third expert also provided the project database.

With FA and the first two experts, I conducted interviews of about 1 ½ hours length each. These interviews focused on the entrepreneurial career and strategic agency of FA and the institutional context within which FA acted. I conducted the interviews in 2005, that is after, but close enough to the time period under scrutiny, which gave me and the interviewees the opportunity to reflect upon past events, yet also discuss longer-term implications. I interviewed the last informant several times from 2004 to 2007 (total interview time about 10 hours). This informant continuously helped me reflect and refine research findings from a field expert's point of view. When studying social practices, including practices of project network formation, such a double hermeneutic approach is recommended (Giddens, 1984). According to this approach, neither the outside perspective of social scientists nor the inside perspective of practitioners by themselves are sufficient sources of empirical knowledge. Rather, knowledge comes from continuous revision and exchange of interpretations and understandings between scientists and practitioners. Unfortunately, I was not able to get direct interview access to other project partners of FA's which is an empirical limitation of this paper. However, I was able to analyze their project-based relationships with FA based on project-affiliation network data, and I discussed their role in network formation as one central topic in all interviews.

The Field of European Education Research: An Institutional Analysis

Starting with an institutional analysis of the development of the field of European education research I seek to understand the institutional drivers and constraints of FA's strategic agency and the emergence of his project network. The field of European education research is constituted by European researchers and research institutions who participate in EU-funded research projects. For many years, cross-national projects have been an important part of education research. The German Centre for Education (GCE, name changed) and the European Centre for Education (ECE, name changed) have been particularly active in this area. Most of this research, however, had been traditionally aimed at shaping national education policies. Only in the mid 1990s, European education research was established as a distinct field for studying learning and qualifying in schools and companies across Europe (EC 1993, 1995). Since 1995, EU programmes, in particular Leonardo and the Framework Programme, have become the main sources of funding for European education research projects (EC 2000, 2004).

These programmes share certain similarities: They fund projects for up to three years within particular funding periods. Projects eligible for funding need to involve researchers from at least two EU member countries. To promote innovation and learning amongst researchers across Europe (Lauterbach & Sellin, 2000), funding programmes prefer projects involving research institutions from advanced economies, e.g. Germany, France and Sweden (Western Europe), less developed economies, e.g. Spain and Greece (Southern Europe), and emerging economies (Eastern Europe). However, funding programmes also differ in terms of their funding priorities. The Leonardo programme, for example, has been a rather specialized, action-oriented programme aimed at implementing a transnational European training policy (EC, 2000). It has mainly attracted researchers with special expertise in vocational education and training. The Framework Programme supports broader research in all kinds of fields, including IT, environment, energy, life sciences and socio-economic research (EC, 2004). Education research is part of socio-economic research and includes topics such as lifelong learning, or the impact of education and training systems on the labour market and economic growth. This programme has attracted research integrating education issues into a broader research agenda.

Getting projects funded requires an understanding of EU research policies in general and of different funding criteria – within and across EU programmes – in particular. In structuration terms, these criteria can be interpreted as more or less formalized rules according to which resources (e.g. EU funds) are allocated. For example, recruiting research teams from across Western, Southern and Eastern Europe has become an important project organizing practice that reflects some of these EU funding rules. However, institutional conditions for European education research have also changed along with funding policies. I discuss these changes by comparing features of the three funding periods between 1995 and 2003. This temporal bracketing strategy also facilitated the narrative reconstruction of field conditions and FA's agency over time by field participants (Pentland, 1999; Langley, 1999).

The first funding period (FP1, 1995-1997) is regarded by field participants as the 'exploratory phase'. In particular the first Leonardo projects were designed to establish a research community and to promote network-building among researchers. The leading institutes in the field at that time – GCE and ECE – took a leading role in initiating project proposals and in mobilizing European researchers to take part in these projects.

> "1995-1997 was the exploratory phase, open funding policies [...] which helped the community to found and find itself. […] [Leonardo] projects overlapped and complemented each other which improved communication among people." (ECE Representative)

The second funding period (FP2, 1997-2000) was characterized by an expansion of the field in terms of the number of projects and participants: Compared to only 4 projects in FP1, 14 projects were funded in FP2. The number of participants also increased from 42 in FP1 to 125 in FP2. 80 % of the participants in FP2 were new entrants. Notably, for the first time, researchers from

Eastern Europe, including the Czech Republic and Romania, took part in EU-funded projects. In FP1, by comparison, all researchers came from research institutions in Western/Northern or Southern Europe, the latter being the minority. In accordance with EU policies, project coordinators were encouraged after FP1 to involve researchers from all three parts of Europe to promote cross-national innovation (Lauterbach & Sellin, 2000).

The third funding period (FP3, 2000-2003) was characterized by a consolidation and professionalization of research collaborations. Stricter funding policies and tighter funding budgets led to increasing competition for project funding. The number of projects dropped from 14 in FP2 to 11 in FP3; the number of participating researchers decreased from 125 to 85. One GCE representative explains:

> "Over time, many people dropped out, because both the institutional and professional preconditions for sustainable cooperation in the European arena were missing. […] This is a process of professionalization, but also a process of selection. This has to do with entry and exit. Ticket prices are rising, and not everybody can afford it." (GCE Representative)

Only 23 researchers from previous funding periods participated again in FP3. Notably, 12 out of these 23 researchers and all but two coordinators were affiliated with university research institutes. By this time, those researchers who were affiliated with university research institutions had a clear advantage over other researchers (e.g. from university departments), in particular when it came to applying for EU funding. This is because those institutions had the incentives and resources in place to support their members in repeatedly engaging in projects. In response to decreasing funding budgets and more rigorous evaluations of projects, these institutes in particular contributed to the professionalization of EU proposal development:

> "Like script writers we [coordinators] write our scripts [i.e. project proposals] and if the time is ripe we sell them on the market […] [In universities] you have the institutional backing to take on those initiatives […] you have colloquia, informal information networks. […] you can seek advice from colleagues how to develop the script […] This is a search process, […] where institutional structures very much help reduce the risks involved." (GCE Representative)

While funding budgets decreased and evaluations became more rigorous, EU programmes still encouraged the participation of new partners from across Europe to promote cross-national innovation. This however posed a serious challenge to project coordinators. Not only became it more difficult to coordinate large project teams across Europe under budget constraints, but the involvement of many new participants rather than established partners could put the project success at risk. Only those coordinators who were able to reconcile funding policies with practical managerial needs and their own interest in continuously producing valuable research were likely to succeed with EU-funded projects in the long run.

The Formation of FA's Project Network: Strategic Conduct and Relational Practices

The Focal Actor (FA) is one of the few researchers who managed to successfully join and coordinate EU-funded projects in all three funding periods. Starting as senior researcher and project partner at the well-known research institute GCE in 1995, he became a project coordinator in 1998 and quickly established himself as a project network coordinator. FA is the first researcher to form a project network in his field. Later, as interviews suggested, other researchers followed by building similar networks. In this study, however, I focus on FA's project network. I identify the very relational practices FA engaged in when forming his project network in conjunction with his institutional conditions and positioning vis-à-vis affiliated researchers and project partners over time.

Making and renewing project-based contacts

In the context of project industries, network-building is often associated with the accumulation of project-based ties. Through project collaborations with different teams, actors make numerous contacts, gain collaborative experience and build up relationships with others which may become important resources for future projects (e.g. Jones, 1996; DeFillippi & Arthur, 1998; Grabher, 2004). This is because prior collaborative experience helps build up trust and common ground facilitating future collaboration (Gulati, 1995; Uzzi, 1997). However, project-based relations do not simply 'emerge' over time. Rather, making and renewing project-based contacts can be viewed as an institutionally embedded practice field participants, like FA, engage in. In combination with other practices I discuss further below this practice can help constitute and reproduce project networks as organizational forms.

When looking at FA's project-based ego-network, clearly, FA accumulated a lot of contacts through EU-funded project partnerships between 1995 and 2003. The high level of project participation allowed FA to explore project partners, while building his own reputation as a researcher. In particular, in Funding Period (FP) 1 FA had the opportunity, by taking part in three parallel projects, to get to know a number of researchers across Europe. FA collaborated with 34 researchers, some of whom he had already known from previous (non-EU) projects. In FP2, FA collaborated with 20 newcomers vs. 16 old partners from the previous phase. In FP3, the ratio between new and old partners shifted to 5 (new) vs. 10 (old). These comparisons indicate that FA explored contacts mainly in (and prior to) FP1, while he later mainly exploited contacts he had built up earlier. This ego-network perspective of project-based ties illustrates the importance of making project contacts, in particular at an early stage of project network formation. However, a deeper examination of FA's strategic conduct under institutional constraints is needed to understand why FA got involved in so many projects at the beginning, and how FA engaged in exploring contacts for potential future projects.

From a structuration perspective, FA's ability to make numerous project-based contacts from early on was facilitated and constrained by general institutional conditions at this time, on the one hand, and his position in the field, on the other hand. With regard to the former, as noted earlier, many researchers and institutions regarded FP1 as an opportunity for network-building. Like many others, FA established contacts, in particular through the first Leonardo project. This, however, does not explain why and how FA managed to establish and make use of contacts more effectively than other Leonardo researchers. To understand this, I need to examine FA's position as a researcher in the field. Back in 1995, when the first EU-funded project was launched, FA had been a senior researcher at GCE – one of the leading institutes. As GCE researcher, FA had taken part in several cross-national research projects prior to the first EU funding period. Through these projects, which were initially not funded by the EU, FA had made several contacts in particular with Western and Northern European researchers. Some of them would later become important project partners, based on common interests and collaborative experience. An ECE representative remembers:

> "There was already a network basis. There were the British and the Finnish [partners] and FA was the German contact person [in these early transnational projects]. […] This led to the emergence of a communication network." (ECE Representative)

At the time when the GCE and the ECE initiated project proposals for FP1, FA's positioning as well-known individual expert, as GCE lead representative and as experienced European partner gave him the rare opportunity to participate in all three Leonardo projects. GCE and ECE representatives were certain that FA would help support the initial formation of a European community of researchers, by bringing partners together and by facilitating collaboration. From FA's point of view, however, this was an opportunity as much as an obligation.

> "[FA] was recommended as GCE representative, as thinker and intellectual, as interdisciplinary […] expert. […] He was the one who could bring many discussions to the table." (ECE Representative)

> "As a GCE representative and individual expert, it was clear that I would join those projects. […] It was expected of me; it would have looked strange if I had not participated." (Focal Actor)

Although FA did not take a coordinating role at this time and participated only as a senior consultant, other researchers perceived FA's multiple engagement as a signal of his longer-term interest in participating in EU-funded research.

> "[FA's multiple project engagement] indicates his sustained interest to play an important part in following project formations. […]" (GCE Representative)

As a matter of fact, FA got to know a number of new researchers through these projects, e.g. two project coordinators; at the same time, he renewed contacts with previous partners which helped him maintain project-based relationships. In effect, FA was put into a strategic position from which he could further pursue his longer-term career interests. FA was planning on becoming a professor at a well-known university, for which European project experience, seniority as European researcher and an established professional network could become decisive factors.

Importantly, however, the very network FA built up before and during FP1 did not yet have the strategic and organizational features of his project network in later funding periods. Rather, FA built up a professional network of researchers he enjoyed collaborating and sharing research interests with. In the words of Hite and Hesterly (2001), FA's network was identity-based rather than calculative-based at this stage in his entrepreneurial career. In fact, many researchers like FA, in particular those affiliated with the Leonardo programme, engaged in making project-based contacts when the young field emerged, quite in accordance with open funding policies at this time. FA, in other words, very much acted upon norms and expectations in his community. However, FA did this on a larger scale and with the perspective of advancing in his research career. Yet, the basic practice and capability of making and renewing contacts with European partners through joint projects would become and remain an integral part of the constitution and reproduction of FA's project network in the coming funding periods.

Pooling potential project partners

As mentioned above, one main feature of project networks are flexible partner pools (e.g. Windeler & Sydow, 2001; Manning, 2005). In order to access certain skill sets and to reduce uncertainty and dependency on any particular professional, project entrepreneurs build up pools of potential project partners with similar skills or backgrounds. However, case findings suggest that project entrepreneurs do not build up these pools from scratch. Rather, pools seem to result from grouping existing and new network partners according to team-building requirements. Pooling is a practice project entrepreneurs develop in response to managerial challenges, in addition to making and renewing project-based contacts.

To understand this process, I examine FA's strategic conduct, in particular in the second and third funding period, in conjunction with changing institutional conditions. At the end of FP1, an important event occurred in FA's entrepreneurial career that triggered important changes in the ways FA got involved in projects later on. FA became professor at the well-known Institute of Education and Work (IEW, name changed). From this time on, FA got the opportunity and was, in fact, expected by his partners to run European research projects himself. From 1998 onwards, FA coordinated all the EU-funded projects he got involved in (five in total).

FA's new role as coordinator needs to be seen in conjunction with his emerging position in the field and past projects. FA had gained much project experience and had developed a good reputation as project partner and professional. More than others, FA had built up a network of affiliated researchers through past collaborations. Furthermore, coming from the leading research institute GCE, FA got used to being the agenda-setter and promoter of research topics rather than the follower of others. Finally, the affiliation with another leading university research institute supported FA's aspiration to initiate and coordinate projects on a regular basis. Like the GCE, the IEW very much supports and encourages professors to get engaged and take a leading role in EU research projects. In sum, the combination of individual and organizational resources and expectations provided the basis for FA to take on a project coordinating role.

> "Many researchers try [to initiate and coordinate EU projects], but they can't handle it. Too many other duties [e.g. teaching obligations], […] too little time and the resources are not there. Beside the professional resources – having experience and being a well-known researcher – you certainly need financial resources to consolidate these projects; and not every institute can provide these resources." (GCE Representative)

Importantly, FA became professor at a time when the EU was about to cut funding budgets and introduce more rigorous project evaluation criteria. Competition for funding was increasing and only those researchers who were able to target funding priorities and involve strong partners would sustain a chance for continuous funding. FA had this ability not least because of his network of project relations he developed over time. However, FA's network would not automatically have strategic value. Its resource value has to be rather seen in conjunction with FA's future interests and partner preferences as well as changing project funding criteria.

On the one hand, FA sought to select previous project partners based on their expertise and shared interests in research topics. More concretely, FA sought funding for two project proposals dealing with higher education and social integration – a topic which targeted a funding slot in FP2. Through his network contacts, FA had built up a pool of expertise he could draw from when selecting partners for these projects.

> "[Early projects] led to the emergence of a knowledge landscape which helps better assess expertise available in Europe […] This is the pool from which new project initiatives can evolve. […] [Through those networks] you know very quickly that this or that person is an interesting partner for the project, because he or she has much experience in particular areas […]." (GCE Representative).

On the other hand, when writing proposals for these projects, FA was aware that funding programmes would favour projects which involve researchers from Western, Southern and now even Eastern European countries (see above). In particular in FP2 and FP3, funding programmes paid more attention to the regional composition of teams, while in FP1 funding policies had been more open. For FA, this was a managerial challenge:

> "[…] The funding policies have changed. In earlier times you had to involve researchers from Southern Europe, now it is Eastern Europe. You need to consider this when you apply for funding. " (Focal Actor)

FA was not in the position to change these policies; he was, however, in the position to select and pool project partners strategically in order to meet these funding criteria. At the time when FA became professor, he was fortunate to have collaborated in the past with researchers across Europe. In particular, FA – coming from a German institute – had collaborated with researchers from the UK and Scandinavia, as previous projects dealt with comparing education systems in Germany, UK and Scandinavia. However, as funding policies changed when FA became project coordinator, more recent contacts to researchers from Southern and Eastern Europe would become as valuable as longer-term ties with Scandinavian or UK researchers. This is reflected by the changing proportion of Western, Southern and Eastern European researchers in FA's project-based ego-network. While in FP1 most project partners came from Western or Northern Europe (91 %) and only some from Southern Europe (9 %), in FP2 the proportion of Southern (22 %) and Eastern Europeans (8 %) increased and rose even further in FP3 (33 %, 13 %).

FA also ran into the problem of having to find substitute partners – either because his first choice was not available or because he or she did not fit into the team, which is a typical contingency in project businesses. Later FA also made the experience that some new partners were not reliable. In both cases, FA had to find alternative partners ideally from the same geographic region as the partners to be replaced, in order not to lower chances for funding. FA remembers:

> "We were not satisfied with Researcher X [from Southern Europe], he was unreliable. We don't work with this partner any more. […] Instead, I asked Researcher Y to join in [also Southern Europe] whom I knew from the GCE quite well." (Focal Actor)

In sum, as project coordinator, FA learned to think of network relations in terms of segmented pools of potential project partners with certain qualifications and backgrounds. Pooling was a strategic response to funding requirements and to recurrent, partly unexpected contingencies in project staffing – a managerial challenge FA did not realize before becoming project coordinator himself. Over time, FA established pooling as a regular practice when recruiting project teams from his network. Importantly, pooling has not replaced the practice of making and renewing project-based contacts. Rather, these two practices have become interrelated: in order to be able to recruit or replace partners with certain qualifications or backgrounds, FA would depend on his ability to attract various researchers and to test their capabilities and reliability through collaborative projects. However, making contacts was no longer a valuable activity in itself, but has become interlinked with team requirements and FA's longer-term network strategy.

Maintaining core project partnerships

Studies in the film industry suggest that project networks are partially maintained by stable partner constellations (e.g. Manning & Sydow, 2008). That is, despite the dynamics of project businesses, strong ties may establish and sustain between particular project partners (see e.g. Sorenson & Waguespack, 2006; Ferriani et al. 2005). A main reason is the ability to exploit on established trust and collaborative routines in related project contexts (Manning & Sydow, 2008; Schwab & Miner, 2008). FA's case suggests that establishing and maintaining core project partnerships is indeed another practice project entrepreneurs learn to apply in response to managerial challenges. The effective application of this practice seems to depend on the partners' trust in the entrepreneur's ability to continuously initiate and coordinate projects.

Looking at the development of FA's ego-network, a team of core partners seems to have formed over time. In the two projects FA coordinated in FP2, the proportion of partners who previously collaborated with FA amounts to 36 %; in FP3 66 % of FA's project partners participated in previous projects. 22 % (five in total) took part in all three projects in FP3. They formed a core team around which additional partners were recruited. Most core team members come from university research institutes, which strongly support EU project engagement. At the same time, the core team is composed of researchers from different EU regions to satisfy funding criteria. A leading ECE representative describes this core team as an emerging project family:

> "Around [FA's research topics] a new project family has developed […] This is a specific constellation of people who get along very well and complement each other." (ECE Representative)

Interestingly, FA's projects in FP3 differed quite substantially in terms of their objectives. Two projects were multipliers of FP2 projects dealing with 'education and social integration'. The third project, however, dealt with gender aspects in higher education, targeting a new funding slot at this time. FA's ability to get all these projects funded is an indicator of the high functional flexibility (Atkinson, 1984) of FA's core team. This means that the team's professional expertise allows FA to jump on new funding themes as they come along. However, FA would also recruit complementary partners who can bring in special expertise needed for particular projects. For the third FP3 project, for example, FA needed a specialist on gender issues whom he recruited from his institute. The core team, however, was the same as in the other two projects.

Interestingly, by maintaining a core team, FA to some extent contradicted EU funding policies which favour stand-alone projects involving large teams of researchers, including newcomers, from across Europe. That is, rather than following EU funding rules, in this case FA chose and managed to resist them. This is because FA was facing high coordination costs and risks involved with integrating new partners. Also, FA realized that smaller teams can help manage projects successfully on a limited and potentially decreasing financial budget:

> "I don't think that large networks [as promoted by EU funding policies] really work. […] I want to stick to core partnerships because I made bad experiences with new partners. […]" (Focal Actor)

> "[Large project teams and networks] of course make collaboration much more difficult. We [coordinators] try to avoid those mega networks, because they are not appropriate for an intensive research collaboration. You often end up having very limited financial resources. Hence, working in a big team is not as good as working with five European partners." (GCE Representative)

At the same time, FA learned that teaming up with strong, experienced partners could actually increase chances for funding. This is because experienced partners could help him develop projects targeting EU priorities under given budget constraints. This, in turn, helped him legitimize this strategy. In more abstract terms, FA responded to contradicting policies by setting and probing strategic priorities (see in general Seo & Creed, 2002; Oliver, 1991). FA thereby promoted a process of professionalization of project organizing in his field by focusing on meeting particular funding criteria – quality and depth of research – while to some extent neglecting other criteria – number of new partners or size of research team.

> "Part of the professionalization process was that people focused more strongly on their own topics, but also looked more strategically for strong partners, in order to be able to deal with research questions more deeply, involving new project designs and creative solutions." (GCE Representative)

Yet, the strategy of maintaining core project partnerships was not simply at FA's discretion. Rather it was an emerging strategy FA pursued from his changing position vis-à-vis research partners. When FA became project initiator in FP2, getting projects funded was by itself a big success, given the increasing competition for funding. Yet, it was not foreseeable if and for how many projects FA would apply and get funding in the future. However, based on his success with his first two projects in FP2, FA did apply for follow-up funding. More than before, a longer-term perspective of collaboration on different – both parallel and subsequent – projects became apparent to FA and his research partners. Given the difficult funding situation and high uncertainty in the field, this longer-term perspective was highly welcomed by FA's partners:

> "FA's partners are very happy to have the opportunity to repeatedly take part in EU projects. Without FA this opportunity would probably not exist." (Former Team Partner of FA's)

As a result, in addition to being a project coordinator, FA was now becoming a longer term project network coordinator, responsible for managing multiple projects and teams within and beyond funding periods. FA puts it this way:

> "As I was encouraged to become coordinator myself after leaving GCE, and as I have done this job for quite a while, my position as coordinator is established and I am recognized as an important factor in the network." (Focal Actor)

As FA established his position as project network coordinator, he further transformed part of his personal network: In FP2, FA would see former research partners primarily as potential project team members, based on regional origin, common research interests and past collaborative experience. Since FP3, some of these partners have become core team – or 'family' – members FA can continuously rely on when applying for EU projects. In turn, FA is now seen by his partners not just as a one-time project coordinator in need of their support, but as a project network coordinator relying on their contribution for a longer, indefinite period of time. As a side effect, FA has contributed to the institutionalization of a successful relational practice which soon diffused across the field: building and maintaining core project partnerships.

> "After 2000, a reorientation began. Instead of these big constellations in earlier times, more 'local' networks have emerged. It all started on a broad basis, now they all work with core partnerships." (ECE Representative)

Again, the practice of maintaining core partnerships has to be seen in conjunction with the two other practices: pooling potential project partners and making/renewing project-based contacts. Every time a core partner is unable to join a particular project or – for whatever reason – decides not to participate in future projects, he or she needs to be replaced. To do so, FA needs to keep a small latent pool of substitute partners. This, again, implies that FA needs to make contacts with and somehow test the qualification and reliability of new researchers as potential project partners. However, by now, FA does not just rely on his personal contacts, but can recruit from his trusted core team members' networks and has, in fact, done so several times.

DISCUSSION AND CONCLUSION

This paper has examined the process of project network formation from the perspective of a project entrepreneur, using structuration theory as a sensitizing device. Findings suggest that project networks emerge from the combined application of certain relational practices project entrepreneurs learn to apply from their changing roles and status positions in the field, within particular projects and the network itself (see Figure 3). These practices, which I discuss in more detail below, serve as building blocks in forming and maintaining project-based relations and in increasing the coordination capacity of a project network as an organizational form, in particular the capacity to recruit, select, allocate, and retain project partners over time.

Insert Figure 3

The study suggests that the most basic practice project entrepreneurs apply is *making and renewing project-based contacts* (see Figure 3). In line with studies in the film and media industry (e.g. Faulkner & Anderson, 1987; Jones, 1996; Grabher, 2004), the case shows that by taking part in multiple projects over time project entrepreneurs, like FA, make, keep and renew contacts with other professionals. Importantly, entrepreneurs do not need to be in a project coordinating role to engage in this basic practice. In fact, FA started building his personal network through different projects long before he became project coordinator. Likewise, in the film industry, many film producers often build up relationships with script writers and directors they know from college or early projects in their careers. Through these projects, they build up network contacts along with their own reputation – as professional and project partner (see e.g. Blair, 2001; Jones, 1996). The case however also shows that the ability to continuously take part in projects may be supported by organizational incentives and expectations.

Many professionals maintain their networks by making and renewing project-based contacts throughout their professional careers (Jones, 1996). Some, however, advance in their careers from project partner to coordinator, driven e.g. by their career aspirations, project experience, and organizational expectations. This may trigger a process by which they gradually transform part of their professional networks into strategically coordinated project networks. When FA became project coordinator, he first engaged in *pooling potential project partners* (see Figure 3). He began to address network contacts as potential project partners according to team-building principles in his field, e.g. the principle of recruiting partners from different EU regions. FA also learned to build up pools of substitute European project partners with similar expertise from the same regions to manage contingencies in project staffing. In the film industry, similarly, film producers maintain flexible pools of e.g. writers, directors and camera operators with certain qualifications (e.g. Manning, 2005). The case shows that pooling has a coordinating effect in the network formation process for it helps select and differentiate network contacts by team position. The effectiveness of this practice, however, relies on its combination with the practice of making and renewing project-based contacts which now becomes more strategically geared towards recruiting and maintaining network partners for certain team positions.

With early successes as project coordinator, FA engaged in another practice – *maintaining core project partnerships* – thereby further increasing the coordination capacity of his project network (see Figure 3). FA realized that search and coordination costs can be reduced by maintaining core project partners who can work on parallel and subsequent related projects. FA also experienced that new partners are less reliable, which further encouraged him to maintain core project partnerships. Interestingly, FA mainly learned by running into problems, e.g. reliability of new partners, while lacking the opportunity to learn from other project coordinators. However, he arrived at a managerial solution that is also quite common in other project businesses, such as the film industry where stable team constellations develop, e.g. between producers, clients and script writers (Manning & Sydow, 2008; Ferriani et al. 2005). Yet, only in combination with the other two practices, maintaining core project partnerships becomes an effective network coordinating practice. This is because every time core team partners are not available, substitute partners need to be recruited from the network pool.

These findings have important implications for our understanding of entrepreneurial careers and network formation. They support the general idea that entrepreneurial careers, network relations and identities within these networks co-evolve over time (Ibarra et al., 2005; Jones, 2001; Padgett & Ansell, 1993). As FA engages in making and renewing contacts, pooling partners and maintaining core partnerships he also establishes himself as project network coordinator and associates his role with these practices. This is what Giddens (1984) calls the mutual association of position and practice, or: ‘position-practice relation’. Importantly, the ability of FA to act as network coordinator, using these practices, derives from his ability to combine resources from multiple social positions – his formal authority as project coordinator; his discretion over budgets, expertise and support staff as professor; his network contacts to potential project partners; and his field reputation as professional. As FA combines these resources over time to build up and manage his project network, he also establishes and reproduces resource properties of network coordinating positions in his field. In other words, project networks in this field are likely to be coordinated by researchers whose status positions are similar to FA’s.

This study, however, also shifts attention from structural to processual and institutional dimensions of network formation, beyond the analysis of weak vs. strong ties, structural holes and other analytical categories. For example, rather than merely ‘identifying’ strong ties, a relational practice perspective may help understand how strong ties are constituted in a particular context, e.g. by renewing project-based contacts and by maintaining core partnerships. Further, it brings us closer to Salancik’s (1995) call for organizational network research that focuses “[not just] on the actions of individual organizations [but] on the organization of their actions” (p. 345). For example, the formation of project networks as organizational forms is not just about an emerging constellation of project-based ties, but about the increasing potential to coordinate these ties in the light of past and the shadow of future projects. In more general, I would welcome the elaboration of a practice paradigm in network research – in analogy perhaps to strategy research (Jarzabkowski et al, 2007) and project organizing research (Hällgren & Wilson, 2008). A practice paradigm may help us better understand the actual activities and strategies of network agents in particular contexts and their contribution to the emergence and reproduction of particular network forms of organizing.

This study also has some limitations which need to be addressed in future research. First, it is based on a singular case which cannot automatically inform future research. Analogies with film production networks can help point out common managerial challenges in project businesses; however, comparative studies are needed to refine the relational practice model of project network formation developed in this paper. Second, this study focused very much on the entrepreneurial strategy of the focal actor, partly due to the limited availability of qualitative data on other network participants. Other studies should pay more attention to the reciprocal role of network partners, while acknowledging the strategic role entrepreneurs play in network formation processes. Third, the very application of structuration theory as an analytical device can be problematic. Giddens conceptualizes agency and structure as a duality, which makes it difficult to disentangle these analytical dimensions (see e.g. Mutch et al., 2006; Pozzebon & Pinsonneault, 2005). Structuration theory, for example, does not explain well why actors act *differently* in response to structural conditions. Therefore, I would welcome the use of more explanatory, yet complementary theories to examine why for example project entrepreneurs engage in certain relational practices and not in others. To do so, I would encourage both qualitative and quantitative empirical studies that take account of the relational and institutional embeddedness of network agents and their network activities.

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FIGURES AND TABLES

Figure 1: Project Network as Organizational Form

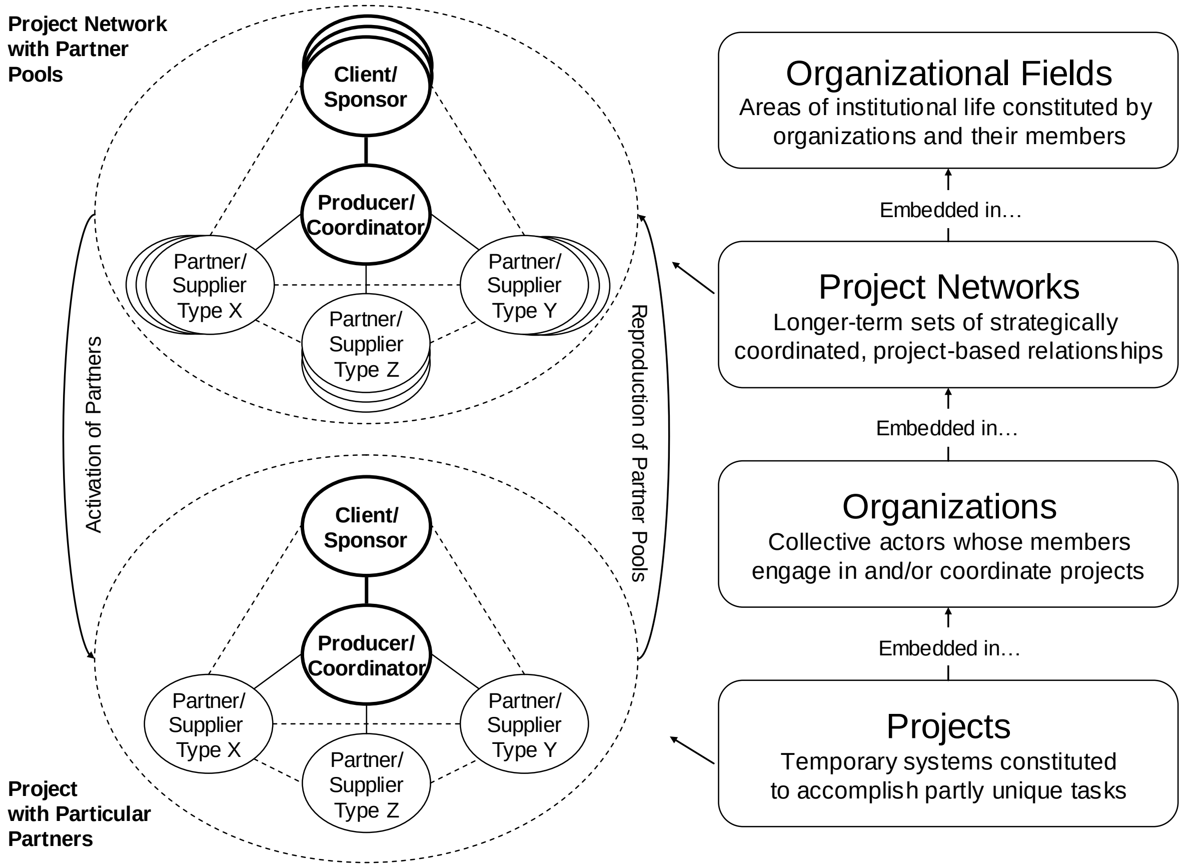
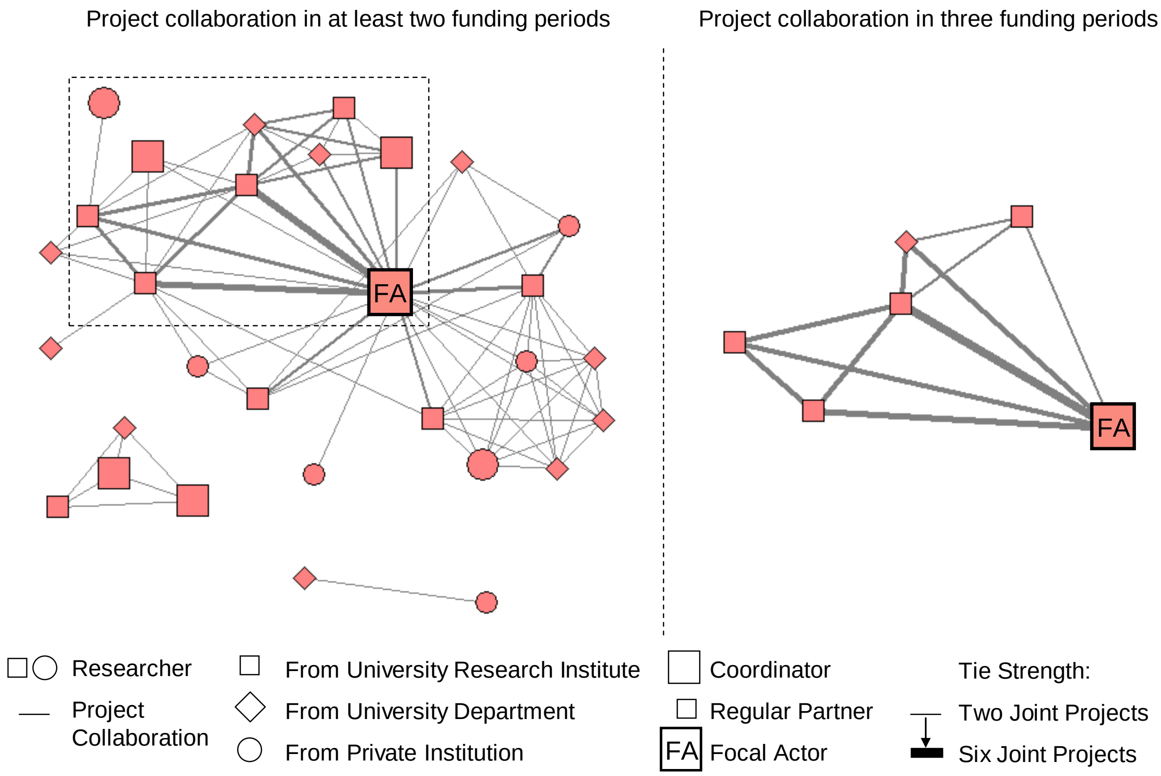


Figure 2: Repeated Project Collaboration between European Researchers*



* Using UCINET 6.0/Netdraw 2.0 (Borgatti et al. 2002)

Figure 3: Relational Practices as Building Blocks of Project Network Formation