MPM - Master of Project Management

Governance in inter-organizational project networks

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Abstract

This study is focused on governance in inter-organizational project networks. It also promotes a new framework on governance structure in such projects. Inter-organizational projects can be characterized by set of independent actors carrying out temporary and goal-driven activity that is created for specific purpose, these actors can also be embedded in longer-term relationship where they are involved in multiple projects. Inter-organizational projects are often complex in nature and tend to have it's own kind of governance structure that differs from hierarchies often found in in-house projects. However, little is known how the governance structure is in these projects.

By conducting a qualitative single-case study of large inter-organizational EU funded research project and comparing with existing literature, it was possible to promote a new framework for governance structure in inter-organizational projects. The findings suggest that inter-organizational projects are highly based on contractual agreement, but that agreement has to be able to be influenced by a joint body of all participants.

The governance structure is coordinated by central organization of the network that builds consensus through compromise and negotiations. Joint body of selected actors then form a management group that is responsible of decision-making based on the contractual agreement. These findings suits both single temporary inter-organizational project and project networks that sustain beyond singular project. However, the purpose of the study was to gain insight from a specific case that could be compared to previous literature. This study is therefore not intended for drawing highly generalizable conclusions on governance structure in inter-organizational project networks.
1 Introduction

In R&D and academic research environment, where the knowledge base is complicated and extensive, single organizations seldom have all of the capacity needed for innovative process. Collaboration between R&D and academic research organizations has been known and observed for the last two decades (Powell & Grodal, 2005; Powell, Koput, & Smith-Doerr, 1996). External funding, high degree of specialization and professionalization, that is often embedded the field of R&D and academic research, has promoted a project-based form of research collaboration between organizations (Katz & Martin, 1997). Collaborative research projects usually involve multiple participants from legally independent organizations that participate in external funded, time-constrained project with the aim to produce new knowledge (Manning, 2017).

These inter-organizational projects are often complex in nature and have challenged number of existing understandings on how project are managed. (Söderlund, 2004). First, inter-organizational relationship tend to have it's own kind of governance structure that differs from hierarchies often found in permanent organizations. (Sydow & Braun, 2018). Second, in these projects there is a need for cooperation over organizational boundaries that is based on trust which develops between participants (Maurer, 2010).

Organizations that take part in such inter-organizational projects often have their own, and sometimes controversial, objectives, interests and expectation to the project (Artto & Kujala, 2008). This can result in social dilemma situations such as where a single individual participant can receive higher payoff from a defecting choice than collaborating choice but all actors would be better off if all of them would collaborate in the project (Leufkens & Noorderhaven, 2011). Also there is often a hesitation to share knowledge and information in these projects (Loebbecke, van Fenema, & Powell, 2016).

This paper is firstly intended to explore management of successful inter-organizational research project with the aim to answer the question of 'how are inter-organizational project networks governed in research projects'. Secondly, in a theory-elaborating research approach where the results of this paper are compared to existing literature it was possible to develop a framework of governance structure for inter-organizational project networks.

This paper is structured as follows. First there is an introduction on theoretical background on inter-organizational project networks, how they are governed and managed. The method, case content and data collection are explained in the following section. Then the key findings are presented focusing on governance structure and management activities of the case-study. These findings are then discussed in the light of existing literature where new framework of governance structure is presented. This paper is concluded by drawing attention to the limits of this study and suggestions for future research.
2 Theoretical background

2.1 Inter-organizational project networks

Hobday (2000) defined the project based organization (PBO) as an organization where "the project is the primary unit for production organization, innovation and competition" (Hobday, 2000, p. 874). Projects are usually embedded in 'multi-project' environment, where a single project is not in isolation but often in context of the organizational environment and it's history (Engwall, 2003). Also, organizations involved in project activity are often embedded in networks of inter-organizational relationship working in collaboration on single or more projects (Söderlund, 2004).

This 'multiple' form of project has become the perspective of 'project business' that has been defined as "the part of business that relates directly or indirectly to projects with a purpose to achieve objectives of a firm or several firm" (Artto & Wikström, 2005, p. 351). Project business is illustrated in Fig 1 as a framework with four distinctive areas where single or several projects cross activities of single or several organizations (Artto & Kujala, 2008; Söderlund, 2004). Projects in this framework is broken down in four categories; (1) project management where in-house project is conducted in isolation, (2) management of PBO where projects are the primary unit of the organization, this is often noticing in organizations that have establish project offices, (3) management of inter-organizational project where the project is conducted by multiple organizations as a temporary organization, (4) management of project network where organizations are embedded in long-lasting relationship and conduct multiple projects that often are linked together by context of the organizational field that members of the network are part of (Artto & Kujala, 2008; Manning, 2010; Söderlund, 2004).

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<tr>
<th>Single organization</th>
<th>Many organizations</th>
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<tr>
<td><strong>Single project</strong></td>
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<td>Project management</td>
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<td>Management of project based organization</td>
<td>Management of project network</td>
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Fig. 1 Project business framework. Derived from Artto & Kujala (2008) and Söderlund (2004).
Inter-organizational project can be characterized by a set of independent actors carrying out temporary and goal-driven activity that is created for a specific purpose (von Danwitz, 2018). Studies on inter-organizational projects have challenged the view of project management procedures. As for such they tend to lack traditional hierarchical structures found in in-house projects and there is a need for cooperation and trust between organizational boundaries (Bakker, Knoben, de Vries, & Oerlemans, 2011).

There are two different understandings on inter-organizational projects, at one hand there is emphasis on inter-organizational projects as temporary endeavor (Hellgren & Stjernberg, 1995; Lundin & Söderholm, 1995) and on the other hand they can be seen as a series of projects that are interconnected by inter-organizational relationship (DeFillippi & Sydow, 2016; Manning, 2010).

Lundin and Söderholm (1995) were first to come up with the 'temporary organization' that has been associated with inter-organizational projects. In their work they developed the 4T-framework which consists of time, task, team and transition (Lundin & Söderholm, 1995). However, this framework was later modified by Bakker (2010) who found that transition played only a minor role but proposed instead the form of 'context' where the temporary organization relates on one hand to the permanent organization and on the other hand to a wider social context (Bakker, 2010). This is in line with the findings by Engwall (2003) that projects are often linked and in context by the social surroundings and the organizational environment.

Manning (2017) proposes the 'project network organization' (PNO) which is "composed of legally independent, yet operationally interdependent individuals and organizations who maintain longer-term collaborative relationship beyond the time limit of particular project" (Manning, 2017 p. 1399). This indicates that the inter-organizational relationship is more than only a temporary endeavor and has started to emulate a project-based organization (DeFillippi & Sydow, 2016).

2.2 Inter-organizational project governance

Governance in inter-organizational projects is often complex, as these projects tend to be polycentric in the meaning that they often have multiple centers of authority. This is because inter-organizational networks are most often embedded both in corporate governance of each organization of the network and also governance of the network as a whole (DeFillippi & Sydow, 2016). Hence, inter-organizational project governance can therefore be viewed different when looked at externally from an organizational perspective or internally from the project perspective (Ahola, Ruuska, Artto, & Kujala, 2014), as can be seen in Fig. 2.

Hellgren and Stjernberg (1995) define three distinctive characteristics of inter-organizational project networks and how they are structured:

- Project network is defined as (1) a set of relations where no single actor may act as a legitimate authority for the network as a whole; (2) where the network is open in the sense that there are no definite criteria by which the boundary of the network may be identified and controlled; and (3) where the network is temporally limited,
dynamically changing and (partially) reconstructed from one project to the next (Hellgren & Stjernberg, 1995, p. 379).

This definition is similar to the 'network approach' defined by Håkansson and Snehota (1995) where "a network has no clear boundaries, nor any centre or apex. It exists as an 'organization' in terms of a certain logic affecting the ordering of activities, resources and actors" (Håkansson & Snehota, 1995, p. 40).

![Project governance as external to any specific project](image)

**Fig. 2. Internal and external view of project governance** (Ahola et al., 2014)

However, recent studies suggest that project networks have greater governance structure than previously thought, where the goal of the governance structure is to coordinate the actors involved in the project (DeFillippi & Sydow, 2016; Manning, 2010). Provan and Kenis (2008) promote three forms of governance in networks: (1) network governance that is be shared among the participants; (2) a lead organization may govern the network and (3) a network administrative organization (NAO) may govern the network. NAO is a dedicated organization which is responsible for coordination of the network (Provan & Kenis, 2008). Effectiveness of those three forms of governance structure have to comply with the complexity of the network, where on the one hand a shared governance can be suitable for small and simple networks and on the other hand a NAO is appropriate in larger and more dynamic networks where it is harder to establish shared consensus. A lead organization is position in between those two form of governance (DeFillippi & Sydow, 2016; Provan & Kenis, 2008).

Manning (2010) suggests project networks as organizational form called project network organizations (PNO). These project organizations are structured and coordinated around pools of potential project partners (Manning, 2010). Projects are temporary from of organization embedded in more permanent network of core partners. This makes the PNO start to behave in a sense like PBO as the PNO features
some coordinating capacity beyond the time limit of the project (Manning, 2017), as seen in Fig. 3.

Fig. 3. *Project network as a organizational form* (Manning, 2010)

Manning (2010) study on EU funded academic research projects suggest that researchers pools potential project partners by the EU funding criteria. These partners pools are then coordinated by the project entrepreneur, that is the organization that initially promotes the project. When successful project has ended there is another practice for the project entrepreneur, which is to maintain the core project partnership in order to reduce cost of searching and coordinating new partners in future projects.

2.3 Management in project networks

Management in inter-organizational projects have to address the the notion that the multiple organizations that take part in such network often have their own, and sometimes controversial, objectives, interests and expectation to the project (Artto & Kujala, 2008). This can result in social dilemma situations such as where a single individual actor can receive higher payoff from a defecting choice than collaborating choice but all actors would be better off if all of them would collaborate in the project (Leufkens & Noorderhaven, 2011). Also there is often a hesitation to share knowledge and information between actors (Loebbecke et al., 2016).

This complex nature of inter-organizational projects means that managing and controlling them can be a difficult task. Control in project networks can be distinguish
by contractual control and relationship control (DeFillippi & Sydow, 2016). A study of collaboration in R&D project suggested that a detailed contract alone is not able to guaranty successful collaboration and that a flexible contract is better to prevent disagreements in the collaboration (Blomqvist, Hurmelinna, & Seppänen, 2005). Another study shows that a joint use of contractual and relationship control could enhance cooperative performance only when contractual control were use in moderation (Huang, Cheng, & Tseng, 2014).

Relationship control is based on trust and reciprocity and thus have to be earned (DeFillippi & Sydow, 2016) and according to Nahapiet and Goshal (1998) they can be operationalized through three dimension: (1) structural, (2) relational and (3) cognitive (Nahapiet & Ghoshal, 1998). The structural dimension refers to the social interaction ties and actor connectivity in the network, the relation dimension refers to trust in the network and trustworthiness of actors and the cognitive dimension reflects to the shared vision and common understanding (Tsai & Ghoshal, 1998).

There has been identified four management activities that affect five network attributes within these three dimensions that enhances value creation in project networks (Matinheikki, Artto, Peltokorpi, & Rajala, 2016), as can be seen in Fig 4.

![Fig. 4 Management activities and attributes in inter-organizational network (Matinheikki et al., 2016)](image)

Often in inter-organizational projects there is uncertainty of who should take the leading role. By defining the leading role in beginning of the project strengthens the network structural dimension by centralizing around core actor. The actor in the leading role should though however try to build consensus through compromise and negotiations rather than through dictating rules and power, especially when networks are dense (Matinheikki et al., 2016; Rowley, 1997).

By having a joint inter-organizational coordination bodies such as advisory or managerial board increases the density of the network. The density of the network
helps to facilitate open communications and flow of information between actors (Burt, 2000; Matinheikki et al., 2016). Coordination bodies can also affect relation attributes of the network by building trust and straighten ties among actors. Frequent meetings and engagement of new actors also contributes in building trust and strengthen ties between actors (Matinheikki et al., 2016).

Actor engagement and empowerment not only contributes in trust building and tie strength but also has an impact in the cognitive dimension by create shared vision of the project. As project participant often have their own cognitive perception on the project it is important to hear other vision and goals in order to avoid future conflicts. Active actor engagement and empowerment in the decision-making process can develop shared vision within the project which affect the possibility of success by lowering possible conflicts and forming network of dedicated actors (Matinheikki et al., 2016).

3 Method

In order to gain deeper understanding on governance in inter-organizational research projects a qualitative single-case study was conducted of a large international EU funded inter-organizational academic research project. The case study offered qualitative evidence on the governance structure and management activity of inter-organizational project.

The purpose of the study was to gain insight from a specific case that could be compared to previous literature on inter-organizational project networks, instead of drawing highly generalizable conclusions.

3.1 Case Content

The case consisted of 13 participant actors that represented four management policies in their field of activity in Europe. There were nine research and technological development organizations, two small to medium size enterprises, one international organization and one non-departmental public body. There were no additional participants or subcontracted participants that took part of the project.

The aim of the case project was to conduct research that could benefit EU policy makers on new policies concerning sustainable exploitation of renewable natural resources within EU territory. The total budget of the project was estimated approx. 3.700.000 € where the EU contributed 3.000.000 € in funding. The project took 36 months to finish.

3.2 Data collection and analysis

In order to understand how inter-organizational projects are governed there was collected data through semi-structured interviews with representative of the lead organization of the project. In addition, documents from the project such as audit reports along with other open-sourced documents of the project were used as
information for the findings of this study. Interviews were conducted at the site of the lead organization. Information gathered from the interviews and documents were subsequently assessed in order with the literature findings on the subject.

4 Findings

All participant actors in the case project had clear and specific roles from the start. Some of the participants had worked on previous projects together before, and there was a sense of core project partnership between some of the actors. This partnership had the sense of being embedded in longer-term relationships that would last longer than the timescale of the particular project. However, there were no official hierarchy or governmental structure of these longer-term relationships between core partners. Rather, the relationship between these could be described as loose network of core partners that worked on more structured temporary projects from time to time.

4.1 Project governance

The project was set up as a temporary organization that was separated from each participant permanent organization. This temporary organization was called 'the consortium'. The governance structure was called the 'consortium management' and can be seen in Fig. 5.

![Consortium Management Diagram](image)

Fig. 5. Project governance in the case study.

The governance structure of the consortium consisted of 4 main components, (1) the project coordinator (PCO), (2) the partner management group (PMG), (3) scientific committee (SC) and (4) partner managers. In addition there was the European Commission overseeing the project process and funding. The responsibilities for project management task were divided between the project coordinator (PCO), the partner management group (PMG) and the project administration manager (PAM). The PAM was part of the PMG and had the responsibility to lead the management
activities of the PMG. Both the PCO and the PAM came from the lead organization of the project.

The role of the PCO was to coordinate all information between all of the participant organizations, the SC and the PMG in the project, the PCO was also responsible for presenting reports to the Commission and disseminate all communication received from the Commission to all project partners.

The PMG consisted of selected actors of the project network, with the aim of having the group as diversified as possible. However, both the PAM and the PCO were part of the PMG. The role of the PMG was to be responsible for decision-making according to the consortium/contract agreement. The PMG met at least on every three-month interval.

The SC consists of the PCO and the work package leaders. The main responsibility of the SC was to have a coordination body between work package leaders. The SC also set the academic standards on reports in the project and had to approve the final report before distribution.

Partner managers were representative persons from each participating organization in the project. These representatives were in charge of administrative relationship with the PCO and could vote on behalf of their organization in annual meetings. These representatives were also responsible for reports, financial statements and project progress that happened within their organizations.

4.2 Management

Both the project coordinator (PCO) and the project administrative manager (PAM) came from the lead organization that initially promoted the project. Also there was assembled a body with other actor organizations of the project that was responsible to for making decisions about management issues in the project. This body was called the 'partner management group' (PMG) and met every three months. There was also general assembly meetings on yearly basis were each participant organization could have influence on the project and it's management.

Because of the international setting of the project, frequent physical meetings were not that common, the use of electronic communication via Skype, e-mail and specially design webpage made communication somewhat easier. However it was noted that virtual meetings did not completely substitute physical meetings in trust and tie building.

Some participant actors of the project had former work related relationship through cooperating on project in the past where other participants had no former working relationship with other members of the project. There were also cultural differences between project members as they came from different corners of Europe. This created some communicational difficulty were some members that had little or no former relationship with other actors of the project and also had different culture background were shy to communicate with other actors of the project. This was tackled by
encourage these 'new' members of the project network to be more active in the project.

The project was highly contractual and the initial contract of project was refereed as 'the bible'. As the objective of this project was to acquire new knowledge that didn't produce property such as patent or new product, but rather information that would be open to the public made the contract agreement somewhat easier to follow. Leaders on work packages had clear objects in the short and medium term from the start of the project and were responsible on coordinating their work within the work package.

One of the main issues enforcing the contract was not to make sure that participant did what was expected of them but rather that they didn't do too much or that they didn't divide from the work that had been planed.

5 Discussion and conclusion

This study aimed to gain deeper understanding on governance in inter-organizational projects. This was done by examine an academic research project where 13 independent organizations participated on equal terms. This provides evidence on how successful governance structure is formed in inter-organizational project.

When looked at the case project there was great emphasis on coordination between participants and that each actor could have a saying in the project. When compared to the three forms of network governance promoted by Provan and Kenis (2008) the project governance of the case project can be portrait as that the lead organization had the main role of coordinating the project where the decision-making was though conduct by joint body of participating actors. This can be seen in the general assembly meetings and the PMG activity. However the role of the PMG can be associated with the role of 'network administrative organization' that is a designated body who manages the managerial activity and decision making of the project. Therefore the governance structure of the case project is not conducted just by one form of network governance promoted by Provan and Kenis (2008) but rather as a combination of those forms. The governance of the case project can be defined as 'partly shared governance where the lead organization coordinates the project decisions made by joint body of participating actors'.

By assigning lead roles such as the PCO and PAM to the organization that initially pushed for the project contributes to the findings by Matinheikki et al (2016) in the sense that creating dense centralized network contributes to open communication and flow of information between actors. Also by having joint bodies such as the PMG and general assembly meetings creates environment that enhances trust building and creates stronger ties between actors. By how the PMG was assembled with the priority to have it as diversified as possible, that is to have both members that already had history of working together and also newer members of the network, contributed to better engagement of new actors in the decision making process and is in line with Matinheikki et al. (2016) for promoting shared vision in the project. There were though some limitations in how meetings were conducted as they often went through electronic means, such as Skype. It was noted in the interview that such meetings did not substitute direct meetings where people can discuss face to face. This has to have
in mind when thought of the quality of those meeting in accord to build trust and strengthen ties (Matinheikki et al., 2016)

By combining the literature information and how the governal structure was in the case project it is possible to suggest a new framework of inter-organizational governal structure, as seen in Fig. 6. This framework can work regardless if the project is seen as 'temporary organization' (Hellgren & Stjernberg, 1995; Lundin & Söderholm, 1995) or if it is embedded in longer-term 'project network' relationship (Manning, 2010) and therefore can be seen as a general process for inter-organizational project networks. This new framework combines some of the management activity proposed by Matinheikki et al (2016) in the overall governance structure of the inter-organizational project network.

![Fig. 6. Framework of inter-organizational governance structure.](image)

At the top of the framework is the 'consortium agreement' that is an agreement or contract that all participating actors agree to follow through the lifetime of the project. However this 'agreement' can be altered or changed through 'general assembly' meeting of partner representatives. Each representative actor of the project makes up the 'partner representative group' that makes up the 'general assembly' meetings. These representatives are also responsible for the work of their organization according to the 'consortium agreement'. The 'partner management group' is made up by all or selected members of the consortium and is responsible of decisions making and management activities of the project.
The 'work package committee' represent work package leaders that are responsible of delivering each work package, the work package does not need to match the number of actors in the project or that each actor does not need to be responsible of a work package. The governance structure is then centralized around 'coordinative body' that is given to the lead organization in the network. The role of the coordinator is to have free flow of communication and information between actors and governance bodies of the project. The coordinator should build consensus through compromise and negotiations rather than through dictating rules and power.

A sponsor or financer can be added to this framework in order to verify and approve the consortium agreement for financial supply. It has to bear in mind though that a sponsor is not needed in the governance structure. The project participants can share resources and finance the project on their own and therefore limit the need for an outside financial sponsor.

6 Limitations and future research

The limitation of this study is that it was based on a single case. Therefore it is impossible to generalize the result on all inter-organizational projects. There is also no guarantee that the framework presented in this paper will lead to success in other project settings.

It would be beneficial to study if other cases to find if there is some similarity to the governance structure that is proposed by this paper. Also it would be suggested that the framework presented in this paper would be studied in inter-organizational projects, both in the field of R&D and academic research but also in other types of inter-organizational projects.
References


