

MANAGEMENT AND ORCHESTRATION IN EMERGING BUSINESS NETS
– THE CASE OF MOBILE TV

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Abstract

In this study, we empirically illustrate such aspects of coordination of emerging business nets that have mainly been approached theoretically in earlier research on industrial networks. In particular, we note that aligning and matching network type and coordination type is relevant. Appropriate form of coordination for different kind of innovation generating networks can be found from the continuum formed between management and orchestration. In the case of nets aiming at creating technological standard and commercial applications, orchestration and management both have their distinct roles in coordination, where the former is used throughout the project to communicate vision and build social capital, and the latter is used to coordinate those phases that reside closer to commercialization of innovations.

Keywords: Orchestration, Management, Emerging business net, Network

Introduction

It has become quite typical in present day business environment that knowledge and ideas are extracted from multiple sources and that firms' innovation activities are increasingly networked (Chesbrough 2003, Perks and Jeffery 2006). These activities also include collaboration between rival firms (see e.g. Nieto and Santamaria 2007, Quintana-García and Benavides-Velasco 2004, Tether 2002). Bringing together different, including competing, actors creates its own challenges: all the modes of cooperation around innovation are full of paradoxes and contradictions. For example, such activities simultaneously incorporate autonomy and interdependence, additional resources but limited freedom, influencing and being influenced, (e.g., Håkansson and Ford 2002) stability and dynamism, and hiding core knowledge and sharing it. Considering this, it can be said that networking inherently brings with it the search of balance and the need for compromises. Such elements, for their part, make certain amount of coordination and management necessary for guiding the networked innovation activities.

However, also the coordination of such networks that (hold the potential to) generate new business may be quite paradoxical. Balancing centralization and decentralization, formality and informality, and permanent and ad-hoc strategic approaches is needed (see Moenaert et al. 2000). Further, decentralization, for example, could even be taken to the level where it can be questioned, to what extent management is possible in the first place (see Ritter et al. 2004). For example, some authors (Jarillo; 1988, see also Edwarsson et al., 1995; Gulati, 1998; Gulati et al., 2000) have suggested that management-like control indeed is possible, while others (including Håkansson and Ford 2002) have taken networks as such adaptive systems that cannot be centrally directed (Ritter et al. 2004).

This debate stems at least partly from the fact that there is a wide variety of different kinds of networks. Indeed, building new businesses and creating new innovations can take place in varying aggregations of organizations. Differences emerge in terms of how many actors are involved, what the power balance between them is, how structured and organized knowledge exchange is, and what the aims of the network (e.g., radical vs. incremental, product vs. service innovation) are, to give few examples. Innovation producing networks can thus be categorized in multiple ways (see, e.g., Möller and Rajala 2007). The different characteristics associated to different networks have an effect on the ways in which it is possible and reasonable to manage or steer the innovation generating network from the viewpoint of a single firm.

In this study, we examine *how the characteristics of the network and its management can be aligned*. It is noted that the possibilities of a company to manage emerging business nets vary moving along the continuum created by the different types of networks and nets (we use the terms “network” and “net” throughout this paper as synonyms describing the constellations that firm and its stakeholders consist of and belong to). Thus, it first needs to be recognized which type of a net we are dealing with, and then to acknowledge to what extent and how an individual actor (or group of actors) can affect the direction that the net moves to. Regarding the latter part, we categorize this affecting possibility into two types of coordination – “management” and “orchestration”, and we argue that companies operating in different types of emerging business nets can put their bets on management or orchestration, or a hybrid formed by them.

Management of nets refers here to having explicit goals and timetables, as well as systems for coordinated collaboration and motivating specific partners, for example (see, e.g., Möller and Rajala 2007). It also includes the idea of having some kind of leadership. The leader can set the rules (in collaboration with others) that are needed in order to reach the wanted outcomes, and monitor following those rules. *Orchestration* (see, e.g., Dhanaraj and Parkhe 2006), on the other hand, refers to activities that enable (but do not dictate) coordination of the innovation network and bringing about the innovation outputs. From our point of view, it is not about directing the network, but more about discreetly influencing other firms and making sure that the premises for knowledge exchange, value appropriation and innovation are in place. Here, management and orchestration can be seen as two complementary ways for a firm to direct innovation generating networks, the former focusing on “*coordination by commanding*”, and the latter focusing on “*coordination by enabling*”.

Examination of a case study of Finnish Mobile TV (FIMTV) provides empirical evidence on the topic. Based on the data, we determine the net/network type of the aggregation of the actors in the case, and examine how the type of net aiming at creating dominant technological standard and commercialising it is managed and/or orchestrated. This exercise allows us to gain evidence of how the emerging business nets can be coordinated. Our case also brings forth the challenges that cooptation (collaboration between rivals) brings along.

Different kinds of emerging business nets

Networks can take a range of forms, and they have been categorized in prior literature according to different characteristics (see e.g., Castells 1996, Achrol 1997 [internal market, vertical market, and intermarket networks], de Man 2004 [quasi-integration, supply/distribution oriented, and technology oriented networks], Powell and Grodal 2005 [primordial, supply chain, invisible college, and strategic networks], Newman et al. 2006 [social, technological, biological, and information

networks], de Man 2008 [social capital, structural holes, and modular networks]). For determining the most applicable coordination type in networks, the classification of Möller and Rajala (2007) is particularly useful, as they categorize networks according to their business related aims. They present three main types of networks: Current business networks (which are divided into vertical demand-supply nets and horizontal market nets), business renewal nets (business renewal nets and customer solution nets) and emerging business nets.

Focusing on the last of the mentioned types – networks that (hold the potential to) create new business and innovations – tree types of *emerging business nets* have been identified by Möller and Rajala (2007). First, there are intentionally created innovative networks of varying actors such as universities, research institutions, and research organizations of corporations. These are called Innovation Networks (INs). Second, inter-firm networks focusing on technological innovations and creating dominant technological designs are called Dominant Design Nets (DDNs). Finally, the so called application nets (ANs) create commercially potential business applications from technological innovations.

Innovation networks (INs) typically involve professionals and are strongly based on research of science and technology. Such networks include universities, research institutions, and research organizations of major corporations through which new, technological business-related innovations emerge (Möller and Rajala 2007, p. 904, see also Dhanaraj and Parkhe, 2006). In innovation networks, the goal is often related to creating radical innovations and influencing emerging business and technological fields, and the systems with such aims are typically loosely coupled by nature (Möller and Rajala, 2007; Möller and Svahn, 2006). Knowledge in innovation networks is often highly tacit, individual, and widely dispersed (Doz et al 2000, Lundgren 1995). There is a high level of ambiguity related to cause-effect chains in activities, and the relationship between existing and emergent knowledge is typically vague (Möller and Rajala 2007, Möller and Svahn 2006, see also Strang and Still 2006): It may be quite impossible to see what kind of knowledge different actors possess, what kind of knowledge is needed in the innovation process, and what kind of value may be generated as a result (Arrow, 1974).

Dominant design nets (DDNs), on the next level moving along the continuum, are characterized by focus on technological innovations and creating dominant technological designs. Compared to the innovation networks, DDNs represent a more target-oriented innovation network with an aim to establish a dominant technological design in an emerging field of business (see, e.g., Anderson and Tushman 1990). The existence of DDNs is typically justified by the fact it is difficult for any one firm to achieve dominant design on its own. It is “uncertainty about the technological alternatives, required investments, and business potential in terms of volume and revenue, which impedes business investment decisions” (Möller and Rajala 2007, 904-905). In DDNs, both collaborating and competing companies – together with other stakeholders such as officials and financial institutions – can be involved.

Finally, the so called application nets (ANs) typically create commercially viable business applications based on technological innovations. ANs share some similar characteristics with DDNs and there may also be actual overlap in certain areas. However, ANs are generally driven by a hub company, and whereas DDNs involve collaboration with competitors, ANs are rather characterized by collaboration between complementary technology producers as well as pilot customers (Möller and Rajala 2007). Also, the knowledge utilized in ANs is more explicit and codifiable. ANs are different from business renewal nets in terms of having higher uncertainty and wider dispersion of ideas, but there also are some features that make them the closest form of emerging business nets to business renewal nets, for example in terms of usability of project management.

Already the above discussion on the features of different networks suggests that the possibilities of a company to manage emerging business nets vary a lot moving along the continuum created by the different types of networks and nets. To put this differently, the characteristics of the networks determine how they can be steered and managed – if they can be managed. While innovation networks are typically self-coordinated and cannot be managed by a single actor alone, application nets are typically characterized by hub firm direction and clearer structures (Möller and Rajala 2007). Also, it is worth noticing that within a larger network with fuzzy boundaries, more

structured and organized (i.e., more “manageable”) nets may exist. Thus, in order to understand the possibilities of a single firm (or group of firms) to coordinate and steer the network in question, it is important first to identify the type of the network, and then align management and governance accordingly.

Management and orchestration of networks

As noted earlier, the possibility to manage networks has been a debated issue. While researchers such as Jarillo (1988) have suggested that management-like control indeed is possible, others (including Håkansson and Ford 2002) have taken networks as such adaptive systems that cannot be centrally directed (Ritter et al. 2004).

Accepting both of these perspectives simultaneously may actually provide a viable approach: In any case, since collaborative innovation activities typically spread outside the boundaries and structures of any single organisation, such management-related challenges might arise that are not highlighted as much in firm-internal innovation activities (Tikkanen and Renko, 2006). However, the type and amount of these challenges may be influenced by the characteristics of the aggregation of the actors, and the structures and relationships between them. Just like different types of networks form a continuum, the means of coordination in them can be more or less strict and clearly outlined.

“Manageable” innovation

When different organizations and actors interact, there are always likely to be differences in terms of influential power and motivation and activity in operation. From this stems the possibility that one or two actors receive or take a more leading role in any case – at least for a period of time. Considering such networks (like ANs) where the goals are relatively clear, actors are quite well aware of their roles, and where considerable amount of explicit knowledge is exchanged, more traditional forms of management may be quite possible – if not even necessary – to apply. Traditional management in this context means, for example, setting up schedules and structures that enable monitoring of work phases, allocation of tasks according to the capabilities and areas of relative advantage of the actors, and efficient project management in general (Möller and Rajala 2007, Rizova 2006, Wagner and Hoegl 2006, McAdam et al. 2008, Leonard-Barton 2007, see also Bonner et al. 2002).

Traditional management does not have to mean, however, that the situation would be characterized by a certain hub firm having centralized control, and consequently, reducing the variety and dynamism that are important for the success of the innovation-producing network (see also Bonner et al 2002). The network can, in fact, be organized in such ways that enable new business creation even if the management in practice would take traditional and relatively tightly coordinated forms: Davis and Eisenhardt (2007) note that success in innovation-producing networks can be enhanced through rotating leadership. Instead of having domineering leadership or consensus leadership that both have certain shortcomings, rotating leadership provides a chance to revolve decision control between actors to stimulate high-quality contributions of technologies, and to enable variable network activation, changing relationship trajectories for searching wider space of potential innovations, and mutually reinforcing adaptive changes to actor’s structures and strategies to take place (Davis and Eisenhardt 2007).

“Conducting orchestras”

Even more careful approach is needed in relation to innovation networks that are vaguer by nature: In such networks steering and maneuvering is inherently restricted by certain factors, and trying to fight this may actually break the network, or at least deteriorate the position of the hub firm. Complexity, vast range of needed resources, loose coupling and weak ties in innovation networks suggest that they may not be a fruitful ground for enforcing mutually beneficial behaviour from the top down or through traditional management approach (Dingledine et al., 2003), and it can be agreed that a firm in a central position cannot exercise strong authority in the sense that it could command others and/or simply lay out rules and expect other actors of the network to follow them.

However, it may be that certain firms possess such capabilities that allow them to influence other organizations and the network as a whole. This discreet influence, orchestration, can be done by facilitating three main areas: knowledge mobility, network stability, and innovation appropriability (Dhanaraj and Parkhe 2006, see also deMan et al. 2008, McAdam et al. 2008). The main idea in orchestration is that the orchestrator does not so much concentrate on directing other actors, but rather facilitates the collaboration, makes sure that the needed structures and forums for discussion are available when needed, and otherwise supports the innovation activities (see, e.g., Haga 2009). In fact, not being interested in the commercializable outcomes might be a distinctive attribute of a good orchestrator: practical examples suggests, that those actors that are most enthusiastic about the subject matter and wellbeing of the network, and do not let any individual companies take the leading (and/or network exploiting) role (consider, e.g., MobileMonday (see www.mobilemonday.net); the innovation community build around promoting mobile technologies seems to be successful just for these reasons;), may indeed keep the fuzzy, innovative networks up and running.

Hybrids

Drawing lines between management and orchestration is not straightforward. Surely, complexity and other such factors are not exclusive to innovation networks, but may take place in relation to application and dominant design nets as well. Nevertheless, the dominant design and applications nets typically also include features that increase manageability of the net. For instance, having more explicit goals may even make stricter approach a prerequisite for the functioning of the network. Thus, it is possible that these nets can be influenced through utilizing principles of from both orchestration and management approaches (see also Möller and Rajala 2007).

This creates a need to recognize that both of these coordination types co-exist in many types of networks. However, the fluctuating concepts and models may make it hard to capture the phenomenon. Consider, for example, categorization developed by Wallin (2006). He presents four different types of orchestrators: conductor, architect, auctioneer, and promoter. A conductor aims at strengthening its core and removes less critical tasks to others to take care of. A conductor thus aims at keeping up order. An architect actively involves customers in the development of an offering. In this understanding the customer needs gets a highlighted role. An auctioneer, on the other hand, strengthens the customer base around itself. In this case the orchestrator promotes customers to buy its offerings and aims at creating a common idea of positive market developments. Finally, a promoter mobilizes actors for a common goal (Wallin 2006). Of these types, the first ones actually hold features of traditional management, while the promoter seems to be the one that may be the most needed type of orchestrator in innovation networks. Another example on the thin boundary between management and orchestration can be found in a study of Rizova (2006) who notes that reinforcing social networks with the help of formal organizational structures may be needed for successful innovation. Thus elements of both orchestration and management may emerge quite simultaneously in the coordination process. Similarly, while examining new product development projects and teams, Bonner et al. (2002) note that leader-imposed process controls are not that good for the project success if implemented during the projects, but that early and interactive decision-making on control mechanisms is important. In this case traditional management seems to be called for in the early stages, and orchestration is needed as the project really gets started.

So far, we have categorized two types of net/network coordination mechanisms – “management” and “orchestration”. Former refers to “coordination by commanding” and latter to “coordination by enabling”. By using these two conceptions we aim to create wider, and more concrete, perspective on network coordination possibilities in different types of innovation-related nets. In order to understand the possibilities of a single firm to coordinate and steer the network in question, it is important first to identify the characteristics of the network in question, and then line up the coordination accordingly. For example, dominant design nets and application nets are typically characterized by clearer positions and structures and considerable amount of explicit knowledge (see e.g. Möller and Rajala 2007), and thus, the principles of project management may be justifiable. Leadership rotation (Davis and Eisenhardt 2007) can be used to further stimulate and

motivate all the actors. On the other hand, innovation networks are typically more self-coordinated. Indeed, quite a careful approach is needed because of the complexity, loose coupling and weak ties which highlight that one firm only cannot exercise strong authority, but coordination by enabling, “orchestration”, may be a more supportive strategy. Orchestration can be done by facilitating three main areas: knowledge mobility, network stability, and innovation appropriability (Dhanaraj and Parkhe 2006, see also deMan et al. 2008, McAdam et al. 2008), for example. Many networks in real business settings do not necessarily fall strictly to one type of category, and the nature of the network might even change over time. Especially in these kinds of situations, utilizing right mixture of coordination mechanism is of utmost importance. Throughout the rest of the paper, we examine the role of different coordination mechanisms (management and orchestration) in coordinating innovation network with the help of an explorative case study.

Case - FIMTV

In recent years, mobile services and content have increased their importance dramatically. The biggest expectations in growth concentrate on music services, mobile navigation, communal services, text message loans – and mobile TV (Snellman 2007). One project that illustrates the recent trend in collaborative service innovation in mobile services is a project called Finnish Mobile TV Community (FiMTV – which was known officially by that name from 2005).

The initial phase of the project started in 2001, as a group of companies (a handset manufacturer as the initiating force, the largest telecom operators, and the largest media companies) – some with related technological development projects around DVB-H technology – started working together. After a period of pre-commercial and pre-competitive development, the first large-scale pilot (FinPilot) was conducted in March–July 2005. The results implied that there indeed was a market for mobile TV and the related services. The FinPilot steering group, consisting of representatives of seven core companies, considered continuing common development to be relevant, and decided even to broaden it towards a larger developer community. In late summer 2005 one of the mobile operators assumed the key role and took the project to the next phase. Preparations by the City of Helsinki for building what subsequently became the Forum Virium Helsinki (FVH) cluster took place at the same time. As a result, FiMTV became the first major project approved by FVH.

The commercial development potential became concrete as a network operator received the DVB-H network operating license in March 2006, and as the network was opened on December 1st 2006. In January 2007 Finnish markets had the network operational (in 2008, the network covered 40 per cent of the Finnish population). The terminals were available as well. However, the services were still missing. In March 2007 only one TV (and radio) channel was available. This was because of copyright disagreements, which were a serious obstacle for the further development of mobile TV. It seemed that distributing the content – and actually providing the customers with the possibility to use the mobile devices to see the content, would not be possible. In the core of the disagreements was the nature of mobile TV as a separate business as compared to regular TV broadcasting. After lengthy negotiations, the copyright disagreements were finally solved in the beginning of May 2007: The representatives of copyright owners agreed that content related copyright fees could be paid based on the turnover of the companies providing mobile TV services, and not based on broadcasting time, which was the original idea and source of disagreements. If the broadcasting companies’ turnover grows because the new distribution channels create new revenue, also the music publishers and authors will receive their fair share. Coming to this agreement enabled broadcasting companies to make TV programs available on mobile devices, and enhanced the potential that money will later come in from subsequent sources, such as more personalized TV and the related services.

The second pilot project (FinPilot2) was launched in summer 2007 and ended in spring 2008. The FiMTV project was officially concluded in spring 2008, but the collaboration between various stakeholders continues in other projects and forums.

Data collection

Given the novelty of the phenomenon, mobile TV provides a good case for exploring networked innovation. A case study was conducted during spring 2007. The data was gathered through interviews with business managers that were responsible for the mobile TV business in their respective firms (all the key firms were involved). The interviewees typically worked as development or technology managers, business unit directors, VPs or CEOs, and they were the representatives of their firms in the FiMTV. Semi-structured interviews focused on management challenges related to the issues of service innovation (e.g., collaboration, competition, contracting, and formal and informal networks). Interviews were conducted with 15 persons representing altogether 13 organizations (the infrastructure provider, the mobile equipment manufacturer, two telecom operators, eight content providers, and the City of Helsinki). The interviews lasted 30–120 minutes and they were taped and transcribed. Additional data was gathered from public sources such as company and project web pages, public newspapers and news archives, and from the representatives of copyright organizations. The data was coded and grouped into various patterns for content analysis. The interpretations of researchers on the case were discussed in several instances with industry experts involved in mobile TV development, which increases the face validity of the study.

FiMTV as an emerging business network – reflections between the case and theory

In order to analyze the coordination of FiMTV network, the type of the network needs to be identified first. First, it is obvious that the participants of FiMTV formed an *emerging business net*, since the objective of the project was to develop new services with the help of novel technology. The customers and markets of Mobile TV were absent at the time of launch (and they are still emerging), and thus it can be said that the focus was on collaboratively creating radical innovation (new products/services for new markets). Second, concerning the more distinct classification of the emerging business net, it seems that FiMTV mostly included features of both “dominant design net” and “application net”. This is because the focus of the project was to create dominant ways of utilizing new technology and to create established services, a concrete customer base and since there were some recognizable hub firms involved (handset manufacturer in a leading role in the beginning, and an operator later on). The firms involved recognized the need of commercialization by explicitly noticing the need for interoperable technologies and services. “*No one can afford not being part of it! I cannot imagine markets evolving without operators cooperating.*” Furthermore, in addition to complementary firms, there were also competitors involved such as all the major media companies and telecom operators. “*There may be openings that we both consider so valuable that there’s then a need for competitor collaboration as well.*”

Considering the role of network coordination, dominant design nets can be seen to form a hybrid form between application nets and innovation nets, where both orchestration and management have important roles (see, e.g., Möller and Rajala, 2007). However, the role of these different coordination types was not equal throughout the FiMTV project.

Orchestration mechanisms in different phases of the development

First of all, according to the interviewees, the project initially started from the vision of the handset manufacturer, who gathered the other companies (media companies and telecom operators) to discuss about the emerging idea of utilizing broadcasted TV signal as a content of mobile phone. At that time (the early years of 2000), the idea about mobile TV was a radical one since the technology that was planned to be utilized was not been used in any part of the world. The coordination mechanism resembled very much of orchestration – communicating vision (from the handset manufacturer) to other parties in order to collaboratively achieve more concrete roadmaps for the future. This was quite intuitive given the ambiguity of the potential business model at that time. During the process, all the orchestration mechanisms were evident; maintaining the stability, facilitating knowledge mobility and securing innovation appropriability.

Strengthening social capital to maintain stability. Orchestration-type of coordination (see e.g. Dhanaraj and Parkhe, 2006) was also present throughout the latter parts of the project in various ways. Social capital was fostered by maintaining close interfirm and interpersonal relationships

between the key actors at all times. *“The same people have been active in Mobile TV for a long time. This provided stability to the network, since the participants were able to trust each other. “I know almost everybody involved and they also know each other”, “...good guys and substance created trust”. One important element of strong social capital was the past history between key actors (see Gulati, 1995) in developing other technology and service solutions. On the other hand, new actors were included in the development through several development forums and initiatives.*

Open platforms for open discussion. Knowledge mobility was facilitated by building open platforms for discussion. *“It’s easy to engage in a discussion”. “Certain openness is common to all of us [in our discussions]”.* Such events took place in various forums, including the large discussion events operated under the name of Forum Virium Helsinki, which is an open innovation initiative pursuing to develop clusters that develop new technologies and services in the Helsinki region. *“Without Forum Virium we would not be discussing these things any more... it [mobile TV] would be dead”. “The goal of Forum Virium...is to foster understanding about the possibilities and about how we could explore these opportunities.”.*

Securing innovation appropriability. Appropriability of potential innovations of different actors (e.g., service developers) was secured in utilizing contracts (e.g. NDAs) and other means of protection, especially in concrete development projects such as the FinPilot, which took place in latter phases of the development. Also the social capital among the existing members of the network helped to reduce concerns of free riding and opportunism – similarly to the focus on the subject matter and not the commercial outcomes: *“In my opinion, the task and goal of Forum Virium is not to develop a mobile TV business model ... these types of things can’t be agreed in the context of research collaboration. Research collaboration can provide a frame for the collaborative development of certain services or infrastructure, but for other things there are different arenas, where business contracts are drawn up and commitments are signed. Mixing the different roles is not worth it and it may ruin the accomplishments of collaborative research.”* Interestingly, these kind of coordination mechanisms were not always centralized to a distinct “hub firm”, but to the network as a whole (think about the development of social capital and inter-personal relationships, for example). Such orchestration resided among the central firms rather than in the hands of a single actor.

Management mechanisms

The FiMTV project also had features that resembled traditional management more than orchestration. The two commercial pilots – FinPilot focusing on customer preferences and FinPilot 2 focusing on services – both included a clear hub actor managing the network, and they also were quite target-oriented. *“Goals have been... clear in FinPilot.” “Getting the shared understanding of who will do what and how the responsibilities are shared in the pilot was one of the key challenges.” “Cooperation was very active in FinPilot... it had a concrete goal and a tight schedule”* The first FinPilot was lead by a mobile operator, which took a managing role to coordinate the actors towards a common goal. The purpose was that there was a single actor coordinating the meetings, promoting the development events, and taking care of the press releases, etc. The second FinPilot was lead by a large Finnish-based applied research organization. The purpose was to pilot services of different firms and actors in the commercial network. In both of these pilots, the role of a single actor was more dominant than in orchestration part of the overall coordination. It also seemed that the actors were able to change roles and rotate leadership along the development process: *“After the pilot the hats were basically changed again”.* Both of the commercial pilots concentrated on the latter, more concrete, phases of the whole development collaboration. By utilizing more strict management mechanisms in terms of project coordination by two distinct actors, it was possible to pursue more explicit goals with clear timetables.

Concluding remarks

In this study we examined the management and orchestration of a long-term innovation and development project around mobile TV services in Finland. Our findings indicate that FiMTV can be categorized as a dominant design net (with some features from application nets), and its coordination

can be described as a hybrid form between management and orchestration. Orchestration part of coordination ranges from creating the vision of mobile TV, and communicating that vision at the early stages, to the later phase where the central actors developed social capital, network structure, and operating principles that enabled them to collaborate and share knowledge. Management part of the coordination is most focused to those parts of the project that are closest to commercialization of the emerging services (the two pilots). Furthermore, it is worth noticing that the role of a hub firm varied in this case during the course of the network life cycle (cf., Davis and Eisenhardt 2007). Thus, this case also suggests that rotating leadership may indeed be a viable way of keeping innovation networks alive and developing. It is also notable that when the coordination resembles orchestration in its purest form, the coordination might reside more on the network level than on individual “hub” firm level.

These findings contribute to the current literature by empirically illustrating the aspects of coordination of emerging business nets, which have been mainly approached theoretically in earlier research on industrial networks (e.g. Möller et al., 2005; Möller and Rajala, 2007). In sum, the contribution of this study to existing literature is twofold. First, we have conceptualized the coordination mechanisms in emerging networks to two distinct categories: orchestration as “coordination by enabling” and management as “coordination by commanding”. We have also brought up the idea that these coordination mechanism are by no means mutually exclusive, but more likely simultaneous, and their relative importance varies depending on the attributes (what kind of network is analyzed) and the phase (how close the actual commercialization is) of innovation/development projects. These conceptual distinctions can help in analyzing network coordination mechanisms more explicitly than before. The results of the case study provide support for these propositions by showing how coordination is manifested as “orchestration-type” in the network-level, as well as “management-type” by various firms (supporting the rotating leadership argument by Davis and Eisenhardt 2007).

Managerial implications can be found in the importance to align and match network type and coordination type. In the case of dominant design nets, orchestration and management both have their distinct roles in the coordination. Orchestration should be useful throughout the project to communicate vision and build social capital, since knowledge sharing and open collaboration is needed both in the earlier and latter phases. Management, on the other hand, is used to coordinate those phases that reside closer to commercialization of innovations, since the exploitation of the possible results (or trials in exploring the possibilities of exploitation) requires stricter project control.

Future qualitative and quantitative studies will likely reveal more on these issues. Our study may require deeper and more sophisticated analyses still, but it nevertheless provides a starting point for these endeavors, and invites such criticism that may at it best lead to valuable new findings.

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