

HOW COMPANIES WITHOUT THE BENEFIT OF AUTHORITY CREATE INNOVATION THROUGH COLLABORATION¹

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To create new business firms develop and provide systems that are new to the market. However, if a firm wants to achieve this goal but does not possess all required resources and capabilities, it needs cooperation from other organizations. This study focuses on how firms that lack authority to compel such cooperation, gain and foster commitment from other organizations to cooperate. To develop a model that addresses this question two cases of interorganizational innovation from the Dutch construction industry were studied. In both cases an organization set up and coordinated a network of organizations to jointly develop and market a new system. The cases suggest that, in particular, three types of activities of such leading organizations affect other organizations' commitment to cooperate. These include two types of activities that correspond with two extensively researched constructs, champion behavior and supportive leadership, and one type of activity whose influence is more indirect, value proposition management. Overall, both cases can be regarded as examples of innovation and value chain integration, two issues identified as industry deficiencies in various countries.

Keywords: innovation, leadership, business strategy, cooperation

INTRODUCTION

To create a new business firms engage in the development and provision of new products and services. If a firm wants to achieve this goal but does not possess all the required resources and capabilities, it needs cooperation from organizations who do possess those resources and capabilities. To gain such cooperation some firms can rely on their monopolistic or oligopolistic position. But what if a firm does not have a dominant position in the market? How to achieve cooperation in the absence of bargaining power? These questions are of particular relevance to construction industry. Construction industry's value chain consists of many specialized firms. Many of these firms will be dependent on voluntary cooperation when pursuing innovation that requires cooperation from other organizations. However, the occurrence of such cooperation is not self evident in construction industry. Due to the industry's project-based delivery, relationships between organizations are mostly short-term. Furthermore, relationships between organizations have been characterized as being adversarial and accompanied by low levels of trust (Holmen, Pedersen and Torvatn 2005). Given this context, our research question is how firms that require cooperation in order to achieve innovation, but lack authority to compel cooperation, gain and foster commitment to cooperate.

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PREVIOUS WORK

There are various bodies of literature that provide insights into interorganizational cooperation that is aimed at innovation, such as literature on innovation in construction industry and other industries providing complex product systems, but also literature on innovation in networks and alliances. Two fields of research within these bodies of literature are of particular relevance to our research question.

First, researchers have identified factors which are related to the performance of inter-organizational innovation. The focus is mainly on structural aspects of the network of involved organizations and the relationships within such innovation networks. This includes factors such as size of the network, partner diversity, supplier involvement and customer involvement, configuration of relationships, number of relationships, strength of project couplings, strength of actor bonds (Dorée and Holmen 2004, Pittaway *et al.* 2004, Holmen, Pedersen and Torvatn 2005, Dhanaraj and Parkhe 2006). Besides these structural factors also process factors, such as trust, opportunism, network management and open communication have been identified as being crucial (Pittaway *et al.* 2004, Holmen, Pedersen and Torvatn 2005).

Second, researchers have described and categorized organizations that perform a leadership role in interorganizational cooperation aimed at innovation. Miller *et al.* (1995) have argued that systems integrators perform such a role. A systems integrator is a prime contractor organization responsible for the overall system design and integrating product and service components, supplied by a variety of external suppliers, into a functioning system (Davies, Brady and Hobday 2007). Systems integrators are at the interface between innovation superstructure and innovation infrastructure. The innovation superstructure consists of clients, regulators and professional institutions. The innovation infrastructure comprises component suppliers, trade contractors and specialist consultants. Due to this central position, it is argued that the task of systems integrators in innovation is to meet evolving customer requirements by orchestrating R&D activities of the innovation infrastructure. To perform this task, the knowledge boundaries of these firms stretch beyond their production boundaries (Brusoni, Prencipe and Pavitt 2001) and they need to be competent in relationship management (Prencipe 2003). In literature on innovation in networks, researchers have described a similar type of role. Dhanaraj and Parkhe (2006) describe the role of hub firms in innovation networks. They note that there are various terms in literature for firms that setup and orchestrate networks: hub firms, key actors, triggering entities, strategic centers, flagship firms and network orchestrators. However, they also argue that there is a lack of empirical studies that focus on the question how such firms orchestrate innovation networks without the benefit of hierarchical authority.

However, although these bodies of literature provide valuable clues, they do not yet provide an empirically based theory of how firms that lack the authority to compel cooperation, achieve interorganizational cooperation that is aimed at innovation. This led us to the inductive approach described in this paper.

METHOD

Given the absence of a theory which specifically addresses our research question, our goal was to build a theory that offers a feasible answer. We chose to conduct a case study because this method is well-suited for such a purpose (Eisenhardt 1989, Dyer and Wilkins 1991, Eisenhardt and Graebner 2007). We decided to study more than

one case. This strategy provided us with the opportunity to use the logic of replication among cases. It helped us to perceive patterns more easily and reduce chance association (Eisenhardt 1991). Furthermore, we adopted Eisenhardt's point of view (1991) that the appropriate number of cases depends upon how much is known and how much new information is likely to be learned from incremental cases.

We studied two cases. Both cases comprise the joint development and provision of a new system by a group of cooperating organizations. In each group there is a central organization that leads the process of cooperation but that lacks hierarchical authority. Table 1 describes both innovations and lists the organizations that cooperated by providing time and resources.

Table 1: Description of cases

Innovation	Central organization	Cooperating organizations
<p>Q Home</p> <ul style="list-style-type: none"> - Houses with a high use of renewable materials. - Development started in 2003 	Cooperative Q	<ul style="list-style-type: none"> - Architecture firm - Innovation consultancy firm - Structural engineering firm - Two timber suppliers - Wall heating supplier - Bank - Two property developers - Engineering firm
<p>Lamikon LongLife</p> <ul style="list-style-type: none"> - Sustainable wood windows with low life cycle costs. - Development started in 2000. 	Lamikon Ltd	<ul style="list-style-type: none"> - Timber suppliers - Maintenance contractors - Glass supplier - Wood supplier - Two coating suppliers - Supplier of fasteners - Supplier of finishing elements - Supplier of building protection products

Data sources

To collect data we conducted semi-structured interviews and examined documents. In total, we conducted 20 interviews varying from 50 to 160 minutes and interviewed 21 persons from in total 19 organizations. The average interview duration was 90 minutes. We used semi-structured interviews to allow ourselves the opportunity to probe deeper into informants' perceptions and to address informant-specific topics. Prior to the interview, we sent the informant the interview topics. Table 2 lists our interview topics. The first interview for each case was an interview with the central organization. For the Lamikon LongLife case we first conducted two interviews with the director of Lamikon. In the Q Home case we first interviewed the chairman of Cooperative Q. The first interviews were also used to check the appropriateness of the cases for our research question and to identify informants from the cooperating organizations. During the subsequent interviews we identified three more key informants. These were also interviewed. All interviews were recorded and transcribed by the interviewer.

Besides the interviews we collected documents such as internal memos, minutes, a product handbook, brochures, newsletters, newspaper articles, magazine articles and e-mail correspondence. Document collection was done by asking informants if they

could provide documents that illustrated their statements. Furthermore we performed an internet search to retrieve newspaper and magazine articles.

Table 2: Interview topics

Theme	Topics
Background	Firm activities, position in the firm, first contact with central organization
Involvement	Motivation to cooperate, role in the process (both in R&D and construction projects)
Reflection	Satisfaction with results, lessons learned, important incidents and actors

Data analysis

We analyzed the data using a process as outlined by Eisenhardt (1989). First we induced tentative constructs and propositions by searching the qualitative data from the Lamikon LongLife case for recurring themes and patterns of relationships. Subsequently we analyzed the data from the Q Home case in the same way and searched for similarities and differences between the two cases. This cross case pattern search provided us with the opportunity to refine and extend our constructs and propositions. After this analysis we iterated between the constructs and the evidence from the cases to develop a theory that closely fitted the evidence. The iteration process also helped us to sharpen our understanding of the dynamics underlying the relations between the constructs. Furthermore, we compared our insights with existing literature. This resulted in the identification of various ties between our findings and extant theories.

MODEL

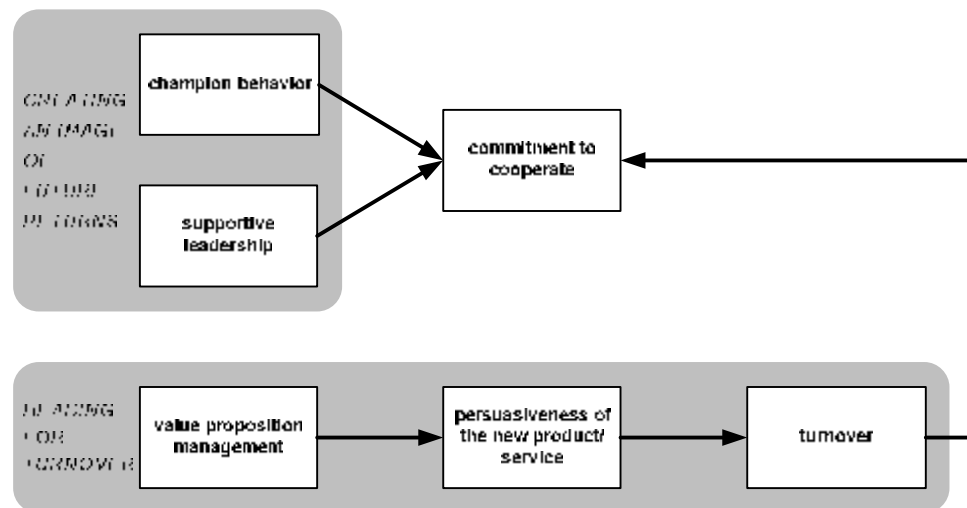


Figure 1: Model of how the central organization affects commitment to cooperate

Figure 1 presents the model that we induced from the case study. The model shows that the central organization affects the commitment to cooperate in two ways. First, by creating an image of future returns through champion behavior and supportive

leadership. Second, by heading for turnover through value proposition management. The subsequent sections focus on the constructs depicted in the model.

CREATING AN IMAGE OF FUTURE RETURNS

The construct 'commitment to cooperate' is similar to what Mayer and Schoorman (1992) have defined as value commitment of employers: "Belief in and acceptance of organizational goals and values and a willingness to exert considerable effort on behalf of the organization." Our data indicate that in both cases an organization's commitment to cooperate was strongly related to the image of this organization that cooperation would lead to future returns. Cooperation consisted of activities such as R&D and marketing activities, the attendance of meetings, investments in new production facilities, and financing of activities performed by the central organization. The expected returns from these investments were financial returns through participation in future construction projects, but also the achievement of ambitions to change current practices in the industry. Several informants said:

Q Home

You could say that the base of our collaboration was that we shared the same aspiration: there have to be more sustainable buildings.

The investment of time in R&D is at own risk. On the other site there are construction projects. You hope there will be projects. That is the idea. That you generate turnover from which you can earn something.

Lamikon LongLife

Look, at a certain moment we said, as suppliers: "Okay we will invest money, but then the goal is to make it self-supporting within three years."

At a certain moment a discussion was started, you have to sponsor again... Then we said that this had not been the intention, "If you can not sell it for that price, who can? We develop something, if you don't succeed in selling it for that price, then we have to quit."

In both cases the central organization could not rely on hierarchical authority or bargaining power to compel the cooperation that was required for the development and provision of the new system. So, when analyzing the data, our question was what behaviors the central organizations had been exhibiting to gain and foster commitment to cooperate.

Champion behavior and commitment to cooperate

After analyzing our data and comparing it with literature, champion behavior as defined by Howell et al. (2005) proved to be a suitable construct for behaviors in the interview transcripts which were related to the commitment to cooperate. Howell et al. argue that champion behavior comprises three sub-behaviors: expressing enthusiasm and confidence about the innovation, getting the right people involved, persisting under adversity. Especially the first two of the three sub-behaviors were observed in the case data. In the Q Home case it was one person in particular who had been exhibiting these behaviors. Multiple informants said that it was the chairman of Cooperative Q

who had been the person that had caused them to become enthusiastic and that had convinced others to join:

He is the person that made it happen by involving other organizations. (getting the right people involved)

He is enthusiastic and he can make an attractive story out of it. (expressing enthusiasm and confidence)

He is a person that can enthuse everybody a lot, he enthused many people for this, including us. (expressing enthusiasm and confidence / getting the right people involved)

He is very good at communicating. He enters into contact at all required levels very easily. And he has a certain charisma. He intensely believes in what he does and he is very good at communicating it to others. And I think it also necessary, that the person that is the connecting factor and who has to lead, that he must have these characteristics. (expressing enthusiasm and confidence / getting the right people involved)

In the Lamikon LongLife case champion behavior was not as much centralized in one person as in the Q Home case, but dispersed over several persons from the central organization Lamikon. From the interviews it became clear that Lamikon was aware what type of behavior was needed and that they had exhibited it successfully when searching for cooperation from suppliers.

Marketing Manager of Lamikon : We gave everyone a warm feeling about it. (expressing enthusiasm and confidence)

Marketing Manager of Lamikon: If you select well, then you already have the commitment. (getting the right people involved)

Supervisory Board member of Lamikon: The opportunities are available, but you have to carry out your belief in the right way. (expressing enthusiasm and confidence)

Director of Lamikon: You have to be able to substantiate why it is going to be a success, because those organizations also have to invest a lot. (expressing enthusiasm and confidence)

Supportive leadership and commitment to cooperate

Besides champion behavior, also another type of behavior by the central organizations affected the commitment to cooperate. This involved behaviors that were focused on the needs of individual organizations. As one of the suppliers said about the chairman of Q:

At first, when we heard about the other supplier, we thought, "Gone is our market". But you also have to be a realist. It is in the interest of Q to build as many Q houses as possible. Price is very important. It was not nice. But, that is the advantage of the chairman, I don't know if others experience the same, but he is a person who understands that such a thing is not nice for us, "Let's see if we can help them." And that is what he does.

Another example is how Lamikon increased the commitment of timber suppliers to cooperate by adjusting the design of the connection between the frame parts.

First we had another type of wood window, but nothing was done with it. Timber suppliers did not adopt it because it was perceived as inconvenient, in particular because of the connection between the wooden parts, it was not user friendly. Now we have made it user friendly for the factory to produce it.

The type of behavior we observed corresponds with what has been defined as ‘supportive leadership’ in literature about leadership styles (Rafferty and Griffin 2006). Supportive leadership is defined as occurring when leaders express concern for, and take into account of, follower's needs and preferences when making decisions. Rafferty and Griffin's findings indicate that supportive leadership and developmental leadership are two distinct forms of leadership, which were previously treated as a single construct termed individualized consideration. Individualized consideration is one of the three dimensions of transformational leadership, a well known type of leadership in leadership literature (Avolio, Bass and Jung 1999). That the central organizations in our cases exhibited both champion behavior and supportive leadership corresponds with of Howell et al' s finding (2005) that “champions reported using transformational leader behaviors to a significantly greater extent than did non champions”.

HEADING FOR TURNOVER

In both cases turnover was achieved through the realization of projects for clients. However, in both cases it took longer than the involved organizations had first expected. As one informant said in the Q Home case: “We all expected, a couple of years ago, that it would go faster.” And an informant in the Lamikon LongLife case: “I had already expected much more. The plan mentions expectations "we will achieve 10% market share". I am still very disappointed.” The enthusiasm about the innovation had created positive images of future returns. However, the mismatch between organizations' expectations and the actual number and size of construction projects affected the commitment to cooperate. As a supplier in the Q Home case said:

At first, you hear stories about 40 houses over here, 50 houses over there... And then there was a project of one house, okay, fine. Then there was another project of one house. Let's try it again. At a certain moment we thought, “Wait for a moment”. And it also became clear that we were losing money on each project.

In the Lamikon LongLife case we observed a similar pattern. Three years after the start of the development of Lamikon LongLife, the central organization asked the suppliers to sponsor again. However since the realized market share was much smaller than expected, the suppliers were not willing to sponsor that much again. As one supplier said:

If we would have foreseen that it would not work, a dead horse, then we would surely not, because we invested large sums.

The data from the cases indicate that both champion behavior and supportive leadership had positively affected the commitment to cooperate. However, disappointment about the actual turnover had a negative impact on the commitment to cooperate. But

the cases also showed the influence of the central organization on the turnover of the new business. The next two sections describe this influence.

Persuasiveness of the product/service

A social housing association which had purchased Lamikon Longlife said, “As a client we need to be convinced that is a good product”. This sentence captures the relation between the turnover and a particular attribute of the innovations, which we termed persuasiveness of the product/service. This construct comprises the familiarity of the new systems and the power of the sales arguments. The power of sales arguments refers to both the quality of the substantiation of sales arguments and the value of sales arguments for the customer. Various statements of the informants illustrate the relation between turnover and persuasiveness of the product/service.

Lamikon LongLife

You need to have more missionaries, otherwise it will not work.

Promoting, substantiating, we always say, “Act as an evangelist”. We have two to three people on the road to show it, tell it, promote it, calculate it, whatever you mention.

If it is not known, it will not be sold.

He is very good in convincing customers. Left, right, it does not matter, he just convinces them.

I also had my doubts, it was going slowly, it was difficult. But now, with the environmental concerns we just discussed, I think, now we can seize the opportunity.

It is so difficult to market. We need persuasiveness.

Some members say, “Marketing, marketing, marketing, do everything, newsletters, whatever.” But then I think, “That is not enough to succeed”. It is about the personal conversations, the personal persuasion.

Q Home

So you have to show it. Here is the brochure. It mentions a lot. Underlying vision, and also, why Q Home.

We had a letter from the government. A recommendation from the Ministry of Housing. It is in our brochure. That they support us. It is important to have such a recommendation... There are ideas that wood produces more noise than concrete. It is the exploration of something new. People are a little frightened. And that is where such a recommendation helps, “Take that step and try it”.

The whole story is dependent on PR.

Rogers’ description of the innovation decision process corroborated our finding that the persuasiveness of the new systems was related to the actual turnover. According to Rogers (2003) the innovation decision process comprises five stages, where the outcome of the persuasion stage is the customer’s decision to adopt or reject an innovation.

Managing the value proposition

The case data demonstrates how the central organization affected the persuasiveness of the new systems. From the case data we established a construct which we called value proposition management. The construct refers to the behavior of the central organization that is focused at the persuasiveness of the new system. In the cases this included activities such as guaranteeing that the value proposition could be realized, setting up trainings for production and sales personnel from the organizations, testing the value of sales arguments, setting up marketing activities.

To guarantee the supply of FSC wood we contacted FSC.

It is important that you make agreements with the inhabitants of realized projects, so interested customers can have a look.

We invited the chairman to tell the story to acquisition... so they can sell it again to the people that they meet.

We have continuously, what I have tried to guard, we continuously took the perspective of the inhabitant.

Our observation, that the central organizations initiated and coordinated activities which aim to enhance the persuasiveness of the new product/service, aligns with the argument of Anderson et al (2006) that it is the responsibility of senior management and general management of a company that a company's value propositions are the cornerstone for business performance.

CONCLUSIONS

Industry reviews in various countries have highlighted that construction industry's fragmentation in combination with poor interorganizational cooperation is hampering innovation. This study explored two cases of interorganizational innovation. In both cases a central organization is leading a network of organizations to jointly develop and market a new system. However, both central organizations lack the authority to compel cooperation. The cases suggest that, in particular, three types of activities of the leading organizations affect other organizations' commitment to cooperate. These include two types of activities that correspond with two extensively researched constructs, champion behavior and supportive leadership, and one type of activity whose influence is more indirect, value proposition management. Overall, both cases can be regarded as examples of innovation and value chain integration.

REFERENCES

- Anderson, J C, Narus, J A and van Rossum, W (2006) Customer value propositions in business markets. *Harvard Business Review*, **84**(3), 90-9.
- Avolio, B J, Bass, B M and Jung, D I (1999) Re-examining the components of transformational and transactional leadership using the multifactor leadership questionnaire. *Journal of occupational and organizational psychology*, **72**(4), 441-62.
- Brusoni, S, Prencipe, A and Pavitt, K (2001) Knowledge specialization, organizational coupling, and the boundaries of the firm: Why do firms know more than they make? *Administrative Science Quarterly*, **46**(4), 597-621.

- Davies, A, Brady, T and Hobday, M (2007) Organizing for solutions: Systems seller vs. Systems integrator. *Industrial Marketing Management*, **36**(2), 183.
- Dhanaraj, C and Parkhe, A (2006) Orchestrating innovation networks. *Academy Of Management Review*, **31**(3), 659-69.
- Dorée, A G and Holmen, E (2004) Achieving the unlikely: Innovating in the loosely coupled construction system. *Construction Management and Economics*, **22**(8), 827.
- Dyer, W B and Wilkins, A L (1991) Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt. *Academy Of Management Review*, **16**(3), 613-9.
- Eisenhardt, K M (1989) Building theories from case-study research. *Academy Of Management Review*, **14**(4), 532-50.
- Eisenhardt, K M (1991) Better stories and better constructs: The case for rigor and comparative logic. *Academy Of Management Review*, **16**(3), 620-7.
- Eisenhardt, K M and Graebner, M E (2007) Theory building from cases: Opportunities and challenges. *Academy Of Management Journal*, **50**(1), 25-32.
- Holmen, E, Pedersen, A C and Torvatn, T (2005) Building relationships for technological innovation. *Journal Of Business Research*, **58**(9), 1240-50.
- Howell, J M, Shea, C M and Higgins, C A (2005) Champions of product innovations: Defining, developing, and validating a measure of champion behavior. *Journal Of Business Venturing*, **20**(5), 641-61.
- Mayer, R C and Schoorman, F D (1992) Predicting participation and production outcomes through a 2-dimensional model of organizational commitment. *Academy Of Management Journal*, **35**(3), 671-84.
- Miller, R, Hobday, M, Leroux-Demers, T and Olleros, X (1995) Innovation in complex systems industries: The case of flight simulation. *Industrial and Corporate Change*, **4**(2), 363-400.
- Pittaway, L, Robertson, M, Munir, K, Denyer, D and Neely, A (2004) Networking and innovation: A systematic review of the evidence. *International Journal of Management Reviews*, **5**(3-4), 137-68.
- Prencipe, A (2003) Corporate strategy and systems integration capabilities: Managing networks in complex systems industries. In: Prencipe, A, Davies, A and Hobday, M (Eds.), *The business of systems integration*, pp. 114-32. Oxford: Oxford University Press.
- Rafferty, A E and Griffin, M A (2006) Refining individualized consideration: Distinguishing developmental leadership and supportive leadership. *Journal of occupational and organizational psychology*, **79**(1), 37-61.
- Rogers, E M (2003) *Diffusion of innovations*. New York: Free Press.