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Conscripting Network Business Models¹

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As enterprises focus increasingly on core competencies, the importance of collaboration and knowledge sharing between organisations is greatly enhanced. This article examines the development of knowledge sharing during the initial exploratory stages of an emerging business network. We demonstrate how the business model can serve as a tool for spanning organisational boundaries. Through developing a business model, network enterprises can learn to understand each other, create common concepts within their business network and evaluate feasibility of the endeavour.

The trend of outsourcing and concentrating on core competencies has made enterprises increasingly interdependent in terms of abilities and expertise (Powell, 2000; Dyer & Singh, 1998). Inter-organisational cooperation in which enterprises combine their knowledge and know-how in new ways is fertile ground for innovation (Nooteboom 2000). It is, therefore, of little surprise that the importance of business networks as a source of business expertise has grown in recent years (Tsupari et al., 2001, 2004) and drawn growing attention as a means to implement strategy (Håkansson & Snehota, 2006).

Mutual learning within a network presents considerable challenges, and this is no more so than in a network comprised of businesses with different histories and competencies and conflicting goals. In contrast to at the intra-organisational level, these goals cannot be changed by simple boardroom decision, but must be met with trust, persuasion and high-powered market based incentives (e.g., Andersen & Christensen, 2000). A network enterprise has a right, and even a duty, to withdraw from cooperation if dissatisfied, for example, with the level of expected investment or the sharing of risks and profits. It takes time for the parties to learn to trust each other, to work together and also to be ready to implement changes to their own operations and practices as and when cooperation requires it. In practice, this involves learning on multiple levels: cooperation requires changes within the network, within the individual enterprise, and within bilateral relationships between enterprises (Heikkilä et al., 2005).

The network's enterprises are thus faced with a challenge: how to create an innovative business model that spans inter-organisational boundaries in a

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satisfactory and acceptable manner to all parties? In literature, this type of activity towards a common goal by separate entities and individuals requires cross-boundary learning: a kind of a learning considered to require the use of “*boundary objects*” to facilitate the spanning of boundaries between communities (Star & Griesemer, 1989; communities of practise, Brown & Duguid, 1991; communities of knowing, Boland & Tenkasi, 1995). A boundary object facilitates mutual exchange of knowledge between different parties. Star and Griesemer (1989) describe four types of boundary object: the standardized form, the common repository (e.g. library), the coincident boundary and the ideal type. The ideal type is an abstract description or scheme of fundamental concepts, which is adaptable to different situations for the purpose of describing concrete details about different parties. Ideal types are models that can be used to facilitate the exchange of ideas between cooperation partners.

Building on the idea of boundary object, Carlile (2002, 2004) in turn discusses usefulness of a tool or method in joint problem solving across knowledge boundaries. He combines usually diverse views of knowledge: an information processing approach (Galbraith 1974, 1977) seeing knowledge as something that can be collected, stored and computed; an interpretive approach emphasising the common meaning to share knowledge between actors; and political approach focusing on how different interests impede knowledge sharing. Against this backdrop, Carlile (2004) presents three levels of boundary spanning: syntactic, semantic, and pragmatic/political level. See figure below.

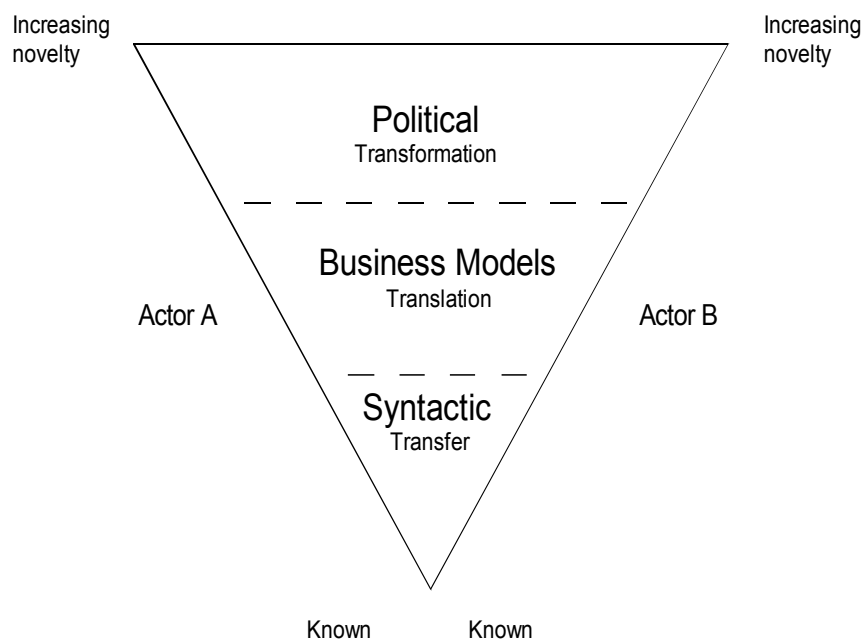


FIGURE 1 Three levels of boundary spanning (Carlile,2004)

These levels also describe the relative complexity of the boundary, and the relevant means to cross the knowledge boundary between parties:

- 1) At Carlile's syntactic level, a boundary object can be a common language that individuals can use to transfer knowledge. A common vocabulary is sufficient in situations in which the differences and dependences between the parties are already well known. Boundary objects at this level include, for example, rules, taxonomies and databases.
- 2) At the second, semantic, level the boundary situation is unclear to the parties. Here, the function of the boundary object is to help clarify unclear dependencies and differences of interpretation, the goal being to achieve common understanding. This solution can, according to Carlile (2004), be achieved through cross-boundary relationships, teams and contact persons.
- 3) At the third, knowledge transformation level, referred to by Carlile as the pragmatic or political level, the boundary object solution is to help individuals to jointly transform their knowledge. This becomes necessary when the interests of the parties are divergent, thus obstructing the sharing and assessment of knowledge. According to Carlile (2004), in such circumstances the most effective boundary objects are drawings, prototypes and other boundary objects that provide concrete means of representing different functional interests.

If we accept the boundary objects as the means to overcome knowledge barriers, from where and how are these born? The seminal work of Henderson (1991) emphasises the importance of the development process of higher-level boundary objects. During this process, the parties typically create numerous draft sketches on the basis of which the final boundary object is gradually formed. Before reaching final completion, *the boundary objects thus serve as tools that conscript participation* (conscription devices, Henderson, 1991) in the common description process. By discussing and developing the boundary objects, the parties strive to create common understanding and to find acceptable compromises through negotiation.

In this article, we present our observations of the development process of a joint business model by a network of three public companies. We depict the progress of the process in terms of using the boundary object concept, and analyse the reasons for the termination of the project in the light of Carlile's theory. The main contribution of this article comes from a unique research effort that analyses the match of boundary spanning levels with boundary tools in business network setting.

The empirical context illustrates the multiple challenges related to boundary spanning in joint business network collaboration. These boundaries are especially challenging in the early phases of network establishment, when enterprises with differing backgrounds, values, capabilities and goals try to negotiate and agree on rules for joint business. We identified several boundary-spanning activities, which were initiated by the network business model planning process.

Finally, our study shows how a cross-boundary team conscripting a blueprint of a business model created common understanding on principles of joint business. The blueprint of business model acted as a conscription device (Henderson, 1991) between the participants involved in semantic boundary spanning. It helped the inter-organisational translation process by providing a construct that the participants could discuss and create draft sketches and evaluate the fairness of the collaboration rules.

The structure of this article is as follows: We'll start with presentation of research approach. It is followed by description of joint business modelling process. Then we will identify boundary activities initiated to achieve the network business model, and evaluate the viability of the business model. The article ends with discussion and summary.

Research approach and information gathering

The data for our analysis is derived from an action research study in a network of three publicly listed companies operating on a global scale, and three research or funding partners. Action research is a research method that focuses on research and learning through intervening and observing the process of change in real settings (Cunningham, 1997; Baskerville, 1999). It is an established research method in social sciences (first appeared in Lewin, 1946) and it builds on the idea of intervention. Here action research is undertaken by organisations, being guided by researchers, with the aim of exploring possibilities for more in-depth business collaboration between the companies. Researchers' role was to work as facilitators between the team members (Allen, 1977).

The problem to be solved with action research approach is as follows: One of the companies supplies manufacturing machinery, other provides business information systems and services for industrial customers and the third provides telecommunication services for corporations and consumers. The markets have changed so that supplementary services provided by the three companies were considered to provide potential for more value-add and profitable joint offering. The goal of the network was to create a joint ICT-supported business model or "service concept" as the three companies call it, thus enabling quicker response to customer needs. It should be noted that all the companies offered a wide variety of products and services to various customer segments, and the planned joint business covered only certain parts of the current (or future) operations of the participating companies.

The network focuses primarily on the clientele of the two network members. The customers are heterogeneous and globally dispersed high-tech heavy industry companies. So the main problem to solve is, how to do a joint offering that could serve the global clientele better than competition?

The studied enterprises were already familiar with each other prior to the project through long-term bilateral business partnerships. Although the need for cooperation was recognised by the enterprises, they had not previously engaged in active sharing of inter-organisational knowledge, and so no boundary-spanning work communities had been established. The different backgrounds, histories and operating environments of the network enterprises made it impossible to directly combine their knowledge as a whole. An example of the problems arising from the dissimilarity of the network organisations was the enterprises' different policies regarding the confidentiality of information. In addition, legislation regarding the publication of information on stock exchange listed companies restricted the dissemination of information between the enterprises. Now, as the enterprises had acknowledged the possibility for collaboration they needed more explicit analysis and description of the joint business model. The researchers' role in the consortium was to aid the process in communicating the needs and intentions of the parties to each other, and to help in forming an acceptable joint operation model to overcome the practical hindrances, if possible.

The empirical data and insight comes from meetings (63 instances), workshops (10) and interviews (41) carried out in 2002-2004. These face-to-face encounters were added with phone meetings and e-mail discussions. The data was documented in a diary, in meeting notes or minutes, and in presentations of the topical problems brought up by the parties, researchers, or customers. The researchers recorded, transcribed and had the interview sessions thereafter checked by the interviewees. The representatives taking part in the consortium were vice presidents or senior managers of each company given the authority to design the joint service concept.

More detailed description of the research setting is available in Heikkilä (2009).

Joint network business model

There are several definitions of business model (Shafer et al. 2004): for instance, Osterwalder (2004) characterizes business model as *"the translation of a company's strategy into a blueprint of the company's logic of earning money"*. Venkatraman and Henderson (1998), in turn, define business model as *"a coordinated plan to design strategy along the customer interaction, asset configuration and knowledge leverage vectors"*. That is, (Figure 2) the purpose of business model is to mediate in an orchestrated way organization strategy to architectural level. It depicts how the business works, i.e. the general logic that creates the business value in relation with the organizations architecture/infrastructure. Therefore the business model, as a representation of the corporate or network strategy, is the starting point for planning operative business processes (eFactors, 2002).

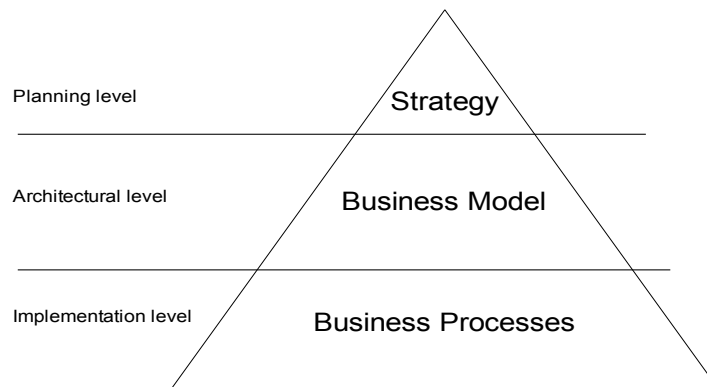


FIGURE 2 Business Logic Triangle (Osterwalder & Pigneur, 2002)

Our joint business model project began with a series of workshops involving the representatives of a number of enterprises considering a network membership for providing their customers more innovative, competitive and profitable supplementary offering with the focal company. During the workshops, we outlined the parties' initial conceptions of the role of the joint activity in achieving the objective above, and what each party was to contribute to the network. After the selection of the final member enterprises, at least three persons were appointed from each enterprise as representatives to cross-organisational team. In essence the team was delegated the responsibility to test and develop novel, joint business models. The primary goal of the team was to learn how to design a joint network business model. Furthermore, it was to come up with a proposal as to what form the network business model should take in order for its member companies to be able to jointly offer a commercially viable service.

During the workshops, the companies soon came into a conclusion and agreed that a network business model building on the existing operations models would be non-feasible, as the models would restrict the network's innovativeness and options to reach the improved profitability targets (see Figure 3).

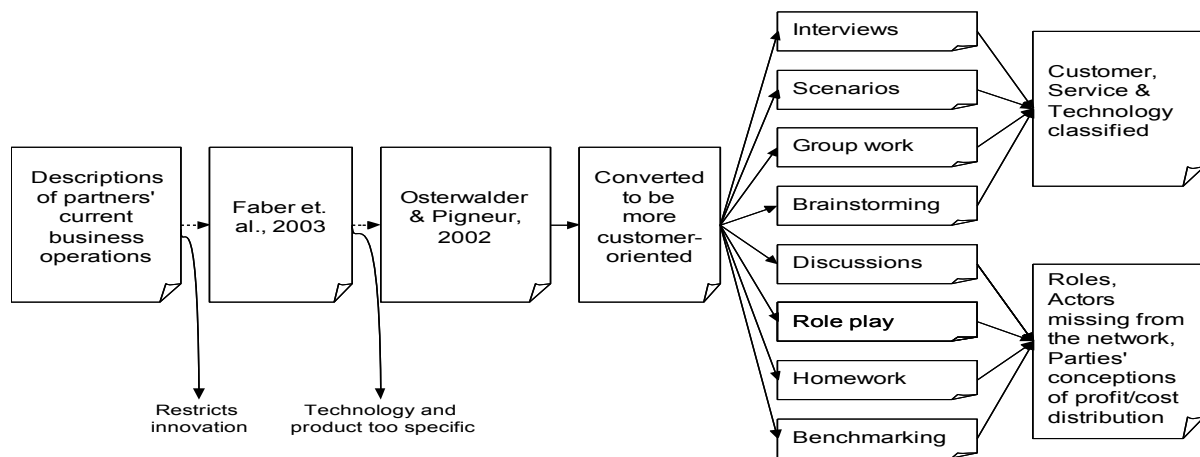


FIGURE 3 Boundary objects and working methods utilised in the network development process

Upon proposal by the researchers, planning of the business model was commenced using conceptual models as starting point. As an ideal-type boundary object, the conceptual business model presented particularly by Faber et al. (2003) appealed initially to the network members, but was later rejected as being too closely tied to the sale of digital products for mass consumer market. Instead, a somewhat modified version of the Osterwalder & Pigneur (2002) model was used as the boundary object for the teams. The modified model emphasised the importance of the customer as the centre of all operations. This fit to our consortium, which considered long lasting customer relationships as the key element in the business. Another improvement in the model was that we singled out technology as a core component (Figure 4), because the technological superiority was considered one of the core competences and the origin of competitive edge for the consortium.

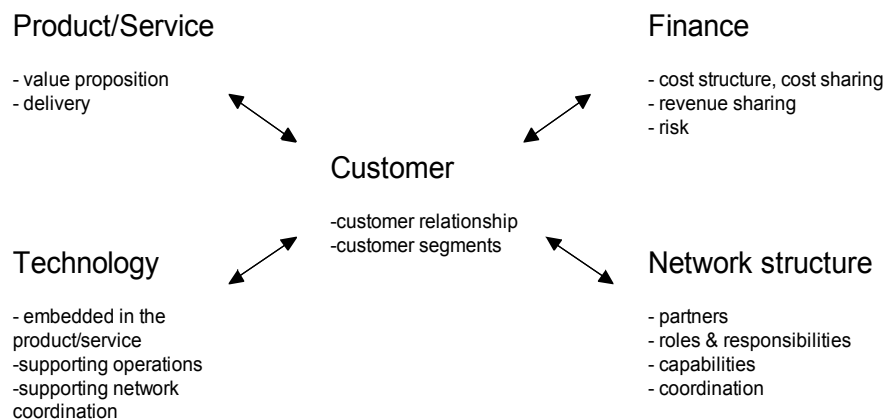


FIGURE 4. Core components of the network business model

The consortium's common business operations were planned first component by component separately and then collectively as a whole. The aim was to form

a product/service concept, i.e., of what the customers are offered and how they are served, as well as a concept of the customer relationship, the network organisation, the financing (e.g. sharing of costs and profits) and of the technology used. The outcome was to be turned to a concrete business model, the viability of which could then be tested within the network and with a pilot customer prior to large-scale application.

In the analysis of potential services and customer relationships the aim was to identify suitable customer segments for the business operations being developed. The company representatives, assisted by the researchers, probed the future market with mini scenarios. Group work and think-tank sessions proved the most effective means of knowledge transfer regarding the use of technology for the network's service provision.

The service offering was rather difficult to sketch out by the participants. The partners were looking for analogies from other business sectors. Sometimes they consulted their own staff and took the current offering to point out how the value from co-operation accrues. The discussions ranged from the need for strategic changes to slight adjustments to the current offerings, with few changes to the processes of the companies. Also our interviews within the individual organisations revealed large variation in opinions of what was considered as suitable joint service offering.

The interim result of these two rounds of analysis (components and the whole) was a classification of the customers according to their co-operative capability and production technology potential within selected geographical market area. Hence, although the consortium planned to start the modelling from potential technological innovations, they soon abandoned it and restarted from the differing customer needs. The consortium was able to reach a consensus where each customer category required differentiated service, technology, local support and pricing.

The network organisation was outlined on the basis of bilateral discussions between the researchers and each company. As confidence in the business model-building project grew, the roles and responsibilities, pros and cons of different legal organisation options were discussed also in joint meetings of the entire consortium. Role-plays (Torvinen & Jalonen, 2000) proved useful making abstract ideas more concrete and in clarifying role-specific problems (i.e., how the customers, consultants, local support, etc. could experience the offering). We also requested each company to consider cooperation-specific problems, and to justify their standpoints at the round table meeting for consensus seeking. Confidential talks in company dyads were going on throughout the process. To us it appeared a necessary, but not sufficient means to iron-out obstacles to bilateral cooperation between the companies.

Options for financing the offerings were approached by first means of interviews. We found out that the industry traditionally expected financing of the investment to be the responsibility of the customer. This has lead to

complicated and product specific terms of payments in the offering. Some charge-scheduled payments depending on the performance, some down payments whereas the third option is an annual lease and daily fee on the changes. The researchers then compiled a summary based on the interviews with the representatives' for potential ways to allocation of costs and revenues within the consortium for discussion. Benchmarking other industries served as the means avoid sticking to the present financial arrangements in the new business models. The inclusion of financing as part of the service offering was considered a key competitive factor, but it was also recognised that the consortium was not prepared to provide sufficient funding to augment the offering beyond the present financial arrangements.

The participants were very motivated to the extent that the consortium had one company representative conducting interviews at the overseas customer sites on behalf of the consortium.

In order to keep the business model development as a whole under control we held frequent network meetings. In addition, numerous confidential one-on-one discussions served as a direct channel of feedback and, in particular, as a means of strengthening commitment and mutual confidence. Furthermore, the network representatives negotiated through out the process within their own companies. Sometimes, also the researchers were asked to participate or to provide back up information for these internal meetings.

Boundary activities initiated to achieve the network business model

As described in the previous section, the design of joint business model was carried out through various workshops, meetings, and confidential discussions, at multiple levels. When analysing the process, the researchers identified three simplified, iterative learning and change processes initiated during the business planning for the harmonisation of the joint business model. (Illustrated in FIGURE 5., the three smaller triangles represent the enterprises, and the big triangle represents the network). In addition, as the fourth process, we recognised that the network parties should also be able to analyse and articulate the possible need for new knowledge, partners, infrastructure etc., for the offering. Next, we will describe the harmonisation processes in more detail.

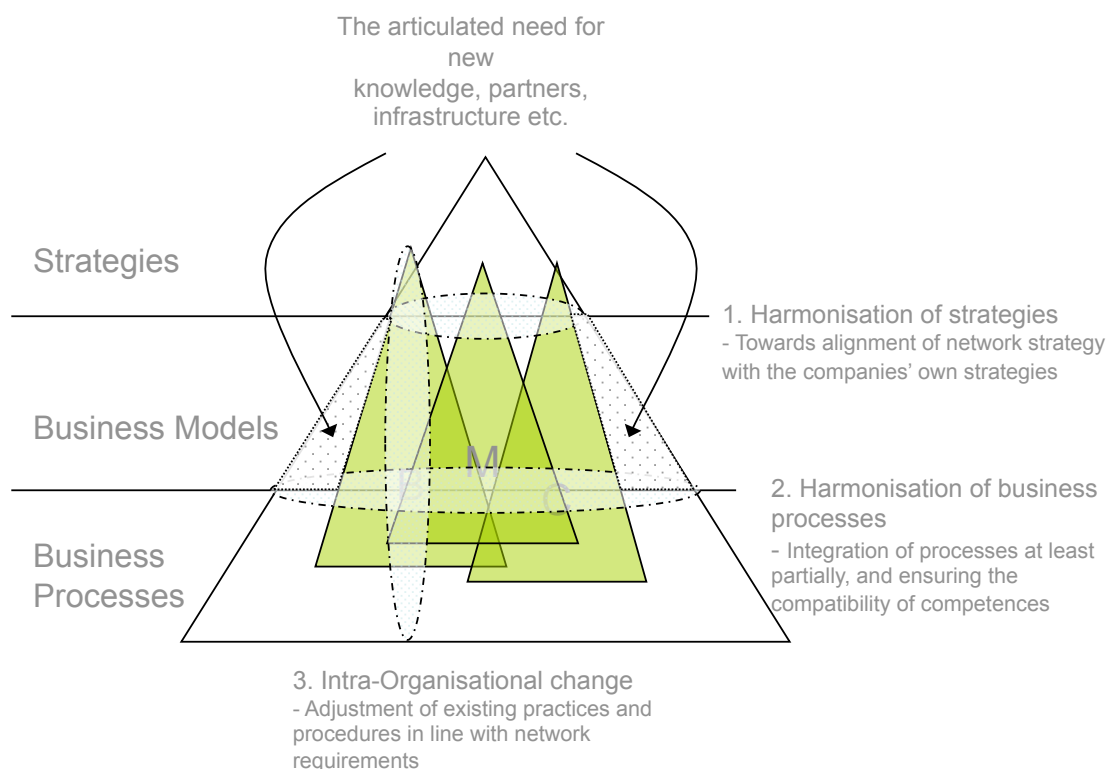


FIGURE 5 Changes required in the development of a common business model

1. Harmonisation of strategies: It was seen necessary that the joint business model was compatible with the strategies of all participants – no company will enter in the collaborative network if its aim conflict with the company's own strategies. In our case, the core team in several workshops and other cross-boundary discussions assessed and interpreted the individual strategies of each other member company and sought a suitable common strategically adjusted goal for the network. The interpretation was backed with a number of methods ranging from interviews to group discussions and scenario building. Thus, in order to harmonise the strategies, the function of the business modelling procedure was to help to clarify the differences of interpretations and clarify dependencies through cross boundary relations, teams and contact persons.

However, the process also relied heavily on creation of blueprint sketches, which were discussed and modified together between the parties. These business model sketches developed gradually towards the final boundary object, and hence served as conscription devices (Henderson, 1991). This finding implies that the strategy harmonisation process involved *political level negotiation due to divergent interests, and required boundary objects that the parties can jointly modify*.

2. Harmonising the processes: Second, in order for the network business model to be adapted to the activities of the member companies in practice, it was to be adjusted at the detailed, *syntactic level* (Carlile, 2004), which required boundary objects such as *rules, taxonomies and databases*. This was apparent

in our case, which started to focus more on practical business processes to implement the business model. The harmonisation work began by presentations of current processes of each company and the changes required, if collaboration was to be fruitful. Later on some process designs were suggested to be jointly drafted towards common process definitions.

Adjustment between the joint business model and mutual processes was seen a necessity. As the companies even operated on different principles (or production types), there was an evident need to align at least some of the processes and ensure data compatibility. The members looked at the kinds of processes they already had and how the network could, by combining these processes, produce the desired outcome (this is depicted in FIGURE4 by letting individual business triangles to overlap on the processes-business model level. The overlap should cover the whole interface at process and business model level in forms of agreed rules, procedures and databases, for interoperability reasons). The focal company's as-delivered design database of the facility was considered to be a good starting point for designing joint processes for the common offerings.

3. Intra-organisational changes: Third recognised adjustment was changing intra-organisational ways of working and resources: Our case evidenced that internal change management within a participating company is essential, if a partner hopes to gain approval for the cooperation by its staff members, and to incorporate the network operations to its other internal processes. As the joint business offering formed only part of partners' operations, it had to be harmonised with the business models and processes applied for producing other products and services. Thus, the company representatives of our study were engaged for considerable periods in negotiations and lobbying at different levels within their own organisations. The internal adaptation was regarded necessary in order for the network's operations to be able to be accepted by each company and to be adapted to the company's own processes. They are reflected in individual business models to ensure the strategic fitting, absorption of innovations, and change management (e.g. in the sense of Takeishi's internal coordination of inter-firm cooperation, 2001).

Among the consortium parties, this third change process proved highly challenging. The task of the key persons appointed to the network project from each company was, firstly, to appoint suitable persons from their organisation to innovative, networked development tasks and, secondly, to function as a communication channel between the network and their own organisation. However, resistance to change within the companies was strong, and this slowed the progress of the network development team's proposals. Thus, in our case, the most demanding knowledge transformation boundary was found within each company. In line with Carlile's (2004) suggestion to the use prototypes in these kinds of situations, the company representatives felt that if we carried out some practical *pilots* of the joint service with selected customers, they had it easier to explain and show the benefits of co-operation within their own companies.

The articulation of needs for additional capabilities: The business modelling reveals if the current network is missing some resources, know-how or actors. If so, the network should take actions to incorporate these in to the network. In our consortium the customer focus posed a need for additional capability from external companies that parties still perceived primarily as competitors, not collaborators. The observed capability gap and competitors services appearing on the customer's preferred agenda restarted negotiations over offering, network structure and financial arrangements.

Assessment of the viability of the joint model

The business model sketches were continuously used by the partners to assess the feasibility and fairness of the joint endeavour. The discussion over the business model brought up financing and ownership of information as the most problematic issues within the planned cooperation including:

- The creation of a common product concept and, brand, for the network,
- The right of ownership of information concerning customer relationships and installations and,
- In particular, the calculation and allocation of business costs and revenues within the network: Some of the companies strove for a partnership network in which costs and revenues would be shared equally among all parties. In contrast, others viewed that the majority of costs and revenues should fall to only one of the companies.
- The partners disagreed on the valuation of past investments such as background intellectual property and the joint use of facilities of the parties.

On the other hand, the project had continuous customer contact on the overseas market and we made a number of interviews with the site, production and technology management on the offering created with the blueprint business model. After initial doubts, they were eventually most willing to continue with the consortium to implement the offering in a few of their plants.

After 30 months from the initiation of the discussions, the consortium ran out of time. Even though the partner organisations saw many benefits along the period of joint business development, and the trial customer started to warm up, the partners considered the still unresolved issues mentioned above to outweigh the benefits. Solving these problems would have required continuation of negotiations, most likely with a bunch of lawyers and, possibly, inclusion of new partners. Capacity of the companies to participate in the network cooperation waned, in some cases dramatically: one company modified its business strategy such that the development of a core service dedicated for use by the network was discontinued. The weakened financial situation of another company led to extensive staff reductions, and felt obliged to discontinue participation in this joint development project. As consequence, the development of the joint business venture was terminated by joint decision.

Despite the readiness by the customer to start a pilot, no joint service was finalised for wide scale market launch.

DISCUSSION

The joint business model development process served as a means of showcasing and transferring the parties' knowledge within the network. By discussing and developing different draft plans for each component of the business model and the connections between these components, the companies were attracted to reconsider their own background assumptions and to share their business concerns with the other parties. The model thus served as a tool for clarifying mutual dependencies and differences of interpretation between individual members.

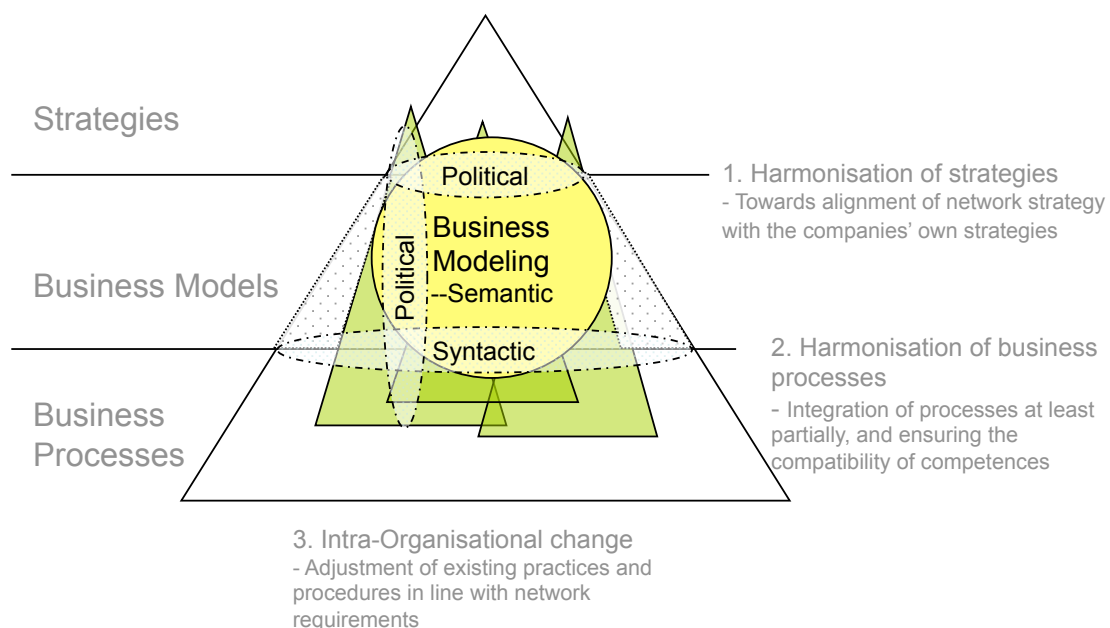


FIGURE 6 Types of boundaries in the development of a common business model

Previously, we listed harmonisation needs (see also FIGURE 6) that were seen essential for the companies to be able to assess how closely the network model align with their strategies (strategy harmonisation), practical processes (process harmonisation), and to what extent they are prepared to change in order to achieve cooperation (intra-organisational change).

Next, we reflect upon the three first harmonisation processes with boundary activities coined by Carlile (2004),

- We noticed that both in strategic and intra-organisational harmonisation, the parties were involved in political level knowledge transformation. This was done by sketching and jointly developing various blueprints on the

details of the business model; the business model ontology concepts served as such as first boundary objects of the network, on the basis of which future business activities were discussed. Thus the business model was utilised as political level conscription device (Henderson, 1991).

- The harmonisation of business service and delivery processes required syntactic level boundary objects, utilizing joint databases of the focal company about the customer site information and early standardisation efforts for exchanging information, communication and co-operations as predicted by Carlile's theory.
- However, we also recognised specific needs for improvement in the boundary objects used: First, the business modelling should be carried out further towards more detailed boundary objects in order to being capable to advance the harmonisation of processes. This would require that business model was converted to formal architecture and process model. Second, the participants felt that practical *pilots* was needed in political transformation process, since through pilots or proof-of-concepts it would be easier to explain the effects of the collaboration within their own companies. We think both of the above-mentioned observations give good grounds to support Carlile's theoretical model.

Thus, the conscription process should eventually end up into more concrete performance indicators: estimates of the consequences in volumes, income and expenses, prototypal designs like proofs-of-concepts for convincing not only the customers, but to have a positive impact on the internal political level processes of the parties. These can give the others more explicit information for their own estimates of the value, risks and fairness of the endeavour.

Summary

This paper reports an action research study where companies, which had engaged in bilateral relations for a number of years, attempted to establish a joint business venture. For this purpose, a consortium was established with the aim of creating mutual understanding regarding the future joint business and to come up with a common proposal as to what form the network business model should take in order for its member companies to be able to jointly offer a commercially viable service. During the process we applied joint business modelling and analysed its role during the development with the concepts of boundary objects (Star & Griesemer, 1989), conscription devices (Henderson, 1991) and how they are postulated to be used during a co-operative effort (Carlile, 2004). Our research confirms the implications of Carlile's theory (2004) and also gives some practical advice for managing such consortia.

As companies increasingly outsource non-core functions as external business components, the number of inter-organisational, changeable interfaces is

increasing. Previous to this trend, syntactic level tools, i.e. rules and databases, were sufficient for the exchange of knowledge between parties, because these were held within the same organisation. With the proliferation of subcontracting, and as operating conditions change, cross-boundary cooperation will require more semantic level knowledge transfer tools for the clarification of meaning and differences of interpretation. When the goal is to establish joint operations and to combine knowledge between actors, cooperation becomes still more complex. The individual actor is thus obliged to find the means and the will to change. What may originally have been intended as a flexible extension of resources may in fact require substantial investment, planning and negotiation in order to align the strategies and business processes of the partner companies.

Our study shows how joint business modelling enabled the potential partners of a business network to identify deficiencies in their financing expertise, and risks related to conflicting incentives. The business model also revealed a need for additional expertise and highlighted how the planned joint operations deviated from the member companies' existing operations models. Upon realisation of the extent of the risk and changes involved, the companies were not willing to implement the pragmatic or syntactic level changes needed to move towards a common operations model.

Our study also showcased that negotiations over business model entail substantial amount of knowledge sharing over several knowledge boundaries. The business modelling process seems to cover all the knowledge boundaries each requiring special boundary objects (Carlile, 2004). The business modelling process started from static boundary objects, such as theoretical ontology, building on which the partners developed in collaboration dynamic sketches and at the same time aimed at more practical prototypes, trials and pilots. All these were regarded as necessary to support the semantic, syntactic and political levels in joint collaboration across differing knowledge boundaries.

The analysis points out the rising importance of political knowledge transfer in coordination of networks. Both the need for harmonisation of network strategy and the need for intra-organisational changes within each participating company entail substantial amount of political knowledge transformation. Simple managerial decision is not sufficient, but conscription devices, are required to help the parties to negotiate the details of the network collaboration. In our empirical case, the business model process acted as a framework that guided the selection of specific boundary objects and methods during the process. And the business model itself was utilised as a conscription device, which was jointly modified towards acceptable description of networks operations and coordination.

The study also showed the challenge of bridging political level knowledge boundaries. Even though jointly sketched business model descriptions are suitable for negotiation and agreement within small groups, their suitability in large scale is questionable. Not all can participate in sketching. Thus, the outcomes of the conscription process should be far more concrete than suggested in the business model literature, and for somewhat unanticipated

reason: The concrete performance indicators can give the others more explicit information to make their own estimates of the value, risks and fairness of the endeavour.

And last, this study showed how the analysis of the business model made the risks related to the new joint offering clear to all parties. It saved a lot of money that would have been wasted if the companies had started the endeavour without thorough analysis. Soon the network would have run into the problems we were now able to recognise in before hand through business modelling approach.

This study has many shortcomings and limitations. It is based on one empirical case, albeit an extensive one (we were following intensely the progress more than two years), and thus, it does not provide proper grounds for generalisations beyond the case itself. Furthermore, the three harmonisation needs pointed out in the paper were recognised by the researchers during the study from the daily activities of the network. We do not have exact data on for instance how much time the partners spend in these harmonisation activities, nor measures on their importance. This would require a new, very carefully designed study and full research co-operation of the partners. Moreover, in our case, the reluctance of the partners towards intra-organisational harmonisation can be pointed as one major issue leading to end of negotiations. Perhaps, in case of smaller, non-public companies, the processes would have been more straightforward due to flatter and smaller hierarchies, and due to less legislation, which inhibits transparency. And last, as we researchers were part of the team, we affected the way the network selected and utilised the boundary objects. We do not know, for instance, if left alone, the network would still had carried out the business modelling process in the same way as they now did.

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