Balancing the Flows: Managing the Intellectual Capital Flows in Inter-Organisational Projects

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Abstract: The aim of this paper is to analyze different strategies for protecting knowledge in interorganisational collaborative relationships, based on intellectual capital (IC) theory. Previous research has stressed the need for the flows between structural, human and relational capital to work properly, i.e. that the firm has a broad bandwidth of communication. Firms involved in interorganisational collaborative relationships need to be able to manage the IC flows in order to make the communication run smoothly, while limiting involuntary leakage of strategically important knowledge. The paper examines the strategies aimed at keeping the balance between sharing and protecting knowledge identified in a multinational firm with extensive experience of close collaboration with partners that are partly also competitors.

Keywords: Intellectual capital, protection of knowledge, interorganisational collaboration

1. Introduction

In the fast moving information society firms need to be able to adjust to market changes and other external factors quickly. However, firms often face the reality that in-house development and new adaptations of knowledge become too costly both terms of time and finances. New comprehensions of collaboration and competition emerge as firms increasingly form alliances and enter joint projects or networks (Gibbons et al. 1994) in order to develop new knowledge for innovations or technologies, or to enhance the quality of existing products or processes (Dyer & Nobeoka 2000; Doz et al 2000).

The aim of this paper is to analyse, through the lens of intellectual capital (IC) theory, different strategies for managing the flows of IC in interorganisational collaborative relationships. The research question the paper aims to explore is: How can IC theory advance the understanding of how organizations try to manage the flows of intellectual capital in interorganisational relationships in order to protect their knowledge? IC theory is chosen in this paper as a novel approach for analysing strategies for protecting knowledge. New research (Salojärvi 2005) indicates that there is a relation between managing the sharing and protecting of knowledge on the one hand, and organizational success in terms of growth on the other hand. Salojärvi's study indicates that many companies are using knowledge management to implement either a sharing or a protection strategy, but that it is the companies implementing both of these strategies to manage the balance that develop into organizations with high competitive strengths and high performance. They are often innovative high growth companies. Consequently, there is a need for further studies in the area.

Following the work of among others Sveiby (1989, 1997), (1998a), Stewart (1991, 1994, 1997) and Saint-Onge (1996), the intellectual capital resources that can be employed by an organization are in this paper considered an entity containing three different dimensions. These are: 1) human capital; 2) structural capital; and 3) relational capital. Human capital is seen as the skills and knowledge residing in the minds of the employees, structural capital as knowledge leveraged in processes and structures that support the staff in their intellectual work, whereas relational capital is seen to involve the relationship the firm has with external parties. Previous research has stressed the need for the flows between these dimensions of IC to run smoothly, expressed as an appropriate bandwidth of communication built on trust (Sveiby in Stadler 1998). Collaboration between two parties may be built exclusively on trust, and lacking contracts (Davenport et al 1999, Fraser et al 2001). However, it is highly unlikely that a firm would enter a contractual arrangement with another party without the existence of trust (Hägg 1994), as trust is a "necessary condition for economic exchange" (Neu 1991 p 243). The definition of trust used here is an "actor's expectation of the other party's capability, goodwill and self-reference in future situations involving risk and vulnerability" Blomqvist 2002: 269)

Firms involved in interorganisational collaborative relationships, however, need to be able to manage the IC flows in order to make the communication run smoothly, while limiting involuntary leakage of strategically important knowledge. The most appropriate bandwidth of communication is not necessarily the broadest, but rather a balanced outcome of sharing and protection considerations. The focus of this paper is on the flows between the relational capital, manifested by relationships with external partners,

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and human and structural capital. The flows as constructed in this paper and protection strategies are illustrated in figure 1.The large arrows indicate the bandwidth between the different kinds of intellectual capital, whereas the small arrows demonstrate where protective mechanisms might have to be put in place. The large straight arrow between structural and human capital indicates flows that are important for the function of the organization as a whole, but that do not need to be restricted in any way as they are internal to the firm and do not involve any external parties.

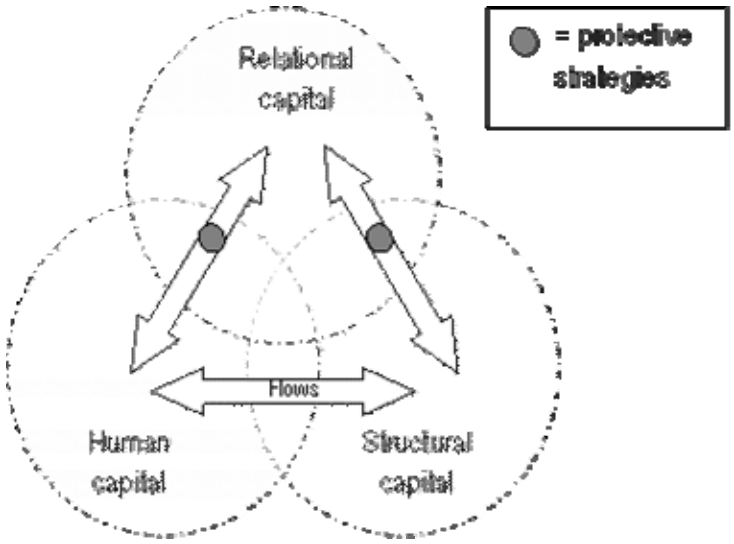

Figure 1: Types of organizational intellectual capital and the flows between them

Although this paper discusses strategies for protecting knowledge, the intention is not to advocate a total closure of the channels connecting (external) relationship capital to the internal dimensions of organizational capital. Such excluding strategies entail performing selected tasks within the firm, on behalf of an alliance by building a “Chinese wall” or “Black Box” (Lewis 1990, Lorange & Roos 1992) around competences and hence locking in firm-specific knowledge. There are also other selective strategies that aim to limit the scope of collaboration to certain technologies, products, processes or markets (Hamel 1991, Baughn et al. 1997, Oxley & Sampson 2004) are not discussed in this paper. Neither is it possible to take all the factors facilitating knowledge transfer and claim they can be turned around and regarded as protective strategies. Rather, the underlying assumption is to reach a suitable bandwidth. This by adjusting the channel so that knowledge can flow in and out of the organization during different kinds of collaboration, but still do so in a controlled manner. Naturally, for interorganisational collaboration to occur, knowledge needs to flow in and out of the organization as employees from the two organizations interact and engage in joint problem solving. Protection is here defined as “the process by which firms sustain the uniqueness and value of their [] competences” (McEvily, Eisenhardt and Prescott 2004:114)

This paper is structured as follows: The different dimensions of the classification of organizational intellectual capital – human, structural and relational capital - are discussed in the following section, followed by a review of the methodology used for the empirical study. After this, the empirical results and the protective strategies used for managing the flows in the case company are examined. The results are in the discussion section validated and compared to earlier research within the strategic management field, after which the conclusion together with the suggestions for further research and the limitations are presented in the last section.

2. Intellectual capital

Tom Stewart (1991) in his article “Brain Power - How Intellectual Capital Is Becoming America's Most Valuable Asset” was among the first to use the term intellectual capital. The term had been used before, but what differentiated Stewart’s discussion of the intellectual capital of the firm was that he advanced it to an organizational level. (Sveiby 1998) Since then, knowledge as an intangible asset is often seen as a possession or property of an organization, i.e. the stock of knowledge that resides within an organization at a certain point in time. (Bontis, 1996, 1998, 1999, 2002; Bontis et al., 1999; Choo and Bontis, 2002; Edvinsson and Malone, 1997; Stewart, 1997;

Sveiby, 1997). This stock of knowledge can be further divided into different subdivisions: individual, group, and organizational level (Bontis, Crossan & Hollan 2002) or, as opted for in this paper; human, structural, and relational capital (Sveiby 1989, 1997; Stewart 1991, 1994, 1997; Saint-Onge1996). As illustrated in Figure 1, the interaction between these subdimensions of intellectual capital is identified as flows of knowledge. In the following section the different dimensions of the classification of organizational intellectual capital – human, structural and relational capital – are presented.

2.1 Human capital

Human capital is the sometimes tacit knowledge that resides in the heads of the employees, ranging from the professional staff, the R&D experts, to factory workers and marketing people (Sveiby 1997). It is especially important to professional service firms as it constitutes the core competency of the organization, but remains difficult to codify. The flows between human and structural capital represent internal flows of the organization, where at least some of the knowledge that resides in the minds of the staff can be captured and leveraged, and turned into organizational knowledge. As Ordoñez de Pablos (2004) points out, this is a vital process for the survival of the organization, as individuals only use human capital in their work on a voluntary basis Hence measures need to be in place for making sure that the knowledge can be captured and made available for others in the organization should they need it.

2.2 Structural capital

Structural capital is the knowledge embodied in the organization, in the structures built to support the staff in their intellectual work. It helps the organization in turning individual human intelligence into knowledge that can be measured and developed on an organizational level. Without good and reliable structures for leveraging human capital it will only remain in the minds of the employees. In other words, by leveraging human capital and making it useful for the whole organization, the employees create structural capital. (Ordóñez de Pablos 2004, Bontis 1998) Structural capital contains the patents of the firm, models, templates and computer systems and other administrative processes, as well as the culture or the atmosphere of a firm that makes people want to share and collaborate, and that tolerates failures and encourages staff to try new things without risks of penalizations (Sveiby 1997). Bontis (1998) differentiates between two kinds of structural capital: its technological component and architectural competencies. The technological component is employed in the day-to-day problem solving activities, and includes the local abilities and knowledge, including tacit knowledge, proprietary design rules and unique collaborative processes. The architectural competencies are more overlapping and concern communication channels and information filters between different groups of the organization, idiosyncratic search routines and control systems.

2.3 Relational capital

Relational capital consists of a wide variety of external relationships between the organization and its customers, suppliers, competitors, and partners. The value of the relationship may sometimes be trademarked or otherwise converted into intellectual property of the company. The relationships determine the image the market get of the organization (Sveiby 1997), and represent the potential value an organization can achieve based on intangibles external to the organization itself. This also includes an understanding of the impact of industry associations and customer needs, and access to the knowledge embedded in customers and partners (Bontis 1998). Suggested measurements of relational capital include seeing it as a function of the longevity of the relationship, based on the assumption that the value of relational capital increases with time (Bontis 1998). There is, however, no simple way of conducting such a measurement.

3. Methodology

The study was conducted in a professional service firm, Company A, a multinational with approximately 6000 employees worldwide. Company A is wholly owned by the employees, and specialized on consultancy and engineering. Its UK-division was used for this study, and the interviewed project managers were chosen to represent different collaborative relationships that the firm had with the same external partner. The study hence focuses on the relationship between the engineering consultancy firm and its partner, a construction service firm, from the point of view of the engineering consultancy. Whereas the employees of the consultancy firm that are interviewed are seen as representatives of the relationship between the two firms they all naturally have their own personal relationship to different people in the partner firm. The projects in this industry usually are carried out as consortia consisting of several organizations, some of which competitors and also the client is usually very involved. Hence why other firms are sometimes mentioned in the quotes from the interviews.

The empirical study consists of 8 interviews with project managers from the engineering consultancy firm with prior experience of interorganisational collaborative projects. The taped, semi structured interviews lasted for 1-1,5 hours. After the interview, the researcher transcribed the tapes with the assistance of N-Vivo software. In addition to the interviews, general industry information and material, as well as informal discussion with the employees were used as supplementary sources of information.

4. Strategies for managing risk

The risks involved in interorganisational collaboration may vary from project to project. Oxley and Sampson (2004) identify five issues that may be internalized by the partner when collaborating (the study focused on R&D collaboration, although the identified risks are generalizable to other kinds of collaboration). These are: 1) the loss of strategic and R&D knowledge, which includes hints the partner can pick up about the firm's strategies or directions of technological development, 2) the loss of competitive benchmarking data, 3) identification and poaching of employees that the company might be interested in hiring, 4) the loss of explicit, codified knowledge such as drawings, designs, procedures and finally 5) the exposure of tacit knowledge involved in work routines and embedded skills. These five risks will be the base for the following analysis of the strategies employed by the case company to protect knowledge, from the theoretical lens of IC.

The following sections focus on the flows between relational capital and the other two forms of capital. The strategies for protecting knowledge present in the case company are introduced in each of these flows and discussed in relation to the risks. The flow between human and structural capital is included in the discussion, as it is an internal flow and does not imply any risks in terms of disclosure. However, the issue of knowledge protection is certainly also present on an individual level within the firm. Employees have to be motivated to share their knowledge with others within the organization, making the flow between human and structural capital very important for the company. This acknowledgement notwithstanding it is a discussion that falls outside the scope of this paper.

4.1 The flows between human and relational capital

As human capital is inherent in the minds of the employees, the strategies for protection of knowledge important for managing this flow are mostly relating to the staff. The strategies found in the empirical case study concerning human capital are presented in relation to the previously-mentioned risks. The core capabilities of the case firm were by the informants identified as depending largely on human capital, as they were residing in the minds of a handful of people, who were claimed to be responsible for giving the company its innovative and competitive edge. Furthermore, the structural capital i.e. processes and structures around them that enabled innovation and developed well-functioning business solutions were also mentioned as part of the concept. When co-locating in the same office with partners these innovators would not be sitting close to the incoming staff from the partner firm, due to their high competitive value. Hence, the strategy chosen by the case firm was to "lock in" certain key staff or at least to separate them from the collaborative relationships, i.e. cutting off the flows between human and relational capital in terms of certain individuals. This is not, however, generally a strategy that can be used in this kind of collaboration.

Six different strategies were identified in the case material that can prevent risks of the partner identifying and poaching key staff involved in collaboration. These are: retaining staff; creating loyalty and ensuring professional behaviour; gate keeping; utilization of reputation; and guarding customer relationships.

4.1.1 Retaining staff

Retaining staff is an important yet simple strategy for the protection of knowledge. Company A had a particular problem with co-located staff, as the rate of people staying on at the partner company was rather high, according to interviewee's estimation as much as half of the people sent on secondment quit their job for staying with the partner firm. Hence their problem was rather a lack of strategy to retain staff.

> *"They have actually poached [some] of our staff, our key staff and others. And have those people to implement similar systems for themselves, which is difficult to restrict that sort of thing." (Project Manager A)*

Poaching often happens in situations where the people feel that their work is more valued in the partner firm, and start to develop loyalty towards the partner firm instead of the parent firm (Pitsis,

Kornberger & Clegg 2004). However, as pointed out in literature (Liebeskind 1996) this issue could be solved by obliging the employees to sign an agreement not to accept competing job offers, before leaving for secondment

4.1.2 Ensuring Loyalty

Developing a sense of loyalty amongst the staff is an important strategy not only in the case of secondment. In collaborative projects it is equally important that employees feel a sense of loyalty towards their parent company, as this will influence their behaviour when interacting with staff from other firms. There is a clear need for strategies and awareness concerning these issues, as the expectations of the team members from the different organization often vary. Determining where the boundaries are is not always an easy task, as confirmed by the following quotation:

> *""The representatives of the partner firm in team thinks that we] should be freely giving [knowledge to them] because it is in the interest of the team. And it might be in the interest of the team to do it, but it might be in the interest of one of the organizations [to] misuse that sort of trusted equipment and reengineer it…And we'd loose our competitive edge within the business, within the industry. "(Project Manager C)*

Other important measures for creating loyalty include team branding so that people feel part of the team and the yearly conference was mentioned as an eye-opener regarding building loyalty to Company A. Here the project managers changed their view that they are doing in their team "for Company X is much more important than anything that could be happening anywhere else in Company A". However, being brought in contact with the worldwide organisation made them feel part of the entity of the global organization of Company A, and also increased the understanding of the power of Company A's knowledge as a whole. Hence the yearly conference is a very important factor creating loyalty to the organization.

4.1.3 Conventions of professionalism

The strategy of creating conventions of professionalism that emerged from the empirical material is closely related to loyalty. When asked about how an employee learns to manage the balance between sharing and protecting knowledge in collaboration, the informants identified experience and mentoring. Employees are not given certain responsibilities unless they already have a history within the firm and have gained some experience, and during this development period senior staff supports them. Through the development of conventions of professionalism the employees are expected to explicitly consider the need to for professional behaviour at all times as they often are located in the partner's premises. In other words, they need to be aware of the fact that a behaviour that is displayed internally in the organization might not be acceptable in close collaboration.

4.1.4 Gate keeping

For some forms of interaction there is a gatekeeper, who is in charge that set procedures are followed before signing out documents to the partner. An occurrence of this is illustrated in the following statement:

> *"You have reached a particular grade or status in the company of seniority, that allows you to sign a letter, sign a drawing, sign a particular bit of information [] But it does still come down to the discretion and understanding of the project manager, say [] the only person that would legitimately sign information out is the project manager". (Project Manager F)*

No document may leave the organization without the correct signature on it, and only certain people are allowed to sign. Other processes are followed when developing new solutions, as they have to go through a control panel where it is decided if the solution can be offered to partners or if it makes the core competences too visible, and has to be kept within the firm, or developed and released at a later stage.

4.1.5 Utilization of reputation

Reputation is an integral part of relational capital and can also function as a protection strategy. This was also confirmed by the case study as one of the best ways of making sure that a partner would not behave opportunistically.

> *"You know, we could put bad press out about them, if we wanted to, around the clients. Reputation is by far the biggest weapon you have in you armoury. And the biggest threat to make." (Alliance Manager D)*

If a firm has got a reputation of trying to maximize the profit from a collaborative relationship in terms of learning from the partner, this information is likely to be spread to potential new partners. The reputation of a firm is taken into account when choosing between potential partners. Consequently, untrustworthy behaviour on behalf of a firm will have a negative impact on the negotiation strength of that firm when

discussing terms for future alliances (Baughn et al. 1997), as the trust and perceived risk will influence the structure of a collaborative relationship (Ring and Van de Ven 1992).

4.1.6 Guarding customer relationships

The case company is a professional service firm, where knowledge exchange and protection is very important in the day-to-day collaboration with external partners. It is very dependent on its relational capital, both for maintaining partners and finding new suitable partners and customers as illustrated in the previous section. However, the other dimensions of intellectual capital are also needed in order for the firm to have something to offer partners and customers. Hence, the managers of the firm face significant challenges and risks when managing the firm in collaboration and maintaining its competitive edge.

> *"The biggest concern we have is our client relationships […] that they would miss us out of client relationships. You know, we've made the introductions, and they then go into the client and do the deal." (Alliance Manager D)*

4.1.7 Risks

All the strategies identified in the previous section help to protect a firm form several different risks. The first three, retaining staff, creating loyalty and ensuring professional behaviour, are clearly aimed at avoiding the risk of the partner poaching employees. It is also through these strategies that the firm avoids losing the tacit and explicit knowledge that the employees have acquired from their work experience. In addition, some employees possess extensive knowledge about strategic plans and R&D development. However, it could be argued that even though an employee would start working for the partner firm, he/she would not necessarily share all the knowledge and experience he/she possesses from the former employer. Still, there is a risk that will happen, and this risk can be avoided by making sure that poaching does not occur in the first place.

The strategy of gate-keeping will mainly protect the firm against the loss of explicit knowledge. The gatekeeper is the person responsible for signing out drawing and similar material.

The strategy of utilizing reputation could work two ways. On the one hand, a firm with high reputation will easier attract and maintain key employees. On the other hand, a firm can use the threat of spreading bad reputation about a partner's opportunistic behaviour as a protective strategy.

The final strategy, guarding of customer relationships, can be seen as protection from the loss of explicit knowledge. Usually in a relationship there is also a lot of tacit knowledge involved, such as a personal relation between employees at the supplier and customer firm, which would not be acquired even though the partner would happen to get access to customer records. In the collaborative projects of the case firm there was sometimes an issue about which firm was going to be the one with direct contact to the customers. In these cases, the experience of trust between the two collaborating firms was a critical factor.

4.2 The flows between structural and relational capital

Whereas the previous section presented the flows between the human and the (external) relational capital, this section focuses on the interaction between relational capital and structural capital. The attention hence turns from the employees' contacts with the partner, to the possibility of the partner acquiring knowledge through, for example, systems, processes or products. Some of the structural capital is tacit in, for example, the problem solving processes and work procedures, and thus not easily imitated. However, when working closely together the partner may also gain insight into such processes. The set of strategies used to control the flows between structural and relational capital differ from each other to a large degree. In the case company six strategies for managing this flow were identified. These are: process for approving new tools, developing classification, time advantage, restricted access to knowledge base, release of only safe documents and packaging knowledge into systems.

4.2.1 Process for approving new tools

Innovations cannot always be immediately released on the market as they might reveal too much about the company's technical development. Informal processes for avoiding the risk of exposure can even result in the innovations/tools not being released at all, or alternatively with a slight delay so that it no longer reveals the latest technological development.

> *"There has been situation where we've [] put together a business case of a tool and then we've found that it actually would be giving away too much competitive edge and we weren't going to release it … [This is] not really a formal process … So because they go through this process a lot they know really what are the signs to look for within small packages and they can give*

you a sort of spine or they might guide you through the appropriate channels to develop" (Project Manager C)

It is interesting to observe that this process, which could prove very important to preserving company core competences, only is informally acknowledged. One would expect such an important part of product development to be mandatory and formally instituted.

4.2.2 Developing classifications

The industry of the case company is still in a developing phase, and there are few established classifications or standards to follow. There is an ongoing competition about who can develop the best classifications, mainly because this will give the company good publicity among the clients.

> *"We are certainly leading in the number of the actual classifications that are now being written … We are actually quite careful about how we release the information to the rest [of the partner team]. We've become quite conscious as we've seen examples where we've given away something and they have passed in on [] and we have essentially given it to them for free. Then they have the ability to reuse that somewhere else within their organization. you need to be very careful about those, the intangible property." (Project Manager A)*

Still, developing classification in this context may also give the company substantial competitive advantages if they are accepted on an industry level.

4.2.3 Time advantage

The strategy of time advantage is closely related to the process for approving new tools as this also seems to be an informal process. However, in this case it is all about making sure that the company's own progress is so far ahead of the partners', so that releasing an invention will not endanger the company's competitive edge.

> *"We need to be quite careful about what we consider to be the crown jewels. We're not going to release this, and if we are going to release this we need to do it in a very controlled manner. And what we perceive to be less sort of a great innovation or, it's still, we've this far ahead and we're prepared to release actual innovations that were, say, nine months old or a year old, so that they still are playing catch up but we still look good." (Project Manager C)*

4.2.4 Restricted access to intranet and knowledge base

The case company considered themselves to be a rather transparent and knowledge sharing firm. Still, a clear limit to the transparency was drawn in regards of intranet access and the special knowledge (database where all the knowledge used worldwide was stored. Access to the intranet was guarded, and within some collaborative projects separate intranet systems were provided only for the specific project.

> *"Company A has [an intranet], which includes a number of forums. If [Partner] has a problem, Company A will post it on their behalf onto the [intranet] and give them the answers that come back. However, they will not give them direct access to the system." (Alliance manager G)*

4.2.5 Release of only safe documents

A quite simple way of making sure that important knowledge stays within the company is by sending out only what is referred to as "dead" knowledge. This manifests itself in simple measures such as converting a CAD drawing to a "flat" PDF file before sending it outside the company, or by using software tools but without giving away the code. Project manager F illustrates this by stating that "we were always happy to share information, [] if it was in hard copy or in a secure document. We got the job done, but we didn't give away the tools."

4.2.6 Packaging knowledge into systems

Where knowledge close to the core competences of the firm has to be exposed, the knowledge can be embedded in a product or system so that each component is not easily separated from the rest of the system.

> *"We are rather protective of particular technological initiatives or advances so, for example, as part of our role of business we have developed some quite clever software packages and business systems as well. And so we tend to protect those rather carefully in terms of the rights of access to them and the rights of use. there are some things as the actual software that we won't release to them, because we want to retain ownership of a particular software code, but that's a relatively modest part of it." (Project Manager A)*

This strategy is related to "Causal Ambiguity". Lippman and Rumelt (1982) used causal ambiguity to describe "the phenomenon surrounding business actions and outcomes that

makes it difficult for competitors to emulate strategies" (Reed & DeFilippi 1990). Reed and DeFilippi (1990) posit that the ambiguity can be a barrier to imitation, due to the tacitness, specificity and complexity of the competences, a view that is shared in this paper. The competences of the firm specific knowledge of a firm are not transparent in the result or processes produced by the combination of these competences.

4.2.7 Risks

The process of approving new tools is interesting, as it works throughout the company, but without being formalized or having to follow any specific processes. The informal approval process is extremely important, as this is where the company's core competences are protected against the risk for partners getting insights into them. They protect both from the loss of tacit and explicit knowledge, as well as strategic and R&D knowledge.

The strategy of developing classifications is complex, as it actually lies in the company's interest to eventually release the classifications and get others to use them, otherwise they will not turn into industry wide standards. However, just like the time advantage strategy, it comes down to choosing the right moment to release them. Both strategies are temporal, and hence serve the purpose of protecting strategic and R&D knowledge while it is developing and releasing it at a certain point in time.

The two following strategies concerning restricted access to knowledge base are more formal. The intranet and the knowledge bases are built around the core competences of the company, and not granting partners access to these is a way of protecting the company against loss of both explicit and tacit knowledge. The final strategy, packaging knowledge into systems is a strategy for protecting tacit knowledge.

5. Discussion and conclusions

This paper has analysed the strategies for protection of knowledge within the flows between human, structural and relational capital. Several different strategies have been identified and classified according to the different flows of intellectual capital. Previous research in strategic management has approached the issue, predominantly researchers have commented on the necessity for firms to also protect their knowledge, but without further exploring how. One notable exception is Norman's (2001) work on protective strategies within a high-technology company, where she finds several of the strategies also discussed in this paper. This paper has further explored the issues highlighted in Norman's work.

The strategies identified in the empirical material indicate that a single strategy might in fact protect the firm against several risks. The identified strategies are summarized in Table 1 below. Each strategy is considered in relation to the particular risk it is aimed at preventing. Hence the strategy "Ensuring loyalty" can protect the firm not only from the risk of the partner poaching key employees, but may also reduce the other risks discussed introduced in this paper.

As indicated in the, the two strategies that protect the company from most risk and helps balancing the IC flow between structural and relational capital, are the process for 1) approving new tools, and 2) maintaining time advantage. The by far most efficient strategy on the human-relational capital side is, as expected, the strategies aimed at retaining staff and creating loyalty. The balance between loyalties towards the parent company versus to the alliance, joint venture (JV) or acquiring company is an issue that has been discussed in international business (Johnson 1999, Stahl & Sitkin 2004), and no final conclusions have been reached. On one hand it is important that the employees working within the JV develop a sense of shared identity and belonging, but on the other had it is also vital to maintain the ties to the parent company and ensure knowledge transfer back from the JV. As demonstrated in the empirical material, the duality is especially sensitive when expectations of sharing are not the same within the two firms collaborating.

Table 1: Strategies and risks identified in the case company

STRATEGY	RISK IN HUMAN – RELATIONAL CAPITAL	RISK IN STRUCTURAL – RELATIONAL CAPITAL
Process for approving new tools		Loss of Strategic & R&D knowledge Exposure of tacit knowledge Loss of Explicit, codified knowledge
Gate keeping		Loss of Explicit, codified knowledge
Time advantage		Strategic & R&D knowledge Exposing of tacit knowledge Loss of Explicit, codified knowledge
Ensuring loyalty	Loss of Explicit, codified knowledge Identification and poaching of key staff Loss of Strategic & R&D knowledge Exposure of tacit knowledge	
Conventions of professionalism	Loss of Explicit, codified knowledge Exposure of tacit knowledge	
Packaging knowledge into systems	Exposure of tacit knowledge Loss of Explicit, codified knowledge	
Restricted access to intranet/ Knowledge base		Exposure of tacit knowledge Loss of Explicit, codified knowledge
Release of safe documents		Loss of Explicit, codified knowledge
Utilization of reputation	Loss of Explicit, codified knowledge Loss of Strategic & R&D knowledge Exposure of tacit knowledge	Identification and poaching of key staff
Guarding customer relationships	Loss of Explicit, codified knowledge Exposure of tacit knowledge	
Retaining staff	Loss of Explicit, codified knowledge Loss of Strategic & R&D knowledge Exposure of tacit knowledge	
Developing classifications		Loss of Explicit, codified knowledge

The strategies for controlling the flows between human capital and relational capital involves the formal conventions according to which the employees interact with and relate to people external to the organization. The employees need to be given some freedom and responsibility, but also to be aware of the risks involved. The situation facing collaborating firms that share knowledge is similar to the situation when staff create/develop new knowledge inside a firm. For knowledge creation to occur within e.g. an R&D department, there has to be space and interaction between employees for the knowledge to flow and ideas to spark. This notwithstanding there is still a need for structures, in order to capture and leverage the created ideas and avoid them from reaching the competitors (Brown and Duguid 2000). Likewise, in inter-organizational collaboration there is a need for structures supporting the knowledge sharing in order to get the collaboration running. Yet strategies that prevent unintended sharing of firm specific knowledge are required to make sure there are no involuntary knowledge leaks.

An interesting observation is that no strategies were identified that could eliminate or decrease the risk of losing competitive benchmarking data. Such information can often readily be obtained externally, and hence a company can do little to prevent partners from acquiring it. Although this kind of information is important, it does to a lesser extent relate directly to the core competences and its loss does seldom have severe consequences for the company.

The limitations to this study are first and foremost that it is a single case study, and based on a limited number of interviews. Still, it gives some very interesting tentative conclusions. In addition, this paper only reports the tentative conclusions of the first stage of a research project. The next step includes research focused on individuals and on their behaviour in a collaborative setting when having to make decisions about sharing or protecting the knowledge of their organization. The area of research is certainly one that deserves more attention, both from an academic and managerial standpoint.

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