SUMMARY PHD ANNICK WILLEM

The role of organisation specific integration mechanisms in inter-unit knowledge sharing

Research objective

Recent trends in management have highlighted knowledge as a new valuable asset in companies, allowing the generation of a competitive advantage based on the uniqueness of this knowledge asset. The benefits of exploring knowledge -i.e. creating new knowledge- and exploiting knowledge -i.e. making more use of existing knowledge- are widely recognised among academics and practitioners. However, theory development and testing for this new asset are still under development. We lack insights into the optimal use of knowledge, spreading and simultaneously protecting knowledge, leveraging knowledge to make it a sustainable advantage, and, in general, managing knowledge. The extremely intangible, hidden and dispersed character of knowledge increases the difficulty to manage knowledge but also to develop theory for the knowledge concept. Given the importance of the new asset and the lack of solid theories and especially of empirical evidence, research in this not yet fully exploited area is clearly required.

Within this large newly developing research field there is particular need for insights into knowledge sharing within organisations and into the role organisation design plays in knowledge sharing. Organisation design literature has paid mainly attention to the related concept information but not to the knowledge concept. Since knowledge is clearly different from information, it is relevant to reconsider organisation design principles in the light of knowledge exploitation. Furthermore, it is said that organisations, as compared to markets, possess specific integration mechanisms that are very well fit for the integration (including sharing) of knowledge within the organisation. We narrowed our research to knowledge sharing between units. Hence, the focus is on firm specific integration mechanisms linking units and potentially leveraging knowledge sharing.

Positioning knowledge sharing

Studying knowledge sharing requires clear definitions. However, the knowledge concept is ambiguous because of a lack of good definitions, different scientific approaches to knowledge
and the multidimensional character of knowledge (i.e. knowledge with different contents, at different levels, in different recipients and in different forms). Furthermore, knowledge is confused with related concepts, such as information, data, skills, competences and capabilities. We were able to explain the differences and the categories of knowledge, but an encompassing definition would be too vague and abstract. We therefore stick to the well-known definition stating that knowledge is “a dynamic human process of justifying personal belief toward the truth” (Nonaka & Takeuchi 1995). In addition, knowledge has a behavioural and cognitive aspect, and exists in tacit, implicit and explicit forms at the individual, group and organisational levels. Studying the exchange of something as dispersed, multifaceted and ambiguous as knowledge resulted in numerous different knowledge processes, such as transferring, creating, integrating, combining and using knowledge. We focus only on ‘sharing’, which is the exchange of knowledge between at least two parties in a reciprocal process allowing reshaping and sense-making of the knowledge in the new context. A more pragmatic description of knowledge sharing is “the process through which one unit is affected by the experience of another” (Argote e.a. 2000).

Academic attention to knowledge sharing issues is found with researchers in information systems, human resources and strategic management. Especially the latter draw from the organisational economics literature to develop a new theory of the firm. The knowledge-based theory of the firm is an extension of the transaction-cost theory and the resources-based theory but adds particular attention to integration and specialisation of knowledge in organisations, the boundaries of knowledge sharing and the firm specific characteristics allowing knowledge integration. Other institutional economics theories, such as agency theory and asset-specificity, and contingency theories, such as systems theory, information processing and bounded rationality, make useful contributions to the understanding of knowledge sharing processes in organisations as well. However, these theories do not clarify our research focus, viz the effect of inter-unit integration mechanisms on the sharing of knowledge between units of one organisation.

**Theoretical framework**

As a result, a review of the organisation theory was needed to specify inter-unit integration and to detect whether organisation theory has directly or indirectly made any statements on the knowledge sharing issue. The latter is hardly the case. Nonetheless, organisation theory did pay attention to integration and in particular to firm specific coordination mechanisms. In fact, we observe an evolution in organisation theory streams with shifting attention from formal to more informal coordination. These research streams are: classic organisation theory, culture theory,
learning organisation theory (including the absorptive capacity and community of practice theories), network theory (including social capital theory) and social identity theory. They all take different views on firm specific inter-unit coordination. However, four generic coordination types can be distinguished, based on the dimensions formally versus informally imposed coordination upon the units, and programmed (impersonal) versus feedback coordination (i.e. coordination during cooperation, including personal contacts). This results in the following four coordination types: systems (formal and programmed), formal networks (formal and feedback), informal networks (informal and feedback) and shared values (informal and programmed).

An important contribution from the classic organisation theory is the fit approach to organisation structuring. Environment, structure, strategy, technology and behaviour need to be in harmony. Recent literature also indicates that certain technology and behavioural characteristics are conditions for making knowledge sharing possible. Therefore, we take a fit approach to the relationship between coordination and knowledge sharing. This means that we are not only looking at the effect of the four coordination types on knowledge sharing but also at this effect under different technology and behavioural conditions. In particular, the importance of technology is reflected in task interdependency and knowledge transferability. The importance of the unit’s environment is illustrated in the required knowledge flexibility in inter-unit knowledge sharing and the existence of related knowledge between the units. Our model refers to these variables as the task and knowledge characteristics. The crucial behavioural variables that are relevant for knowledge sharing are trust, opportunistic behaviour and politicking. These fit variables also influence the knowledge sharing process directly. Hence, our model has four parts relating to four specific research questions.

The first part covers the possibilities of each of the four coordination types to leverage knowledge sharing. Formal and informal networks bring people together and thus establish channels for knowledge sharing, while systems and shared values guide cooperation indirectly but are important as means for knowledge storage. However, the control and directive character of systems make this coordination unfit for leveraging knowledge sharing.

The second part or second research question looks at the direct effect of the task and knowledge characteristics on knowledge sharing. Task interdependency is assumed to increase knowledge sharing, while knowledge flexibility is assumed to make the knowledge sharing process more difficult and thus to decrease the level of knowledge sharing. Knowledge transferability (including codification, teachability and non-tacitness) and related knowledge facilitate and thus increase knowledge sharing between units.
Thirdly, the behavioural variables directly influence the intentions of the members in the units to share knowledge and will therefore affect the knowledge sharing processes directly as well. Trust is considered as a major stimulator to knowledge sharing and cooperation in general, while opportunism and politicking are assumed to limit sharing.

Our fourth research question, namely “How does coordination between units affect knowledge sharing, given different states of the fit elements?”, refers to interaction effects between the independent variables and indirect effects of these variables on knowledge sharing. Systems, for example, are better fit to enhance the sharing of less complex (i.e. more easily transferable) knowledge and under conditions of trust and low knowledge flexibility. Formal networks are supposed to be fit for sharing complex knowledge under conditions of high knowledge flexibility and high task interdependency. Informal networks are assumed to be very good knowledge sharing mechanisms, even for complex knowledge, but only when there is trust, low opportunism and low levels of politicking. Finally, shared values are also considered to be very useful tools in the knowledge sharing process, but only when knowledge flexibility is low. Several other fit relationships can be derived from the literature, but evidence is mostly very weak. We mentioned only the strongest assumptions, which we formulated as hypotheses in our study.

Methodology

Knowledge sharing is a context embedded process making its measurement difficult. There are no standard methods that are considered as solid measurements of knowledge sharing. Our two exploratory pre-studies indicate that neither a purely qualitative, nor a purely quantitative method are fit to generate the data we need. Triangulation in method is therefore required. The pre-studies were a first indication that coordination does influence knowledge sharing but that other fit variables and context (such as the size of the organisation) are influential as well. These exploratory studies were therefore a first test of our model and of the measurement instruments.

Triangulation is best achieved in a case-study research strategy, which also allows the study of processes in their context and at different levels in the organisation. The research field is sufficiently developed to allow explanatory research, but there is also a need for further analytical generalisation. Case-study research can combine them. Hence, we applied an explanatory causal multiple case-study strategy. In particular, three cases were selected in which we collected documentary data, conducted interviews (43 in total) and used closed Likert scaled questionnaires (574 useful responses in total). Our first case study is a large British multinational in the production and distribution of liqueurs and wine. The other two case studies are in large
Belgian companies with only selected foreign investments in the finance and energy sectors respectively. The level of analysis is the cooperation between two units. Attention was paid to methodological fallacies and bias in our data collection, such as self-selection, non-response, common method variance and low internal validity threats. Several tests were performed to guarantee sufficient validity and reliability. Selection bias was inevitable but there are no reasons to assume that this influences the relationships found.

Special attention was needed to develop the questionnaire and to operationalise the variables. Hardly any scales were ready at hand to measure our variables. Consequently, we had to develop a new instrument that was tested in one of the pre-studies and in three other groups. The dependent variable knowledge sharing is not directly observable. In the empirical studies in the literature, a range of different methods were used, from directly asking the respondents whether knowledge was shared to the use of several kinds of proxies. Following the literature and observing that there is no solid operationalisation of knowledge sharing yet, we opted for three different proxy variables to measure knowledge sharing between units. They are: satisfaction with knowledge sharing, success of knowledge sharing and time spent on knowledge sharing (relative time spent within the time spent in the cooperation).

The data is analysed for each case study separately before an inter-case study analysis is performed. We analysed our research questions and the effect of each independent variable one by one in the qualitative analysis by looking for patterns in the respondents’ answers related to the measured variable. Quantitative data are analysed, together with control variables on the characteristics of the cooperations, in regression analyses for each dependent variable, i.e. the three knowledge sharing proxies. In order to be able to detect indirect relationships among the independent variables affecting knowledge sharing, a path analysis (using the SEM module of Amos 4) is made. Particular attention is paid to potential contextual influences in the relationships found. The inter-case study analysis allows us to look for patterns over the three case studies and to see where the individual case study findings are firm specific. It turned out that in particular the multinational context of the first case study is of importance.

**Findings**

The three proxies – success, satisfaction and time spent on knowledge sharing – measure different dimensions of the knowledge-sharing process. Time spent seems to be less useful as an indicator of knowledge-sharing processes because there was no guarantee that more time spent resulted in successful or even satisfactory sharing. Even the dimensions satisfaction and success were only correlated moderately.
Shared values turned out to be crucial for the success and satisfaction with knowledge sharing. The intensity of knowledge sharing was increased by formal and informal networking. However, networking does not necessarily lead to successful sharing. Especially in informal networking, people were less satisfied with the knowledge sharing. The negative aspects of informal networking, such as opportunism, time-consuming, uncontrollable and allowing politicking, outweigh the benefits of informal networking, although informal networking can fill gaps in knowledge sharing when other coordination is missing. The formal character of ‘formal networking’ is crucial for satisfactory knowledge sharing. Systems had hardly any effect on knowledge sharing, not even when the cooperation was coordinated very dominantly by systems. Nonetheless, when taking a closer look at the qualitative data, we found indications that control, authority and planning systems discourage knowledge sharing, while goal-setting and supportive systems leverage knowledge sharing.

The four coordination types complete and substitute each other because the informal completes gaps in the formal coordination and the four types have an impact on different dimensions of knowledge sharing. Hence, there is no single best way in inter-unit coordination to maximise the quantity and quality of knowledge sharing. A fit approach considering task and knowledge characteristics, in particular interdependency and transferability, and trust is required when developing the right mix of inter-unit integration mechanisms in order to optimise knowledge sharing between units. We prefer to call it knowledge optimising because more knowledge sharing was, as revealed in our study, not always satisfactory to the units.

As expected, the interdependency in tasks between the cooperating units results in more knowledge sharing but such sharing and cooperating are not successful at all. High task interdependency requires the use of formal networking. Success and satisfaction with knowledge sharing depend especially on the transferability of knowledge. This transferability was especially high in combination with trust and shared values. These three variables enhance each other. None of the four coordination types is superior in sharing complex knowledge, not even networking. The existence of related knowledge stimulates sharing as well but less strongly than expected. Knowledge flexibility has hardly any effect.

Together with shared values, trust is the major knowledge-sharing stimulator; even more, we can call it a condition sine qua non for good cooperation and knowledge sharing. Hence, the informal, ‘soft’ integrators are clearly the dominant knowledge-sharing facilitators. As expected, politicking, power and opportunism have negative effects but were not very dominant
in our findings. Interestingly, politicking can result in more knowledge sharing because of the networking aspect in politicking.

In the multinational case study company, there were additional problems relating to knowledge sharing. There was the lack of trust in the competences of other units, the not-invented-here syndrome and distrust of headquarters. The latter aimed at more integration of the local business units. This resulted in scepticism about knowledge sharing, which was assumed to be hidden standardisation. The position and strategic clarity on this issue by headquarters is important. Change processes in the other two companies affected knowledge sharing via lower levels of shared values and increased the use of formal networking.

Contributions

Our empirical evidence suggests that organisation design and in particular the choice of inter-unit coordination affect knowledge sharing between units. Hence, it is relevant to reconsider organisation design to optimise the exploitation of the knowledge asset. Furthermore, we could confirm the importance of a fit approach. Recent trends in the organisation theory literature have emphasised the ‘soft’ coordination types, such as trust and shared values, which turned out to be crucial for knowledge sharing as well. However, informal networking, also encouraged in the recent trends, is less useful for knowledge sharing.

Our research confirms the statements of the knowledge-based theory of the firm, in particular, the fact that firms possess specific integration mechanisms not present in the market that enhance knowledge sharing. Nonetheless, sharing implicit and highly specialised knowledge remains very difficult even if these firm specific integration mechanisms are used. Managers should be aware that knowledge sharing is determined by formal coordination, task and knowledge characteristics, informal coordination and trust. The latter two are hard to control and to manage but should not be neglected because they can constitute a major leverage or barrier for knowledge sharing. Hence, they can make the difference in having or not having a competitive advantage based on knowledge assets.

The case approach was very useful for studying knowledge sharing and quite necessary to understand the context and to be able to explain why several of our findings did not fully match the relationships hypothesised in the literature. Further research should in particular focus on longitudinal data collection and on smaller firms. Furthermore, the relationship between knowledge sharing and performance needs to be explored further, whilst the use of knowledge
after sharing requires closer examination. Future maturation of the field will also allow more sample generalising research strategies.