

**The Effects of the Degree of Decentralization and Networks on  
Knowledge Sharing in MNCs**  
*Based on 6 Empirical Cases*

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## **INTRODUCTION**

In this article we investigate the process of knowledge sharing between the different sites and its influencing factors, especially decentralization and the existence of formal and informal networks, in 6 renowned MNCs in various industries all over the world. The research is based on our recent global study on knowledge management and organizational learning in multinational companies (MNCs), sponsored by the Austrian Research Fund. Quantitative analysis of our data shows that decentralized structures increase the chances for a high personal knowledge flow<sup>1</sup> by more than 500% relative to centralized corporate structures. Looking at the technical knowledge flow, there also can be found the tendency that decentralized structures have a highly positive if not significant influence.

In addition to the decentralized organizational structure, the existence of formal and informal networks in the company also has an impact on the intensity of cross-site knowledge flows between headquarters and subsidiaries and vice versa, as well as between subsidiaries. We will show that the personal flow increases by almost 400% if cross-site networks exist.

Based on an overall sample of 8 case studies and an industry specific selection of 6 companies, each representing the findings from 9 qualitative interviews with top managers (CEOs, CFOs, HR-managers) and knowledge practitioners in the headquarter and 2 subsidiaries of the MNCs, we will be able to confirm our results on a quantitative and qualitative basis. The MNCs chosen represent consultancies, capital goods industry and high-tech companies. The comparison will lead to the outcome that knowledge management

- is a must for consultancies but a risk concerning advancement for consultants.
- will create value in the capital goods industry.
- is nearly useless for high-tech companies.

## **DECENTRALIZATION, NETWORKS AND KNOWLEDGE MANAGEMENT**

We started our research with the basic assumption that there is a direct relationship between the degree of decentralization of an organization and the cross-site knowledge flows. In the

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<sup>1</sup> We define personal knowledge flows as the direct exchange of knowledge on a person-to-person basis. This includes face-to-face meetings, telephone, e-mail, videoconferences etc (cf. also Hansen, Nohria and Tierney 1999). Technical knowledge flow, in contrast, means the sharing of knowledge via a technical intermediary with an anonymous collectivity.

following chapters we will give a short overview concerning the theoretical basis of our empirical study.

## **Decentralization**

According to Macharzina, Oesterle and Broder (2001, p. 642), decentralized organizations are more adaptive, more innovative, and more capable to deal with complex environments than centralized organizations. The premise is that the structure of the MNC can be understood as a differentiated, organizational network, which consists of linkages between the headquarters and the subsidiaries, and of linkages between the subsidiaries.

In decentralized MNCs there is a strong orientation towards the global acquisition and use of knowledge. “Knowledge about the whole company should be embedded in all parts of the multinational system” (Macharzina, Oesterle and Broder 2001, p. 645). If it comes to evaluating the knowledge, often the issue of global strategic goals and local autonomy come to the surface. Researchers found out that especially headquarters tend to reject proposals from subsidiaries and rely on a centralized structure (Macharzina, Oesterle and Broder 2001). To transfer knowledge, there must be both collective commitment of the partners on the one hand, as well as a certain amount of individual and organizational autonomy on the other hand (Gupta and Govindarajan 1991). Thus, this form is supposed to be the most appropriate structure to cope with cultural differences and diversity issues within MNCs.

## **Networks**

Especially, but not only, for the transfer of the highly valuable tacit knowledge, it is important that the involved organizations offer appropriate personal communication possibilities and channels. These knowledge connections “occur through both formal and informal relationships between individuals and groups” and help to build a common language, a cross-site structure and culture (Inkpen 1998, p. 75). Formal and/or informal networks in an organization come into existence through the implementation and use of knowledge connections. Forsgren (2004) puts it like this: “MNCs have networks because there are different kinds of informal, personal connections between managers in different subsidiaries. These connections are crucial because they decrease the information-processing difficulties at the corporate level and constitute the glue that keeps the MNC together” (pp. 32-33).

Therefore, company-wide networks are an excellent mean to foster horizontal integration through the development of a shared sense of organizational identity. They enhance interpersonal contacts and interactions between individuals and thus help to build a climate of trust and to enlarge an organization's capacity for rapid transfer of knowledge and information. Consequently, networks can be seen as facilitators for knowledge exchange (Kasper and Haltmeyer 2002) or as Inkpen and Tsang (2005, p. 146)) put it: "Networks provide firms with access to knowledge, resources, markets, or technologies". In fact, both practical experience and scholarly research have made clear that social networks critically affect knowledge creation and sharing in organizations (Abrams, Cross et al. 2003).

## **KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING IN MNCs**

The overall goal of the research project is to provide a holistic picture of knowledge management in multinational companies (MNCs). To achieve this goal we concentrated on the process of cross-site knowledge sharing in MNCs and the various variables influencing it (see Exhibit 1). The theoretical background integrated in our model is mainly taken from:

- The global learning organization model by Marquardt and Reynolds (1994),
- Prange's approach to inter-organizational learning (1996),
- Inkpen's work on learning and knowledge acquisition through strategic alliances (1998 and 2000),
- The processual model of systemic knowledge management by Kasper and Muehlbacher (2000),
- Learning in multinationals by Macharzina, Oesterle and Broder (2001).

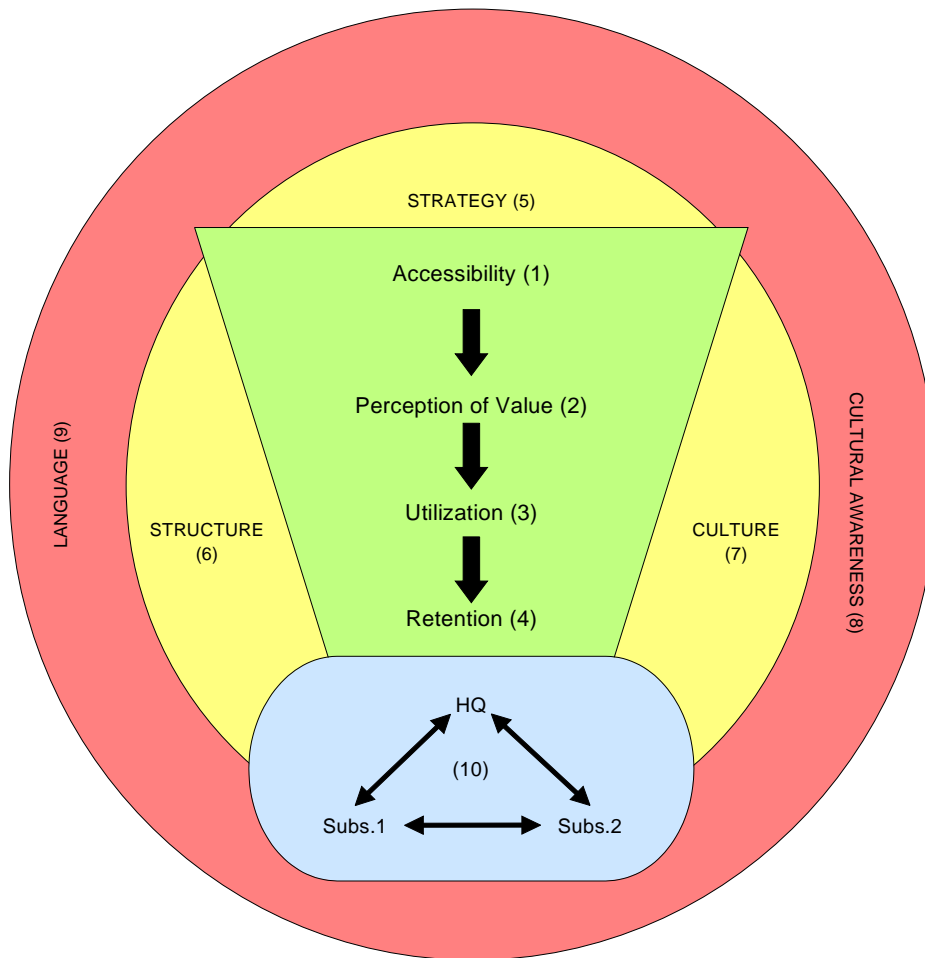
One of the first important preconditions to enable an organization to learn is that knowledge is accessible within the company.

- (1) The **accessibility** of company-wide knowledge refers to the possibility of the organizations' members to take hold of the knowledge existing at other sites. It is the individual assessment if knowledge is accessible, both on a technical as well as on a personal level.
- (2) Furthermore the individuals have to be aware of the value of the knowledge existing at other locations (**perception of value**) which is available both on individual as well as on organizational level.

- (3) If knowledge within the company is accessible and value is attached to it, **utilization** of this knowledge is possible. Thus, the next step is the question if the accessible and valuable knowledge within the company is utilized by the individuals.
- (4) But only the process of **retention**, based on knowledge released from individuals and stored by several forms of documentation or through structure, processes, norms and other organization cultural patterns will lead to organizational learning.

According to van Wijk, van den Bosch et al. (2003) networks themselves may be considered as knowledge as well: “The sharing of knowledge that networks facilitate, at the same time facilitates the development of new networks. In that vein, besides the view that knowledge manifests itself *in* networks, the view has emerged recognizing that networks must be considered essentially *as* knowledge” (p. 443, original emphasis). Therefore we combined the processes of utilization and retention in this study to create a more comprehensive factor concerning the foci on knowledge sharing and networks.

As a matter of fact, the process of knowledge management and organizational learning cannot be examined separated from its context. Since the context factors shown in the two outside layers in our model (see Exhibit 1) have a strong impact on the process of cross-site knowledge sharing as such, the process and context of knowledge management are highly intertwined. With regard to knowledge sharing in multinational organizations it is also necessary to analyze the impact of the multinational context. For a successful management of knowledge sharing it is absolutely necessary to be aware of these different process and context factors.



- (1) refers to the possibility of the organizations' members to take hold of the knowledge existing at other locations. It is the individual assessment if knowledge is accessible.
- (2) refers to the individual perception and attribution of the value (importance, relevance) of the knowledge existing at other sites which is available both on individual as well as on organizational level.
- (3) refers to all forms of utilization of the knowledge coming from other locations on an individual level.
- (4) refers to those forms of utilization which results in organizational learning that means the storage of the knowledge in the organization (by several forms of documentation or through norms, structure and processes). It releases the knowledge from individuals and thus enables organizations to learn.
- (5) refers to the company's strategic direction and its key business drivers.
- (6) refers to the company's tool equipment, the company-wide existing networks and the degree of (de-)centralization.
- (7) refers to the organizational culture, the company's norms and values, the interviewees' leadership styles, the handling of ideas and the dealing with mistakes.
- (8) refers to the perceived cultural differences and the attitude towards these differences in the MNCs perceived by the interviewees.
- (9) refers to the attitude towards the company language.
- (10) Knowledge flows on a personal and technical level serve as target variable, the influence of process and context factors on the perceived knowledge flows across the site is subject of the analysis.

### Exhibit 1: The Model of Cross-Site Knowledge Sharing

The organizational context factors comprise all variables which are within the scope of the MNCs. The (5) strategy, the (6) structure as well as the (7) organizational culture influence the process of cross-site knowledge sharing:

- The company's strategic direction, its key business drivers and the strategic relevance of company-wide knowledge refer to strategy,

- the tool equipment, the company-wide networks and the degree of decentralization relate to structure, and
- norms and values, the interviewees leadership styles, the handling of ideas and the dealing with mistakes apply to organizational culture.

Additionally to the organizational also the multinational context influences the process of cross-site knowledge sharing. The (8) cultural awareness, measured by perceived cultural differences and the attitude towards these differences, and the handling of (9) different languages within the company were analyzed to draw conclusions on the degree of influence.

The (10) cross-site knowledge flows, attributed by the interviewees on a personal and technical level, serve as target variable. The influence of the process and the context factors on the perceived knowledge flows across the sites is subject of the analysis.

The intensity of the process of cross-site knowledge sharing depends furthermore on the accessibility, the value attached to accessible knowledge, its utilization and finally the integration in the organizational memory (= retention). The knowledge management activities decrease stepwise along these process factors. Knowledge accessibility is the first precondition for the process of cross-site knowledge sharing. Only if knowledge is accessible it can be processed further. Second, it is necessary that high value is attached to the accessible knowledge so that it can possibly be utilized by individuals. If utilized knowledge is finally retained by several forms of documentation or through structure, processes, norms and further organization cultural patterns, the organization learns. The result of this decreasing process is the intensity of cross-site knowledge sharing.

### **Sample and Research Method**

Quantitative studies focus on the measurement and analysis of causal relationships between variables, not processes. Qualitative methods are more appropriate than quantitative methods to research questions focusing on organizational processes, as well as outcomes (Cassell and Symon 1994). Therefore we combined quantitative and qualitative analysis in this study to draw a more comprehensive picture of cross-site knowledge sharing within MNCs.

Six renowned MNCs in 5 continents were selected to serve for the qualitative sample. We attempted to select companies that would provide us with an opportunity to collect rich data and to compare different approaches on knowledge management and the way knowledge is handled in a variety of different contexts. Thus, the research sample consists of 18 units of 6 MNCs from different industry segments and we earned both qualitative and quantitative data from 54 interviews in total. The international sample of prestigious MNCs, and the selection of experienced managers who play an important role in the knowledge management process, demonstrate the comprehensive character of this study.

In the course of the qualitative interviews, semi-structured questions regarding our model of knowledge transfer within firms were employed. The interviews were transcribed authentically and encoded according to our system of categories so that they could be used not only for qualitative word context analysis supported by NVivo but also for quantitative analysis using logistic data regression. Specifically, the encoding was done according to Mayring's qualitative content analysis, which is an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytical rules and step by step models, without rush quantification (Mayring 2000). The aspects of text interpretation were put into categories which were formed inductively and/or deductively and revised within the process analysis and feedback loops.

The word context analysis in the course of the qualitative study was undertaken for each of the 54 interviewees. We integrated these results for the three interviews per site to an assessment on unit level. Then we again merged and combined the assessment of the three units per MNC and performed an analysis on company level. Each of these steps of analysis was effected in teams of two or three researchers and the results of each team were again discussed and reflected in the whole group of seven researchers to reduce subjectivity to a minimum and to guarantee a consensual validation.

To lend further quantitative support to the observations that emerged from the interviews and in order to triangulate the data to provide a more balanced viewpoint, we conducted several additional surveys. Besides, an illustration prepared in accordance with structure formation technique was used to visualize and assess the knowledge flows and their intensity on both the personal and the technical level between the different units as perceived by the interviewees.



## RESULTS

When describing our model of knowledge flows within MNCs, we have explained important context variables or factors (see above). In a first step, we are going to analyze the influence of these on the attributed personal and technical knowledge flows. We defined personal knowledge flow as a direct exchange of knowledge on a person-to-person basis. This includes face-to-face meetings, telephone, e-mail, videoconferences etc (cf. also Hansen, Nohria and Tierney 1999). Technical knowledge flow, in contrast, means the sharing of knowledge via a technical intermediary with an anonymous collectivity. Here, knowledge needs to be codified and transmitted to the intermediary first, before it is transferred further to or picked up by the final recipients.

Applying a logistic regression model, we used the covariables decentralized structures, networks, as well as the variables of our adapted process model of cross-site knowledge sharing, i.e. accessibility of knowledge, perceived value, and the combination of utilization & retention. The antilogs of the model-coefficients were interpreted as the corrected odds ratio.<sup>2</sup> We examined the impact of the two context factors (decentralization and networks) and the three process variables on the cross-site knowledge transfer within each of our target companies. The cross-site knowledge transfer in MNCs is represented by the knowledge flows between headquarter and subsidiary and between subsidiaries respectively on both a personal and a technical level.

	<b>Beta</b>	<b>SE (beta)</b>	<b>Odds Ratio (OR)</b>	<b>-95%CI</b>	<b>+95%CI</b>	<b>p</b>
Const.B0	-0.265475	0.7199968	0.7668417	0.1806979	3.254305	0.7123411
<b>Decentralization</b>	<b>1.620062</b>	<b>0.7455895</b>	<b>5.053402</b>	<b>1.131143</b>	<b>22.57617</b>	<b>0.02979815</b>
<b>Networks</b>	<b>1.373028</b>	<b>0.7628053</b>	<b>3.947284</b>	<b>0.8535358</b>	<b>18.25471</b>	<b>0.07187456</b>
Accessibility	-0.9279719	0.3247253	0.3953547	0.2059987	0.7587685	0.00426981
Perception of Value	0.5352842	0.2785456	1.707934	0.9763645	2.987652	0.05465092
Utilization & Retention	-1.301194	0.5700237	0.2722066	0.08667722	0.854855	0.02245451

### Exhibit 2: Factors Influencing the Personal Knowledge Flow

<sup>2</sup> The odds of an event are calculated as the number of events divided by the number of non-events. An odds ratio is calculated by dividing the odds in the treated or exposed group by the odds in the control group.

	<b>beta</b>	<b>SE (beta)</b>	<b>Odds Ratio (OR)</b>	<b>-95%CI</b>	<b>+95%CI</b>	<b>p</b>
Const.B0	0.3026257	0.6241333	1.353408	0.3868224	4.73528	0.6277694
<b>Decentralization</b>	<b>0.9386377</b>	<b>0.571901</b>	<b>2.556496</b>	<b>0.8114232</b>	<b>8.054581</b>	<b>0.1007535</b>
Networks	-0.457711	0.584685	0.6327302	0.1957401	2.045301	0.4337306
Accessibility	-0.04408835	0.2466524	0.9568694	0.5833123	1.569655	0.8581376
Perception of Value	-0.3808231	0.2254526	0.6832988	0.4346445	1.074205	0.09120058
Utilization & Retention	-0.2132357	0.3442861	0.8079656	0.4049076	1.612241	0.5356861

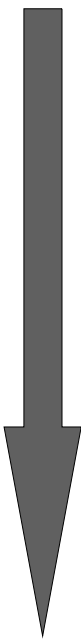
**Exhibit 3: Factors Influencing the Technical Knowledge Flow**

Exhibit 2 and Exhibit 3 show the results from the logistic regression model. While 3 factors on the personal knowledge flow turned out to be significant on a 0.05 level (Exhibit 2), no significant factors influencing the technical knowledge flow were found within the same confidence interval (Exhibit 3). As for the personal knowledge flow, the highly significant factors were the following: decentralized structures, accessibility of knowledge and utilization & retention. On a 10% confidence level, both networks and perception of value also display a positive effect on the personal knowledge flow. Thus, all the factors analyzed concerning their influence on the personal knowledge flow were significant.

In the case of high value being attached to knowledge management in the respective organization the chance of a high personal knowledge flow increases by 70.8% (OR = 1.708). However, value turned out to have a negative effect on the technical knowledge flow within a 10% confidence interval (OR = 0.683). Accessibility and utilization & retention have a negative impact on the personal knowledge flow. It would be obvious to assume that a higher level of accessibility leads to an increased flow of knowledge within organizations. In fact, the knowledge management literature often builds on the assumption that improving employees' access to knowledge has positive outcomes (Rulke, Zaheer and Anderson 2000). However, accessibility reduces the chance for a high personal knowledge flow by 60.5% per unit (OR = 0.395) and utilization & retention reduces it by 72.8% per unit (OR = 0.272). Complete data analysis showed stability for these results. Since, we have already analyzed the influence of accessibility and utilization & retention on the knowledge flow in a recent paper (Kasper, Haltmeyer et al. 2005), we will not go into a detailed discussion here, but will focus on decentralization and networks instead.

As a matter of fact, decentralized structures increase the chances for a high personal knowledge flow by more than 500% relative to centralized corporate structures (OR = 5.053). Looking at the technical knowledge flow, there can also be seen the tendency that decentralized structures have a highly positive if not significant influence (OR = 2.556, p = 0.101). “Whereas in many other organization forms knowledge flows are primarily vertical from headquarters to units, in internal network forms horizontal knowledge flows between units supplant and supplement vertical ones” (van Wijk, van den Bosch et al. 2003, p. 439), which explains that decentralized structures are enhancing the cross-site knowledge flows within MNCs.

Exhibit 4 summarizes the results of our qualitative content analysis. They are ranked according to the intensity of cross-site knowledge sharing, from high to low. According to our model cross-site knowledge sharing takes place through a stepwise process. This process depends on the accessibility, the value attached to accessible knowledge, its utilization and finally the integration in the organizational memory, i.e. through retention. The knowledge management activities decrease stepwise along these process factors. Thus, the intensity of cross-site knowledge sharing is represented not only by attributed values, as used for the quantitative analysis, but also by the degree of cross-site knowledge, which is made accessible, perceived as value-added, and utilized or retained.

	<b>Decentralization</b>	<b>Networks across sites</b>	<b>Intensity of cross-site knowledge sharing</b>	
<b>Consultancy 1</b>	decentral, flat structure	important knowledge-sharing tool	high	
<b>Consultancy 2</b>	decentral, multi-office-network	important knowledge-sharing tool	high	
<b>Industry 1</b>	decentral	well established on formal and informal level	medium	
<b>Industry 2</b>	decentral on operational level central on strategic level	well established on informal level	medium	
<b>High Tech 1</b>	central	hardly any networks across the sites, strategy meetings on executive level	low	
<b>High Tech 2</b>	central	hardly any networks across the sites, strategy meetings on executive level	low	

**Exhibit 4: Decentralization and Networks across sites**

The intensity of knowledge sharing also depends on various factors of the organizational and multinational context. As we already stated, in this paper we concentrate on presenting our findings of the two organizational context factors of decentralization and networks across sites and their influence on cross-site knowledge sharing on the one hand. On the other hand we also give attention to three different groups of our cases, which show the same patterns within the same industry. As can be seen from Exhibit 4, the degree of decentralization highly influences the intensity of cross-site knowledge sharing. Furthermore the importance of informal and formal networks within the company decreases with the decreasing intensity of the knowledge sharing across the sites. In the following we have a closer look at this impact by presenting exemplarily statements from our interview partners for each group and highlight the degree of decentralization and networks to be able to draw a conclusion on the influence concerning the intensity of cross-site knowledge sharing.

### **Consultancies (Consultancy 1 and 2)**

According to the analysis the two cases show a high intensity of cross-site knowledge sharing. A well established knowledge management is a must for consulting companies. It is not only an important possibility to combine and document the knowledge of their employees, but it also helps to save cost by adapting and reutilize past projects.

#### Decentralization

According to our analysis the degree of decentralization is very high at both consultancies. The companies feature a flat structure. The interviewees' denominate the structure as "multi office network" (Consultancy 2) and "partnership" (Consultancy 1), which indicates a high decentralized degree. A decentralized structure goes hand in hand with a global strategic orientation and the single sites' possibility to react on local market needs. The structure is not only perceived as very decentral, because of the autonomy of single sites to react on local customer needs, but also cross-site knowledge sharing is enabled through unitary standards and know-how transfer: *We are a multi-office-network. Our roots are here at the headquarter. But the single subsidiaries both within here and international have a very high autonomy, simply because it is necessary to be able to serve the local market best. Of course we do have unitary standards and know-how transfer and transfer meetings, but in general each office is*

*very autonomous. Thus the term 'headquarter' is relative. (Consultancy 2 - Associate Partner)*

The following CKO's statement from Consultancy 1 serves as further evidence for the high degree of decentralization: *We are run as a partnership. A partnership is different from a corporation. The partners usually work together in teams to effect some change or some program or project. There is usually an individual who is the leader of a particular group and they usually have individuals that they regularly work with. (Consultancy 1 - CKO)*

Thus, both consultancies from our sample represent a highly decentralized organizational structure. As the intensity of cross-site knowledge sharing is very high with both companies, we come to the conclusion, that the degree of decentralization highly influences cross-site knowledge sharing. Additionally we found that decentralized structures also lead to a decentrally dispersed expertise and know-how, which makes networks across the single sites necessary. This can also be confirmed by our further analysis.

### Networks

The existence of formal as well as informal networks highly supports cross-site knowledge sharing. This is in accordance with the analysis concerning the degree of decentralization. For both consultancies networks are an extremely important knowledge sharing tool. The organizations strongly promote formal networks, as can be seen from the following statement: *Meetings consist usually of an announcement of the latest sales, what clients we are approaching, what work we have done, anything to do with the change in the structure of management within the office. And then, additional presentations on IT changes, changes in services, and sometimes also presentation of work that people have done on projects. So it is a kind of summary presentation of their experiences. (Consultancy 2 - Information Specialist)* This statement exemplarily shows the influence of networks on the accessibility and utilization of knowledge and furthermore in general on the intensity of cross-site knowledge sharing. Nevertheless especially informal networks play a decisive role and are an important cross-site knowledge sharing tool: *I know that knowledge is shared between international offices, but on a more informal level. The Consultants have many personal networks which they maintain. (Consultancy 2 - Information Specialist)*

When analysing the interviewees' statements from the consultancies, we identified a very interesting pattern concerning the Consultants career and cross-site knowledge sharing: *As we have a kind of internal market-platform it is very important to become known within the company, to be willing to learn and to work hard. It is not self-evident to be recruited for a team. That is why it is very important to establish a network, to communicate with a lot of people, to try to get to know other colleagues working on other practices or in other units. This is one indicator for success. (Consultancy 1 - Consultant)*

The internal market platform within the company represents an interesting situation for the employees. They have to be demanded for project-teams. Thus, they have to sell themselves within the company. The more irreplaceable they are, the more often they are recruited for the projects. Hence, it would be not very "wise" to share knowledge on the one hand. On the other hand they and their expertise have to become known by presenting what they have done and currently do or work on. We found that knowledge management systems represent a double-edged and dangerous situation for Consultants, because they benefit and damage their career. That is why networks are so important especially for consultancies, they enable the Consultants managing the described balancing-act: *They are talking to each other, they are passing their presentations around the company. They are contacting old colleagues and having things forwarded. (Consultancy 2 - Information Specialist)* Therefore they have to make sure that reports are only pointers to expertise and that other Consultants have to phone and ask. Thus, it is necessary that as much knowledge is made accessible that makes clear who worked on this project and what they did, but at the same time it must not be "too much", which would spare the effort to personally contact the colleagues.

### **Capital Goods Industries (Industry 1 and 2)**

The two cases representing the capital goods industry show a medium intensity of cross-site knowledge sharing. The process is amendable and linked to some problems but at least knowledge sharing across the single sites takes place.

#### Decentralization

Concerning the degree of decentralization, both cases can be rated as rather decentrally, especially on an operational level, than centrally organized. The degree of centralization

increases on a strategic level. Nevertheless a clear assessment is not possible because of the contradictory interviewees' statements. They lead us to the conclusion, that the companies are in a "in between" situation and the structure is not clearly definable for the employees, which can be seen from two exemplarily statements. One of the interviewees from Industry 1 perceives the decentralization as follows: *We are decentralized and the decision-making power is very much at the local levels. As you can see our home office is extremely small and I have never actually been to the headquarter. (Industry 1 - Sales Manager)* This perception is put into perspective with the next statement: *On the one hand there are very pragmatic managers and they tend to believe in a kind of decentralized way of managing the company, a kind of entrepreneurship. On the other hand people lived a very centralized way of managing business. (Industry 1 - General Manager Marketing)* With this statement the interviewee confirms that some of the managers (as for example the above cited Sales Manager) believe in a decentralized structure, but this impression is not shared with his own perception.

Also the following statement from an interviewee from Industry 2 also points to a rather decentralized than centralized structure: *Of course there are some common core processes, but not much and this is not a priority. (Industry 2 - CEO)*

### Networks

In both companies formal as well as informal networks exist, albeit not to the same extent as we identified when analyzing the consultancies. The following statement points to the emphasis of the company to establish formal networks, at the same time the interview partner states the importance of informal networks: *They are in R&D, IT, Human Resources. It is this manufacturing excellence, where we have networks and those networks have at least once a year a formal face-to-face meeting and then there are video and phone conferences probably on a monthly basis more or less. And then in the area of purchasing as well of course. People are sharing the information throughout their work. (Industry 1 - Executive Vice President)* As can be seen from this statement and compared to the findings concerning consultancies, networks are perceived as being important, but they are still improvable. But as networks play a decisive role for the company to benchmark or to transfer best practices, the establishing of networks is emphasised: *People come from Europe and know a lot of people in Europe so they know whom to call. It is much easier to get information from friends or colleagues than if you have to 'buy' it. Personal contact is very important and that is one of the benefits of*

*people who come from Europe to Brazil, they build networks. (Industry 2 - Technical General Manager)* The interview partners furthermore accentuate the need for formal networks, because informal networks also hold problems: *If decisions are made between two doors and are not communicated to others, it does not work anymore. If the formal flow of information does not function in an organization it is always because informal flows function very well. (Industry 2 - Managing Director)*

### **High-Tech Companies (High-tech 1 and 2)**

The third group referring to a scarce intensity of cross-site knowledge sharing is represented by two high-tech companies. According to our analysis we come to the conclusion that high-tech companies do not need to share knowledge across the single sites to be successful, because they can integrate their expertise into their processes and products.

#### Decentralization

Both companies are characterized by a high degree of centralization, i.e. the headquarter represents a strong and central position. Especially the processes are standardized and *strongly dominated by the headquarter. (High-tech 1 - CFO)* The interview partners from high-tech 2 perceive the same strong centralization, as can be seen from the following exemplarily statement: *We have a very close reporting system. The two CEOs are strongly involved, both on a technical as well as on the financial level. Maybe not in the daily business, but in the general issues. (High-tech 2 - President)* As the intensity of cross-site knowledge sharing at both companies is very low, we come to the conclusion that centralized structures decrease knowledge transfer across the sites.

That the degree of centralization also strongly influences the existence of networks across the sites can be derived from a Controllers perception. If the appropriate contact person is not known, one has to *follow the hierarchical structure. (High-tech 1 - Controller)* This way is described as quite laboured because information has to pass almost the whole company top down. As one reason for the scarce networking between the single sites he states the *lack of a knowledge-structure (High-tech 1 - Controller)*.



## Networks

According to the analysis the networks across the sites are restricted on a strategic executive level, where they are quite intensive: *It is probably more of a person to person need basis. We have a meeting usually once a week. We try to discuss, this is with the supervisors and everybody, and we try to discuss the different things that come up in the management meeting here. But that is something that is really just more of a person to person and we do not have a lot of structure here, so it is not something that is real hard to implement or to follow through.* (High-tech 2 - Managing Director)

On a company-wide level there is a *bad information culture – worldwide! Its better where personal relationship has developed. We have a bad information and knowledge culture. I recognise it because we do not have any information strategy and there is no platform, no instrument, where this culture exists. It is not spoken about common investment, it is not spoken about communication culture.* (High-tech 1 - Managing Director)

## **CONCLUSIONS AND OUTLOOK**

As our results confirm, central hierarchical structures linked with standardized processes turn down the connection capability of the knowledge and thus, decrease the cross-site knowledge sharing. Moreover it turns out that in decentralized MNCs there is a much stronger orientation towards the global acquisition and use of knowledge.

One way to foster decentral knowledge sharing is through the existence of formal and informal networks both within a single site as well as across the organizational boundaries. Networks are assumed to serve as glue that holds the vast geographically dispersed MNC together and through this network the different units can coordinate their activities, because the interpersonal ties make information exchange possible between interconnected units (Forsgren 2004, pp. 19-23). This is fully in accordance with Inkpen and Tsang (2005) who state that “through membership in a network and the resulting repeated and enduring exchange relationships, the potential for knowledge acquisition by the network members is created” (p. 146). Our findings show that the power of networks as channel of knowledge sharing mainly lies in their substantial contribution to the building of inter-personal relationship among their members. Furthermore, personal networks provide the advantage to

its members to get some recognition and feedback which especially in consultancies is necessary for future advancement.

Decentralized structures showed the by far highest impact on the intensity of knowledge sharing, which also imply a specific role of top management. In fact, not controlling but enabling and fostering these structures is the main challenge for top management in decentral MNCs in order to enhance knowledge transfer. Parts of these enabling structures within an organization are formal and informal networks. The outcomes of our study stress the influence of networks on knowledge sharing and accessibility (cf. also Tsai 2001). But creating a decentralized structure and networks is not advisable in any case. The value-added based on knowledge sharing also depends on the industry segment of the company.

As we can see from the empirical findings of the qualitative analysis, a well established knowledge management and a decentral organized structure are a must for consulting companies. It is an important possibility to combine and document the knowledge of their employees. Furthermore to build on the experience of past projects helps to save cost. But for their employees knowledge management is double-edged and dangerous. On the one hand they have to document their knowledge and experience to increase their internal value as an expert in a certain field. On the other hand they have to make sure that this documented knowledge is only a pointer to themselves. If colleagues want to know details concerning a past project they finally depend on personal contacts and informal networks.

Concerning the capital goods industry, knowledge management can help to reduce cost by internal benchmarks and learning from best practice. Here it is a well balanced mixture of internal competition and personal networks to provide incentives for learning but also for teaching (i.e. knowledge sharing). A good solution combines centralized goal setting with decentralized process responsibility and mainly formal networks, where knowledge sharing is forced.

High-tech companies do not need knowledge management to be successful. To create a marketable product which is in high demand, they have to integrate their expertise into the product (Willke, 1998). So R&D is easy and effective to centralize. The producing units only have to be aware of the product and process quality. Therefore there is no need to share

knowledge between different sites as long as they produce also different products for different markets.

Finally, some limitations also apply to our empirical study and the findings, which provoke a certain need for further research. First of all, in our empirical research project we have focused on internal networks (see above). However, as outlined above, there are also external networks, which should be taken into consideration. According to Inkpen and Tsang (2005), apart from intracorporate networks (i.e. internal networks) there are also strategic alliances and industrial districts. Future research should include these into the analyses as well. Furthermore Forsgren (2004) identifies three approaches to networks in MNCs: Contingency theory, social capital theory and business network theory. In this paper, we relied basically on contingency theory, but taking also the latter two into account might provide new insights.

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