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Institutionalizing Knowledge Management:

How to make KM survive in adverse economic circumstances?

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After a decade of articles and projects around the management of knowledge, we see a high degree of dissatisfaction with KM as a managerial tool. It is increasingly evident that KM initiatives often do not survive beyond initial fascination --- particularly when economic conditions are harsh and call for cost cutting. When key individuals leave or initial KM projects fail to live up to exaggerated expectations, knowledge management initiative that remain not institutionalized often fall prey to rationalization effort. This article describes how a large multinational company (MNC) successfully managed to institutionalize a large-scale knowledge management initiative. We describe the process of institutionalization as the transformation of the results of an initial KM project into the set of coherent, organizationally and strategically aligned business practices. Based on the case evidence, we derive design principles for effective institutionalization of knowledge management practices.

Knowledge Management: From Hype to Disgrace?

After its first appearances in the late 80's and early 90's, "knowledge management" developed into a major subject of concern for successful companies. Decisive part in the proliferation of KM had the writings of Alvin Toffler[1] on the "knowledge society", Nonaka and Takeuchi[2] (1995) and Krogh et al[3]: on knowledge creation in companies, as well as Grant & Baden Fuller[4] and Grant[5] on knowledge integration. The main message was: Knowledge has taken precedence over traditional organizational resources such as labour, capital and land. Consequently, business writers and several progressive companies began to think primarily about what knowledge is and how it can be captured, integrated and measured to achieve competitive advantage.

After first attempts to implement insights from KM theory, most managers seem to be disappointed with the effectiveness of KM as a managerial instrument to achieve competitive advantage. In a recent study by Rigby[6], over 214 executives from different North American and European companies evaluated the effectiveness of 25 top management tools. On a scale from 1 (highly dissatisfied) to 5 (highly satisfied), knowledge management ranks 25th.. Clearly, knowledge management today is less favorably regarded than in the past. Has it fallen in disgrace in the eyes of top management? There might be several reasons including the following. Some companies have invested heavily in IT technology to support knowledge management initiatives, but people involved in business operations have made little use of this technology. Other companies were

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betting on grassroots initiatives in the believe that knowledge management works only when people involved in business operation engage in communities of practice that work largely untouched by managerial intervention and strategic concerns. But when economic condition get harsh, such communities often lack justification in terms of value added that ensures survival. Unfortunately, however, both approaches are blind to one essential consideration: the need to institutionalize knowledge management.

Several companies have gone some way to institutionalizing knowledge management, but they may have gone in the wrong direction by delegating knowledge management to a "Chief Knowledge Officers". Job description of knowledge officers reads like a list of possible practices: Create a "yellow pages" directory for your firm knowledge; develop knowledge maps; introduce knowledge brokers; create competence centers; feed information into knowledge databases; develop a knowledge vision; work on your conversation culture; found a virtual university; develop guidelines for documentation; reward knowledge transfer; turn new knowledge into product innovations; create an invisible asset monitor etc. How should a single individual choose the right tools and approaches unless he/she can rely on institutional rules? How can he/she make sure that the organisation absorbs the new practices? And perhaps most, importantly, even if there would be a single individual who could achieve all implementation task, what would happen to knowledge management as an institution, when the "Chief knowledge officer" leaves the company?

Moreover, while the list of best practices in knowledge management has reached a substantial dimension and there is nothing inherently wrong with such lists of recommended tools and general advice. The problem is, that they are not particular helpful when they are not aligned with the organisation and a companies strategy through institutionalising knowledge management. The challenge for companies is to understand how to master the process of institutionalising. Despite the much-heralded benefits of developing systems and processes to capture and share a company's intellectual assets, firms have obviously difficulties in crafting effective knowledge management systems that survive failure of particular initiative and excel despite departure of driving individuals. A manager from one of the big three Swiss banks describes her situation: "If you want to make knowledge management a integral part of your organization, be careful of connecting the term 'knowledge management' to each particular tool such as databases, staff function etc.. Call individual projects technology transfer, information sharing, or idea factory, but make sure that 'knowledge management' does survive as an institution despite some tools and individuals associated with it may flop."

Easier said than done! Because many companies lack insights on institutionalizing knowledge management, the key concern of this article is to show how the process of

institutionalizing works. *We describe the process of institutionalization as the transformation of the results of an initial KM projects into a set of coherent, organizationally and strategically aligned institutional practices.* To do so, we describe how a large multinational company (MNC) successfully managed to institutionalize a large-scale knowledge management initiative. HeidelbergCement turned the results of the initial KM project into a set of new practices that have now been absorbed by existing organisational structures and systems.

The rest of this article is structured as follows: first, we describe the process of institutionalisation knowledge management illustrated by the case of HeidelbergCement. Second, we generalize design principles for the institutionalisation of international KM projects based on the HeidelbergCement experience. We conclude by pinpointing the positive influence of power and control on the success of KM projects.

Knowledge Management at HeidelbergCement: Project "Einstein"

Back in 1998, HeidelbergCement did not have an explicit system for the management of knowledge. Today, the company has a variety of new practices that link knowledge management to the pre-existing organisation. HeidelbergCement managed to use the results of a relatively short KM project and made the organisation absorb and further develop the initial ideas of the project team. The following phases can be distinguished:

Phase 1: Increasing awareness for the need to accelerate global knowledge sharing

HeidelbergCement is, with around 1'500 subsidiaries in over 50 countries, worldwide cement sales for over 6 billion Euro and 36,000 employees, one of the four largest cement manufacturers in the world. In 1998, some executives started to think about knowledge management after reading articles in the business press and sitting in some management seminars. The "Vorstand" (Executive Board of Directors) in 1999 first came up with the idea of improving the knowledge flows between distinct plants. Its members felt that in the different parts of the world, plants spent a considerable amount of time and money on developing solutions that already existed in other parts of the company. Mainly due to the fast growth of HeidelbergCement by acquisition, knowledge had to overcome geographical barriers as well as differences in national- and company-cultures. The challenge HeidelbergCement was facing was to create new knowledge involving the global network of companies and to make sure that everyone had access to the global knowledge base. This knowledge existed in many different places such as databases, reports, and books but also in peoples' heads. Skills and experiences are or should be distributed right across the whole company. But all too often, especially for intensively geographically diverted companies like

HeidelbergCement, one part of the company repeats the work of another part simply because it is difficult to keep track, and make use, of knowledge in other parts or plants.

In a first workshop in January 2000, the top-management team of Heidelberg Technology Center (HTC) started studying the issue of how to accelerate international knowledge sharing. HTC is the technical think-tank of HeidelbergCement with around 200 engineers. The HTC managing directors took the lead in setting up a proposal for a knowledge management project. The main objectives of the project were (1) to identify relevant knowledge areas, (2) to get a clear understanding of available knowledge within the group, (3) to create organizational processes that ensure effective knowledge sharing across national and functional boundaries, and (4) to exploit existing knowledge on a global scale. In view of the increased complexity of such a project due to the current rapid growth phase through acquisitions and the decentralized decision making processes, HTC decided to use a small consulting company to support the project.

Phase 2: Seeking institutional support and legitimisation

As a next step, the project proposal was presented to the Board of Directors of HeidelbergCement which approved it with 2 limitations: it should focus on technological aspects of the cement business only, and it should be an integrated part of the company-wide " corporate mission project". By focusing on the technical area, the reduced complexity of the project made it possible to implement proposals more effectively without engaging in long negotiation processes throughout the company. Linking the knowledge management project to the corporate mission project was also beneficial. The main objective of the corporate mission project was to bridge different cultures and give the company a new identity, which would include the increased variety of new companies and regions. The discussion of global values and the resulting sensitivity for "soft" issues prepared the grounds for the knowledge management project "Einstein". The board expected from "Einstein" a significant contribution to increase communication within HeidelbergCement.

Phase 3: From project kick-off through common ground to strategic alignment

The project kick-off was planned for September 2000 during a management meeting that would gather 150 senior managers from all over the world. A 6-page brochure was developed describing what knowledge management is and what the scope of the project was. For those employees who were interested, an information corner was set up to discuss with project managers. In addition, a project intranet-site was set up to ensure timely updates of the project progress. The knowledge management project ran for 10 months and involved the headquarter-level, 6 geographical divisions, 3 suppliers, and one industry association of this large MNC located in Germany.

In the first phase of the project, 15 unstructured interviews were carried out that allowed the research team to get a general understanding of the industry and the functioning of the company itself. Based on these, 51 semi-structured field interviews of 60 to 120 minutes were conducted focusing on different geographical regions (Germany, Czech Republic, Sweden, Africa, Asia, Turkey, Belgium and the US). The interview partners were all part of the top 400 executives. Informants (around 100 in total) included the COOs responsible for each group to which a studied division belonged, each general manager (one per division), functional managers (multiple managers for each division), and project managers. Informants were briefed beforehand regarding the scope of the research, and the interview notes were written within 24 hours of the interview. Interviews typically lasted 90 minutes, although some went on for several hours. The interview data was supplemented with other data relating to the company, its strategy and its business environment drawn from participant observation, published articles, and internal company documents.

The results of these interviews allowed the project team to identify what was called "knowledge management opportunities". 6 workshops around these key topics of at least one day of length were defined and carried out. Each workshop was composed of an average of around 12 participants coming from the entire company. Previously interviewed employees were complemented with experts in the fields of interest. Based on the workshop results and on the previous interviews, the HeidelbergCement Knowledge Management System was developed.

Phase 4: From strategic alignment to organization architecture

The project results were presented and the board of directors approved all suggestions made by the project team. A 2-year plan was developed to ensure that implementation was timely and effective. Project Einstein was at that time officially finished and the implementation tasks were delegated to several line functions. The tasks of the steering committee of the project team were taken over by the "Knowledge Management Board".

The integrated HC Knowledge Management Model has 3 main components: (a) The World of Cement (WOC) portal, (b) the four promoters for knowledge sharing, and (c) the knowledge navigator. The WOC portal builds the foundations for effective knowledge exchange because it makes explicit knowledge easily accessible for everyone in the company worldwide. Past experiences have however shown that a knowledge portal as an island-solution is not a big enough contribution to facilitating knowledge transfer. Information and Documentation Services as administration functions ensure, in cooperation with Regional Coordinators (RCOs) and Expert Group Leaders, the strategic and operational flow of technical information within HeidelbergCement.

In addition to data storage and retrieval systems, the human side of knowledge sharing needs to be supported. The promoters that drive this aspect of knowledge sharing are the communities of practice, the expert groups, the regional coordinators and the corporate university. The knowledge Navigator as a third building block attempts both to coordinate knowledge management activities and measure the effect of knowledge and knowledge management on the company performance. It also governs the knowledge promoters accordingly.
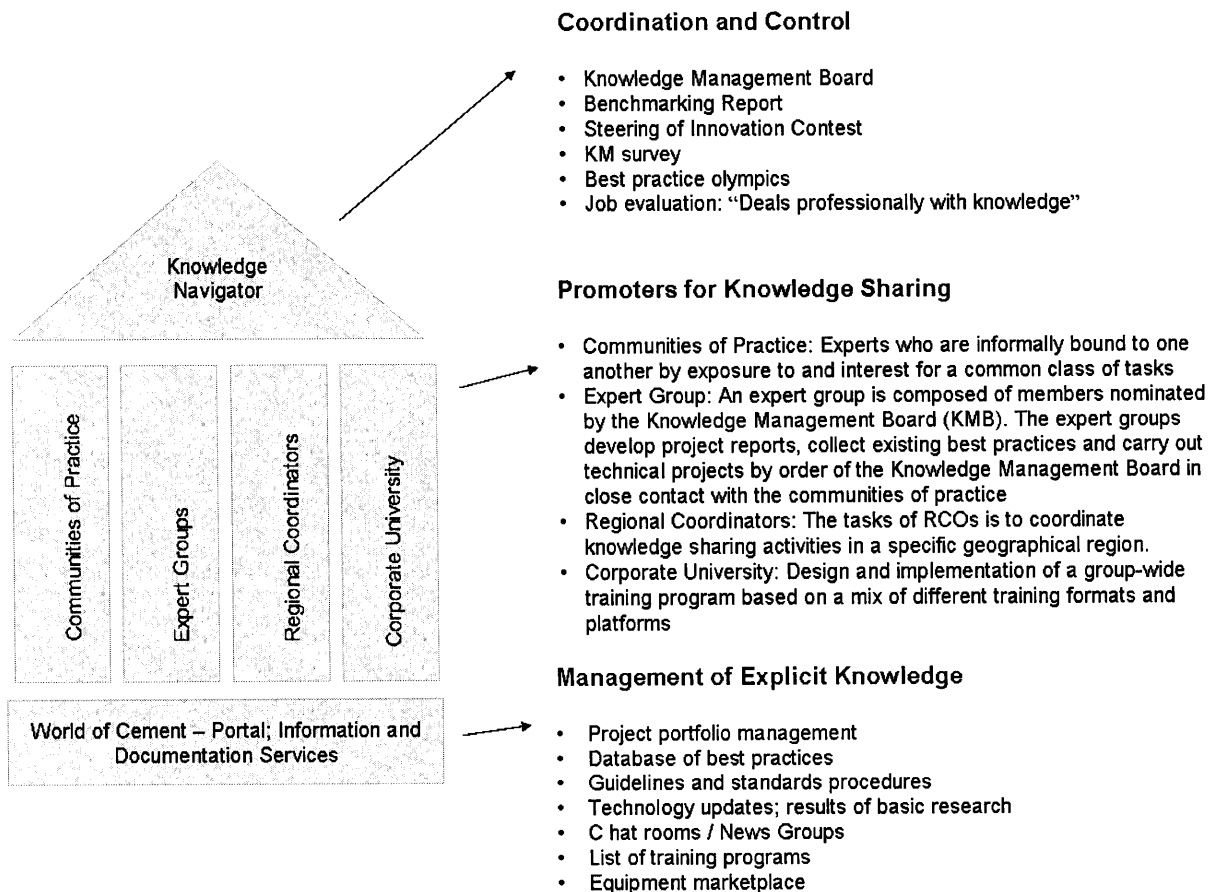
Coordination and Control

- Knowledge Management Board
- Benchmarking Report
- Steering of Innovation Contest
- KM survey
- Best practice olympics
- Job evaluation: "Deals professionally with knowledge"

Promoters for Knowledge Sharing

- Communities of Practice: Experts who are informally bound to one another by exposure to and interest for a common class of tasks
- Expert Group: An expert group is composed of members nominated by the Knowledge Management Board (KMB). The expert groups develop project reports, collect existing best practices and carry out technical projects by order of the Knowledge Management Board in close contact with the communities of practice
- Regional Coordinators: The tasks of RCOs is to coordinate knowledge sharing activities in a specific geographical region.
- Corporate University: Design and implementation of a group-wide training program based on a mix of different training formats and platforms

Management of Explicit Knowledge

- Project portfolio management
- Database of best practices
- Guidelines and standards procedures
- Technology updates; results of basic research
- C hat rooms / News Groups
- List of training programs
- Equipment marketplace

Figure 1: HC Knowledge Management Model

Phase 5: Measurement of success

In this phase, the continuous measurement of the effects of the knowledge management system on individual and organisational performance was measured. A reason for the low degree of satisfaction with KM projects is that "success" is hard to categorise and measure. As with most projects that aim at changing behavioural aspects of the company, it is difficult to prove their immediate impact on the bottom line. As a consequence, one has to develop a set of clear project goals and indicators for their achievement. If these indicators are observed over time, they may

provide a meter for change. Hence, the Knowledge Management Board was looking for indicators that would justify the investment in KM

One example of such indicators come from the maintenance activities of the company: A goal at the beginning of the project was to reduce ceteris paribus (especially regarding repair costs) the global maintenance costs. By creating a global database for maintenance projects, existing solutions could be re-applied for similar maintenance issues. The project guidelines were adapted to ensure that local maintenance experts made use of that knowledge pool. Before starting to develop their own solution, these experts have to sign a module attesting that no existing solutions could be found. As a last step, the project procedure now finishes with the preparation of modules for potential re-use. As one might recognize, KM has a potential impact on the maintenance costs of the company. Although the reduction in maintenance costs cannot be attributed alone to changes in the way HeidelbergCement manages its knowledge, it still indicates the success of the KM system. Similarly, the RCO's yearly job evaluation now includes a new line: "deals professionally with knowledge", which triggers a discussion and evaluation of what it means to deal professionally with knowledge.

Besides those performance indicators on the micro-level, the KMB analyzes the degree of satisfaction with the knowledge management tools with an annual survey for the first 2 years and then every 3 years. The survey attempts to gather data on how the knowledge initiative affects organizational behaviour which in turn has an impact on the performance of the organisation. The first survey included 265 employees and had a return rate of 83%. The high response rate as well as the high mean in most questions indicates a high interest in Project Einstein and in knowledge management in general, good project communication, high expectations and high trust in the project. However, the results of the survey will have more significant explanatory power when repeating the survey and dynamic data are available.

Other indicators that measure the success of the KM initiative may come from each single KM instrument. The performance of the expert groups is evaluated based on the hit rates of their intranet sites. The corporate university triggers high interest, considering that over 400 brochures have been requested either in electronic or paper format world-wide (out of a target group of 800 employees). The technical innovation contest received similarly high attention: a call to participate in a business plan contest triggered 106 different ideas.

The Road to Successful Institutionalisation of KM Practices

This section attempts to generalize normative design principles for international KM projects from the HeidelbergCement experience and thereby contribute to an increase in Rigby's[6] satisfaction rate of such projects. Previous literature points out that an organisation can only "enable" knowledge von Krogh et al[3], and thereby create favourable conditions for knowledge creation and sharing. Others suggest to create new staff positions such as Chief Knowledge Officers or the like – we often find that these managers have no power and clear organisational roles, but a strong tolerance for frustration. By contrast, we believe that institutionalization is a much more comprehensive process that has to be actively governed by the management of the firm. In particular, the following design principles will lead the way to successful institutionalisation of KM practices:

Design Principle 1: Link the KM project to business logic

How many human resource managers eventually get a position as CEOs in their careers? Probably very few. Similarly, Robert Galford[7] raises the question of why HR departments sometimes do not get any respect. Our answer to Galford's question would be quite straightforward: because most HR managers are too distant from the business logic of the company. Especially when dealing with so-called "soft" issues such as mission projects or KM projects, an essential part of the successful institutionalisation of project results is to create an immediate link to business issues and strategy in general. At HeidelbergCement, around 40% of the interview-questions aimed at exploring how knowledge impacts the profit of the company. The project team tried to outline, and whenever possible quantify, how specific knowledge areas were affecting the competitive position and/or the industry attractiveness (see figure 2).
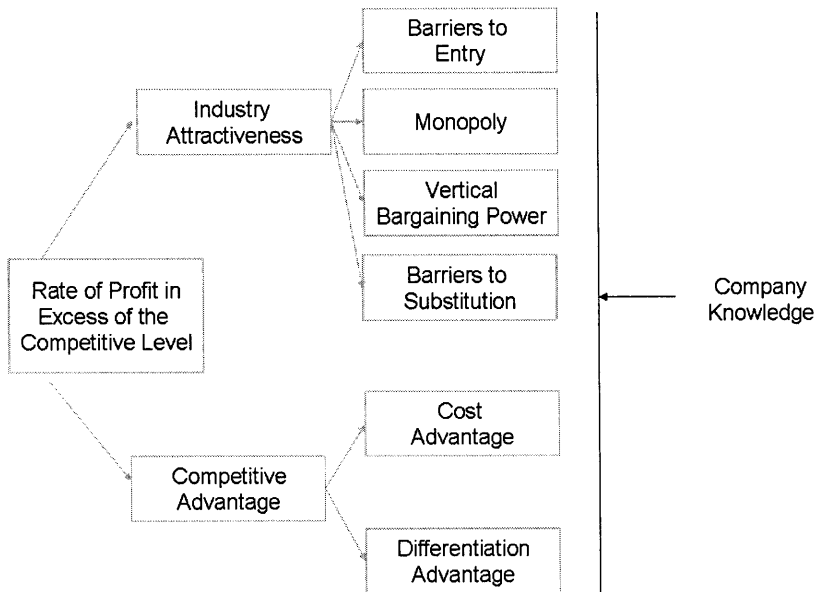
Figure 2: Knowledge and Profitability (based on Grant[8])

Design Principle 2: Limit the scope of the project

Once the project team understands the business logic, it becomes essential to focus the scope of the project around strategic knowledge areas and manageable organizational areas. We have seen numerous knowledge management projects fail because their first step was to identify and possibly classify existing company knowledge with the objective to make it available in massive databases. At HeidelbergCement, the project team identified 10 key knowledge areas such as "alternative fuels", "maintenance and repair" or "public relations with communities and authorities". Knowledge around alternative fuels – to take one example – has a high potential to decrease a significant cost driver; i.e., energy costs. Similarly, maintenance and repair represent a high portion of total production costs and therefore deserve increased attention.

Limiting the project to the technical area, substantially reduced its complexity. The project team with its steering committee was to a large extent autonomous in decision making and had to negotiate with fewer organisational units. This way, Project Einstein turned into a disciplined experiment with knowledge management. The positive results would then be transferred to other functional areas of the company such as finance, human resource management, information technology and marketing.

Design Principle 3: Use existing processes/institutions

Because knowledge management seems to be common sense, most firms have processes and structures in place that support knowledge creation and sharing. Much like projects regarding the

development of balanced scorecards, it becomes essential to use existing approaches to KM. Imagine you were to introduce the balanced scorecard as a performance measurement tool and assume that it was the first time that this company engaged in controlling activities. You would not only create substantial additional costs but you would also baffle employees. At HeidelbergCement, the project team therefore attempted to enrich existing communication tools, organisational units and roles, reports and regular meetings with KM features. The RCOs, for example, were invited to think about their role as knowledge brokers and subsequently, they agreed to change their job description, performance evaluation and meeting culture. The knowledge management board emerged from an existing committee that changed its name and role by taking over the tasks of the former steering committee of Project Einstein. The idea of disseminating existing solutions was realized by using existing yearly technical conferences to introduce "Best Practice Olympics". It was of great importance to declare the KM project as an implementation effort of the corporate mission project. However using existing processes and institutions does not mean assaulting the time and willingness of employees. If the project team expected substantial input, it carefully calculated the time needed and freed the employees from operational tasks.

Design Principle 4: Allocate decision rights to knowledge groups

HeidelbergCement designed the roles and responsibilities of distinct knowledge groups: RCOs as knowledge brokers, Information and Documentation Services that took care of the WOC portal, and Communities of Practice that would further develop knowledge. The project team studied existing literature on Communities of Practice and was surprised by the informal and autonomous nature of those groups.

It has been argued that knowledge-based competition requires employee autonomy to unlock high involvement in self-managed teams (Cohen, Ledford and Spreitzer[9]). Communities of practice "… are groups of people internally bound together by shared expertise and passion for a joint enterprise … its primary output is knowledge" (Wenger and Snyder[10]). For communities of practice to function, managers "… must legitimize and support the myriad enacting activities perpetrated by its different members. This support cannot be intrusive, and knowledge teams…must be allowed some latitude to shake themselves free of received wisdom". (Brown and Duguid[11]).

The immediate reaction of the project head was that he did not intend to spend time and money on the identification of strategically relevant knowledge areas just to wait and see if communities of practice were autonomously emerging and taking care of these issues. This seemed to be more likely to happen in smaller organisations where everybody knows everybody. How long do you want to wait until an expert from Brunai calls up his German colleague? Another risk the

project manager feared was that those communities of practice would end up as "discussion clubs" without any pressure to produce results. Consequently, the knowledge management board nominated for each strategic knowledge area an expert group with an expert leader. The communities of practice would form themselves around the expert groups and support them with ideas and feedback. As indicated in figure 3, different decision rights were given to each group by the knowledge management board.
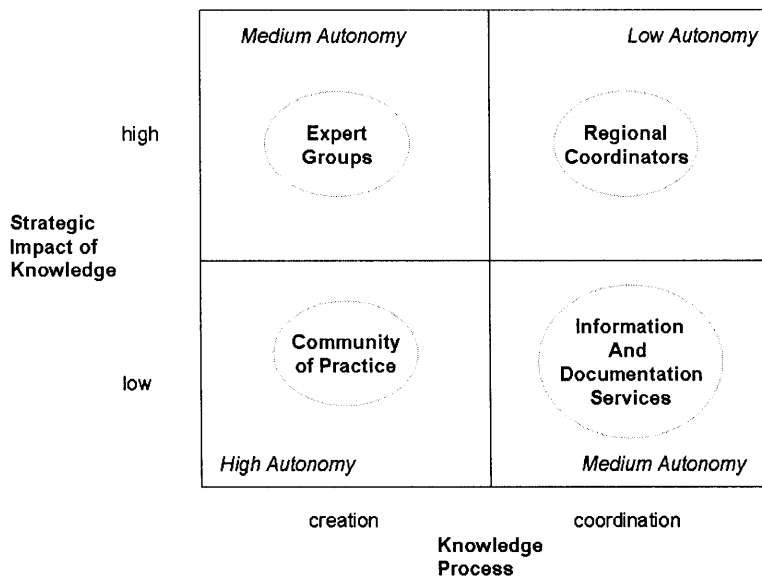

Figure 3: Governance of Knowledge-teams in the MNC

Based on our discussion with the knowledge teams at HeidelbergCement, and those responsible for delegating decision rights to them, two contingency factors emerged in the process: (1) knowledge process (whether the main focus of the team was on knowledge sharing or new knowledge creation); and (2) strategic input of knowledge (whether the team focused on strategically important knowledge). Both, in the opinions of the project team, influence the degree of autonomy of the knowledge management teams, as well as the decision rights granted to it, as independent variables. Strategic importance is perceived as the potential impact of knowledge teams on cost and differentiation drivers related to particular industry trends and value chain activities (see figure 2). As one knowledge-board member put it: "We want to have control on attempts to knowledge sharing and creation whenever the team work has an immediate and/or important impact on our strategic orientation."

Design Principle 5: Develop a clear communication strategy

Employees will critically observe how knowledge is managed inside the knowledge management project. If the project team does not succeed in managing its own knowledge flows and ensuring that knowledge regarding the project is available to all employees, it will be hard to institutionalise KM tools once the project is finished. At HeidelbergCement, information about the ongoing project was available on an intranet site. Furthermore, two compact brochures were developed: the first one attempted to explain what KM is and what the project goals and procedures were. The second brochure described the project results – the HeidelbergCement KM System. In addition, the large number of interviews and workshops positively contributed to successfully communicating the scope and nature of the project as the survey results indicate. During the interviews it was essential to engage in a discussion on the business logic before talking about KM, although it sometimes meant leaving out the interview guidelines. After the project finished, members of the steering committee used several platforms for 11 presentations to communicate the results of the project to more then 800 employees. Several articles in internal newspapers, a case study on knowledge management, as well as scientific articles were written and disseminated in the organisation. The knowledge management survey as well as the technical innovation contest also contributed to make people mentally engage with the project once more.

Conclusions: Appreciate the Power of Command and Control

The objective of this article was to develop design principles for effective institutionalization of KM projects. We described institutionalization as the process of converting a project organization with its results into the line organization of the company. We developed 5 design principles for effective institutionalization based on the HeidelbergCement case study, and now conclude this article with a plea for the positive effects of power and control on KM projects. Enabling knowledge is fine – however, especially for strategically important knowledge areas, we strongly advocate the introduction of a steering body, such as the KMB in our case study, to carefully design the decision rights of different knowledge groups. Management teams to cover up their difficulties in decision-making often used the concept of "empowerment", and we would rather avoid the concept of "enabling" knowledge to avoid a similar destiny. Institutionalising knowledge management practices goes beyond enabling knowledge or simply appointing a powerless chief knowledge officer. Institutionalising means to make the organisation absorb new practices and thereby to take a step further than to think of KM as simply a portfolio of projects.

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