

KNOWLEDGE MANAGEMENT SYSTEMS SPANNING CULTURES: THE CASE OF DEUTSCHE BANK'S HRBASE

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ABSTRACT

Earlier research has shown the impact of national culture on the development, roll-out, and usage of cross-national information systems (IS) projects. This study builds on and extends this research by exploring the influence of national culture within the setting of Knowledge Management Systems (KMS). Employing a case study approach, the study analyses the cross-national development and roll-out of HRbase, an Intranet-based KMS for Deutsche Bank. The findings suggest that the impact of national culture is even stronger for KMS. Hofstede's four-dimension framework, the framework predominantly used in earlier research, is found to be applicable in the new setting of KMS. The findings suggest that Hofstede's "Power Distance" dimension is particularly relevant as knowledge management aims at sharing knowledge across hierarchies.

1. INTRODUCTION

As decision-making processes are strongly affected by culture (Adler, 1986), the meaning of information and effectiveness of information systems (IS) can vary substantially across different cultures. The need for IS that are able to span diverse political, social, and cultural environments is generally acknowledged. According to Ein-Dor et al. (1993), the increasing globalization of organizations, corporations, and corporate alliances will make a strong awareness of cultural factors in cross-national IS projects mandatory. However, when looking at studies of cross-national IS project failures, we see that the effect of national culture is frequently underestimated or even ignored (Davison and Jordan, 1996). Cultural clichés are often embedded into IS and transferred from corporate headquarters to cultures in which they are foreign or uncommon.

Earlier studies on the role of national culture in IS development and implementation projects include Robey and Rodriguez-Diaz' (1989) case study of a multinational corporation implementing an automated accounting system in two Latin American subsidiaries. Later studies used Hofstede's (1980) four dimension model of national cultures to analyze success or failure of IS development and implementation projects, in particular with regard to Group Support Systems (GSS). An example is Watson et al.'s (1994) comparison of two experimental GSS implementations in Singapore and the United States. Robichaux and Cooper (1998) provide an overview of studies on the effectiveness of GSS functionalities across different cultural settings.

It can be argued that the effect of national culture is even more important for Knowledge Management Systems (KMS), a new class of IS that has become increasingly important in the past few years. The objective of KMS is to provide "an infrastructure and environment that contribute to organizational knowledge management by actualizing, supporting, augmenting, and reinforcing knowledge processes at a deep level through enhancing their underlying dynamics, scope, timing, and overall synergy" (Alavi and Leidner, 2001). Since the aim of KMS is to help users assign meaning to information in order to convert this into knowledge, and since this conversion process is heavily affected by cultural traits, a firm grasp of this influence is required. This study will explore the influence by analyzing the development and roll-out of HRbase, an Intranet-based KMS for Deutsche Bank.

2. CONCEPTUAL FRAMEWORK

The conceptual framework of Hofstede dominates in the analysis of cross-national IS project failures to date, but has been criticized recently. According to Holden (2002), it presents a static view of culture as an internally consistent and durable phenomenon, whereas organizational processes, enabled and supported by IS, are dynamic. Even so, we still believe there are empirical and theoretical reasons for the application of Hofstede's work. First, Hofstede's original research is based on a large empirical foundation: data collected between 1967 and 1973 from survey questionnaires to 116,000 IBM employees worldwide. Second, the model proposes dimensions of national cultures as clusters of phenomena which occurred together. The dimension scores for each country base on value orientations that are considered important and shared across diverse cultural settings. As a result, the model is increasingly employed in IS research as it represents the growing body of literature acknowledging the relationship between information technology and national culture (Robichaux and Cooper, 1998).

Our case study on Deutsche Bank's HRbase intends to build on this foundation and to extend the application of the framework to the new setting of KMS. We also apply Hofstede's understanding of national culture as the "software of the mind [...] which distinguishes the members of one group or category of people from another" (Hofstede, 1997). Specifically, we intend to focus on the four dimensions of his 1980 conceptual framework: "Power Distance", "Individualism versus Collectivism", "Masculinity versus Femininity", and "Uncertainty Avoidance". We will not discuss Hofstede's later introduced fifth culture dimension ("Confucian Dynamism", or short-term orientation versus long-term orientation), as comparative IS-specific studies rarely exist. Below we briefly explain the dimensions specifically highlighting aspects that are relevant for the setting of KMS.

Hofstede's first dimension, "Power Distance", measures "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (Hofstede, 1997). In high "Power Distance" countries, the hierarchical system bases on inequality: subordinates are expected to fill exactly defined jobs and decision-making authority is highly centralized. The exclusive control of key corporate knowledge is often used to establish positions of power. Persons rather rent their expertise to accomplish a task or to solve a problem than deplete their power base by genuinely sharing it (Davenport and Prusak, 2000). In opposition, hierarchies in small "Power Distance" societies are only considered as inequality of roles, mainly established for convenience and highly unstable. Decentralized organizations with a limited number of supervisory personnel prevail and subordinates expect to be consulted for decision-making. In our case study, we will explicitly look at the role of hierarchy in knowledge sharing.

The second dimension, “Individualism versus Collectivism”, is defined as follows: “Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty” (Hofstede, 1997). Considering that dialogue between individuals is often the basis for the generation of new ideas and knowledge, employee interaction should be facilitated by KMS in a way that relationships, contacts, and perspectives are jointly shared within communities of practice (O’Dell and Grayson, 1998). Both extremes of the dimension “Individualism versus Collectivism” appear challenging for the implementation of KMS. On the one hand, employees in individualistic societies do typically act according to their self-interest whereas KMS-facilitated collaboration is seen as less important. On the other hand, employees in collectivistic societies might prefer in-groups that closely resemble family relationships to communities of practice which are mainly task-oriented.

Hofstede’s third dimension contrasts “Masculinity versus Femininity”: “Masculinity pertains to societies in which social gender roles are clearly distinct [...], femininity pertains to societies where gender roles overlap” (Hofstede, 1997). In masculine societies the importance of work in everybody’s life is emphasized. Masculine managers are aggressive, assertive, and decisive, whereas feminine managers strive for consensus and often make intuitive decisions. Organizations in masculine societies are results driven and fights are believed to be the best way to resolve conflicts. On the contrary, organizations prefer compromise and negotiation for problem solving. A literature review gave no indication that this dimension has impact on the development and implementation of KMS.

The fourth dimension, “Uncertainty Avoidance”, is “the extent to which the members of a culture feel threatened by uncertain or unknown situations” (Hofstede, 1997). In countries with high “Uncertainty Avoidance”, people are comfortable in highly structured environments where as little as possible is left to chance. They always seem to work hard, or at least to be busy. Employees in low “Uncertainty Avoidance” countries seem to disregard any formal rules and laws that should only be used if absolutely necessary. High tolerance of innovative and deviant ideas and behavior dominates. People relax and engage in other activities when they have some spare time. Often an effective approach to knowledge acquisition, this pursuit of personal interests is looked at with suspicion, especially in Western cultures. So far, managers have not recognized that the availability of slack time for learning and thinking is a key characteristic of knowledge-based organizations (Davenport and Prusak, 2000).

3. CASE STUDY: HRBASE AT DEUTSCHE BANK

3.1. Deutsche Bank and the Human Resources Department

Deutsche Bank, with headquarters in Frankfurt, Germany, is among the leading financial service providers in the world. With total assets under management of € 840 billion and a net income of € 2.6 billion in 1999, it was Europe’s industry leader with a significant market presence in the United States, as well as a presence in most other parts of the world. In 1999, 93,232 staff were employed, some 42,000 of those outside Germany. It is for this reason that Deutsche Bank recognized the need to integrate employees with multiple cultural backgrounds. The Board of Managing Directors ran the company along the lines of a virtual holding company, composed of five group divisions with independent profit responsibility: Asset Management, Corporates and Real Estate, Global Corporates and Institutions, Global Technology and Services, and Retail and Private Banking, which were complemented by an overall Corporate Center. Our case study focuses on the HR Division within the Corporate Center (Deutsche Bank, 2000a).

At the time of our case study, from 1999-2001, the HR Division’s responsibilities included the development of talents and knowledge of Deutsche Bank’s employees in accordance with the strategic business model and in cooperation with the employees and their supervisors. The employees were

responsible for personal and career development, supervisors would constantly support and challenge them, and the corporate HR Division would supply advice, processes, tools, and products. Those included corporate development, staffing, personnel development, compensation and benefits, and supporting processes such as personnel IS. To provide all services, some 1,800 staff were employed, 1,000 of them in Germany (Deutsche Bank, 2000b).

Since Deutsche Bank's HR Division was engaged in a great variety of services, mirrored by many functions and reporting lines, a need for more transparency and improved communication arose. Hence, an innovative department was founded: HR Kinetik. According to their mission statement, they are "a uniting and co-ordinating mechanism that assists and facilitates the synchronization and efficiency of the different elements within HR, enabling them to deliver value greater than the sum of their parts". In order to provide a stronger community for the HR employees worldwide and to make the HR Division's structure and functions more transparent, an Intranet-based KMS was planned.

3.2. The Project Idea for HRbase

When Inga Senff joined HR Kinetik as an intern in August 1999, she aggregated information about the structure of the HR Division, the HR employees, and their functions in a Microsoft Excel spreadsheet. HR Kinetik made the attempt to compile names, job roles, and contact information of every employee in order to make the HR Division's functions more transparent. Soon it became obvious that the available information was not sufficient to fulfill the task. Together with Hilger Pothmann, HR Director and Team Head of HR Kinetik, Senff wondered if Deutsche Bank's corporate Intranet could be used to capture certain employee information: e. g. career phases, skills, interests, languages, and details of current roles or projects. In result, the project idea for HRbase emerged. As a true Intranet-based KMS, the networking-tool HRbase was designed to enable and facilitate the exchange of information and interaction among the HR staff.

The conceptualization of the new project lasted from August 1999 to the end of December 1999. Pothmann and Senff interviewed various members from the HR Division to gather their ideas, both generalists and specialists. Some of the participants were chosen because they had already gained experience with change management projects or the development of IS. After the often lively interview sessions, Pothmann and Senff agreed on two main applications of the Intranet-based KMS. On the one hand, HRbase should serve as a corporate directory for the mapping of internal expertise. The IS would be an easily accessible and searchable repository of HR employees' profiles, containing skills and experiences. All HR people should be able to set up their individual home pages, including project sub pages. On the other hand, HRbase should foster the creation of knowledge networks. Employees could meet physically and virtually to exchange and amplify knowledge in communities of practice.

According to Pothmann, the HR Division was primarily process-oriented and focused on standard work in 1999. HRbase would facilitate the division's transformation to a more advisory and consultative positioning with a higher productivity. First, HRbase should make the department's structure more transparent, with information on reporting lines, functions, and titles. Second, HRbase should foster a better communication within the HR Division through the establishment of formal and informal networks. People should recognize that they work in an "HR Community". Sharing personal information and photos should facilitate the creation of informal networks, whereas individual work experiences help to establish formal networks. Third, HRbase ought to help the value management in the HR Division. Pothmann and Senff were convinced that the "HR Community" would contribute to a corporate culture of trust, innovation, and teamwork. Fourth, HRbase would reduce project costs, as improved knowledge sharing diminished project redundancies and dependency on external consultants. Lastly, HRbase could act as an information service provider when relevant information could be accessed through a common platform. Search and messaging functions should speed up information sharing.

Potential barriers to the success of HRbase were investigated as part of a feasibility study that was carried out in November 1999. The external consultants who divided motivation problems concerning the adoption and the usage of the Intranet-based KMS into three parts: cultural, organizational, and business issues. For cultural issues, they noted that some individuals in Deutsche Bank were not used to sharing information; sometimes they even had an inclination not to share. For HRbase this could imply a free-rider morale with users benefiting from the system without contributing input. The consultants cited Hibbard and Carrillo (1998): "Getting employees to share what they know is no longer a technology challenge – it's a corporate culture challenge". Many different, local in-house practices, which limit the value of shared information, were mentioned as organizational obstacles to the implementation of HRbase. The consultants considered different languages and local legislation as important problems. As business issues, they found out that the business model could affect the users' motivation. The closer the Intranet-based KMS would be connected to the business, the more likely it would succeed. Organizations that had no strong business focus found it more difficult to motivate people to use IS. The consultants believed that usefulness to the individual was the key for success.

For funding, Pothmann approached his supervisor, Dirk Dekker, Head of HR International and HR Board member, who agreed to finance the project. Deutsche Bank's HR Board is a committee that formulates and decides strategic HR policy. To further increase the project's chances for success, Pothmann acquired two additional HR Board members as project sponsors. Those should demonstrate executive commitment to the project. They agreed to put their details into HRbase and later encourage their teams to do the same. The plan was made to develop the Intranet-based KMS in four key stages: "Preparation", "Engagement and Piloting", "Review and Planning", and "Transition to Live System".

3.3. The Preparation Stage

The development of HRbase began formally in February 2000. The first key project stage, "Preparation", lasted from February to the end of May 2000. Its purpose was to prepare technology, marketing plans, and the project team for the pilot start. Pothmann and Senff took over the responsibility for project management and decided to expand the core team with additional employees. From the beginning in February, until the end of HRbase's development, at least one intern provided full time support. On a part time basis, an in-house consultant served as project technologist. His tasks included the provision of technical support for the project and to serve as contact point to Deutsche Software, an Indian subsidiary responsible for the development of IS in banking and finance.

In addition to the core team, several project associates made important contributions. A senior project manager from the group division Global Technology and Services served as facilitator and designer. She provided advisory support to Senff and was responsible for designing and facilitating workshops and questionnaires. Two British consultants from a knowledge management and change management consultancy, based in London, provided advisory support to the project and helped to anticipate and manage issues in advance. The consultants were involved only in the first two development stages. In addition, the HRbase team was supported from several regional associates serving as local points of contact outside Germany. They supported first the pilot participants and finally the global roll-out. All regional associates had the same background, concerning national cultures, as the employees they were supposed to train later.

The team made the decision to contract with Deutsche Software for the development of the Intranet-based KMS. Another key project activity was the selection of the pilot participants for the next development stage. At first, HR employees known to the team members were asked to participate in HRbase's pilot testing. When Senff detected regions without any voluntary participants, she asked supervisors in those regions personally whether they would be willing to nominate some of their employees as pilot users. It was necessary to include users from all important regions for Deutsche Bank, in order to ensure that the application technically worked worldwide. The team decided to keep the number of participants relatively low, approximately 100 employees, because the system was not reliable and up to scale. Moreover, every pilot user needed personal training and support. The HRbase

team made sure that there was a good cross-representation of regions, divisions, and functions in the piloting stage. Automatically, as they came from different regions, the pilot users would have different cultural backgrounds, but plans for cross-cultural testing were not made. By participating in the pilot tests, the group divisions should get the feeling that their feedback was valued and that they had an influence on the application's final design. The HRbase team had the intention that it would almost be impossible to get a later buy-in once the group divisions felt neglected. After the pilot users had been identified, the team started to develop marketing materials outlining the role of the participants and designed an Intranet site to provide feedback and information. The final preparations for the next stage dealt with the preparations for the kick-off workshops, and the design of a questionnaire to collect the pilot participants' feedback; both tasks were carried out by the German core team.

3.4. The Engagement and Piloting Stage

The next key project stage, "Engagement and Piloting" started in June 2000 and lasted for two months. The purpose was to motivate pilot participants, to help them register for HRbase, and to generate activities to test the system. Early in June, Pothmann made his first presentation about HRbase to Heinz Fischer, Global Head of HR. Very satisfied with application's functionality and outline, Fischer soon became the main project sponsor. Fischer often hinted in regular meetings that HRbase would be a recognized source for the sharing of experiences and information.

Before the Intranet-based KMS was ready to be populated with pilot users, the HRbase team conducted thorough tests of the development system which started on June 5, and lasted until June 19, 2000. They made sure that the system provided the functionality needed by the pilot users. After the testing was completed, the team members held six introductory workshops for the pilot participants to communicate both the goals of the HR Division in general, and the goals of HRbase in detail. Already based in the United Kingdom, the senior project manager from Global Technology and Services organized workshops in London. Pothmann held workshops in New York, a city where he had worked before, and Senff conducted two workshops in Frankfurt. Telephone conferences were held for the remaining participants. All users were handed an information package that provided an overview about the users' task, the rules for the "Engagement and Piloting" stage, a questionnaire for feedback, and a small present for the users' effort. To encourage the testing of the application, e.g. a treasure hunt game was used. Everybody was encouraged to provide as much feedback as possible, and to be absolutely honest when bugs were found in HRbase. Moreover, the pilot users were intended to serve as multipliers, to spread the word about HRbase among their fellow HR employees. The team considered it a better idea to use colleagues to inform about the system instead of the project team.

The pilot participants served two important tasks: they tested the features and technology of HRbase, and provided helpful ideas on how the Intranet-based KMS should be introduced to the whole HR Division. Pothmann and Senff believed that the implementation process should model the desired shift in corporate culture - the system alone would not produce the change. It was necessary to find out how people could be encouraged to set up their individual home page and to use the IS. For that purpose, a test of the current HR culture from questionnaires and focus groups had been planned, but never carried out due to a lack of time and of financial resources. A milestone was set at the end of June to compile the participants' feedback, to develop a plan for the final roll-out, and to present an update to the project sponsors, who subsequently decided to continue the project.

Generally, the feedback was favorable, but with suggestions for improvement in three areas: organization and culture, technology, and business processes. Pilot users mentioned the need for a more intuitive user interface, also in other languages besides English, because especially German employees lacked English language skills and were reluctant to use IS in foreign languages. The participants criticized that private information was not needed, as it made the Intranet-based KMS lose its seriousness. They complained that HRbase offered no added value to HR work, because it had not been linked with other IS by the end of June. However, some were convinced that the system would help to establish an "HR Community" or HR culture as intended in HRbase's conceptualization. Their fellow employees

just needed to recognize the value of bringing people from different national cultures together. Diverse perspectives and open communication would bring a new quality to the generation of innovative ideas and to problem solving. To reach this goal, cross-cultural awareness was essential.

3.5. The Review and Planning Stage

The following key project stage, “Review and Planning”, began in July 2000 and lasted until mid September 2000. The objective of this stage was to review the “Engagement and Piloting” stage and to plan for the global roll-out. Based on the compiled pilot user feedback, Deutsche Software began with functional changes in the development system. In the meantime, the HRbase team refined the plan for the Intranet-based KMS’ full roll-out. Senff started to identify pilot participants who were willing to act as team champions or regional champions for the last key stage “Transition to Live System”. On the one hand, the champions were selected because they were personally known to the HRbase team; on the other hand, because they thought positively about the IS. Senff kept the pilot champions constantly involved via regularly progress updates and additional learning sessions.

Nevertheless, their buy-in for the project’s final roll-out was not sufficient to ensure success. The HRbase team believed that additional awareness marketing was needed to convince the HR employees of the application’s benefits. At that point, Pothmann and Senff decided to hire an advertising agency to prepare the launch of HRbase at Deutsche Bank’s yearly International HR Conference, scheduled for September 25 and 26, 2000 in Dresden.

3.6. The Transition to Live System Stage

The last key project stage in HRbase’s development lasted from mid September 2000 until December 2000. Its goal was to market and roll-out HRbase to the entire “HR Community”. Pothmann and Senff decided together with the project sponsors that recruiting 1,200 HRbase users until the end of the year would be an ambitious, but achievable goal. Deutsche Software finished the latest version of the development system, and the team conducted the last tests to ensure the system’s readiness for the global roll-out. On September 20, a copy of the development system became the production system, ready to be populated with the remaining HR employees. Deutsche Software copied the pilot participants to the new system and informed them of HRbase’s go-live. On September 25 and 26, the Intranet-based KMS was officially launched at Deutsche Bank’s yearly International HR Conference in Dresden, attended by approximately 130 global HR advisors.

As the team leader, Pothmann decided to choose pull tactics to get as many HR employees onto the system as fast as possible. On a global scale, some 20 pilot champions with different nationalities approached the HR employees to set up their individual home page. They communicated HRbase’s advantages and provided training and support for their fellow colleagues. Seven student trainees, hired on an hourly basis, provided similar services to encourage HR employees in German branches to register for HRbase. There was no strong executive support. Of the HR Board members, mainly Dekker and Fischer provided support in the roll-out. Not all of them appeared to be satisfied with the Intranet-based KMS’ functionality. In their next HR Board meeting at the end of November, they required Pothmann to collect their individual feedback until the end of January 2001. Based on their responses, Fischer would then decide about HRbase’s future: it would either be funded from an earmarked budget in 2001, or discontinued.

At the end of January, 2001, the HRbase team nevertheless celebrated its success: some 1,500 users had registered and set up their individual home pages, more than 80 percent of all HR employees worldwide. In the first interviews with Pothmann, some HR Board members made it clear that the system did not add much value to their work due to two main reasons. First, both quantity and quality of the data captured, were not sufficient for regular use. Better data quality maintenance was needed quickly. Second, the knowledge management initiative was not connected to any business processes.

The majority of users had just set up their individual home page because their superiors had made it mandatory, or pilot champions and student trainees had convinced them.

As soon as Deutsche Software made usage statistics available, the figures supported the HR Board members' opinions. Figure 1 presents an overview of registered and effective users within Deutsche Bank's main regions. Somebody was considered an effective user once he or she had used the IS for five times to retrieve information; first searches were usually made together with pilot champions or student trainees. On average, only 14 percent of the HR employees had used the Intranet-based KMS since the roll-out on September 20, 2000, but there were significant differences between the regions. Senff explained the low usage rates along regional boundaries. First, the German employees were anxious to post information on their homepages, as Deutsche Bank faced a major realignment of the organizational structure in February 2001. Plans were announced to combine the five group divisions in a way that only two large group divisions would remain: the first division an integrated corporate and investment bank, and the second division responsible for private clients and asset management. The workforce feared that information on the individual homepages could be used to decide layoffs. Second, the United Kingdom's Regional Head of HR did not sufficiently support HRbase and did not promote the Intranet-based KMS with his HR teams. Third, unclear organizational structures and reporting lines made it difficult to reach potential users in Asia Pacific.

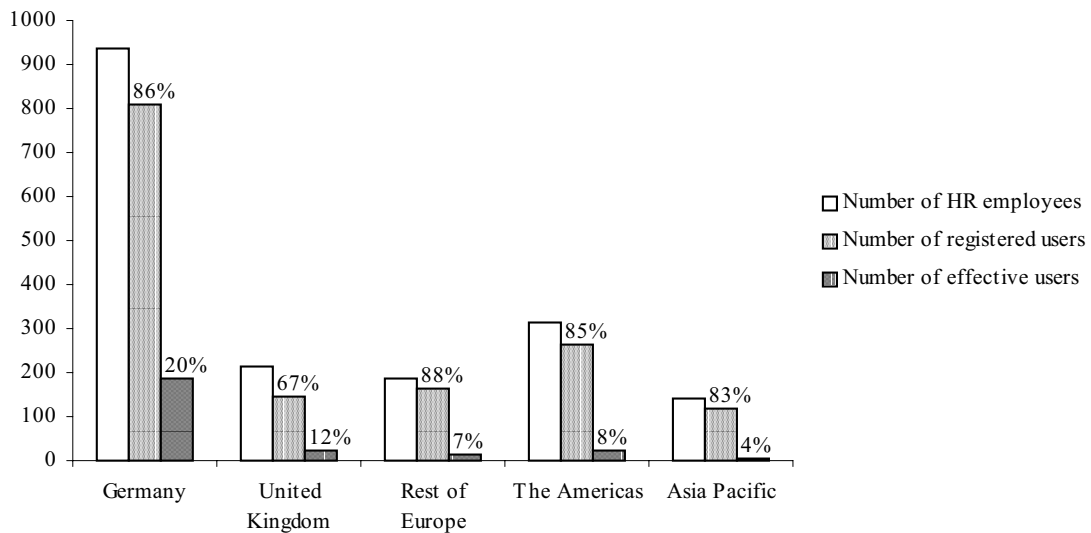


Figure 1: HRbase Registration and Usage by the End of January 2001

Alarmed by the low usage rates, Pothmann and his team understood the necessity to bring the system "from live to alive". For the future, they planned to link data maintenance processes with Deutsche Bank's core IS: the Group Directory, the PeopleSoft HR module, and the SAP R/3 system. In addition, they examined how HRbase could facilitate core HR processes in the future.

4. DISCUSSION AND CONCLUSION

Our case study illustrates the difficulties Deutsche Bank encountered during the cross-national development, roll-out, and usage of HRbase. Similar to findings from previous research in more traditional settings, the majority of difficulties in this case study pertains to the implementation's social context that "includes the specific organizational setting which is the target of the implementation and the wider cultural and national setting within which the organization operates" (Robey and Rodriguez-Diaz, 1989). The case study also suggests some aspects which are specific to KMS. Following Hofstede's framework, we will go into these particular aspects in more detail below.

Hofstede's first dimension concerns "Power Distance". The introduction of a KMS aims to alter established work flows and practices; the hierarchical relationship between the powerful and the less powerful members of an organization in high "Power Distance" countries is challenged. HRbase's main objectives were improved knowledge sharing and the creation of formal and informal networks. All HR employees should have access to information that was previously inaccessible and cautiously guarded by many local in-house practices. For the first time, HRbase was to truly facilitate teamwork across functional boundaries. Senior Deutsche Bank employees from high "Power Distance" cultures might have opposed the Intranet-based KMS' implementation. For them, it was an attempt to establish new electronic communication channels and to transfer decision making authority to subordinates with a lower status (Shore and Venkatachalam, 1996). For lower ranking subordinates, HRbase was also a challenge. Indeed, they were accustomed to the managers' directions and control and relied less on their own intellect and motivation which are absolutely necessary for successful knowledge management. Rolling-out KMS in low "Power Distance" cultures might be less difficult, as employees are already accustomed to a collaborative work environment.

By the end of January 2001, some 85 percent of Deutsche Bank's HR employees worldwide had registered for HRbase and set up individual home pages. Although there were only slight differences in the registration rate, the usage rate differed widely across Deutsche Bank's main regions. Germany and the United Kingdom had the highest usage rates with 20, respectively 12 percent. Both countries are low "Power Distance" countries, scoring 35 on Hofstede's "Power Distance" index. The other three regions had significantly lower usage rates: seven percent in Rest of Europe, eight percent in The Americas, and only four percent in Asia Pacific. As the majority of the Deutsche Bank employees in Asia Pacific live and work in high "Power Distance" societies, the hypotheses appear valid. The three countries with the most HR employees, ranked high on the "Power Distance" index: India scored 77, Singapore scored 78, and Hong Kong scored 64 (Hofstede, 1997). The regions Rest of Europe and The Americas ranked in the middle between the United Kingdom and the region Asia Pacific. While Senff explained some of the problems in the latter region with unclear organizational structures and reporting lines, an impact from "Power Distance" is still reasonable. Otherwise, not only the usage rate, but also the registration rate would have been lower than in other regions.

The second dimension, "Individualism versus Collectivism" builds on the differences between the interest of individuals and the interest of groups. In collectivistic societies, personal opinions are often neglected because they are predetermined by the group. Improved knowledge sharing, stated as one of HRbase's main objectives, would not be feasible when collectivistic employees withhold beneficial information and do not voice their knowledge in order to promote group maintenance. Such adoption obstacles are less likely in "Individualism" societies, where honesty and openness are promoted, and coping with conflicts is considered necessary to achieve results (Robichaux and Cooper, 1998). Conflict resolution is not only related to "Individualism versus Collectivism, but to Hofstede's third dimension "Masculinity versus Femininity", too.

Representatives from high "Individualism" countries, Britons and Germans, defined the objectives for HRbase. Although the United States is more individualistic, the United Kingdom and Germany follow closely. Whereas the facilitation of virtual networks based on trust can be appealing to the members of individualistic societies, there is no proof of acceptance from the collectivistic HR employees. With regard to trust, it is questionable whether an "HR Community" can compete with the cohesive in-groups of collectivistic employees. These employees probably prefer personal contacts over an ad-hoc membership in newly created virtual teams that are composed based on skills, and not on personal relationships. Since they have been exposed to their particular culture for a long time, it seems unlikely that a short-term exposure to innovative IS can shatter the well-established, culturally deep-rooted patterns of group behavior (Watson et al., 1994). Interviews with HR Board members, conducted for the purpose of the case study, strengthen this hypothesis. Three HR Board members remarked that Asian HR employees were reluctant to post personal or work-related information on their individual home pages. They do not consider HRbase as a community of trust. Most countries with high "Collectivism" are located in the Deutsche Bank region Asia Pacific. It has the HRbase's lowest

usage rate among all regions. The Global Head of HR, Fischer, expected cross-cultural challenges at the management level, too. He considered the dominant management style in the United States as notably more individualistic than in the United Kingdom and in Germany.

Hofstede's fourth dimension, "Uncertainty Avoidance", is a measurement to the extent of which people in a society feel threatened by uncertain or unknown situations. When KMS are implemented in a high "Uncertainty Avoidance" culture, it will raise the managers' and employees' concerns. They express their worries in various ways: criticism of headquarters, complaints about new IS, absenteeism, sabotage of new work flows and practices, and increases in frictions between employees and management. To overcome such resistances in high "Uncertainty Avoidance" countries, the attempt can be made to calm the workforce with accounts of successful implementations in other countries. However, every IS requires a new alignment between the dimensions organization and culture, technology, and business processes, making change a necessity (Shore and Venkatachalam, 1996). Lower "Uncertainty Avoidance" cultures seem to be more tolerant of the ambiguity involved in every organizational change. The HR employees in those countries are more inclined to try HRbase's new technology and to accept altered work flows and practices.

The usage rate gives no indication for an impact of "Uncertainty Avoidance" on the adoption of HRbase. Even though Germany ranks considerably higher on the "Uncertainty Avoidance" index than the United Kingdom, or the United States, the number of users was also considerably higher. Only the low usage rate in the region Rest of Europe seems to be in accordance with the assumptions made above. In this region, the majority of Deutsche Bank's HR employees work in Belgium, Spain, and Italy. Belgium scored highest with 94 on the "Uncertainty Avoidance" index, followed by Spain and Italy, scoring 86, respectively 75. Nevertheless, personal opinions and the HR Board member interviews seem to contradict the simple statistics to some extent. Senff mentioned that the German workforce was anxious to post information on their homepages, as Deutsche Bank faced a major restructuring in February 2001. An HR Board member confirmed Senff's opinion when he considered German employees to be more reluctant to put job skills and personal information on their home pages.

Our case study provides further evidence to the importance of national culture in the development, roll-out and usage of cross-national IS projects. In addition, the study suggests that the impact of national culture is even stronger for KMS. We also find Hofstede's four-dimension framework to be applicable in the new setting of KMS. The "Power Distance" dimension is particularly relevant as knowledge management aims at sharing knowledge across hierarchies. With regard to "Individualism versus Collectivism" our findings are in line with existing research in more traditional settings (Tricker, 1988, Watson et al., 1994). We found no impact of the "Masculinity versus Femininity" dimension, and conflicting evidence with regard to the dimension "Uncertainty Avoidance". Since our case study explored a KMS that aimed at the creation of corporate knowledge directories and the generation of knowledge networks, we suggest to focus additional cross-national research on KMS which emphasize the coding and sharing of best practices. Taking into account that the manifestations of national and corporate cultures are not completely independent from each other, we further recommend the application of conceptual frameworks to explore the unique and idiosyncratic elements of corporate culture.

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