

Knowledge Management Goals Revisited – A Cross-Sectional Analysis of Social Software Adoption in Corporate Environments

Alexander Richter
Bundeswehr University
Munich, Germany
a.richter@unibw.de

Alexander Stocker
Joanneum Research
Graz, Austria
alexander.stocker@joanneum.at

Sebastian Müller
Bundeswehr University
Munich, Germany
s.mueller@unibw.de

Gabriela Avram
University of Limerick
Limerick, Ireland
gabriela.avram@ul.ie

Abstract

When it comes to tools serving as knowledge management instruments, social software has gained increasing importance. Whereas corporate social software is almost unanimously recognised to have enabled a fundamental shift in the ways of interacting and communicating within a company, the implementation approaches taken vary a lot from company to company and have not yet been examined in detail. This is also true for the goals set when introducing such tools, as well as for the implementation strategy as a whole. Against this background, we have studied and analysed social software adoption in 23 companies and derived six main goals of corporate social software adoption. These were consequently compared with the goals of knowledge management projects and initiatives, as identified in a series of well-known knowledge management studies. While some of the goals set for the introduction of corporate social software seem to coincide with those resulting from knowledge management studies, some others appear to be new and specific for corporate social software.

Keywords

Knowledge Management, CSCW, Collaboration, Social Software, HCI

1. INTRODUCTION

When Time Magazine awarded “you” (i.e. every user of the World Wide Web) the title “Person of the Year 2006”, they pointed to what they perceived as a fundamental shift. New tools based on Web technologies that have been subsumed under the label “Web 2.0” mushroomed on the Internet, facilitating changes in the ways people interact online. Most notably, social software facilitates user participation in creating web content (e.g. via wikis and weblogs) and allows for new ways of connecting, interacting and communicating with other people (e.g. via social networking services and microblogging). Very soon after that, the first organizations started to use these tools “behind the firewall” to support knowledge transfer and collaboration, and perceived new ways of supporting their employees (Paroutis and Saleh 2009). For the people involved, this came with new challenges - like the integration of organizational structures and processes. These go beyond the requirements of web platforms, which are primarily characterized by informal structures (Jahnke 2009) and have to be taken into account in the design of socio-technical tools. Yet, the potential of these new tools for the corporate realm has been investigated mainly through prototypes and research has unveiled a huge number of design parameters (e.g. DiMicco et al. 2008; Grace 2009; Holtzblatt 2010).

Amongst others, researchers and practitioners have been continuously debating the impact of the adoption process on the success of social software (McAfee 2009). Whether such applications should be implemented “top-down” (i.e. in the traditional way of implementing corporate software) or “bottom-up” (since corporate social software brings a paradigm shift) (e.g. Buhse and Stamer 2008) is an important point of the debate. We aim to bring our contribution to this debate with the current study, a cross-sectional analysis of 23 companies. During our study, we have analysed the approach chosen by companies when introducing social software, as well as its effects on cooperative processes. We have found, after examining the various approaches in place, that the question top-down or bottom-up is not that straightforward to answer; the companies included in our sample employed two mutually compatible strategies: in a participative implementation approach, the modalities of use were left open for the employees to decide, and the usage scenarios were identified step by step (“exploration”). At the same time, the tools and their usage scenarios have been very well coordinated and advertised within the company by the management (“promotion”). Even more important, we identified six main goals pursued (after the exploration phase) by the companies implementing social software. These goals also depict the companies’ perceptions regarding the benefits of these tools and will be discussed in this report.

In the next section, we present a brief overview of existing research on corporate social software in general, and on its introduction in particular. Further, we discuss those goals pursued by knowledge management that could

be supported through the adoption of social software (Section 3) and describe our methodology for this study (Section 4). We then present the goals of corporate social software adoption (Section 5) and discuss our research contribution, highlighting its implications for research and practice (Section 6). Finally, we conclude our paper with a summary and a brief outlook (Section 7).

2. CORPORATE SOCIAL SOFTWARE IMPLEMENTATION STRATEGIES

Status quo: Corporate Social Software

In the last few years, Web 2.0 applications found their way into corporate practice, and we have seen a continuously increasing demand for corporate social software to support knowledge transfer and collaboration (e.g. Bughin and Manyika 2007; McAfee 2009). Although the potential of these applications has not yet been thoroughly investigated, it is widely assumed that they could improve access to information, identity and network management, as well as interaction and communication within a company (McAfee 2009). The use of corporate social software can contribute to change on many levels; this change goes far beyond tools, and extends to the Web 2.0 paradigms that enable change through the use of these tools. For example, users of a platform are treated as information and content producers, who contribute content voluntarily and in a self-organized way ("participation"), (e.g. McAfee 2009). Social software is better defined by the needs of users - often called "me-centricity". Meanwhile, there is a huge amount of research on the potential uses of social software in the corporate realm. Several studies focus on specific tools within the intranet, including e.g. weblogs (e.g. Ip and Wagner 2008), microblogs (e.g. Zhang et al. 2010), wikis (e.g. Danis and Singer 2008, Stocker and Tochtermann 2011) and social networking services (e.g. DiMicco et al. 2008; Richter and Riemer 2009). Most of these exploratory studies examine particular aspects, including the type and volume of contributions, and the relationship between consuming content and contributing, the quality of user generated content (e.g. Arazy and Nov 2010), user motivation (e.g. DiMicco et al. 2008), the benefits for the individual and the organization (e.g. Steinhüser et al. 2011) or the perceived barriers or rules of use (e.g. Grace 2009; Holtzblatt 2010).

Corporate Social Software and Knowledge Management implementation strategies

Several studies were dedicated to social software implementation strategies. Previous studies have examined topics like the role of corporate culture (e.g. Grace 2009) or of the existence of different user groups (e.g. Ebersbach and Glaser 2009). Furthermore, the adequate balance between voluntary participation and control was discussed (e.g. Buhse and Stamer 2008). There is an ongoing debate on whether corporate social software should be introduced top-down or adopted bottom-up. Some argue that considering forced introduction by the management or voluntary adoption and support of employees is a false dichotomy. What should rather be discussed is devising the most adequate ways for the management to support bottom-up adoption. There is a stringent requirement for management commitment in this context (i.e. executive management maintaining the systems in a consistent, compelling and reliable, supportive way), as proven by previous studies of groupware systems (e.g. Grudin 1994). At the same time, management should clearly state that they are convinced of the benefits of the platform and set an example by actually using it themselves (e.g. Riemer and Richter 2010). Previous research work on IT-based knowledge management (KM) has led to similar findings. Several frameworks and strategies for the introduction of tools have been put forward by research (e.g. Han and Anantamula 2006). Top-down implementation strategies based on management roles such as the Chief Knowledge Officer (CKO) can be found in abundance, especially in IT-based knowledge management studies. Classical KM approaches often ignore the perspective of knowledge workers (Han and Anantamula 2006), as well as the factors motivating knowledge workers to share their knowledge. An important aspect of a knowledge management implementation strategy is setting knowledge management goals; this issue will be revisited in the next section.

The "bottom-up" adoption of social software is mentioned as an essential difference between (traditional) groupware and social software (e.g. Buhse and Stamer 2008). This adoption is often driven and supported by employees as a logical consequence of the previously introduced "me-centricity", many times without the management being aware, and at the same time avoiding extensive regulation and approval processes (McAfee 2009). One of the main advantages is that, unlike large "top down" imposed platforms, this type of application does not require information on existing processes and social structures to run, and can be employed in new, innovative ways. In the heated debate on social software, the bottom-up approach gets contrasting arguments. For example, some argue that it is very difficult to align the use of these applications with business goals. Others focus on the impact of various influence factors - such as corporate culture. Commonly, the bottom-up approach seems to be used as an excuse for not making any budget provisions or for blaming users for failure after the implementation, based on the argument that they did not support the implementation enough, although they were

given a lot of space (Mans 2010). This serves as an argument for the top-down introduction of these tools, just like any other collaboration tool with long term orientation.

Following this public and interdisciplinary debate, we proceeded to systematically examine the various approaches adopted by companies and their results. We wanted to explore the influence exerted by the previously mentioned Web 2.0 paradigm and the impact of existing business structures on the adoption process. As we are trying to situate our findings related to the goals of social software introduction in corporate environments in the context of other knowledge management projects and initiatives goals, the following section presents a literature survey on knowledge management goals.

3. KNOWLEDGE MANAGEMENT GOALS

Knowledge management (KM) has been the focus of intensive discussions for more than two decades now. We can therefore look back at a rich body of KM theory and at extensive research on the goals of KM projects and initiatives. In this section, we review and summarise existing research on KM goals (see Table 1).

Prusak (2001) looked at the history of KM, arguing that three domains have contributed heavily to KM: information management, the quality management movement, and the human factors/human capital movement. KM borrows goals from each of these domains. It shares the user perspective on information management and focuses on value and user satisfaction rather than on the technology used for processing and delivering the information stored within. Furthermore, KM involves making (organizational) knowledge visible and developing knowledge processes, identifying process owners and putting governance structures in place. KM aims to make the value of human capital visible for the leaders of the organization and to develop tools and techniques to allow this capital to reach its full potential. Mayer and Remus (2001) presented their empirical findings related to KM goals, resulting from a survey on the state-of-the-art of KM systems usage in the 500 largest German companies, based on 73 respondents. The most prominent goals of KM projects were: improving transparency, improving access and improving documentation, retention of knowledge, enhancing knowledge sharing and improving communication. Mayer (2007) lists in addition the following goals: training of newly recruited employees, making implicit knowledge explicit, reducing costs, improving innovation and generating additional income.

Table 1: Knowledge Management Goals

Author	Type of Research	Knowledge Management Goals Resulted from Study
Davenport et al. (1998)	Investigating 21 knowledge management projects	Create and improve access to knowledge repositories, enhance knowledge environment, manage knowledge as an asset
Ruggles (1998)	Study of 431 European companies	Creating knowledge repositories, implementing decision support, creating a network of knowledge workers, mapping sources of internal expertise, launching knowledge based products or services
Eary and Scott (1999)	Interviews with 20 chief knowledge officers	Create, protect and use knowledge; design and create environments to discover and release knowledge; articulate nature of managing knowledge as a resource
Hansen et al. (1999)	Investigating knowledge management strategies of consultants	Codify knowledge and store it into databases, facilitate sharing knowledge through direct person to person contact
Prusak, L. (2001)	Essay	Making knowledge visible, developing knowledge processes, process owners and government structures, make the value of human capital clear to leaders
Mayer and Remus (2002)	Survey of the 500 largest German companies	Improve the handling of existing knowledge in documents or people's heads, improve the process of sharing knowledge
Mayer, R. (2007)	Survey of the 500 largest German companies	Train newly recruited employees, knowledge explication, reducing costs, improving innovation

Ruggles (1998) examined the results of a study of 431 US and European organizations conducted in 1997 and focusing on their approach to managing knowledge. Goals of KM projects included: data warehousing, creating knowledge repositories, creating a network of knowledge workers, mapping out sources of internal expertise,

establishing new knowledge roles and launching new knowledge-based products or services. Hansen et al. (1999) investigated the KM strategies of consultants and described the differences between codification and personalization. While the first type of strategy aims to carefully codify (all) knowledge and store it in databases for easy access, the latter understands knowledge as closely tied to the person who developed it and only shared through direct person to person contacts.

As already mentioned, one of the common approaches was the creation of the chief knowledge officer (CKO) role, meant to initiate and drive KM projects. Eary and Scott (1999) interviewed 20 CKOs in North America and Europe to get some insights into KM goals. Most CKOs agreed that in order to be successful, companies have to consistently create new knowledge, disseminate it throughout the organization and embed it in technologies, products and services. KM programs aimed at designing and installing technical support in order to create, protect and use knowledge, designing and creating environments and activities to discover and release new knowledge, and articulating the purpose and nature of managing knowledge as a resource and embodying it into other initiatives and programs.

Davenport et al. (1998) studied 21 KM projects and identified four broad types of objectives: create knowledge repositories, improve knowledge access, enhance knowledge environment, and manage knowledge as an asset. Most of the projects they studied had only one objective. Creating knowledge repositories focused on external knowledge (e.g. competitive intelligence), structured internal knowledge (e.g. research reports) and informal internal knowledge (e.g. discussion databases with lessons learned). Improving knowledge access implies facilitating the connection between a person who has the knowledge and another one who needs it, and supporting its transfer between them (e.g. based on expertise yellow pages). The initiatives meant to enhance the knowledge environment are aimed at establishing an environment conducive to more effective knowledge creation, transfer and use. Managing knowledge as an asset implies treating knowledge like any other asset on a balance sheet or managing specific knowledge-intensive assets (e.g. patents) more effectively to improve the return.

During our literature survey, we learned that due to the interdisciplinary use of knowledge and the different meanings attributed to knowledge management, there are major differences from study to study. However, some goals are present in almost every study. Such goals are the **creation of knowledge repositories**, the **facilitation of access to knowledge** and knowledge sharing and the **articulation of knowledge as a vital resource** for companies.

4. METHODOLOGY

The uses of corporate social software have been already analyzed by a large number of case studies. The reason for deploying a case study research strategy in order to understand and explain the relatively new phenomenon of corporate social software adoption and use, has its origins in the great complexity of business processes and work practices involved, which make the modeling of information structures much more difficult (Orlikowski 2000). In such situations, a simple set of rules (e.g. practical guidelines) is not enough. Case studies represent a proven way to explain design and appropriation forms of information technology within their original context (Wulf 2009).

For the present analysis, we undertook 23 case studies of enterprises from Germany, Austria and Switzerland. The underlying data was collected by the authors during several research projects undertaken between April 2007 and July 2010. During that period, we had an intensive collaboration related to our individual projects, in order to create a common basis for later comparison. Each case study included several data sources; within each case study, (i.e. in every company) we conducted at least one interview (lasting from one to several hours) with employees identified as responsible for the introduction process and/or user support. Consequently, more than 30 interviews, as well as several workshops with users were conducted. We were able to get an overview of the new tools and their usage at all sites except five. In four of the companies, we had access to and analyzed usage statistics. In most cases, internal and external documents were made available for examination. In two of the cases, we had access to additional information provided according to a standard template within the enterprise-2.0-case-study-network (e20cases.org). Triangulation of multiple data sources and the multiple approaches for data collection were aimed at ensuring objectivity and construct validity (Yin 2003).

We started with the objective of aligning these methods, in order to ensure data comparability and the discussion of all case studies in a structured way and used commonly accepted principles to structure the case studies (Senger and Österle 2004; Schubert and Wölflle 2007). The structured documentation for each of the companies focused on the following aspects: (1) company identification, (2) statement of the problem, (3) “former” approach, (4) introduction of the new solution, (5) changes, (6) the progress made in achieving the objectives, and (7) “lessons learned”. For each case under analysis, a detailed case study report was compiled based on this template. This allowed for detailed comparisons of a large number of parameters (e.g. initial situation, operation, usage, etc.) included in the template presented above. The statements and comments of the interviewees (both

managers and users) about the adoption process and the objectives they pursued were extremely valuable for the current study and also contributed to ensuring the study's internal validity (Yin 2003). During the interviews, the following questions (among others) were asked systematically: What was the problem leading to the introduction of a new tool and what was the organizational level where it manifested itself? Who identified it? What were the goals for the introduction of the new tool? What processes or activities were meant to be supported by this new tool? What were the criteria influencing the decision to adopt a new tool? Who are the users the new tool was meant for: project teams, departments or the whole company? Who were the employee(s) who chose the new tool and defined its context of use?

We analyzed the resulting case study reports, concluding that they represent a satisfactory overall picture of the goals pursued in the implementation of corporate social software. Based on the results and the additional data available, we examined all case studies to find common patterns. Concrete situations from the real world were used as a basis for theory building within the case studies, while each individual case was considered an analytical object on its own (Eisenhardt 1989). During the theory building exercise, we followed the constant comparison method from grounded theory (Glaser and Strauss 1967). Following this method, all cases were compared against each other, in an attempt to identify similar frameworks and procedures. The basic idea of this model is to attain conceptual discrimination by finding similarities and differences between various phenomena in the collected data. Our aim was to make sense of the analyzed events beyond similarities and differences, and to synthesize it in a concept related to our research question.

The selected companies are characterized by a number of similarities. All of them have appointed employees to be in charge of the implementation of corporate social software. All are situated within German-speaking areas and, as a consequence, they have a shared cultural background. Despite the novelty and complexity of corporate social software, all companies had fairly extensive experience with tools like wikis, Weblogs, microblogs or social networking services. Summary information on the 23 case studies is available, via the web, organized in a table, at <http://www.kooperationssysteme.de/cross-case>, and categorized as "concrete implementation of technology", "origin / concept" and "kind of introduction". The limited space in this paper prevents us from offering a more comprehensive presentation of all 23 cases, but 18 of the case studies have already been discussed by the first and second authors in conference presentations, as well as in journal and book publications, exposing the scientific quality of the case studies under discussion to external experts' scrutiny, through successive peer-review processes. Although the individual publications had different foci, they can provide an additional level of detail to the interested reader, including extensive documentation and ensuring a better transparency of the research process (cf. Senger and Österle 2004).

5. FINDINGS

Our study focused on the identification of the various approaches adopted by the companies in our case studies for implementing social software, followed by the description of the goals pursued. In the first step of our study (the analysis the implementation strategy), we only considered 21 cases, because the data from the other cases had not been summarized yet at that early stage. We published the results of this study in (Richter and Stocker 2011). The results are summarized here to facilitate a better understanding of the data. Then, as a primary contribution of this paper, we present the six main goals for the introduction of corporate social software identified in 23 companies. The term "main goal" refers to the fact that the six are rather representative for groups of goals and several other goals can be subsumed to these.

Exploring vs. Promoting

In five of the twenty-one examined case studies, "**exploration**" was found to be the dominant implementation strategy. We define exploration as "*a continuous investigation of possible use cases of new open tools, through a participative approach*". This meant that (a) the potential of the new tools was not (or at least not completely) fully understood and had to be explored further through use, (b) the usage of the new tool was not predefined (or just to a small extent), and (c) the promoter of the tool had specified its intended usage, but a clear "business-case" with specific objectives and appropriate usage scenarios were missing. In another five case studies, "**promotion**" was found to be the dominant strategy; we defined it as "*the intentional business-aligned and skilled use of the new tools focusing on well-defined usage potential*". This meant that (a) the potential of the new tool was well known to its promoters before its introduction, (b) the possible uses were planned and communicated in the context of the introduction (benefitting from management support), and (c) the promoters had clear expectations for the new tool, a clear objective and a defined benefit.

The other eleven cases combined the two dominant strategies above. During the initial stage, possible use cases had been explored, followed by a "promotion" stage, during which the goals of the intended tool usage were clearly communicated.

Six main goals for the introduction of Corporate Social Software

Whereas in the five company cases focusing on exploration, neither the potential nor the “business-cases” (i.e. the objectives and usage scenarios) for the introduction of a new tool had been clearly defined, during the interviews we realized that even in these cases, the promoters of the tool had (at least) a rough idea about the improvements and changes targeted (that were then clarified during the implementation). As explained previously, our further analysis aimed to clarify this issue in detail. We were able to identify six main goals for the introduction of corporate social software (in now 23 examined companies) summarized in table 2.

We found that social software was introduced in 19 out of 23 case studies because the enterprises wanted to **improve communication among their employees** and to reduce information overload. After implementation, they expected the opening-up of communication channels, the improvement of employee-to-employee communication and the better support of employees’ goal orientation by improving communication. Along with this goal, companies targeted the prevention and control of information overload and a decrease in e-mail usage. The second most important challenge (and reason to implement social software) was **increased efficiency of knowledge transfer**, named by 16 of the 23 companies. They aimed at the preservation and restoration of internal knowledge, break-up of knowledge silos, the enhancement of intra-organizational knowledge transfer and improved access to best practices.

Table 2: Six main goals for the introduction of Corporate Social Software

Main Goal	Characteristics of the goal	No.
Efficient, goal-oriented employee communication and avoidance of information overload	Implementation of open communication channels, support of employees’ goal orientation by enhancing communication, improvement of employee-to-employee communication, prevention and control of information overload, decrease of e-mail usage	19
Efficient knowledge transfer	Preservation and restoration of internal knowledge, break up of knowledge silos, facilitation of intra-organizational knowledge transfer, better access to best practices	16
The establishment of networks of experts	Improvement of networking among employees and identification of experts, connecting people with similar contexts, development of expert communities (e.g. yellow pages), support for wisdom of crowds	12
Participation of employees and creation of open corporate culture	Sustainable involvement of employees i.e. each employee should be able to contribute actively, prevent employee anonymity within the organization, improve exchange and discussion among the employees to get better insights to support the corporate culture, development of a creative climate, openness of corporate culture allowing employees to participate more	11
Increased awareness and transparency	Provide better visibility to common tasks and competences, more transparency within decisions and processes, employees and management are aware of each other, cross-cutting issues can be revealed	9
Support for the innovation potential and secure the future viability of the enterprise	Innovation can be communicated faster and will be better understood, innovation can be started from inside and outside, new systems guarantee future-orientation and flexibility, sustainability is demonstrated by including the younger generations	5

Another main challenge that coincided with those of knowledge management was **establishing networks of experts**, which was also identified as a third goal for the use of social software. Twelve companies expected that the networking of their experts would improve. Moreover, they wanted to connect people that shared similar contexts, to sustain the development of expert communities (such as yellow pages) and to provide support for the so-called wisdom of crowds to be exploited. Eleven of the 23 companies directed the use of corporate social software toward **enhancing employee participation** and **creating an open corporate culture**. They intended to support employees by opening the feedback channels, to get vital contributions to finding solutions and a higher involvement in the tool. In their view, each employee was urged to contribute actively. They wanted to prevent anonymity and to improve the exchange of opinions and discussions to get better insights into the corporate culture. All these were supposed to lead to a creative climate allowing employees to get more involved.

The idea of systems that support **awareness** is not limited, when it comes to corporate social software. Within our study, we found that nine out of the twenty-three companies planned to use their tools to improve awareness and transparency, to provide better visibility of common tasks and of colleagues’ competences among employees. Employees and management were expected to become more aware of each other’s activities, to

make better decisions, and to allow processes to become visible and transparent. The final goal we identified concerned **supporting the innovation potential** and included the demand to **secure the future viability** of the enterprise. Five case studies explained that the use of corporate social software was intended to create more efficient and better ways of communicating innovation. The goal was to encourage contributions to innovation from both inside and outside of the company via corporate social software. The innovation processes and communication among employees with the support of social software would guarantee future-orientation and flexibility, and sustainability would be demonstrated by including the younger generations.

6. DISCUSSION

First, we would like to show how corporate social software is new or different compared to other groupware or knowledge management systems. We will do this by explaining the (technical) functions of social software supporting new ways of connecting, interacting and communicating. As mentioned in the introduction, this change in users' interaction patterns is also perceived as a fundamental shift in KM and collaboration in general. Afterwards, we will further elaborate on a particular characteristic of social software and its implications for theory and practice.

Explaining the novelty Corporate Social Software by its functions

The first and foremost goal of corporate social software, **efficient, goal oriented communication** is supported by directing content at user level (e.g. by @-tagging, by providing subscriptions via RSS-feeds to a greater circle of recipients and by structuring content via (hash-)tagging). Therefore, the advancement is collaborative filtering of content by using tags to identify important content at a very first level. Furthermore, information-push is turning into information-pull, using activity streams instead of e-mail—this is how recipients can decide themselves about the relevance of a topic. **Knowledge transfer** is, inter alia, supported by giving users the chance to share selected knowledge (for example via social bookmarking or tagging). Individual streams of specific topics and projects are contributing to a sustainable knowledge management approach and tool content is enhanced by social curation (e.g. flipboard).

Networks of experts are better supported by corporate social software, because the relationship between an employee and his/her context is better documented. This is feasible as corporate social software supports user-centered content linking. Moreover, networking is working ad-hoc (e.g. by adding contacts directly or by “following”). Hence reputation can be built faster and easier, for example, by writing blog posts or by tagging. The relationship between information and its owner is made transparent by explicit and implicit linking. Corporate social software demonstrates that **participation of employees and an open corporate culture** can be supported by the implementation of commenting functionalities and by rating systems. Wikis and documents can be edited easily, and employee-feedback is getting transparent and facilitated by activity streaming. The combination of me- and we-views gives birth to a creative climate and to higher intrinsic motivation.

Corporate social software manages to support **awareness and transparency** in a new way. A novel form of presenting information is introduced, called activity streaming. An activity stream is a new medium providing updates about any kind of activity. Such information can be addressed very easily and made transparent. Tag clouds and folksonomies are supporting employees by revealing trending topics and items of interest.

Finally, the **innovation potential and the viability of a company** can increase based on innovation and idea management systems that can support awareness at any level of granularity (such as tasks, projects, activities, etc.). Corporate social software enables the provision of wisdom of the crowds by implementing open systems such as wikis. Another great opportunity for corporate social software is the improvement of information-pull, facilitated by signaling processes for important items (e.g. by using forms of signaling including tags or tag clouds). Furthermore, using corporate social software implies future oriented entrepreneurial behavior and flexibility towards younger generations and talents, who expect enterprises to use these technologies.

Explaining Corporate Social Software by its underlying structure

When comparing the goals identified in the KM literature to the goals identified in our study, it becomes obvious that there is a huge overlap. The three goals that appeared most often during our interviews (efficient, goal-oriented employee communication, knowledge transfer and establishing networks of experts) have also been named in the majority of the referred KM studies. Not surprisingly, the viability of the enterprise was not as important when it came to goals of introducing a KM system. But on the other hand, two main goals found by our study have not been mentioned in the KM goal studies surveyed: the participation of employees (sign of an open corporate culture) and (at least not in this context) increased awareness (and transparency).

We explain this result by pointing out an essential characteristic of social software: these tools do not lend themselves to, or even determine, a particular form of usage. Their potential and likely effects in practice can only be recognized when appropriated¹ by their users. Riemer et al. identified this phenomenon as "Nutzungsoffenheit" ('flexibility in use') and understood it as an essential feature of many technologies which support collaboration and knowledge management (and especially as an essential aspect of corporate social software). They define Nutzungsoffenheit as "as a form of openness, whereby the technology and its set of features do not precipitate its forms of usage (...) Nutzungsoffenheit means that the true nature and potential of such technologies does only manifest when people make sense of and incorporate them in their day-to-day work routines" (Riemer et al. 2009, 186). Riemer et al. argue that a collaborative technologies cannot be understood as a bunch of features, they should be perceived as "technologies-in-use" (Riemer et al. 2007, 6). We identify this characteristic of social software as an important difference to many KM approaches from the past, where appropriation support was never considered to be important. Of course, the managers responsible for a tool wanted their users to make use of the tool. But they defined more or less clear roles and a complex desired structure before rolling it out to employees (top-down approach). Hence employees often had no possibility to appropriate these tools and alter them to suit their daily work processes and therefore many KM projects implementing KM systems failed.

From what we learned from our study, social software is flexible enough to support what people are currently doing (i.e. supporting their existing work practices), and to allow for new, innovative uses inspired by practice. As opposed to classic KM systems, social software applications do not require employees to radically change their practices; they are flexible enough to allow customization and adaptation to existing practices, allowing for organic growth and development.

7. CONCLUSION

Social software has gained increasing importance for facilitating knowledge sharing in the enterprise. Through a cross-sectional analysis of 23 enterprise case studies on the use of corporate social software, we identified six main goals pursued (i.e. as reasons for the implementation). These have been contrasted with goals of several KM projects and initiatives as identified through a survey of the KM literature. We then discussed the paradigm shift facilitated by corporate social software, explaining how technical functionalities support new ways of interaction and, thus, provide for fundamental changes in KM processes. We also described an essential characteristic of social software: its 'Nutzungsoffenheit' (flexibility in use). While some goals of introducing corporate social software including improvement of knowledge transfer and communication have already been known to KM researchers, others, like the facilitation of user participation along the value chain, or fostering employee-to-employee communication, are new. We hope that the discussion of these goals will enable enterprises to better exploit the potential of corporate social software. Moreover, setting such goals will enable enterprises to evaluate the success of these platforms in terms of adoption/appropriation. As demonstrated in this paper, corporate social software has a great potential to enrich existing KM initiatives. The 'Nutzungsoffenheit' explained here does not come without threats – our task as IS researchers is to identify and understand these threats. One example is the dual character of the potential for transparency and the instantaneous, always-on character of social software: while affording better awareness, it can also have negative implications regarding data security and information overload.

REFERENCES

- Arazy, O., and Nov, O. 2010. "Determinants of Wikipedia Quality: the Roles of Global and Local Contribution Inequality," *Proceedings of the 12th Conference on Computer Supported Collaborative Work*, Savannah.
- Buhse W., and Stamer, S. 2008. *Enterprise 2.0 - Die Kunst, loszulassen*. Rhombos, Berlin.
- Bughin, J., and Manyika, J. 2007. "How businesses are using Web 2.0: A McKinsey Global Survey." *McKinsey Research*.
- Danis, C., and Singer, D. 2008. "A Wiki Instance in the Enterprise: Opportunities, Concerns and Reality." *Proceedings of the 11th Conference on Computer Supported Cooperative Work*, ACM Press, San Diego.
- Davenport, T.H., De Long, D.W., and Beers, M.C. 1998. "Successful knowledge management projects," *Sloan Management Review* (39:2), pp 89-107.

¹ Appropriation can be understood as "the way in which technologies are adopted, adapted and incorporated into working practice. [...] Appropriation relies on flexibility in both practice and technology, and in particular, flexibility in the way in which the technology can be mapped onto user needs" [Dourish 2003, 5].

- DiMicco, J.M., Millen, D.R., Geyer, W., Dugan, C., Brownholtz, B., and Muller, M. 2008. "Motivations for Social Networking at Work." *Proceedings of the 11th Conference on Computer Supported Cooperative Work*, ACM Press, San Diego.
- Dourish, P. 2003. "The Appropriation of Interactive Technologies: Some Lessons from Place-less Documents," *Computer Supported Cooperative Work (CSCW) - The Journal of Collaborative Computing* (12:4), pp 465-490.
- Eary, M., and Scott, I.A. 1999. "Opinion: What is a Chief Knowledge Officer?" *Sloan Management Review* (40:2), pp 29-38.
- Ebersbach, A., and Glaser, M. 2009. "Wiki als zentrales Suchportal. Das Beispiel bluepedia," *Information, Wissenschaft & Praxis* (60:4), pp 97-201.
- Eisenhardt, K. M. 1989. "Building Theories from Case Study Research." *The Academy of Management Review*, (14:4), pp 532-550.
- Glaser B.G., and Strauss, A.L. 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Publishing Company, Chicago.
- Grace, T. 2009. "Wikis as a Knowledge Management Tool," *Journal of Knowledge Management* (13:9), pp 64-74.
- Gratton, L., and Erickson, T.J. 2007. 8 Ways to Build Collaborative Teams," *Harvard Business Review*, November, pp 100-109.
- Grudin, J. 1994. "Groupware and social dynamics: Eight challenges for developers," *Communications of the ACM* (133:12), pp 65-75.
- Han, B.M., and Anantatmula, V. 2006. "Knowledge Management in IT Organizations From Employee's Perspective," *Proceedings 39th Hawaii International Conference on System Science*.
- Hansen, M.T., Nohria, N., and Tierney, T. 1999. "What's your strategy for managing knowledge?" *Harvard Business Review* (77:2), pp 106-116.
- Holsapple, C.W., and Joshi, K.D. 1999. "Description and Analysis of Existing Knowledge Management Frameworks," *Proceedings of the 32nd Hawaii International Conference on System Sciences*.
- Holtzblatt, L., L. Damianos. and Weiss, D. 2010. "Factors Impeding Wiki Use in the Enterprise: A Case Study," *Proceedings of the 28th Annual SIGCHI Conference on Human Factors in Computing Systems*, ACM Press, Atlanta.
- Ip, K.F.R., and Wagner, C. 2008. "Weblogging: A study of social computing and its impact on organizations," *Decision Support Systems* (45:2), pp 242-250.
- Jahnke, I. 2009. "Socio-technical Communities: From Informal to Formal?" Withworth, B. *Handbook of Research on Socio-Technical Design and Social Networking Systems*, IGI Global Publisher, pp 763-778.
- Kotter, J.P. 1996. *Leading Change*. Harvard Business School Press, Boston.
- Mans, R. 2010. "Bottom up: an overrated and underperforming social strategy (for lazy people)." Retrieved 22 Juli, 2011, from http://www.capgemini.com/technology-blog/2010/04/bottom_up_overrated_and_underperforming/
- Markus, M. L. 1987. "Toward a "critical mass" theory of interactive media: Universal access, interdependence and diffusion," *Communication Research* (14: 5), p 491.
- Mayer, R., and Remus, U. 2002. "Towards a Framework for Knowledge Management Strategies: Process Orientation as a Strategic Starting Point," *Proceedings of Hawai'i International Conference On System Sciences* (3:6), January, Maui, Hawaii.
- Mayer, R. 2007. *Knowledge Management Systems*. Springer.
- McAfee, A. 2009. *Enterprise 2.0: New Collaborative Tools for Your Organization's Toughest Challenges*. McGraw-Hill Professional, Boston.
- Orlikowski, W. J. 2000. "Using technology and constituting structures: A practice lens for studying technology in organizations," *Organization Science* (11:4), pp 404-428.
- Paroutis, S., and Saleh, A. 2009. "Determinants of knowledge sharing using Web 2.0 technologies," *Journal of Knowledge Management* (13:4), pp 52-63.

- Pasmore, W., Franics, C., Haldeman, J., and Shani, A. 1982. "Sociotechnical systems: A North American reflection on empirical studies in the seventies," *Human Relations* (35:12), pp 1179-1204.
- Prusak, L. 2001. "Where did knowledge management come from?" *IBM Systems Journal* (40:4).
- Razmerita, L., Kirchner, K., and Suzdina, F. 2009. "Personal knowledge management. The role of Web 2.0 tools for managing knowledge at individual and organizational levels," *Journal of Knowledge Management* (33:6), pp 1021 - 1039.
- Richter, A., and Stocker, A. 2011. "Exploration & Promotion: Einführungsstrategien von Corporate Social Software," *Proceedings of the 10th International Conference Wirtschaftsinformatik*, Zürich.
- Richter, A.; Riemer, K. 2009. "Corporate Social Networking Sites – Modes of Use and Appropriation through Co-Evolution," *Proceedings of the 20th Australasian Conference on Information Systems*, Melbourne.
- Riemer, K.; Richter, A. 2010. "Social Software: Agents for Change or Platforms for Social Reproduction? A Case Study on Enterprise Microblogging," *Proceedings of the 21th Australasian Conference on Information Systems*, Brisbane.
- Riemer, K., Fröblier, F., and Klein, S. 2007. "Real Time Communication – Modes of Use in Distributed Teams," *Proceedings 15th European Conference on Information Systems*, St. Gallen.
- Riemer K., Steinfield C., and Vogel, D. 2009. "eCollaboration: On the nature and emergence of communication and collaboration technologies," *Electronic Markets* (19:1), pp 181-88.
- Rosenstiel, L. v. 2000. *Grundlagen der Organisationspsychologie*. Schäffer-Poeschel Verlag, Stuttgart.
- Ruggles, R. 1998. "The State of the Notion: Knowledge Management in Practice", *California Management Review* (40:3), pp 80-89.
- Schubert, P., and Williams, S. P. 2009. "Constructing a Framework for Investigating and Visualizing ERP Benefits and Business Change," *Proceedings of the 22nd International Bled eConference*, Bled.
- Schubert, P., and Wölfle, R. 2007. "The eXperience Methodology for Writing IS Case Studies", *Proceedings of the Thirteenth Americas Conference on Information Systems*, Keystone.
- Senger, E., and Österle, H. 2004. "PROMET – Business Engineering Cases Studies (BECS)," *Arbeitsbericht BE HSG / BECS*, Universität St. Gallen.
- Steinhüser, M., Smolnik, S., and Hoppe, U. 2011. "Towards a Measurement Model of Corporate Social Software Success – Evidences from an Exploratory Multiple Case Study," *Proceedings of the 44th Hawaii International Conference on System Sciences*, Kauai, Hawaii.
- Stocker, A., Tochtermann, K. 2011. "Enterprise Wikis: Types of Use, Benefits and Obstacles: A Multiple-Case Study," *Communications in Computer and Information Science*, Springer.
- Wagner, C., and Majchrzak, A. 2007. "Enabling Customer-Centricity Using Wikis and the Wiki Way," *Journal of Management Information Systems* (23:3), pp 17-43.
- Wulf, V. 2009. "Theorien sozialer Praktiken zur Fundierung der Wirtschaftsinformatik: Eine forschungsprogrammatische Perspektive," *Wissenschaftstheorie und Gestaltungsorientierte Wirtschaftsinformatik*, pp 211-224.
- Yin, R.K. 2003. *Applications of case study research*. Sage Publications, Thousand Oaks, California.
- Zhang, J., Qu, Y., Cody, J., and Wu, Y. 2010. "A Case Study of Microblogging in the Enterprise: Use, Value, and Related Issues," *Proceedings of the 28th annual SIGCHI conference on Human factors in computing systems*, ACM Press, Atlanta.

COPYRIGHT

Richter, Stocker, Müller & Avram © 2011. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Papers and Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.