

Using Social Media for Knowledge Management in SME

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Keywords: Social Media, Small and Medium Enterprises, Case Study.

Abstract: Social media is one of the current technology trends in use for marketing and communication, extending the possibilities for exchange among people. Yet, as every other technology using Social media means effort for the organization using it. Accordingly the question arises, especially for SME whether this effort leads to any benefits. Moreover, it is necessary to estimate which social media part suits the enterprise best and how can it be integrated to support the process of knowledge management. This paper presents two SME in Germany in a case study addressing this problem and showing the way how and for which purposes they use social media.

1 MOTIVATION

Continuous knowledge losses between projects and tasks, in customer and partner communication etc. strongly influence the long-term business success of each organization. Rather than losing some of the knowledge that has been developed in a project or task, the organizations should use the relevant knowledge consistently for future projects and tasks in order to solve future problems and tasks faster, in a more efficient and cost effective way. Moreover, they should be able to expand their knowledge instead of having to develop the same knowledge over and over again.

One possible solution to address this problem is the use of social media in the field of Knowledge Management (KM). However, using social media efficiently is associated with a certain effort. For an organization this means employees must have time for activities in the media. As Small and Medium Enterprises (SME) are bound to have the problem as described above as well as limited resources the question arises whether the use of social media is an appropriate solution for them.

Already in our earlier work we found by literature research, that only few examples on SME practice in the field of KM are available for research purposes (Borchardt, 2011a); (Borchardt, 2011b). To close this gap and to gain insight into how the problem is addressed using social media in SME we conducted a case study holding two knowledge intensive SME from Germany to answer the following research questions:

1. How is social media used in the organization?
2. How is social media integrated in the organizations business processes?
3. Which benefits are realized by the use of social media for KM in the organization?
4. Which potentials are not realized within the organizations?

Especially with question 3 and 4 we address the problem of naming concrete benefits of the use of certain technologies for KM, which still remains a problem due to the character of knowledge which hardly can be measured in monetary units, whereas SME with the specific short-termed action horizon look for fast pay-off opportunities.

In the case study we have a look at the employees' opportunities to share their opinions, experiences and insights were examined as well as the social media instruments and tools that already used inside the respective organizations.

The paper is structured as follows. Section 2 provides the fundamentals involved in our work and section 3 introduces the methodology in use to gain the results. Section 4 presents the organizations as well as the individual results. Finally, section 5 provides a conclusion.

2 FUNDAMENTALS

This section presents the basic terms in use for our case study as they were also explained to the participating organizations in the case study.

2.1 Social Media

Even though all media can be considered social, social media is nowadays mostly associated with internet-based medial services, which are build upon the principles of social interaction and the technological principles provided by web 2.0. The main idea behind this is the transformation of the user from a content consumer only to a content publisher resulting in user generated content. Principally, social media depend upon fundamental interaction between people as the discourse and integration of contents to establish shared-meaning, using information technology as an instrument. Social media contents examples of collaboration technology, in their conventional form known from the field of CSCW e-mail and Intranet and more modern social networks as well as wikis. In general social media can serve especially as a media for knowledge transfer (Davenport and Prusak, 2000).

Social networks represent one facet of social media, representing a kind of online communities, which are based on the technology of web applications and portals (Boyd and Ellison, 2007). They are also named social networking services (SNS) and include the typical examples of the field as there are Facebook or Xing.

2.2 SME

Though having no standard definition of the term SME, EU guidelines (Jennex, 2010) distinguish SME with the help of two characteristics. These two attributes in use are: number of employees and annual turnover. With regard to the annual turnover it is stated that the value of the balance sheet can be used instead, and consequently one criteria or the other has to be fulfilled. However, one of the two and the amount of employees must be met, one attribute does not suffice. Accordingly, an enterprise with less than 10 employees is a micro enterprise. Moreover, the enterprise's turnover is not larger than 2 million Euro per year. This indicates that an enterprise with 10 to 49 employees and a turnover of 10 million Euro (same value holds for the balance sheet) is considered a small enterprise. Consequently, a SME with 50 to 249 employees and an annual turnover of 50 million Euro (balance sheet: 43 million Euro) is considered a medium enterprise. In Germany additionally the term "Mittelstand" exists, which also counts enterprises with less than 500 employees into the group of medium enterprises, as long as their annual turnover does not exceed 50 million Euro (Statistics agency

Germany, 2007).

Furthermore, it can be stated with regard to KM that SME apparently suffer stronger from difficulties caused by information overload than larger enterprises do. One explanation for this fact might be the fewer resources, e.g. employees responsible for certain tasks. An employee in an SME usually is not as specialized in a certain field as may be in larger enterprises. Moreover, he or she usually has no backup. Consequently, KM problems arise when the employee is no longer available due to e.g. retirement or illness. One way to address this problem may be to generate a backup for these situations without stressing the resources as far as hiring a new employee, by the electronic capture of knowledge as supported by KMS and KM applications.

2.3 Knowledge Management and Technology Support

Knowledge can be considered the combination of all individual skills and abilities in use to solve a problem (Probst et al., 2010). However, as for SME no official definition on the term of KM can be given, since the individual definitions provided in literature vary widely. Assuming that knowledge enables certain actions, KM within in the organization is desirable, also with regard to organizational learning. Yet, it should be noted here that two main approaches on KM exist, one human-oriented focusing on the transfer of knowledge between the employees of an organization, where as the other technical-oriented approach, aiming at supporting the process of KM by the use of information and communication technology (ICT), results in a Knowledge Management System (KMS). Though both approaches have their limitations this paper will focus on the latter, since the first can go without any technical support at all and is not of interest here.

As already described in our former work we assume the model of Maier (Maier, 2007) valid who categorizes a KMS as an holistic approach which is about to fulfil certain services, which is depicted in figure 1. Assuming social media and SNS part of a possible KMS we consider them especially interesting for the core KM services "Collaboration" and "Publication" in layer III, supporting the provision and exchange of knowledge between the employees and also with customers.

Though focussing on the technical functionalities, aspects like organization culture cannot be neglected as they strongly influence the

attitude of the employees towards the technology (Boyd and Ellison, 2007).

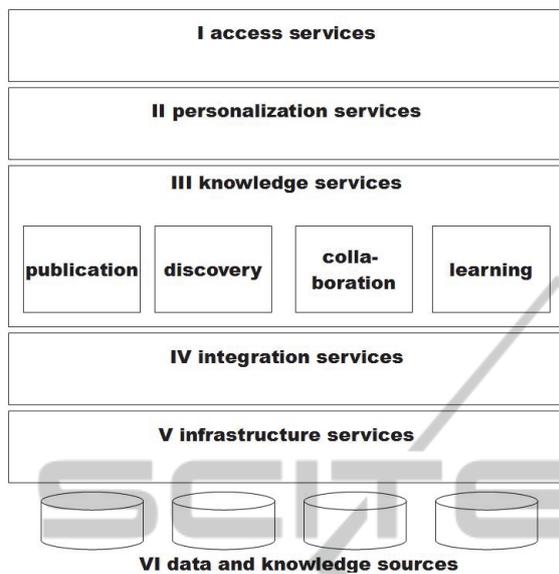


Figure 1: KMS architecture according to Maier (Maier, 2007).

3 METHODOLOGY

To visualize the needs for and the benefits social media can have for SME, two SME in Germany were integrated into the case study presented in this paper. We therewith follow the action research approach demanded for the field of KM by Andriessen (Andriessen, 2002).

Within the study several steps were taken to show the organizations what KM can offer, as they have not fully realized the field before. Furthermore, a partial requirements analysis took place to find out what was needed in their individual fields of business. Before starting all concerned employees were confronted with the term of KM, as several participants were uncertain whether what they did could be considered KM.

To gather the results for the case study we performed the following steps:

1. Identifying the recent state of KM and the integration of Social Media in the organization.

This was done by confronting the employees with some statements about KM in their company they should complete. First, they were to name the positive aspects, and afterwards the negative aspects by completing the statements given below in table 1. The statements were provided on paper with white space to be completed. This step also served as a

rather informal starting point, which allowed the individual participant a slow start in the topic without the pressure of having to come up with ideas instantaneously in front of a group.

Table 1: Initial statements on KM in the organization.

positive	negative
Ideas for the organization	Problems occurring at work
Information is shared by...	Why don't I say what I know?
I show my knowledge by ..	Why is there a loss of Know-How?
I find information by..	Why is an idea/ message transported?
The distribution of work is..	Why can't I find the knowledge needed?

The statements were filled out by each participant individually and afterwards collected. In addition the individuals were observed in their working activities to see which tool they used and which tasks were part of the regular working day.

2. Doing interviews with the CEO and employees of the company gathering their expectations and demands towards possible solutions. The core questions used in the interviews are provided in the table below.

Table 2: Questions from the interview.

Question on SNS
Which tools or SNS are used in the organization?
How long have you applied the tools?
How many employees use the tools actively?
How do you support SNS in the organization?
Why did you decide to introduce SNS?
Which goals are to be fulfilled by using specific SNS?
How much effort is necessary to keep the SNS working?
Was there a training accompanying the introduction?
Which contents are to be found in the SNS?
How is quality and an up to date status guaranteed?
What benefits could be gained from the use?

Before a third step could follow the participants were encouraged to get acquainted to the possibilities of social media in more detail with the help of provided literature, video tutorials as well as exchange with other employees.

3. Brainstorming session to sum up the results and generate the final ideas for further developing and integrating social media into the organizations business processes.

This session took place in two phases, first there was an individual session with each employee and afterwards one session for all participants in the

organization. In this part the moderating part was taken by a member of our research group which was not involved in the organization and had a rather objective point of view on the uttered points.

Finally the modus of operation of social media was discussed, to support the successful usage and integration in the business processes since the pure technology is proven to be just a minor part in the KM.

By following this approach we were able to gain the results providing an overview of the situation in the organizations.

4 CASE STUDY

Following we present two knowledge intensive organizations which can be classified as SME and their approaches to use social media for KM.

4.1 The Participating Organizations

This paragraph shortly presents the two participating organizations, which were willing to use social media to address the KM problems in their business processes. For both companies the CEO and 2 employees were involved in the phases of the case study. The case study took place in February/ March 2012.

4.1.1 Organization 1

This organization was founded in 1992 in Wismar, Germany. The value creating processes of the company are mainly situated in the field of consulting and engineering. Their main tasks lie in consulting services for other SME for e.g. certifying/auditing processes, as well as image processing and technical image construction. The organization employs 10 people (7 full time, 3 students), where the average age of the full time workers lies between 50 and 60 years. It covers 50 to 70 orders a year resulting in a net sales volume of approximately 700,000 Euro in 2011. The orders usually are processed by phone and afterwards face-to-face consulting. The organization considers itself in the b2b sector. According to the definition provided in section 2.3 this company is a standard small company.

4.1.2 Organization 2

The second organization in the case study was founded in 2007 and is located in Berlin. The values of the organization are created in the field of

Amazon retailing, e-commerce and re-selling. In 2001 the business activities resulted in approximately 1,000,000 Euro net sales volume. To achieve this volume the organization has to cover around 100,000 orders a year, mostly with private customers and consequently can be placed in the b2c sector. The organization has 16 full-time and 10 part-time employees, all under the age of 30. Moreover, a high fluctuation of employees exists. They accomplish order processing mainly via e-mail, sometimes by phone calls. Considering the definition this company is volume wise as well as by the employee number a small company.

4.2 Results

Afterwards the results of the case study will be described. Therefore for each of the organizations two partial results will be provided: a) demand identified in KM and b) identified Social Media solutions.

4.2.1 Situation in Organization 1

In organization 1 following demands could be identified:

A wish for more information on the decisions made concerning the organization was uttered, as there are CEO opinions as well as possible new jobs and tasks. Moreover, a better collaboration with emphasis primarily on employee-to-employee communication should be established. This also included the desire for information sharing via shared documents. In addition, the employees asked for better and especially more opportunities to develop ideas. So an idea management is needed, which was not yet addressed directly. There is a central weekly meeting but hardly time to talk about new ideas and since an extra permission to use working hours for special activities is necessary, employees do not dare to ask for extra time. Further when new ideas arise and exchanged they are not stored for further actions and therewith forgotten.

After emphasizing the strong social component in KM, which is manifested in the organization's culture it was hinted, that if KM is a topic time has to be spared for arising tasks, though they might not lead directly to an invoice. In the organization there is also rarely any money left to address KM problems. Finally, the need to use knowledge for further acquisition possibilities was uttered.

When looking at the recent state of the art in the organization the situation was described as follows: Though being acquainted with the Internet and the

ideas of SNS the organization was not using social media for a long time. They have tried using an instant messenger, which turned out to be unreliable, not freeware, and the complaint was that it did not allow for exchange between more than two people. Almost half the employees mentioned that they are not interested in using an instant messenger at all, since they do not see any benefits from its use and feel it would disturb their work. Consequently, emails were mostly used to transfer ideas and information. Individual employees used solutions like Skype, which was in between forbidden by the CEO and afterwards not re-established. The actual use of individual SNS is depicted in figure 2. The time used for activities within the whole company within a week within a certain SNS is given in figure 3.

Concerning the search for information: there is an Intranet solution in use, which was also available from outside of the organization by a static IP address, however only two employees are actively working with it. As reasons for this were identified: it is too complex in access rights, actually finding a piece of information is difficult since the structure of the solution and the names of the documents are not self explaining.

Hence mobile solutions like smartphones were not common among the staff, only two employees own one. And after repeating the question for SNS illustrating it by examples it turned out that there is one employee who started using Xing for acquisition purposes. In the beginning this was not supported by the CEO, yet after it turned out that these activities actually lead to new customers it is agreed on. Still this leads to another problem: there is a need for further information on the abilities of the other employees and their skills. The activities on this field last now for about a year. Moreover, two employees are privately acquainted with Facebook.

Finally, the need for tacit knowledge sharing was uttered in combination with the establishment of electronic workspaces, so one can meet despite being on different locations.

Summing the results gathered here up we gained the following impression: the organization was willing to engage in KM, however was not yet able to come up with concrete ideas on how to do this and if so only considered the technical point of view. But more important there is the actual integration in the business processes and consequently the insight that time has to be spared for KM tasks. With the example of the Xing usage, direct monetary benefits were seen and accordingly that solution was allowed, yet a strong wish for a direct monetary

benefit to be named for further activities was uttered. Moreover, we gained the impression that due to the age of employees not much about the possibilities of social media was known, the personal engaged driving employees establishing these media in the company were missing as the CEO was not engaged in this topic himself. Moreover, he did not support possible initiatives due to the sparse resources. This attitude became also obvious when the interviews showed that the employees were interested in the possibilities a wiki can offer but were blocked by the CEO's doubts regarding time lacks and communication overload.

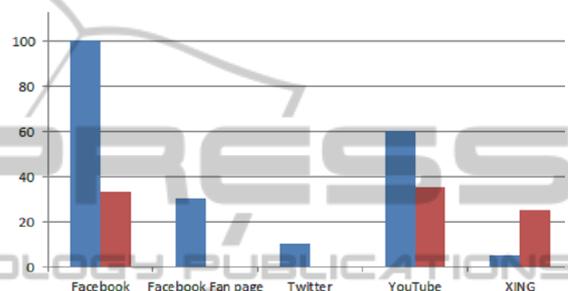


Figure 2: Percentage of employees using SNS (red: organization 1/ blue: organization 2).

4.2.2 Situation in Organization 2

During the interviews in organization 2 these demands arose:

One of the first points mentioned was a necessary idea development and management solution, which should as a second thought also include customers. By now an exchange only took place informally and ideas were easily forgotten or no longer worked on. The participants actually wanted a kind of idea base, offering the possibility to collect, search and comment on ideas including a weekly review. In addition the strong fluctuation among the employees was identified as a problem which needed to be addressed. These resulted in the fact that abilities and skills of colleagues were unknown, which was accompanied by the wish for a stronger communication on work problems between the employees. Additionally the insight was gained that a working calendar system was needed as well for coordination purposes. The need for exchange also resulted in the idea of wiki also for customer purposes to allow for a constant provision of information and knowledge combined with the possibility to comment and discuss the available items. It would be best if this were connected to the Facebook fan page and enclosed an internal twitter account.

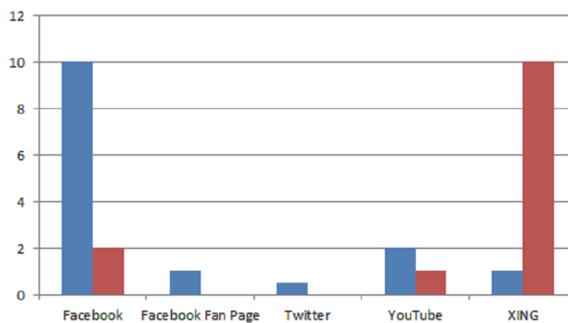


Figure 3: Hours per week spent on SNS (red: organization 1/ blue: organization 2).

Moreover, a demand for web 2.0 technologies was uttered to stay up-to-date as a sales company. This should result in a new website including social media like a Xing business page and a twitter account that automatically tweets on product updates and innovations of the organization.

The organization could also imagine to use a virtual world to improve video and call conferencing, sales presentation and other remote meetings, they emphasized the advantage of an avatar moving instead of the real person which would save time and money resources.

In contrast to organization 1 this one is already active in social media. Most of the rather young employees privately own a Facebook profile and these are up to 6 years old. The organization also maintains a Facebook fan page for about 3 years now which at the moment has about 200 followers. Furthermore, they run a twitter account which is filled automatically and is now running for 3 years. The percentage of employees having access to different SNS is depicted in figure 2. The organization is also working with Xing, mostly to find new employees or experts they need within a certain field. At the moment they are actually looking for an external web designer also familiar with social media to build a new homepage as desired.

Every employee owns and uses a smartphone, even if it is only for private issues, so they are acquainted with the offered possibilities.

Regarding extra tasks the employees mentioned that they need to ask for permission to spare time on things KM since there is a strong need to produce action that can be invoiced. This is especially disturbing for developing new ideas. Moreover, in the field of KM they indicated that there is a need the calenders to be updated to be able to gather information on meetings and staff this way. A calender should be agreed on and the employees were to use it, yet it has to provide suiting access

rights to look into colleagues calenders. For pure document exchange they mainly use email. Almost every employee has an instant messenger installed, however mostly for private use, even Skype is in use for private as well as business use.

The overall impression of this organization was that they were interested in almost everything available in the social media sector, which was due to the rather young age of the employees and their personal interest in the available solutions. Yet the problem is to integrate the social media efficiently into the business processes. A strategic plan of how to apply the available solutions was missing as was someone definitely responsible for the tasks. The organization has already realized that they have a certain need for KM and that it is constantly growing, yet by now they have not adapted their organization culture to this need. They could not name the specific benefit of their Facebook activities besides staying in contact with their customers, hence have the idea of using the media for their idea management.

4.2.3 Solutions to Implement

In general these were the main fields of interest for the organizations in the case study: communication among employees as well as with customers, knowledge transfer and innovation management.

Table 3 provides an overview on the solutions and activities from the field of Social Media and KM which were considered to be implemented additionally to the available activities. The likelihood of implementation and usage was provided by the CEOs using a Likert scale varying between "very high" to "not interesting".

It can be seen that organization 1 tends to implement a wiki, mainly for idea collection, so ideas can be stored and discussed and are not forgotten. As a means for general knowledge sharing this is only interesting on a long term. However, the organization sees that they are in urgent need for an improved communication, and chooses to improve its instant messaging system. Asked for the reason for their choice they named the extra status information available (e.g. availability, recent activities). The organization does not see further use for discussion forums or a blog, as they on the one hand argue that a discussion can be included in a wiki and on the other hand refer to their weekly meeting.

Organization 2 is also interested in using a wiki but on the long term, for them it is more important to improve their Facebook activities and be better informed about their actual available skills, which

vary strongly due to the employee fluctuation. They also want to improve the instant messenger use, especially with regard to further information and the separation from private use which lead to a high variety of products in use.

They regard the idea collection as important as well but for now are not sure which solution to use.

It was surprising that none of the organizations was willing to work on information accuracy, which from our point of view is due to the fact that both are just beginning to coordinate their activities and are not aware of the problems arising in that field. Even the question of who would be reliable for maintaining the technical solution and giving support in the case of questions did not arise. In addition we found that some demands can easily be addressed by changing the organizational culture in relation to social media, as for example the very critical attitude of the CEO towards innovations from that field. Also the wish for quick wins was confirmed by the behaviour of the organizations constantly emphasizing an easy implementation and a fast pay-off.

Table 3: Evaluation of possible solutions and actions from the field of Social Media.

	Org 1	Org 2
Wiki	very high	middle
Idea collection	very high	very high
Personnel index	middle	high
Calendar use	middle	very high
Virtual World	not interesting	high
Knowledge sharing	middle	middle
Improved instant mes-senger	very high	very high
Information accuracy activities	low	not interesting
Discuss. forum, blog	not interesting	middle

By extending their IT solutions both organizations can overcome the insecurity of mail exchange they mentioned. Moreover, overhead by mass mails and resent mails can be reduced. But it is not the technology only, there is a need for a change in working mentality from push to pull, yet this needs user-friendly publish and search facilities. In addition both organizations have to be aware of privacy issues, which may arise due to using private profiles or seeing the activities on a wiki. And finally the integration into the business processes must be clarified to be able to determine who owns important knowledge and is bound to enter it into the systems.

4.3 Summary

Returning to the research questions on which our research concentrated we can sum up the results for these two organizations to:

For the first question: Social media is mostly used beginning from the private sector, and the more people are in touch with a certain solution the more promoters a solution will have within an organization. Having more customer contact with minor volumes per order a SNS like Facebook seems to be more suitable. This also holds regarding the customer type, SNS seem to be more valuable for the private customer.

On question 2 we found that both organization had problems integrating the solutions available into their business processes, especially in organization 1 with elder employees acting in the b2b sector we found more barriers established than integration activities. An automation for some processes like twittering news is possible as was shown by company 2. Yet, both companies did not show a permanent SNS integration in working processes. On the contrary both organizations emphasized they fear the loss of time through distraction.

Regarding benefits: In organization 1 we found an efficient use of Xing as contact platform for customer acquisition. In organization 2 it is used for the search for external experts or possible staff members. However, this is minor KM related. Although both organizations were looking for possibilities to share knowledge they had not implemented social media for this task. Consequently we can state they have only just begun to see possible potentials like expert networks, knowledge bases and discussion forums. In addition at least organization 2 also saw, yet did not implement, social media as a means for idea management. Furthermore, we gained the impression that SNS are very popular with younger employees, however mostly for private use. The real benefits of a business use are hardly known, though SME see the campaigns of big companies in the media. Hence, it remains unclear for them how to efficiently use it, since there may exist literature and examples on the topic but due to limited time resources a thorough involvement with the topic is not possible. And here the core problem is once again the fact that KM does not deliver invoices short termed and therefore is often not considered interesting with a high priority for SME, even though they might be knowledge intensive like the two in our case study.

5 CONCLUSIONS

Resuming the case study committed and presented in this paper and relating it to our former work (Borchardt, 2011a); (Borchardt, 2011b) on KMS in SME several points were confirmed.

Once more we could see that a proven systematic approach to introduce KM in SME is still missing, whereas the question for the monetary benefits to be gained from such a solution remains the strongest point while introducing innovations. Moreover, we could see that the attitude for an active KM in SME still has to be improved, especially with regards to the organization culture allowing time to be used for KM purposes. Here reference values and a reliable framework could help to build up a good point of orientation and illustrate the success of such activities, especially if these were free from advertisement and a summarizing subjective illustration.

With regard to social media we found that the solutions from SNS are known, while others, older solutions from the field of CSCW like e.g. instant messenger and discussion forums are almost forgotten. The benefits of those can hardly be estimated, especially not in monetary units. The younger the employees the more involved they are in social media and able to use it. However, the mixture with private use also holds the risk of privacy issues and distraction. Yet, the possibilities for pure content provision within the company were not realized as social media is strongly associated with SNS. But there is a strong interest in content provision by more than a single employee as well as a constant exchange. This seems from employees side the possibility to influence the organizations fortune. However this needs altering the ways of acting and working in the companies, seeing the KM tasks not as an extra but as an essential part of the work.

It is (by far) not sufficient to chose the social media instrument – social media usage requires re-thinking the question of corporate knowledge possession, as every new KMS needs motivating the employees and providing them with as detailed information as it is necessary to get acquainted with the technology. A change in operation includes changing the corporate culture, use activation and usage instruction (training as well as the establishment of solutions as a standard). In picking out Social Media instruments, an organization must recall that it can use a bunch of ready and well working Internet applications like Facebook, Twitter or XING, that are somehow restricted to the use of the organization or it can adopt applications that are

just designed for the use within its business processes.

Further work on this case can include a revisit of the organizations to collect feedback from customers and CEO to verify the solutions. Maybe within a year another questionnaire should be conducted to see how the solutions are working and what results they delivered by then. This certainly should not be limited to monetary benefits but could follow the KM Success model as introduced by Jennex/Olfman (Jennex, 2008) to also gain an impression on the perceived benefits the used social media offered the employees. With the help of these perceived benefits social media can also be a part of a value-oriented framework for KMS in SME as suggested in (Borchardt, 2011a), which is supposed to close the gap of missing references for SME in the field of KM. This is certainly still a strong issue since the implementation and usage of social media for KM seems to happen by chance instead of being systematically planned including its possible benefits.

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