

Enterprise 2.0 Adoption in SMEs

Application Areas, Motivation, Success Factors, and Barriers

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Keywords: Enterprise 2.0, Social Software, Social Media, Adoption, Success Factor, Barrier, SME, Case Study.

Abstract: Social software platforms provide an efficient means to support team collaboration and knowledge management within the enterprise. Especially small or medium-sized enterprises (SMEs) may benefit from easy to use, light-weight enterprise 2.0 applications. A research approach is presented that is based on a cross-case analysis of case studies each of them representing an implementation of an emergent social platform within an organisation. The case studies are analysed by applying a structured approach to a qualitative content analysis. We determine which adoption strategies organisations use and identify applications areas and motivation factors of social software utilisation. Critical issues for the success of enterprise 2.0 initiatives like barriers and success factors are derived to provide organisations with deeper insight when starting their own enterprise 2.0 implementation.

1 INTRODUCTION

McAfee (2006) first coined the term *Enterprise 2.0* in 2006 to label a phenomenon where organisations apply tools and applications of the Web 2.0 to support the organisation's knowledge workers. According to McAfee (2009, 73) "Enterprise 2.0 is the use of emergent social software platforms by organizations in pursuit of their goals". Social media like wikis, weblogs, microblogging, and social networks have been adopted by organisations to help their employees to interact and collaborate. Due to their ease of use social software platforms encourage team collaboration, support light-weight means of knowledge management, and provide presence information to facilitate communication and cooperation between knowledge workers.

Especially small or medium-sized enterprises (SMEs) may benefit a lot from enterprise 2.0 initiatives. The adoption of social software platforms in SMEs is fostered by low cost and high availability, simple implementation and maintenance, as well as by high acceptance of social platforms and networks which employees use in private. However, most research and studies on the utilisation of social platforms for intra-corporate use focus on large-scale enterprises (LE). Since there are few research approaches but a high potential for intra-corporate social platforms for SMEs, we target

our analysis of enterprise 2.0 adoption on small and medium-sized organisations. We focus on application areas of different kinds of social media and investigate an organisation's motivation to start an enterprise 2.0 initiative. We analyse success factors and barriers of intra-organisational use of social media by studying case studies. Our research approach is based on a cross-case analysis of multiple case studies, each of them presenting an implementation of an emergent social platform within the organisation.

In Section 2 we narrow down the focus of our research area and present related work. Section 3 introduces case study research and case studies on enterprise 2.0. In Section 4 we present a cross-case analysis of selected case studies on enterprise 2.0. Results of the cross-case analysis are presented in Section 5. We conclude the paper in Section 6.

2 ENTERPRISE 2.0

In information technology the term "social software" was first used in 1985 (Campbell, 2008). Especially since 2005 *social software* has been intensively used in combination with *Web 2.0* to indicate the massive changes that affected the World Wide Web. Explanations that try to identify attributes and set up

categories for classification point out that social software supports and encourages communication, social interaction and collaboration among people and generates added value in a network of people.

The AIIM (n.d.) defines “Enterprise 2.0 as a system of web-based technologies that provide rapid and agile collaboration, information sharing, emergence and integration capabilities in the extended enterprise”. Similar explanations of enterprise 2.0 refer to the use of social software to support enterprises and organisations. To describe the characteristics of enterprise 2.0 systems McAfee (2006) first used the acronym SLATES which indicates the six key components of enterprise 2.0 technologies: Search – Links – Authoring – Tags – Extensions – Signals. SLATES was expanded by Hinchcliffe (2007) to the mnemonic FLATNESSES by adding four additional elements: Freeform – Social – Network-oriented – Emergent.

Market and industry reports on enterprise 2.0 like by the AIIM (e.g., Frappaolo and Keldsen, 2008) provide results on awareness, adoption rates, and the motivation of enterprise 2.0 technologies in enterprises based on surveys. A comparative study on the utilisation of social media in enterprises has been presented, for example, by Fuchs-Kittowski et al. (2009). Knowledge management goals of social software adoption have been analysed by Richter et al. (2011). Adoption strategies for enterprise 2.0 software are examined by Richter and Stocker (2011) using a comparative analysis of case studies.

3 CASE STUDY RESEARCH

Yin (2009, 18) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. Three basic types of case studies can be differentiated: exploratory, descriptive, and explanatory. Each type may exist as single-case study or multiple-case study. A multiple-case study design must follow a replication rather than a sampling logic (Yin, 2009, 54). In this paper we analyse descriptive case studies following a single-case study design and a linear-analytical structure.

Case studies on the utilisation of social media within enterprises can be found for example in books on enterprise 2.0 (e.g., Back, Gronau and Tochtermann, 2009) or in case study networks like e20cases.org (n.d.). Granitzer and Tochtermann (2009) analyse Web 2.0 usage in enterprises based

on case studies. Stocker and Tochtermann (2011) explore the utilisation of enterprise wikis using a multiple-case study design. In-depth research on enterprise 2.0 based on case studies is presented by Stocker and Tochtermann (2010) on wikis und weblogs and by Richter (2010) on social networking services.

4 ANALYSING CASE STUDIES

4.1 Method

Content analysis is a research technique often used in social sciences to analyse various types of text and talk (Prior, 2008). Content analysis systematically analyses communication material and allows reducing the complexity of communication based on rules of coding (Mayring, 2010). Since case studies are a specific type of text documents and since we use only a small sample of in-depth case studies, we apply a qualitative approach of content analysis following Mayring (2010). A structuring content analysis fits best to filter and summarise various issues of interest from the case studies (Figure 1) (Fruhmann, 2011).

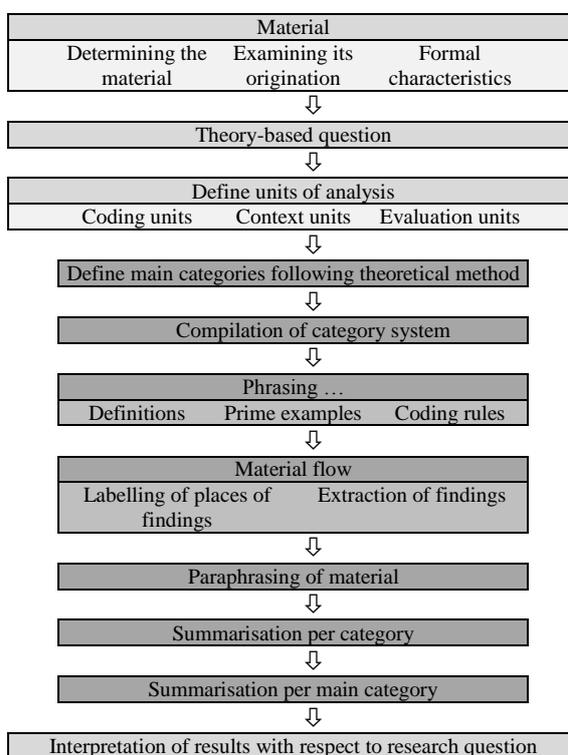


Figure 1: Workflow of structuring content analysis.

The inner work steps (dark grey) represent the structuring content analysis as the central element of the content analysis. The following units of analysis have been used:

- Coding units: proposition (meaning of a sentence, facts and information of a declarative sentence)
- Context units: entire case study
- Units of evaluation: thematic focus of case study, i.e., applied tool (wiki, weblog, microblogging, wiki/blog combination, social networking services)

4.2 Case Studies

Eleven case studies have been chosen for detailed analysis out of the vast number of available case studies on Enterprise 2.0 (see Section 3). Criteria for inclusion in this selection have been clearness, profoundness of case description, coverage of topics of interest, and relevance of information. To identify factors of successful applications of social media in organisations we cover cases with all major social software tools that are frequently used in enterprises, i.e., wikis, weblogs, microblogging, wiki/blog combinations. Case studies on social networking services (SNS) have not been considered since SNS can hardly be found in SMEs because they require a minimum number of participants. At least two case studies have been used per type of tool.

Table 1: Analysed case studies.

Tool	Organisation	ID	Reference
Wiki	TAO Gmbh	C1	Stocker and Tochtermann (2010, 188)
	Greentube	C2	Zeiller (2010)
	Lietz Gmbh	C3	Klein (2010)
Weblog	Pentos AG	C4	Stocker, Krasser and Tochtermann (2010)
	Spirit Link	C5	Stocker and Tochtermann (2010, 174)
	Namics	C6	Hain, Schopp and Walter (2009)
	Siemens AG	C7	Ehms (2009)
Microblogging	Communardo	C8	Böhringer and Röhrborn (2009)
	Siemens AG	C9	Stocker and Müller (2010)
Wiki/blog combination	T-Systems	C10	Bukvova and Kalb (2010)
	Cablecom	C11	Summa and Koch (2009)

The case studies differ in complexity, internal structure, amount of detail of the case description, and focus. However, content analysis based on categories can cope with these differences.

4.3 Categories

Six main categories, each of them containing four up to eight sub-categories, have been used during the text analysis (Fruhmann, 2011). They have been deduced inductively out of the analysed text.

Table 2: Categories.

ID	Category	ID	Category
1	General facts	2	Initial situation
1a	Size of organisation	2a	Problem
1b	Industrial sector	2b	“Old” routine
1c	Organisational structure	2c	Motivation
1d	IT affinity of employees	2d	Decision for tool
1e	Experience in Web 2.0	2e	Objective
1f	Knowledge management within organisation		
1g	Corporate culture		
3	Social media application	4	Impact factors
3a	Introductory process	4a	Acceptance
3b	Training	4b	Benefit for employees
3c	Support	4c	Usability
3d	Department	4d	Extrinsic motivation
3e	Business processes	4e	Intrinsic motivation
3f	Application area	4f	Compulsory participation
3g	Details of the tool	4g	Role model status of management
3h	Internal structure		
5	Barriers	6	Changes
5a	Barriers to utilisation	6a	Impacts of the tool
5b	Expenditure of work for users	6b	Benefit for the organisation
5c	Barriers to users	6c	Lessons learned
5d	Drawbacks of the tool	6d	Unexpected achievements

4.4 Motivation for Adoption

The most frequently found motivation to implement social software platforms was the increasing amount of emails (2a) causing an information overload, loss of knowledge and high expenditure of time for dealing with emails. Furthermore, intra-corporate communication and collaboration due to remote workplaces and multiple communication channels (phone, email, etc.) have been perceived as time consuming and inefficient (2a). In several case studies difficulties in distributing knowledge among employees have led to the implementation of social software. Knowledge stored in local knowledge repositories cannot be distributed or even causes loss of knowledge (2b) [C5]. Inefficient distribution and preservation of knowledge result in loss of productivity. As a consequence C1 implemented a wiki as a central knowledge repository (2e). C9 used microblogging to support knowledge transfer in real-time (2e). C6 introduced a weblog to ensure knowledge transfer on a daily basis and to distribute relevant knowledge in the short term (2e).

4.5 Application Areas

In all three case studies using wikis the tool is used for developing and preserving knowledge. C1 uses the wiki as a central knowledge repository (3e). A guideline constitutes that certain kinds of documents have to be stored in the wiki to prevent the formation of local repositories. C2 concentrates on a platform with easy access that enables all employees to exchange information (3f). C3 uses the wiki to allocate tasks – instead of sending emails (2b, 3e).

While three out of four case studies using a weblog had very specific applications, one organisation [C7] used weblogs as a general tool that can be tailored for the individual (3f). Various functions like tagging and a register of persons had been implemented (3g). Communication among employees as well as knowledge transfer shall be improved (2e). The blog posts are also integrated into a knowledge base and thus support knowledge development and knowledge preservation (3e). C6 wants to assure knowledge transfer, but uses the blog for a target-oriented, ad-hoc communication to transfer short-term information (3e).

Wiki/blog combinations allow for easy editing and publication like in wikis (2d), but also apply to the chronological order of weblogs [C11]. Additionally, C11 integrates employee profiles (3g) to raise a community (2c). C10 integrated a wiki and a weblog in their “Team Web” (3g) that links employees and supports knowledge transfer and knowledge development.

Inspired by Twitter and Yammer C8 and C9 developed their own microblogging tools since the public tools did not provide enough data security to protect its intra-corporate communication (2d). C9 uses microblogging to generate awareness and to indicate the flow of information within the company (2e). The goal of C9’s implementation of microblogging is to improve knowledge management, collaboration, and the encouragement of trust and mutual support (2e).

4.6 Adoption Strategy

In 9 of 11 case studies the social software platform was implemented top-down. For example, C2 and C3 did not inform their employees until the tool had been ready to use (3a). To allow easier access to the new tool C1, C5, and C10 provided initial content and a basic structure (3a). At C7 a team of experienced bloggers generated initial blog posts. At C10 a small project team tested the tool and then the number of users was successively increased.

However, in case study C8 and C9 the initiative to start microblogging was triggered by the employees who started to use Twitter or Yammer which forced the company to provide an in-house microblogging tool (2c). After being started top-down, at C1 and C5 the social software platform was further developed by the users (bottom-up). They defined the structure of the platform and the composition of content (3h).

4.7 Motivation of Use

The analysed case studies show intrinsic motivation (4e) as well as extrinsic motivation (4d). The employees of C8 had the chance to test the new tool and detect personal benefit (4e). The employees at C7 can decide by themselves whether and how to use the weblog (4e). However, at C1 the management board checks regularly whether the employees use the corporate wiki as intended. To encourage the utilisation of the wiki, specific content is published only in the wiki (4d). At C4 the employees are urged to publish posts on their activities or news on a weekly basis (4d).

Five organisations (C4, C5, C6, C8, C10) attach importance that the management staff sets a good example for the use of the platform (4g). At C5 an executive blog is provided that is regularly read and commented on. In this way the employees are involved in management topics and motivated to blog, too (4g). At C8 the active participation of executive managers in the microblogging activities is considered to be very motivating (4g).

Obviously the ease of use, usability issues and user-friendly composition and layout of the tools contribute to the success of the enterprise 2.0 initiative. At C7 the simplicity of using the weblog had been the main design principle (4c). C10 attaches great importance on the user’s feedback on usability which is used to improve the tool (4g).

The most important motivation for a regular and active use of a social media platform is the perceived individual benefit for the users. The employees at C7 benefit from the support of their own reflexion by writing blog posts (4b). Employees at C4 appreciate the enhanced team spirit as well as the improved team collaboration. The pragmatic use of a wiki at C3 for the assignment of tasks leads to an improvement in self-dependent and target-oriented way of working (4b). The microblogging application at C9 facilitates its employees to easily share knowledge, to build up a network, and to identify trends, (4b). At C5 employees appreciate the quality and actuality of information in the blog as well as the simple way of distributing knowledge (4b).

4.8 Barriers

One of the major barriers we encountered is the additional effort to use the tool as it is perceived by the users. For example, at C4 adding and updating of content in the weblog is considered a significant additional effort added to daily routine (5b). A similar problem is encountered at C10 due to the large and confusing amount of content (5d).

Besides the microblogging application, at C8 there are several other social software tools available, too (e.g., a weblog, a wiki). Employees are confused about the specific purpose. Thus, the tools do not support the daily routine properly (5a).

At C1 and C2 the challenge is to provide high actuality of information. If the employees have to invest time to find the information they need and to update out-dated articles, they will get frustrated (5b). Lack of actuality of the blog posts at C5 causes similar problems, too (5d).

5 RESULTS

Three major motives concerning the adoption of social software platforms in organisations have been identified in the case studies:

- *Corporate communication*: Organisations are aware that due to changing communication needs and information overload they have to provide new means for communication.
- *Knowledge management*: Organisations have to find more efficient ways to develop and preserve knowledge and enable easy access for their employees.
- *Team collaboration*: The willingness of employees to share knowledge and to collaborate is crucial for corporate knowledge management initiatives. Social software platforms help connecting employees and exploiting synergies.

Successful enterprise 2.0 initiatives have to take special care on success factors and barriers of social media utilisation. The content analysis of case studies has identified two major success factors: *adoption* and *participation*. Most enterprise 2.0 applications have been adopted top-down (9 out of 11), but both approaches can be successful. C8 successfully operates microblogging that has been initiated bottom-up. Top-down initiatives have to ensure that the platform supports the requirements of the users and the users soon recognise benefit.

The analysis of case studies has identified six influencing factors for high participation:

- *Voluntariness*: Employees that use the platform voluntarily have identified benefit for themselves and their personal work routine. Intrinsic motivation results from personal goals, like being accepted as an expert or making significant contributions.
- *Specified use*: The obligation to use the platform will lead to a high participation due to the sense of duty by the employees.
- *Regulations*: An organisation should provide a minimum of rules and guidelines how to use the social media. It has to be regulated which social software tool has to be used in which situation and which content is accepted.
- *Participation of executives*: Participation of executives stimulates the participation of employees, too. If the management contributes to the new platform, the employees are not afraid of self-exposure and wrong appraisal.
- *Usability*: The handling of the tool has to be easy, self-explanatory, and must not be time-consuming. Especially at the beginning of social software utilisation, writing articles and blog posts has to be simple, fast, and intuitive.
- *Benefit for users*: Employees have to get personal benefit from the social software. They will use it when it makes their work easier, e.g., by faster identification of relevant knowledge or experts.

6 CONCLUSIONS

The aim of this paper was to identify influencing factors for the successful utilisation of enterprise 2.0 applications in SMEs. Initial motives for starting an enterprise 2.0 initiative as well as adoption strategies and application areas have been identified. Success factors and barriers that influence the success of enterprise 2.0 initiatives have been deduced. A multiple-case study design has proven to be suitable to analyse such a multifaceted topic. Qualitative text analysis has been applied to high-quality case studies describing the implementation of an emergent social platform within an organisation.

The findings of the cross-case analysis may be studied by organisations prior to starting their own initiative. This paper focuses on the utilisation of social software within SMEs. SMEs can profit even more from intra-corporate use of social media since they need cost-effective applications with high benefit in short term that are easy to use.

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