

Broadening Participation in Knowledge Management in Enterprise 2.0

Ausweitung der Mitarbeiterbeteiligung am Wissensmanagement im Enterprise 2.0

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Summary Enterprise 2.0 is an approach to broaden participation of employees in enterprise knowledge management. Building on concepts and tools from the Web 2.0, the effort to participate is minimized and a broad audience is provided. This has positive effects on the motivation of employees to participate. In this article we present an overview of the ideas and tools behind Enterprise 2.0, and discuss challenges and approaches for management. ▶▶▶ **Zusammenfassung** Eine Herausforderung für die Umsetzung von Wissens-

management im Unternehmen ist die Beteiligung der Mitarbeiter. Die Konzepte und Werkzeuge rund um das Web 2.0 bzw. Enterprise 2.0 stellen hierzu Lösungsansätze zur Verfügung. Durch Minimierung des Aufwandes für den Einzelnen und Bereitstellung eines großen Publikums werden einige der bisher vorhandenen Hürden verkleinert. In diesem Beitrag geben wir einen Überblick zu den Grundideen und Werkzeugen im Bereich Enterprise 2.0 und diskutieren vor allem auch Herausforderungen und Lösungsideen für das Management.

Keywords K.6.0 [Computing Milieux: Management of Computing and Information Systems: General Economics]; knowledge management, information management, participation, social software, Enterprise 2.0 ▶▶▶

Schlagwörter Wissensmanagement, Beteiligung, Informationsmanagement

1 What Is Enterprise 2.0 and How Does It Relate to Knowledge Management?

Knowledge Management has undergone some development in the last decade [22]

- from a focus on capturing (externalizing) information from people, and storing the information in databases without having a particular use in mind,
- to learning that knowledge is somehow bound to people, and that it therefore is essential to connect people (instead of filling databases).

The first efforts in connecting people have been yellow pages systems and expert recommender systems [1; 7; 33]. What these approaches had in common with the database

approaches is that control of the information in the system was up to editors. It still was quite hard for employees to participate.

This changed through the introduction of a new set of tools (Social Software) and a new paradigm to how knowledge networks work (the Web 2.0).

1.1 Web 2.0

Web 2.0 is the “*network as platform*” [30, p. 1]. The concept of “Web 2.0” is seen as a “*set of principles and practices that tie together a veritable solar system of sites that demonstrate some or all of those principles ...*” [30, p. 19]. The common principle of the Web 2.0 is to enable

people to collaborate and share information online in new ways, such as in wikis, communication tools (e.g., weblogs), social networking services (e.g., Xing or Facebook), and social tagging services (e.g., del.icio.us).

The most important concept in the Web 2.0 is *participation*, which means the free cooperation of as many people as possible without any restraints from organizations, processes, technologies or particular (technical) platforms. In addition to making traditional cooperation more easy to achieve, this enables the tapping of collective intelligence (“wisdom of the crowd”).

To achieve this participation, the Web 2.0 builds on some key concepts:

- *usability* – achieved by being web-based and interactive (Ajax), and by allowing easy integration and combination (feeds, RSS),
- “*me*”-centricity (e.g., [32]) – the core of the Web 2.0 is a direct usefulness for the single user – which leads to high intrinsic motivation – in contrast to indirect value defined by the benefit for teams and communities,
- *flow-experience* – joining a Web 2.0 application is fun, helps its users to be creative, supports happiness and therefore promotes a flow experience (see [15] for a definition).

1.2 Social Software and Social Media

The technical part (applications) in the Web 2.0 is Social Software; software or services that support, extend, or derive added value from human social behavior [12]. Here again, we see the core concepts from the Web 2.0: it is about human behavior and participation of the single – not primarily about collaboration (like in Groupware). In other words, the focus is on making it easy for the single to create and comment content (for his/her own use or for simple intrinsic motivation), and not so much on complex collaboration scenarios. Socio-technical communities and other forms of collaboration occur more or less as a by-product of the single-user activities.

McAfee [28] summarizes the characteristics of Social Software in the acronym SLATES (Search, Links, Authoring, Tags, Extensibility, Signals). We are using a slightly adapted version for further characterizing the core concepts [27]:

- Being able to publish contributions or edit content as easily as possible (“Authoring”)
- Contributing structuring metadata by tagging (“Tags”)
- Adding additional content and metadata by annotation and linking (“Authoring”, “Links”)
- Possibility to be informed about (subscribe to) new content (“Signals”)
- Being able to find new content (“Search”, “Tags”)
- Modular, service oriented, and data-centric design of the applications (“Extensions”)

Social Software can also be classified in some core application classes, e.g., wikis or weblogs. We will come back to this in Sect. 2.

Finally, there is the term *Social Media*, which is either used as a synonym for Social Software or to describe the communication channels opened by Social Software.

1.3 Enterprise 2.0

What about “Enterprise 2.0” now?

This term has been coined by Andrew McAfee for using Social Software (to support collaborative work and knowledge management) “*within a company or between companies and their partners or customers*” [28].

The main idea of the Web 2.0, the straightforward possibility for everyone to participate, to contribute to the big picture, can enrich many approaches to classical knowledge management in enterprises. Since the knowledge, know-how, and qualifications of employees are crucial resources, it bares enormous potential to facilitate their participation.

For in-company operation, Social Software tools are adjusted to company context, and are additionally enriched by integration with existing intra-company tools. The online-encyclopedia Wikipedia or the social networking platform Facebook have already served as role-model for the prototypes of several companies [6; 11; 13; 14; 27].

Since cooperation does not stop at the boundaries of companies, Social Software can also be employed for enriching communication with customers and business partners. If that results in a bi-directional communication, this is seen as part of Enterprise 2.0. If Social Software is just used for communicating uni-directionally from the company to customers, it usually is not in the scope of Enterprise 2.0.

Some interpretations of the term Enterprise 2.0 even go beyond the tool level, and focus on the structural changes in companies made possible by the introduction of Social Software. Keywords in this context are “easier, faster, and contextual organization of access to information, expertise, and business contacts” [23].

2 What Is Social Software (Good for)?

In this section we will address the question of what Social Software is and what it can be used for.

2.1 Social Software Tool Classes

To structure the different tools in the domain of Social Software, one first can try to cluster Social Software tools in tool classes. Usually, we distinguish:

- weblogs and microblogs,
- wikis and group editors in general,
- social tagging (applications)/social bookmarking (applications), and
- social networking (applications).

This categorization is useful for a first overview, but does not help to determine support potential or to think about new tool classes.

To help in this, one first could try to identify basic functions in communication and cooperation support,

and categorize the tools and tool classes by these functions. Second, one could try to identify use cases and scenarios where Social Software can be useful, and classify the tools and tool classes by these use cases. In the following we will present proposals for both approaches.

2.2 Social Software Support Functions

When looking for former work on basic functions in cooperation support, one can find the three or five C's – i. e., Communication, Coordination, Cooperation plus Co-Existence and Consensus (see, e. g., [26]). Based on this line of thinking, for Social Software the following three basic support functions have been worked out: information management, identity- and network management and communication [21; 27; 35]. In Fig. 1 we present these functions as the three edges of a triangle, and place the tool classes from Sect. 2.1 in the triangle according to their main contribution.

The three core support functions in the Social Software Triangle can be used to identify support potential:

- *Information management*: users are collecting, co-writing and annotating information, e. g., in social tagging services or in group editors like wikis.
- *Communication (support)*: users are communicating directly with each other, synchronously in instant messaging applications or asynchronously in forms and weblogs.
- *Identity and network management*: users are presenting themselves to others and are searching/finding others by this information and are linking to each other; additionally information about the current status and activities of users are distributed to the network (network awareness – the network as an information filter). This part is nicely supported in social networking services, but also partly in social tagging services and instant messaging or microblogging services.

Another approach for clustering tools and tool classes by features of the interaction they support can be found in the proposal by Mike Thompson for clus-

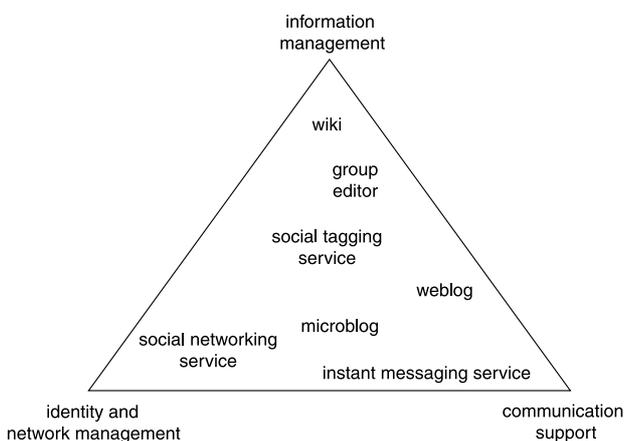


Figure 1 Social Software Triangle [27].

tering by the strength of the ties of the relationships that are supported [39], or in the clustering by the level of participation in the “Forrester ladder of online participation” [9].

2.3 Social Software Use Cases

One example for listing use cases where Social Software can be useful is the SocialSoftwareMatrix [37]. The introduction to the matrix says: “We believe that merely comparing features is the wrong approach towards selecting enterprise social software and this is why we compare the major products by evaluating them in a set of relevant business use cases, technological product dimensions and vendor qualities”.

The matrix distinguishes the following use cases [38]:

- “Enterprise Communication” is about using social software as a communication platform on which every employee can participate in enterprise discussions across traditional company boundaries. Discussions can be initiated top-down as well as bottom-up and be conducted on a small level or across the enterprise.
- “Collaboration and Knowledge Exchange” is about enabling people to collaborate on and across all levels of an organization.
- “Social Networking and Expert Search”: The goal is to support employees in maintaining and expanding their corporate network, based on a virtual representation of all users (in profiles), including their contact data, skills, expertise and interest.
- “Personal Information Management”: The goal is to provide employees with the ability to select information sources and integrate them on a central and customizable personal page.
- *Project Management*: Projects can be supported by a mix of communication, workspace and resource planning tools.

Another approach to classify Social Software use cases is presented by Negelmann [29]. He distinguishes “unveiling & associating information & knowledge (*Knowledge Management 2.0*)”, “Support conversation & communications flow (*Internal Communications 2.0*)”, “Supporting & enhancing ad-hoc collaboration (*Collaboration 2.0*)”, and “Supporting the learning organization and providing a market of ideas”. The latter can also be mapped to Open Innovation approaches (see, e. g., [4; 25]).

2.4 Social Software Suites and (Activity/Awareness) Feeds

Tool vendors are taking up the use case view and present more and more *Enterprise 2.0 suites* that cover all functionality needed in one (or more) use cases (see market reports on technology, e. g., Gartner’s Magic Quadrant for Social Software in the Workplace and Forrester’s Wave of Collaboration Platforms 2009). Where one once found single tools providing support for just one function like social bookmarking services, wikis or blogs, you have now suites that integrate several functions in one application.

Examples for such Enterprise 2.0 suites are Lotus Connections from IBM and Jive from Jive Software. But also smaller tools like Confluence from Atlassian, which started as a wiki only, now support blogs and social networks.

One reason for the development of suites can be seen in the circumstance that activity feeds – i. e., lists of what is happening – are currently rising up to the most important ingredient in Social Software. McAfee already listed the need to provide information about what is happening in the term “signals” in the SLATES characterization [27]. And the easiest way to collect and visualize these signals from different tools in one feed is to integrate these tools in one application.

However, there is still room for loose collections of dedicated tools. Feed integration also can be done through mashups that tap in the data feeds of the single tools.

This integration approach is used for connecting tools from different areas of responsibility, but also to add sources from classical IT systems like ERP systems to the activity feed of social networking services (see for example the SAP StreamWork approach for such enterprise activity streams).

3 Challenges and Approaches for Management

3.1 State of Enterprise 2.0 Adoption

Enterprise 2.0 is still in its early phase of organizational adoption. Market research by leading analysts – e. g., *Forrester’s Ladder of Participation and Wave of Collaboration Platforms*, *Altimeter’s Social CRM Research*, *Gartner’s Magic Quadrant for Social Software in the Workplace*, as well as *McKinsey’s Interactive Feature on Web 2.0 and Business*, to name just a few – show that the *chasm* in the innovation adoption life cycle clearly has been crossed. Sooner or later organizations will have to get started in approaching the integration process of this change in a structured way, and can no longer restrict themselves to grassroots applications under the “radar screen” of IT and business management.

In getting ready for this transformation, management faces two major challenges.

- On the one hand, management has to devise a professional approach to Enterprise 2.0 adoption which means defining a roadmap and applying validated instruments for managing change and implementation of Enterprise 2.0 solutions.
- On the other hand, the continuous innovation in the field of web developments and Social Software offerings, e. g., the convergence of dedicated tools into Social Software Suites (see Sect. 2.4), real-time media, and Web 2.0 going mobile, require a continuous learning and adoption process at a much faster pace than known from traditional enterprise software developments and release migrations.

The following paragraphs give an overview of management instruments to deal with the innovation in

enterprise collaboration practices through Social Software.

3.2 Strategy Building and Project Management in Deploying Social Software

Strategy

Often, reaping the innovation potential of new technologies for the business is approached from a tool-oriented viewpoint. Yet, Social Software is not a means in itself, but a means to an end. A Social Software strategy clarifies these “ends” and sets measurable goals. A recent study on Social Media strategies with a focus on external and internal communication [16] found that 48% of the organizations do not yet have a Social Media strategy, and if they have, then mostly for PR/Corporate Communications only, and not for the organization as a whole or for various units.

An Enterprise 2.0 strategy rests on the overall knowledge management strategy, and is part of the digital workplace and digital communication strategies derived from it. These strategies themselves are not well developed in many organizations. Nowadays, the knowledge management business goals which focus on knowledge networking – internal as well as external networks or communities – get supported by Social Software. Consequently, already established strategy development methodologies lend themselves very well to the evolving market of Social Software platforms and suites. A detailed step-by-step project plan for building up knowledge networks, including the main building blocks “vision and strategy”, “roadmap development”, “setting-up of the network”, and “measurement and adaptation”, is described in [5].

So called *frameworks* can provide another overview on Enterprise 2.0 strategy development. A presentation by Hinchcliffe [20] has collected eight such frameworks. He also puts together typical reasons why Enterprise 2.0 projects fail [19]: First, due to lack of clear strategy, and second due to disregarding aspects in Enterprise 2.0 introduction process, as explicated in the following section.

Project Management

A Social Software implementation project goes beyond mere software deployment. Enterprise-wide collaboration infrastructure projects, as well as single, departmental Social Software projects have to be approached with a clear focus on change management. A key success factor is investing in cultural learning and training of work practices. Handling the software functionality is just one, and rather a minor part of the training targets: Business value comes from broad individual use, and from quality of use, not from roll-out of the software or solution package by itself. An additional challenge is establishing a common understanding of the topic and of governance structures, especially in large organizations, in order to avoid detrimental power struggles over the “ownership” of the topic.

Based on proven generic project management methods, dedicated process methods for social software efforts are being developed. A concise pragmatic depiction of such a process model is given in the last chapter of [36]. It distinguishes the process steps Self Assessment, Target Scenario, Technology & Governance Frameworks, Rollout and Adoption, and finally Assessment and Review. For every step, the method lists input, output, deliverables, methods, and responsible roles.

A generic success factor perspective on Social Software implementation is given by a cross-case analysis based on the case study platform www.e20cases.org [8]. It confirms and adds to these recommendations. The analysis found the following three classes of success factors: support by (higher) management, motivation (including perceived benefit and low effort for the end users), and acceptance (including open knowledge exchange culture, willingness to share unfinished results, voluntariness).

3.3 Maturity Assessment

Maturity models define, analyze, and consult on development stages of organizations and information systems. They are a very popular management instrument as they are useful in many contexts and for many purposes, e.g., in self-assessment, readiness assessment for major change projects, benchmarking, continuous improvement programs, and in certification of professional process management. Many researchers and consultants are offering such models in various levels of detail. A brief overview of such models in the collaboration and social media space is given in [3] (and the corresponding presentation). More can be found in [17]. Figure 2 depicts the achievement profiles as an exemplary result of the maturity assessment for two organizations.

As project budgets typically allocate scarce resources to maturity assessments, practitioners prefer simple maturity models. Also, if you take into consideration that

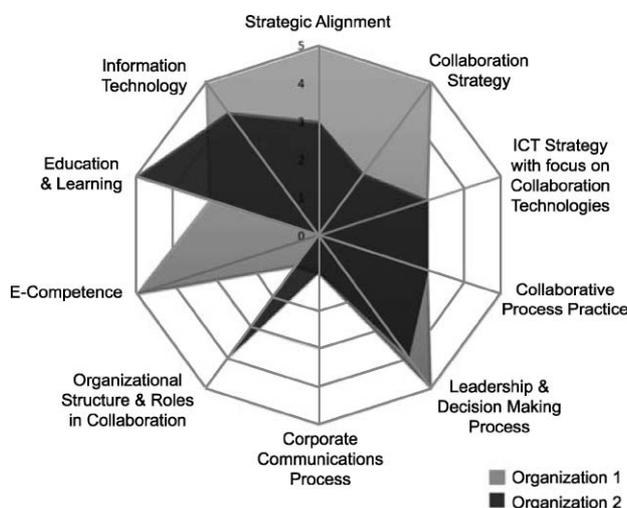


Figure 2 Achievement Profiles of the Collaboration Maturity Model described in [3].

the overall maturity of Collaboration 2.0 is in an early stage, and that simultaneously the maturity level in the field is evolving, a Capability Maturity Model (CMMI) like, very detailed approach is not yet pressing to use in practice.

3.4 Skill Development for the Workplace

Developing skills in social software and media is different from “computer schooling” like for office tools. It is more about understanding the tool classes and concepts, as well as practicing behaviors, than about mastering the functionality of these tools. Also transferring practices of using Social Software in the private context to productive uses in the workplace is not a 1:1 seamless task. Since the productive use of Social Software is an organizational task and not a single user task, (middle) management should be involved in the introduction. Middle management should be aware that motivating their teams to use Social Software in effective ways, and leading-by-example, are much more important than to train for mastering the functionality of how to create documents.

Two training approaches give an idea how to address generic skill development: Jane Hart distinguishes seven modules in her “Practical Guide to using Social Media in your Job” [18]: Finding things; Keeping up to date with new content; Building a trusted network; Communicating; Sharing resources, ideas and experiences; Collaborating; Improving personal productivity.

Another approach, one towards a “Social Media Skill Matrix” combined with an “Enjoy Social Media” beginners course that is being developed by a global pharmaceutical company [40], uses the *Forrester Social Technographics Behaviors* (aka *ladder of participation*) to distinguish different skills. See a respective Social Media Skills Quick Assessment [34].

3.5 Community Management and Wiki Gardening

Aside from caring for personal skills needed to reap the benefits of Social Software solutions, organizations are struggling to devise what job-roles and job-descriptions are needed, and to which department Social Software executives should be affiliated. The study of Fink/Zerfass [16] on Social Media for Germany is an indication that currently hardly any company has a dedicated department, budget, or set of measurements, and that strategies as well as rules & guidelines are yet to be developed. Interestingly, a variety of terminology for different job profiles can be observed, e.g., social media director, manager corporate blogging & social media strategy, chief collaboration officer, and community steward.

For community management, the core of respective professional approaches is already known from the communities of practice or knowledge networking literature, e.g., [5]. Nowadays, the extended social business approach brings new community and networking platforms onto the table. Focusing on collaboration, *wiki gardening*

is worth a few more words. Wikis are one of the most proliferating applications, and the wiki-way gets more and more understood in practice (see case studies tagged “wiki” on www.e20cases.org). An advanced adopter of the wiki-way in the German automotive industry talks about the roles of a *wiki-owner* and a *wiki gardener*. The latter – together with the owner who controls the access rights – will enforce legal requirements and guidelines, the use of the wiki for the intended purpose, cares for the quality of the content, and supports the users. To ensure the minimum required capabilities of the wiki’s users’ right from the start, the company offers regular wiki-training courses as part of its corporate academy offering [2].

3.6 Policies and Guidelines

When getting aware of *grassroots* activities, e. g., wikis established outside of the official IT-architecture or employees who publicly blog or *twitter*, organizations feel pressed to release policies and guidelines. (A collection of more than hundred corporate social media policies can be found in [10].) This is a first step in social media management, before an overall strategy (see Sect. 3.2) is devised. Aside from addressing legal issues, such as privacy and intellectual property rights, organizations have many other concerns that need proper risk management, especially in regard of Social Software activities that extend to the public net. A poll of more than 1000 corporate communications people [16] lists common concerns of which the following also apply to internal Social Software use, such as fear of loss of control, lower productivity in work, and distraction from key work assignments.

However, guidelines are not only useful for risk management by defining what should not be done, but also for motivating the potential users by defining what can and should be done. In this way uncertainty on the side of the users can be reduced and motivation can be improved.

4 Outlook

So, Enterprise 2.0 is an approach to broaden participation of employees in enterprise knowledge management. By minimizing the effort to participate and by ensuring a broad audience the individual motivation is addressed. However, there is still a need for defining goals and management support in shaping and running the whole sociotechnical system.

The “2.0” in the terms *Web 2.0* and *Enterprise 2.0* will be a lasting paradigm. The core Web 2.0 design patterns introduced by O’Reilly [30] will take years to manifest themselves in well understood business and enterprise collaboration best practices. The 2.0-patterns will go along with the innovations through the semantic web for which the – what we consider unnecessary – term *Web 3.0* has already been coined.

To avoid the misleading implication that *Web 3.0* is meant to make Web 2.0 obsolete, while on the contrary the “new pivot point in the history of the Web” builds

upon and integrates Web 2.0, O’Reilly and Battelle suggest the term *Web Squared* (“Web 2.0 plus World”) [31]. As has been seen in Enterprise 2.0, Web Squared patterns will also spread first in the consumers’ web experience, and then be adapted and adopted to enterprise business functions and work practices.

To support adaption, the collection and publication of reference case-studies (like in the *e20cases* platform) will be of special value and will experience seamless growth.

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Received: March 17, 2011



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