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Ralf Kopp

About the Reinvention of the Management of Innovation

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About the Reinvention of the Management of Innovation

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Abstract

Among other things, the integro project focussed on advanced management practices of innovation management in knowledge intensive small and medium sized enterprises, especially in the context of software development.² Two main findings of the integro project, grounded in social innovation, are described and analysed in this article. In this project we observed a trend from closed innovation to open innovation. In contrast to technologically driven approaches of open innovation based on the assumption that it is no more than an add on to traditional innovation management, the result of our research shows that open innovation deals more with a new socially driven access of management to innovation based on new principles and routines of interaction and collaboration with external actors in many different forms. The other side of the same medal is the emerging of enterprise 2.0 as a socio-digital innovation system. Again in contrast to the mainstream, the integro project reduces enterprise 2.0 not to the use of web 2.0 tools and the organisational requirements of their implementation. Enterprise 2.0 is more about the management of fast learning organisations based on a high intensity of external feedback and a high degree of self-organisation. The requirements resulting from these conditions cannot be met solely by recourse to hierarchical forms of coordination and therefore give rise to the need for complementary network-style arrangements. Although it must be recognized that open innovation is dynamised by web 2.0 applications, a stress must be put on the importance of what is indicated in this connection by the term Social Software: even the technology fosters the meaning of social aspects. In order to specify the demands to be met by management, the interplay of non-digital (non-technological) and digital tools will be demonstrated along the stages of an innovation process.

² The integro project (Integrated Innovation, Knowledge and HR Management in Companies and Innovation Networks of the High-Tech Industry) was funded by the German Ministry of Education and Research and the Social Fund of the European Union from 2008-2011. The project was administered by the Work Design and Services Project Sponsorship Unit of the German Aerospace Centre (DLR). More background and results from integro project are on homepage (www.innovationsarbeit.de) and in Howaldt et al. 2011. The findings are available only in German language. All sources with German content in this contribution are translated by R. Kopp.

1. From the birth of management to the reinvention of management

It is a deep-rooted defensive routine to think about innovation as a matter of technology. Asking people what comes to their mind, if they think about important inventions and innovations they often allude to electric light, automobiles, television or the internet. Only few professionals will focus on social innovation in general or on management in particular (cf. Hamel 2008). The birth of management could be dated around 1900. The shift from an agrarian society to the industrial society changed the challenge for organisations. In 1890 90% of people work in the agrarian sector in small organisations with less than four employees. In 1915 in the USA, we see the first big companies like Ford or US Steel. In only 25 years, the idea of (scientific) management was born and specific principles, tools, methods were created and popularized in the 20th century by management thinkers like Peter Drucker or Marvin Bower, as well as consultancies e.g. McKinsey or A.T. Kearney (who were successful inventions themselves). The invention of management was the beginning of management innovation, which could be defined as

“every intervention, which changes sustainably the practice of management or modifies essentially the common forms of organisation (...) Management innovation increases the performances of the organisation, by changing the mode how managers do their job” (Hamel 2008).

The invention and innovation of management focuses on the questions how to bring people together, how to mobilize and organize resources, how to motivate, how to interact and communicate etc. This means, innovation management as well as management innovation could be characterized as social innovation. The birth of management was stimulated by the idea of mass production. It was a solution for the problem, how to transform human beings in semi-programmable robots, to do things again, again and again. The majority of managers were trained and payed for mobilizing hands and for increasing the efficiency of the same product. Innovation required only a small part of the management, separated in special departments, responsible for Research and Development (R&D). Principles and tools with an emphasis on standardisation, specification, specialisation, hierarchy, control predominate the organisation during the 20th century.

Even in the knowledge-based society of today, many companies are based on the same assumptions and approaches, although the challenges for management differ extremely. Hyper-competition, short innovation cycles, high speed in creation and obsolescence of knowledge, wide spread expectations of participation and many other aspects demand the reinvention of management. Nowadays managers have to mobilize brains of knowledge workers. The core questions are: How can every employee contribute to create inspired and innovative products? How to overcome the constraints of limited knowledge in organisations? (cf. Hamel 2008) With innovation becoming the main business for management, an increasing range of actors are to be involved, more so with innovation 2.0. According to the OECD report on the “new nature of innovation, “more and more companies are reacting to the changing conditions for business and are beginning to innovate in new ways” (OECD 2009: 10). This includes a shift from closed innovation to open innovation.

2. From closed innovation to open innovation

Pursuing the questions of “how innovations occur” and how “innovation differs” (Fargerberg et al. 2005: 9), social science and research emphasize the large number and heterogeneity of stakeholders, organisations and institutions involved in innovation processes. Scientists of business administration created the term “open innovation” in opposition to closed innovation (cf.; Hippel 1986; Chesbrough 2003; Piller/Reichwald 2009).

Closed innovation denotes innovation processes which are mainly limited by the knowledge and know-how of the employees in an organisation. The “Not Invented Here Syndrome” (NIH) in traditional organisations describes an attitude of management and employees to avoid the search or the use of knowledge from external origins, overestimating the own capability of solving problems and underestimating the potential of external resources. The activities in all phases of an innovation process (ideation, evaluation, realisation) are limited through the confines of organisation. Communication, interaction and collaboration are a performance among employees. Customers are only perceived as suppliers of information about needs (and later as consumers).

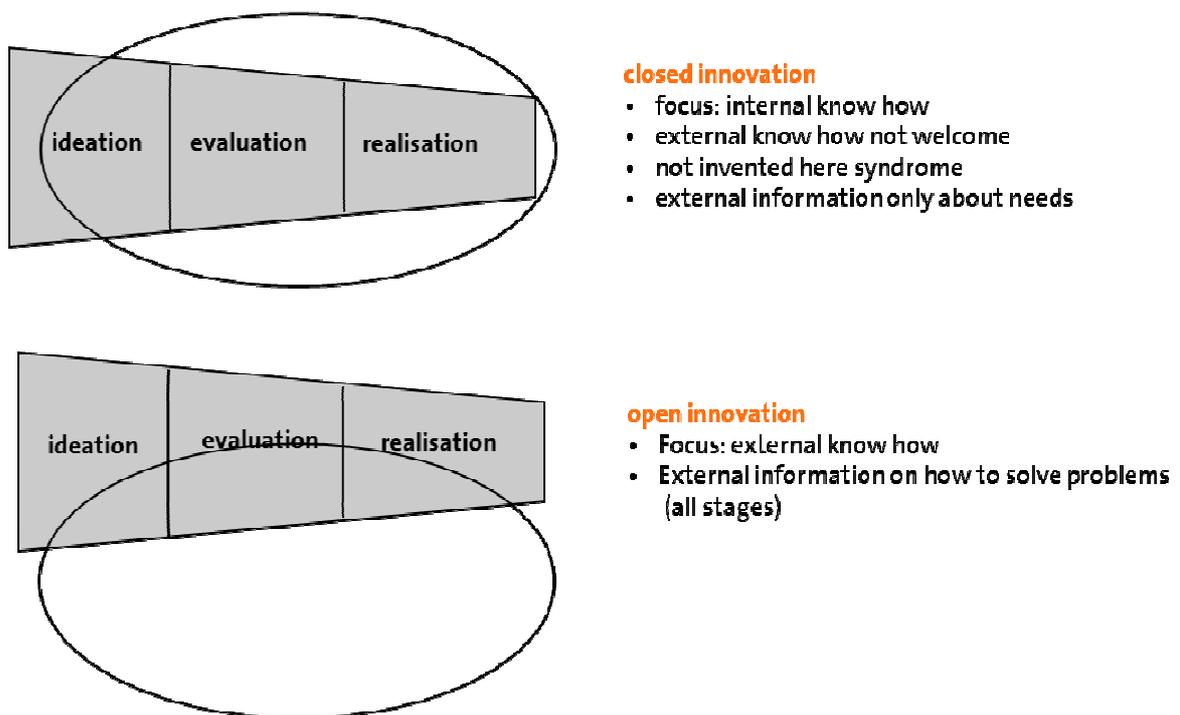


Fig. 1: From closed to open Innovation

Open innovation focuses on external knowledge and know-how during all phases of the innovation process. Interaction and collaboration include external information about how to solve problems (not only about customer needs). According to Gassmann/Enkel open innovation integrates three knowledge-related processes: the outside-in process (internalisation of knowledge), the inside-out process (externalisation of knowledge) and the Coupled-Process (cf. Gassmann/Enkel 2006). Although the common perspective is the same (integration of external knowledge and extended collaboration), the importance of internet, Social Software (Web 2.0) is evaluated very differently. We can distinguish a closed approach of open innovation (technology driven) and an open approach of open innovation (socially driven). Piller/Reichwald, representatives of a closed approach, want to solve with open innovation the problem of the local search bias, which is marked by the limited search possibilities of the solution seekers, who only can search solutions where they expect them. Piller/Reichwald connect open innovation to internet-based methods and tools, allowing to find unconventional solutions by unexpected contributions from unknown people. In this perspective Möslin (2009: 93) points out that “origin, development and diffusion (of open innovation – R.K.) are based on Social Software in Web 2.0.” According to her, examples of open innovation are competitions of innovation, innovation market places, innovation communities, innovation toolkits, innovation technologies. But it attracts attention that efficient forms of innovation competitions, innovation market places and innovation networks already have existed before, independently from internet.

A wide approach of open innovation covers all accesses (technological and non-technological) to link internal and external sources of knowledge. Even if those processes are more and more supported by internet, the degree of its use is no a criterion for openness. According to a wide approach, the OECD report conceives the capability of co-creating values with customers, of involving users in the innovation process and of forming collaborative networks and partnerships as drivers in innovation processes. The new role of technology is subordinated under the drivers of innovation as enablers (cf. OECD 2009: 9). In conclusion, the new nature of innovation deals more with changes in active practices and routines than with the implementation of new technologies. In other words, it is more about social innovation than about technological innovation.

Open Innovation (wide approach) has gone through a decade of incubation. Beyond traditional management, many concepts and tools of integrating knowledge from different actors have matured. These concepts and tools and the underlying culture are profoundly connectable to the emerging culture and practice of the “2.0 movement” (cf. Back et al. 2009). On the level of enterprises, this development represents a set of common ideas and approaches how to develop products and services along three converging lines of development (management, technology and market). Already in times of industrial work and classical taylorism, the principles of management and technology were based on a set of more or less consistent assumptions, even if the working conditions were legitimately criticized. During the incubation period the replacement of traditional industrial work by knowledge work led to serious tensions and blockades between the development of management, technology and market. These frictions are more and more reduced. On the basis of culture and practice from what is covered by the label “2.0 movement”, it comes to a new interplay between management, technology and market in the innovation process that leads to the emergence of enterprise 2.0.

3. From enterprise 1.0 to enterprise 2.0

Considering the underlying assumptions, principles, values and practices there are a lot of intersections between the development lines of management, technology and market. All in all, they tend to share the ideas of openness, participation, decentralisation, self-organisation, self-control, collaboration in networks, problem solving and learning in communities, creativity, innovative ability etc. On the enterprise level, this includes renouncing of hierarchical structures and control systems as well as renouncing of strong guidelines for knowledge workers how to do their job and calls for a reinvention of management. “Characteristics like openness, emergence, user generated content, culture of participation, and flattening of hierarchies in more and more enterprises lead to paradigmatic change of paradigm, to a revolutionary change of culture that will cause a severe shift in the patterns of collaboration within and between enterprises and in their relationships with partners and clients” (Back/Heidecke 2009: 7). Before enterprise 2.0 will be introduced as a socio-digital innovation system the three lines of development will be drafted.

3.1 Management

As we highlighted in the integro project, it is a wide spread misunderstanding to use enterprise 2.0 as a synonym for web 2.0. This pattern of thinking dominates the whole academic and practical debate. The perspective leads from technology to organisation and to social aspects (cf. Cook 2008, Newman/Thomas 2009). According to McAfee, enterprise 2.0 is the use of emergent social software platforms within companies and between them and their partners or customers. This is linked to the creation of a receptive culture and managerial support (cf. McAfee 2006). Koch/Richter argue that enterprise 2.0 is more than implementing a wiki here and two weblogs there. In this respect the implementation has to be embedded into an organisational and cultural context (cf. Koch/Richter 2009). A stronger accent on management comes from Back/Heidecke. According to their assumptions, enterprise 2.0 is more than the correct implementation of web 2.0. It is an approach to make the work of knowledge workers more efficient. “Enterprise 2.0” is a management concept based on the principles of the “web 2.0 movement” which are not completely new. “Many of the basics and areas of application in knowledge management – both on the practical level and in research – (...) have existed for quite a while. For instance, there is a large amount of knowledge about communities and knowledge networks (...), organizational learning, open innovation or idea management. These and other areas are core issues in Enterprise 2.0. The rise in popularity of 2.0 paradigms has given them a boost, so that they have now achieved breakthroughs” (Back/Heidecke 2009: 6). In this perspective enterprise 2.0 could be seen as the learning organisation 2.0. The concept of a learning organisation was developed by Peter Senge (2003). It centres upon the development of structures, processes and competencies that allow the on-going questioning of routines and the far-reaching stimulation of adjustment activities through self-organisation. Enterprise 2.0 refers, sometimes explicitly, to the programme of a learning organisation. F. e. Stamer uses “enterprise 2.0” and “fast learning organisation” as synonym (cf. Stamer 2008). As Back/Heidecke show, not only the concept of learning organisation is adaptable to enterprise 2.0. They could find inspiration by management concepts developed since the seventies – for a variety of reasons – as an alternative to taylorism; they have led to the decentralisation of decision-making competence (flattening of hierarchies) and the upgrading of experience-based knowledge (as a requirement for continuous improvement processes). There has been an increasing emphasis on

peripheral competencies and thus on bearers of know-how at the interfaces of organisations with intense customer contact. Furthermore, enterprise 2.0 has much to do with augmentation of absorptive capacity and knowledge management in the context of networks and communities.

3.2 Technology

The Open Source Initiative developed under the influence of Raymond's essay "The Cathedral and the Bazaar" (2001), opening up software development to the joint endeavours of its users. Since then Wikipedia has come to be its greatest success. Set against this background, we have seen the propagation of some agile software development as proclaimed in the Agile Manifesto in the late 1990s. Interactivity with customers has been boosted considerably through a programming concept in which individuals and interaction are ranked higher than processes and where on-going collaboration with the customer is seen as more important than contracts.

Web 2.0 technologies support and expand the available options of interaction, communication and cooperation, particularly at the interface between companies and their environment. In essence, web 2.0 technologies provide potential that is open in its utilisation and can be used for functions such as listening, communicating, activating, supporting, integrating and evaluating. It is an iterative and highly dynamic process of exchanging information about needs and solutions between actors in and of companies, on the one hand, and external actors on the other. In this process the roles of information recipients and providers are continuously switching to and fro. At the same time, the intensity of peer group feedback increases dramatically. This mechanism is one of the most important regulative factors for self-organisation and calls for strategies beyond traditional hierarchical management.

The crucial point is that Web 2.0 has overcome the limitations of first-generation knowledge management and that it has switched from information management to knowledge activation. Once certain web 2.0 tools have been selected and deployed, "the knowledge bearers decide on the structures it should take and on the information it should contain. In other words, this technology has now come to a point where its objective is no longer the multiplication and publication of knowledge, but its focus is now on practice, usability and the relevant results of the knowledge work (...)" (Friedrich-Freska/Glatzel 2009: 52). Web 2.0 fosters, dynamises and enlarges the possibilities to integrate a broad range of knowledge sources, in particular it mobilizes user for collaboration. Renner/Renner argue that digital technologies including Web 2.0 are "only" the advancement of social routines appeared in subcultures from the 70th (cf. Renner/Renner 2011). It is to emphasize, "that the core innovation of Web 2.0 is the communication of 'user generated content' as a new social routine (...). Social media are not a technical but a social innovation. Social innovations emerge not through technology itself, but through the way people use technology" (Kaletka et al. 2011: 17). For wikis, blogs, communities Pelka distinguishes between software (technology layer), content (mediated communication) and institutionalized usage in social routines ('rules of the game' for an interplay of software and content under which users cooperate, communicate and interact) (cf. Pelka 2008).

3.3 Market

Increasingly markets are observed as a matter of communication (e.g.. marketing, market research, social science, business administration). The idea is that “markets only come into being through interaction between customers, communities and companies, so that ultimately – just like innovations – they are largely rooted in social practices and manifest themselves as social constructs. Markets are no longer understood as a given volume of customers who must be conquered with precisely tuned products or services. This adds a totally new and fundamental meaning to the idea of ‘co-creation’ with customers. The goal of interaction with internal and external stakeholders is not the development of new artefacts, but the establishment of joint social practices which – supported and enabled by technological/economic innovations – create specific values for all actors who are involved and also from the perspective of their own evaluation frameworks and interests” (Zerfass 2009: 35 ff.). Haderlein speaks of marketing 2.0 as a communicative revolution in which the social operating system is being reconfigured (cf. Haderlein 2006: 9). He says that marketing and the targeting of customers must be geared towards the “prevailing socio-technological and socio-cultural innovations”.

Furthermore, it has to be recognised that consumers, customers and users increasingly expect to be involved as “co-creators” rather than being targeted as a “target group” or as “end users”. The Cluetrain Manifesto looks at conventional notions in marketing that are based on unilateral communication and confronts them with the idea that future markets will be based on [relationships](#) among people and indeed on relationships between companies and people and thus markets. Innovation arises through dynamic interactive processes and therefore “(...) it is more about creating meanings than it is about creating artefacts” (Tuomi 2002 quoted in Zerfass 2009: 35).

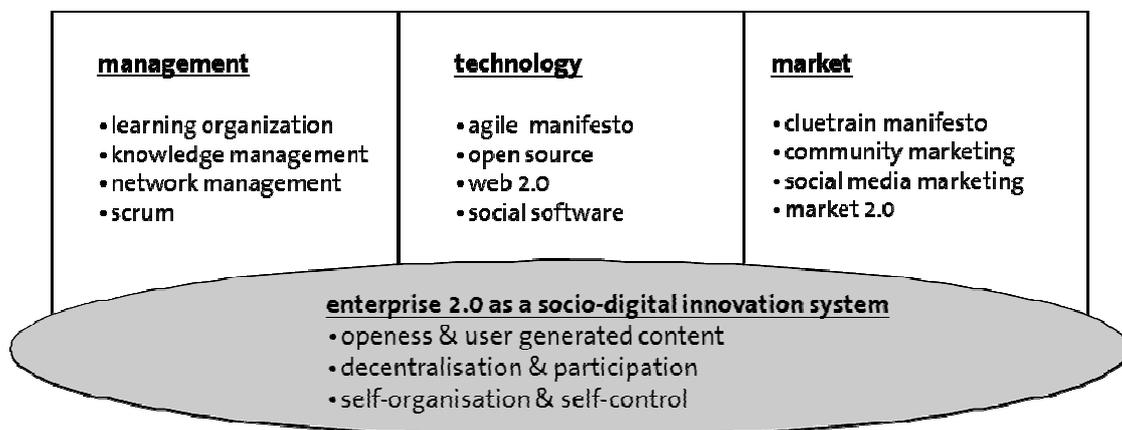


Fig. 2: Sources of enterprise 2.0

4. Enterprise 2.0 as socio-digital innovation system

Enterprises 2.0 are deeply rooted in the common values of the “2.0 movement” scheduled along the development lines of management, technology and market. First and foremost the management of enterprise 2.0 enables open innovation (wide approach) and fast learning. For this, it creates a highly knowledge-absorptive, feedback-intensive, socio-digital space of opportunity for self-organisation and collaboration on the base of non-digital and digital procedures and tools. A key finding in the integro project was that this reinvention of management is characterized by its ability to switch between different logics of action (logic of networks and logic of functional hierarchies), between openness and closedness, between self-control and control, between self-organisation and organisation. One could say this management is like a chameleon; it is able to light up different colours depending from the respective context; every part is highly interactive and the design is permanently modified.

The term “socio-digital” ties up to the socio-technical system approach from the 50ies stressing the connection between social and technological sub-systems (cf. Kopp 2011). It allows reconstructing the development of technology as a social process. But although both sub-systems should be treated equal, the social subsystem often is seen in dependence from technology. Furthermore, the socio-technical system approach is rooted in a time of closed innovation. Therefore the specification of the technical sub-system as “digital” will mark a “rupture in the history of media” (Münkler 2009: 62). In particular, the digitally based web 2.0 and social software boost the degrees of freedom for communication and interaction and increases the meaning of the social sub-system in this approach. The social sub-system doesn’t follow but creates the technical sub system. According to Münkler it was historically right to hold that the technological materiality of media pre-form or determine their use. Different from this, digital media are able to simulate or to generate all other media. By definition, there is no pre-setting for concrete applications. The social practices of the users and their attitudes bring up digital media and their configuration (cf. Münkler 2009). “Digital media don’t determine their use; they come into existence by their use” (Münkler 2009: 27). Under digital conditions, the users are the practical experts who by their interaction influence the attributes of the technological system. “Furthermore it allows the user to interact and to reflect about these attributes. Hence the new structure of knowledge is not only situation specific and dynamically changeable, it is also socially mediated” (Pscheida 2010: 78).

The labelling as “socio-digital innovation system” does not only refer to the socio-technological system approach but also to the international debate on innovation systems in the social sciences based organisation research with a focus on its complexity as well as its systemic and open character (cf. Howaldt/Schwarz 2010: 15ff.).

The following demonstration is an exemplary concretion of a socio-digital innovation system. Based on one of the case studies in enterprises 2.0 accomplished in the integro project it shows the interplay from non-digital (social) and digital instruments in an innovation process (ideation, evaluation, realisation) and it illustrates the switches between network based and hierarchical logics as well as between self-organisation and organisation. This case study was carried out in a software enterprise with nearly 160 employees (cf. Kopp 2011: 32 ff.).

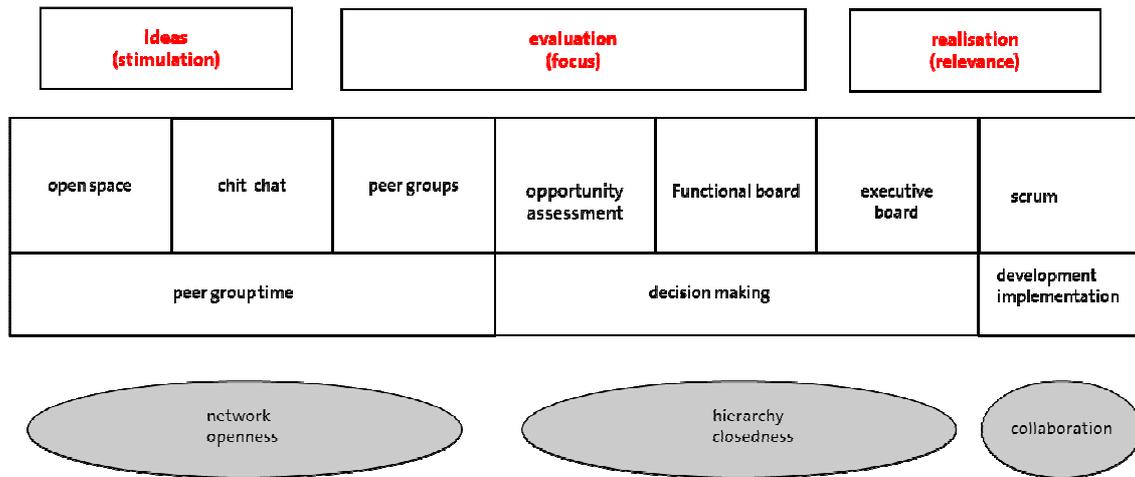


Fig. 3: Interplay of elements in a socio-digital innovation system

4.1 Open Spaces

The innovation process starts with open spaces, a conference method, that allows an ideation by the participants. In this example four times a year more than 150 persons (employees, clients, scientists, artists, consultants, lateral thinkers etc.) come together for two days, to generate ideas in work groups. The participants decide what themes comes up, what is the focus of the workgroups, what ideas are ignored, who discuss together and even what will happen with the result.

4.2 Organisational Chit Chat

Ideas (from open space workshops or from other sources) are not evaluated by actors from management. They only stimulate an organisational chit chat. This means, in discussions between shopfloor employees, in the lounge (a place for relaxed meetings) or elsewhere ideas inspiring the actors are crystallized. This discussion is supported by twitter, blogs, mails, telephone etc. and does not stop at the limits of the organisation.

4.3 Peer group time

All enterprises 2.0 analysed in the integro project allow their employees to work about self-chosen inspiring ideas with whom they want. Unburdened from daily routines they should have "free time" to follow their instinct and their addiction. In this case, one day per month is reserved for peer group time. Peer groups often are stimulated by open space workshops and organisational chit chat. Up to now all activities are not monitored by management. It is an open, self-organised process following the logic of networks. Which support by digital media, notably web 2.0, is needed and implemented, is decided by the peer group.

4.4 Web 2.0

In this example, the process is supported by wikis supported by large storage capacities and powerful search facilities. Furthermore there is a platform that combines blogs and fora. As a result, the email traffic could be reduced. Instead of a push principle we find a pull principle. This means it is not the sender who decides which person he wants to reach. He or she can only define the level of publication (internal, clients, partner or public). It is the user who decides from whom he wants to receive news. This allows a better focussed allocation of messages and an intensified discussion. The following features are helpful:

- Contributions are published with pictures from the sender
- Possibility for evaluation of contributions (thumb up/down)
- Tags
- Possibility to follow persons of interest. One could see in which debates he or she is involved and which recommendations are given.
- Automatic info in case of new contributions in debates one is involved in
- Personal newsletter with:
 - recommendations from persons one follows
 - 10 users who have voted thumb up/down alike or similarly
 - Automatically generated recommendations of unread contributions
 - 10 most read contributions last week
 - 10 contributions with most thumbs up last week
 - 10 discussion threads with most reactions last week

4.5 Decision making

The socio-digital innovation system is also configured by its ways of decision making. If an idea survives in the scheduled process, meaning it passes the first filter of relevance (open space -> chit chat -> peer group) and it is ripe enough, a second filter of relevance has to be passed. Now the process obtains hierarchical aspects. The peer groups carry out an opportunity assessment answering a questionnaire about the value proposition, target market, market size, success factors, competitive landscape, strategic fit, costs, unique selling proposition, etc. It is followed by a presentation of the answer sheet and its discussion in a board, consisting of internal experts. Hierarchy is not a criterion for the choice of board members, only functional competence matters. After the discussion, evaluation and stop or go decision, the board is dissolved. In case of a "go" the idea will be presented as a project proposal to the CEO. Is the proposal accepted it becomes an official development project with own resources aiming to create a prototype. Here the innovation process reaches the phase of realisation. The development of a prototype (product discovery) often happens in cooperation with clients. After the process changed from network/openness to hierarchy/closedness it now again becomes more open. In this example, this stage in the innovation process is based on a new form of project management, the so called scrum.

4.6 Scrum

SCRUM is a term from rugby. In a management context it indicates the idea of teamwork in development projects. Scrum is “a framework for management of complex projects” (Wirdemann 2009: 26). This form of project management became known as team-based model in software development. Here, it is nowadays a basic standard. Scrum is rooted in knowledge management and was described for the first time by Takeuchi/Nonaka as a procedure of developing new products (cf. Takeuchi/Nonaka 1986). But only 10 years later it is picked up and developed further as an approach for management of agile software projects (cf. Schwaber/Beedle 2002). “As an agile framework, Scrum embodies the values of the Agile Manifesto. (...). It puts humans at the centre of software development (individuals and interactions, collaboration). After all, software is only created through interaction and collaboration between people. Rather than focusing on technology or tools, Scrum demands and encourages collaboration between stakeholders” (Pichler 2009: 1). Scrum connects the values of the “2.0 movement” (self-organisation, collaboration with customers/users) with the principles of lean production. “From the beginning, Scrum was influenced by new innovative ways of product development in Japanese enterprises” (Pichler 2009: 3). Central elements of lean production (decentralisation, teamwork and self-organisation, kaizen, pull principle to avoid overload of work capacity etc.) are radicalised and transferred onto knowledge work.

The framework consists of simple *rules and principles* and the interplay of a few *roles for team members* (the product owner who represents the customer perspective; the scrum master who is not a project leader; team members), *meetings* (sprint planning 1 and 2, daily scrum meetings, review and retrospective) and *artefacts* (vision, product backlog, selected product backlog and sprint backlog). The principles are very close to the principles of the Agile Manifesto (see above) specified by transparency, continuous monitoring and adaption of priorities, time boxing (segmentation of the work load into sprints), finalisation from sub tasks, focus on results.

A scrum team “is empowered: The scrum team decides itself (...) how much work could be completed in a solid way. (...) The scrum team is autonomous: The team has to be able to reach the sprint target without external dependencies. (...) The scrum team should have an interdisciplinary composition: All competencies necessary to realise the targets have to be represented in the team. (...) The scrum team is self-organised: The members decide what tasks are to deal with and who carries it out” (Pichler 2009: 13 ff.). Scrum teams contain five to nine persons) who work fulltime in the team and who could meet daily. The scrum master has to make sure that the team works along the scrum rules and has to shield the teams against annoying influences. In case of conflicts, he or she has to interfere. Furthermore he or she has to make sure that the members don’t work more than 8 hours per day and not more than five days a week.

At the beginning of the process someone has the vision of a new product. He or she is the product owner developing and prioritising together with a user or a client the product items. Together with the members of the scrum team, the tasks for its realisation (and the estimated effort) are listed in the product backlog. Subsequently the whole project duration is separated in sprints of two to four weeks. In sprint planning meeting 1 the decision is taken what functionalities are to be developed first (documented in the selected product backlog). In sprint planning meeting 2, on the basis of the selected product backlog the team develops the plan for concrete realisation (sprint backlog). The following phase is characterised by self-organisation (including the choice where and how to use digital media). No rules except one are given: the

daily scrum. This is a five minutes face-to-face meeting not for solving problems but for getting an overview over the state of development. Every member has to report what he or she has achieved since the last meeting (previous day), what he or she wants to achieve up to the next meeting (next day), and what obstacles can be expected. At the end of every sprint, the finished part of the product is presented in the sprint review meeting to the product owner. Afterwards, in a retrospective discussion, the team comments on the each team member's description looking for further improvement in the next sprint.

Scrum has a high affinity to open innovation (wide approach); at the same time, it is an example for non-digital and non-technological methods. It is a good example for social innovation targeting at the change of routines in innovation processes. Even if scrum is practised above all in software development it has a high potential for utilisation in other contexts of innovation-orientated knowledge work.

5. Conclusions

Enterprises have to realise a massive loss of control in many aspects, e.g. with respect to the assessment of product quality, prices, conditions of production via internet (cf. Schönefeld 2009: 35 ff.), and they have to accept the loss of their independence and sovereignty in innovation in many cases. The influence and the importance of external actors, in particular of customers and users, increase in all respects. More and more enterprises have not only to deal with those actors, as a source of problem information but also a source of solution information. At the same time, an increase of knowledge intensity in the development of products and services can be observed, combined with shrinking innovation life cycles. Today management has to be innovation management, i.e., it has to design and implement work contexts for knowledge workers who need freedom to follow own ideas, freedom to communicate and interact with peer groups (including external actors), freedom for self-organisation. As shown by our examples from the integro project, the design of work contexts for knowledge workers cannot refer only to hierarchical elements in decision making and collaboration in the innovation process. The integro project found the most advanced designs in so-called enterprises 2.0. The management of enterprises 2.0 integrates network-based activities and hierarchy-based activities into the innovation process. The core competence consists in configuring the socio-digital profile of the enterprise, based on a selection of non-technological (e.g. open space, peer group time, scrum) and digital elements (e.g. weblogs, wikis) under conditions of openness. This includes extending the social frontiers (employees, cooperation partner etc.), horizontal and vertical frontiers of value creation, intra- and inter-organisational frontiers and the limitations of freedom. Configuration competence includes the principal design of frames for activities and interaction between knowledge workers. Reichwald/Piller indicate this as "interaction competence" (cf. 2009). Management has to develop structures and competencies for multilevel interactions (e.g. with environment, clients, partner, own employees). Management even has to build up or at least to stimulate competencies and motivation for collaboration of external actors. Finally configuration competence includes the coordination of consistent IT landscapes and the establishment of a fully consistent and effective knowledge management as well as the assertion of a minimum basic code of conduct, a network-prone vision and the open evaluation of the attractiveness of the individual parties in the interaction (cf. Kruse 2009: 146).

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