Community engineering for innovations: the ideas competition as a method to nurture a virtual community for innovations

Winfried Ebner[1], Jan Marco Leimeister[2] and Helmut Krcmar[3]

[1]Deutsche Telekom AG, Friedrich-Ebert-Allee 71-77, 53113 Bonn, Germany; winfried.ebner@telekom.de
[2]Universität Kassel, Nora-Platiel-Straße 4, 34127 Kassel, Germany; leimeister@uni-kassel.de
[3]Technische Universität München, Boltzmannstraße 3, 85748 Garching bei, Munich, Germany; krcmar@in.tum.de

'Crowdsourcing' is currently one of the most discussed key words within the open innovation community. The major question for both research and business is how to find and lever the enormous potential of the 'collective brain' to broaden the scope of 'open R&D'. Based on a literature review in the fields of Community Building and Innovation Management, this work develops an integrated framework called 'Community Engineering for Innovations'. This framework is evaluated in an Action Research project – the case of an ideas competition for an ERP Software company. The case 'SAPiens' includes the design, implementation and evaluation of an IT-supported ideas competition within the SAP University Competence Center (UCC) User Group. This group consists of approximately 60,000 people (lecturers and students) using SAP Software for educational purposes. The current challenges are twofold: on the one hand, there is not much activity yet in this community. On the other, SAP has not attempted to systematically address this highly educated group for idea generation or innovation development so far. Therefore, the objective of this research is to develop a framework for a community-based innovation development that generates innovations, process and product ideas in general and for SAP Research, in particular, combining the concepts of idea competitions and virtual communities. Furthermore, the concept aims at providing an interface to SAP Human Resources processes in order to identify the most promising students in this virtual community. This paper is the first to present an integrated concept for IT-supported idea competitions in virtual communities for leveraging the potential of crowds that is evaluated in a real-world setting.

1. Introduction

1.1. Open innovation and the wisdom of crowds

Large Groups of people are smarter than an elite few, no matter how brilliant – better at solving problems, fostering innovation, coming to wise decisions, even predicting the future (Surowiecki, 2005).

Surowiecki's bestseller 'The Wisdom of Crowds' highlights the potential of a new paradigm: Open

 © 2009 The Authors. Journal compilation © 2009 Blackwell Publishing Ltd. 2009, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA.

Innovations. Traditionally, research and development departments are the main drivers of a company's innovations. Now, the tendency to open up to other resources of innovations has become more and more important – e.g., employees, suppliers or universities (Surowiecki, 2005).

Jeff Howe captures this new approach with the phrase 'Crowdsourcing'. He describes this phenomenon as 'everyday people using their spare cycles to create content, solve problems, even do corporate R&D' (Howe, 2006).

The literature describes the integration of customers as one of the biggest resources for external innovations (cp. Gassmann and Enkel, 2006; Wagner and Prasarnphanich, 2007). Customer integration is a mode of value creation in which customers take part in both operational and innovation value-creating activities, which used to be seen as the domain of the firm (cp. Tseng and Piller, 2003; Piller and Walcher, 2006; Reichwald and Piller, 2006). Drawing on these results, Chesbrough (2003, b) argues that the closed innovation paradigm has become obsolete due to four erosion factors:

- The increased availability and mobility of skilled technology workers.
- The expansion of the venture capital market.
- External options for unused technologies (sitting on the development shelf).
- The increased supply of highly capable external suppliers.

He illustrates the new paradigm in the context of industrial research and development within Figure 1. There are two critical assumptions:

- Crowdsourcing opens the company's innovation funnel – the scope for screening ideas. Therefore, the company gains more ideas for innovations.
- 'We is smarter than me' is the basic assumption of open innovation. This leads to better selection of ideas and better development of innovations (cp. Hazard, 2007; Laubacher, 2007).

The literature provides useful concepts and tools to reduce traditional organization boundaries (cp. von Hippel and Katz, 2002; Franke and Piller, 2004; Enkel and Gassmann, 2005; Piller and Walcher, 2006). Toolkits for user innovation are an emerging alternative approach in which manufacturers reduce their attempts to understand user needs in favour of transferring need-related aspects of product and service development to users themselves.

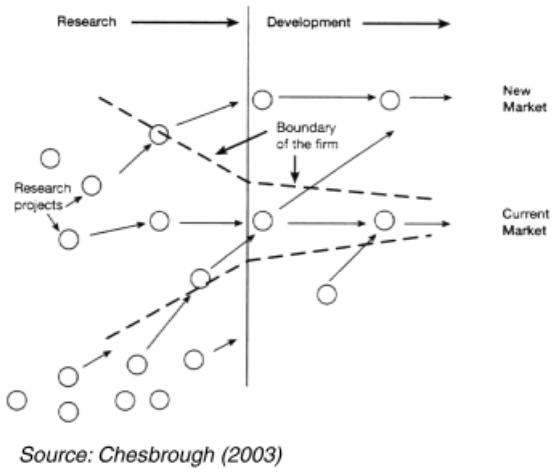


Figure 1. Open Innovation Paradigm for Managing Industrial Research and Development.

In addition, existing virtual communities (VCs) as a 'natural' aggregation of (potential) customers can also serve as the basis for the leveraging of innovative ideas. An example is the IT-supported ideas competition on which there is limited research (cp. Ernst et al., 2004; Walcher, 2007). Here, we develop an IT-supported ideas competition to improve existing ERP software.

1.2. Structure of this article

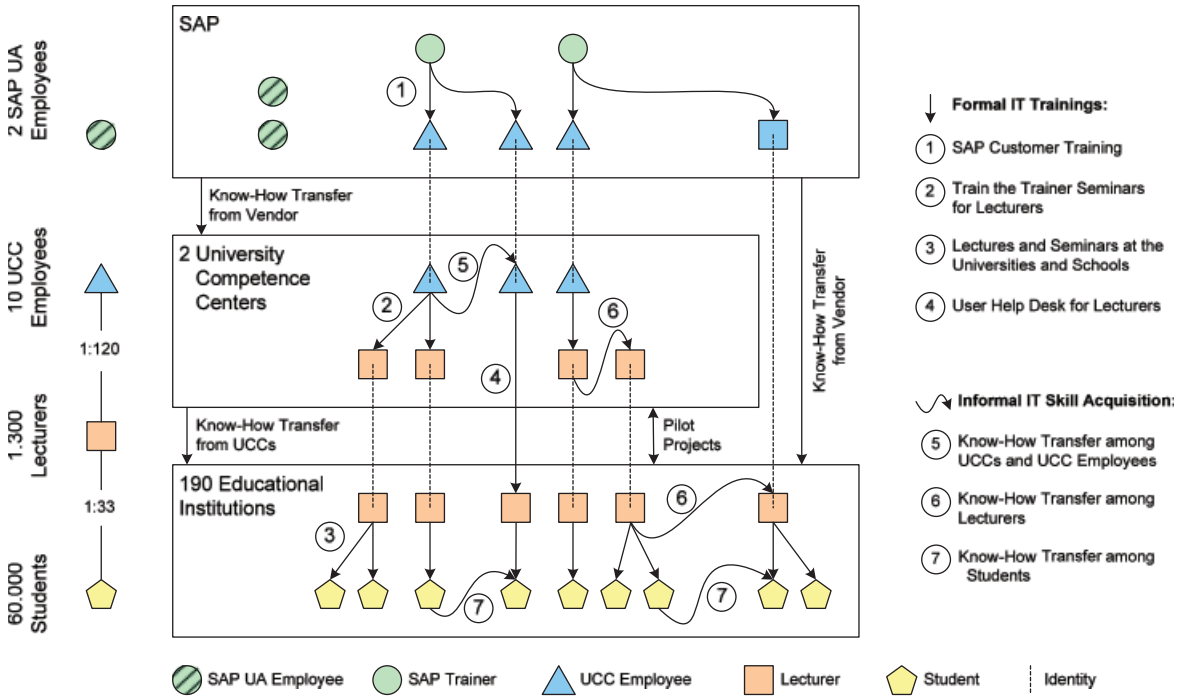
This article is organized as follows: the following section identifies the main stakeholders of the case background and describes their relationships. Section 2 presents a literature review and the theoretical background. In Section 3, the motivations of different stakeholders are analysed and the ideas competition is elaborated. Section 4 provides insights on the implementation of the ideas competition. Within Section 5 selected topics of the ideas competition are evaluated. Section 6 summarizes the managerial implications and provides an outlook for future research.

1.3. Case background

The SAP University Alliances (UA) programme is an initiative by SAP to provide university faculty with the tools and resources necessary to teach how technology can enable integrated business processes and strategic thinking (cp. Schrader et al., 2007).

The SAP University Competence Centers (UCC) of both the Technische Universität München and Otto-von-Guericke-Universität Magdeburg are

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd



Source: Adapted from Mohr (2006)

Figure 2. Qualification Concept and stakeholders of the SAP University Competence Center (UCC) Programme.

part of the SAP UA programme and offer an education service, supporting SAP systems for institutions of higher education and vocational schools. The UCC meets the requirements of lecturers using SAP systems in teaching and education (Schrader, 2005).

Specifically, two issues are addressed. One, the core of the support is application service provision, which includes hardware, installation, maintenance, backup and technical support. Two, the UCC provides 'Education Specific Services' including application support, train the trainer courses, teaching cases and teaching notes.

Figure 2 identifies the different stakeholders and the qualification concept of the UCC User Group.

The total SAP UCC User Group Community surpasses 60,000 users, most of whom are students. The two-tier organization of the UCC Program is important for the concept of the ideas competition. As shown in Figure 2, the UCCs – with 10 employers – train the trainers (see ②), while the trainers/lecturers have direct contact with university students, e.g., during an ERP-seminar (③). Besides these formal sessions, *informal* IT Skill Acquisition is supported by a VC in this UA Program. In promoting the idea of an ideas competition, the lecturers play a critical role in terms of motivation and support of the students.

2. Theoretical backgrounds

This research is designed as an action research study. As the research object of an 'ideas competition' is new and the extant research is limited, theories about the research object do not exist. Stating and validating hypotheses purely deduced from theory, common in empirical–analytical research designs, cannot be applied here.

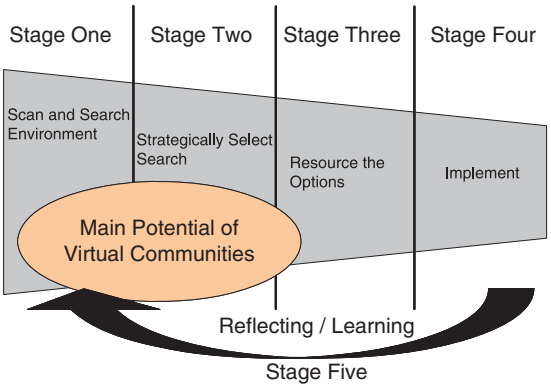
In addition, the external validity of potential results is limited and the transfer of results to other domains is problematic. According to Ulrich, 1981, explorative research starts '(...) in practice, is focused on analysing the context of use and ends in practice'. The intention of this research is to design reality, following the tradition of the action research method (Rapoport, 1970; Lau, 1997).

2.1. Innovations and communities

In order to understand the relationship between *Innovations* and *Community*, we adopt the stage model of innovation (2005). Figure 3 identifies in which phases of the innovation process communities have the strongest impact.

Knowing the potential and possibilities of VCs, it is probable that the main support of VCs occurs

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd



Source: Adapted from Tidd et al. (2005)

Figure 3. Process of innovation management and potential support of virtual communities.

within the first two stages ('Scan and Search Environment' and 'Strategically Select Search') of the innovation management process. It is also possible to use VCs for the reflection and learning phase (stage five). Crowdsourcing as described in Section 1.1 levers all five stages of the innovation management process.

Therefore, these stages should be addressed by other organizational options or a connection between internal and external innovations within an organization (Chesbrough, 2003a, b).

The importance of Community Building as a research topic emerged with the development of the world wide web and the ongoing virtualization (Leimeister, 2005). Starting with the economic perspective of Hagel and Armstrong (1997), this area developed to include business, sociology and psychology (cp. Figallo, 1998; Brunold et al., 2000; Kim, 2000; Preece, 2000; Balasubramanian and Mahajan, 2001; Bullinger et al., 2002; Hummel and Lechner, 2002; Döring, 2003).

However, in-depth research in virtual community building for nurturing innovations received very limited attention (cp. von Hippel, 2005).

For the purpose of this research, we use a multidisciplinary approach to define 'VC'. According to Preece, '(. . .) an online community consist of:

- People, who interact socially as they strive to satisfy their own needs or perform special roles, such as leading or moderating.
- A shared purpose, such as an interest, need, information exchange or service that provides a reason for the community.
- Policies, in the form of tacit assumptions, rituals, protocols, rules and laws that guide social interactions.
- Computer systems, to support and mediate social interaction and facilitate a sense of togetherness' (Preece, 2000).

Within this definition, the German SAP UCC User Group is a large VC with significant resources for leveraging innovative ideas. These four criteria frame the discussion of the occurrence and characteristics of ideas competitions in the following section.

2.2. Idea competitions

2.2.1. Occurrence in practice

As described above, communities support the innovation process in the early stages.

Drawing in Figure 3, the ideas competition is not an innovation because the sourcing and the implementation of the ideas are not achieved by a single competition of ideas. Although there is limited research in the field of ideas competition, this mechanism is often used in practice to generate ideas. Previous research is limited to announcements or documentations of ideas, especially in the field of architecture (cp. Prüfer, 2004; Suthhof, 2005).

We conducted a web-based search in order to identify ideas competitions of the last 2 years. Searching for the term 'Ideas Competition' via Google leads to an overwhelming amount of 76,000,000 hits. The competitions examined here were selected by the following criteria: topic (new product development), accessibility of information (e.g., more than just an announcement) and actuality (conducted since 2005).

Table 1 shows a selection of the results – present ideas competitions for students.

Table 1 shows that organizations use ideas competitions in very different ways and with a wide variety of topics. To develop a more specific picture of ideas competitions, the following section analyses their characteristics.

2.2.2. Characteristics of ideas competitions

As the literature has not categorized ideas competitions yet, the following systematization is derived from the analyses of current ideas competitions and also includes some characteristics from early research on idea competitions (cp. Walcher, 2007). These are summarized in Table 2.

The analysis of the idea competitions shows that, although a great diversity exists in the composition of the various components, several trends and best practices can be deduced.

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

Table 1. Selected examples of ideas competitions for students

Organizer: name of competition (website)	Topic
IBM: Global Innovation Jam (http://www.globalinnovationjam.com/get_started2006/)	Innovation Jam is not only just a large on-line brainstorm. The Jam's goal is to move beyond simple invention and idea generation. IBM wants to identify new market opportunities and create real solutions that advance businesses, communities and society in a meaningful ways
Idea Crossing: Innovation Challenge (http://www.innovationchallenge.com/)	The Innovation Challenge is the chance for MBA students to create an innovative solution to a real-world challenge faced by the sponsors of the competition. The teams research, brainstorm and present a unique concept to a global panel of innovation though leaders and practitioners
Initiative D21 (Siemens): Vision2Market (http://www.initiatived21.de/english/lighthouse/vision2market.php)	Coming up with innovative products, services or processes. In three phases the best ideas are chosen and then led through a test market with professional help and financial support of respected coaches from economy, politics and society
Microsoft: Imagine Cup (http://imaginecup.com/)	The Imagine Cup encourages young people to apply their imagination, their passion and their creativity to technology innovations that can make a difference in the world today. The Imagine Cup has grown to be a truly global competition focused on finding solutions to real world issues
Motorola: Motofwrd (http://promo.motorola.com/motofwrd/us/index.html)	Create the future of seamless mobility in a world without borders. Descriptions by short stories (fiction), essay/white papers (non-fiction), (animated) short films, comic strips or digital arts
ThyssenKrupp: Formula Student Germany (http://www.zukunft-technik-entdecken.de/) (http://formulastudent.de/)	Investment in the engineers of the future and support of Formula Students an international competition in which students design and build a racing car. Formula Student challenges the team members to go the extra step in their education by incorporating into it intensive experience in building and manufacturing as well as considering the economic aspects of the automotive industry
Unternehmertum: Innovation Competition (http://www.unternehmertum.de/mobilitaet)	Development of marketable ideas in the area of mobile information and communication services, product and services to increase energy and time efficiency, safety and comfort and new forms of mobility

Source: Ebner et al. (2008).

Table 2. Characteristics of ideas competition

Criteria	Characteristic values (examples)
Organizer	Companies, public organizations, non-profit organizations, individuals
Timeline	Very short (s/min), short (days), middle (weeks), long term (semester)
Evaluation	Performance-oriented, participation-oriented
Incentives	Money prizes, non-cash prizes
Context	Products, processes
Problem specification	High (searching for a solution of a specific problem), low (general)
Elaborateness	Complexity, quality, condition
Targeted group	Qualified (by age, interests), not qualified
Composition of groups	Single, team
Idea reviewers committee	Specialists, non-professionals (VIPs)
Idea review	Person, process, context, product
Nature of competition	Online, offline, mixed

Source: Author's presentation.

The competition's organizer typically represents a collaboration between an industry partner and an academic institution. Such partnerships are used to primarily target students as participants in the competitions. While some of these competitions only pursue the generation of ideas for innovation, a number also have secondary objectives including networking with students or fostering students' interest in specific industries or organizations.

For the target group of students, tasks are kept generic, offering the participants a large solution space in which to submit their ideas. Although not required, students are frequently offered the choice of participating in small groups with a faculty mentor. Submissions in the initial phases of idea competitions include a brief description of ideas with length limited to five pages. Incentives for participation comprised cash prices of upwards of 1,000 euro, networking and job opportunities with the organizing companies. Other

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

incentives provide the participants with the opportunity to further develop their ideas, offering project and development support. Evaluations, with the exception of Crowdsourcing competitions, are carried out by juries, and the community rarely evaluates other submitted ideas.

The typical duration for an idea competition targeted at students is between 4 and 26 weeks.

Depending on how closely a competition is correlated to the primary business field of the organizing company, the name and website will be integrated into the organizer's website or spun off with a separate website and name to develop an individual brand name for the competition.

2.2.3. Working definition of idea competition

Based on the discussed characteristics, a working definition of an 'ideas competition' is stated as follows:

> An ideas competition is the invitation of a private or public organizer to a general public or a targeted group to submit contributions to a certain topic within a timeline. An idea-reviewers committee evaluates these contributions and selects the rewarded winner(s)a-dapted from Walcher (2007).

This definition serves as the starting point for the concept of the ideas competition that is developed in the next section.

2.3. Trust in the context of idea competitions and VCs

Trust in VCs is acknowledged to be important for generating an environment in which users share their knowledge and expertize (Maloney-Krichmar and Preece, 2003). Within a competitive setting such as an ideas competition, trust is even more important. It is critical for the success of the ideas competition to assure that users comment and evaluate the ideas of others in a reasonable manner.

Trust has been defined from several scientific perspectives – e.g., sociology, philosophy, socio-psychology and economics (Abdul-Rahman and Hailes, 2000). For the purposes of this study, we follow the definition by Gambetta (1990):

> . . . trust (or, symmetrically, distrust) is a particular level of the subjective probability, with which an agent will perform a particular action, both before [we] can monitor such an action (. . .) and in a context in which it affects [our] own action.

Based on this definition of trust, social scientists have generally identified three types of trust (Abdul-Rahman and Hailes, 2000):

(1) *Interpersonal Trust*: The type of trust one agent has in another agent on a personal level. This trust is both agent- and context-specific. For example, Jane may trust Peter regarding a consulting service for financial assets but may not trust him in the context of babysitting her children.
(2) *System Trust*: This type of trust is not based on any property or state of the trustee as defined in interpersonal trust. Instead, it is based on the perceived property or reliance on a system or an institution within which trust exists, for example, the monetary system.
(3) *Dispositional Trust*: Describes the general attitude of the person seeking trustworthiness towards trust. Therefore, it is also called 'basic trust', which means it is independent of any other party or context.

These three types of trust differ in the way in which they can be established within a VC. Interpersonal trust and System trust can be attained more easily than Dispositional trust (cp. Leimeister et al., 2005). Consequently, the evaluation section will focus on establishing Interpersonal and System trust in VCs.

3. The concept of the ideas competition

After laying the theoretical groundwork by discussing innovation, VCs and ideas competitions, the following section presents the ideas competition for the SAP UCC Community.

Firstly, we analyse the motivation and interest of the stakeholders. Secondly, we plan the phases of the actual competition.

3.1. Motivation and interests of stakeholders

In this section, the different interests and motivations of the competition's stakeholders are analysed. The different stakeholders are derived from Figure 2 and Table 2: (1) Organizer, (2) Research and Development Department, (3) Human Resources (HR) Department, (4) University Alliances Program, (5) Lecturers and (6) Students.

(1) *Organizer*: The idea competition is organized by the research team of the project 'SAP Community for Innovations'. Their primary

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

interest is to discover how ideas competitions can help to scan and search the environment and strategically select innovative ideas from a dispersed crowd of people.

(2) *Research and Development Department*: Research and Development of the ERP-company can receive innovative ideas from people dealing with the SAP software (but not as customers yet) without much effort to retrieve that information. To do this, they are defining interfaces to several research and product development groups within the company. The importance of innovative ideas is underlined by the statement of the firm's CEO: 'What counts is the speed of transformation – and the business benefits of the new technologies. Innovativeness is the key factor in SAP's success' (Kagermann, 2006).

(3) *HR Department*: The motivation of the HR Department is to identify the most promising students in this VC. By using the tool of an 'ideas competition', which exhibits the phenomenon of self-selection among the participating students, the HR Department will find (a) the more active students and (b) students who do have a positive affinity to SAP as a product and firm.

(4) *UA Programme*: The SAP UAs programme provides university faculty members with the tools and resources necessary to teach students how technology can enable integrated business processes and strategic thinking – and gives students the skills to add immediate value to the marketplace. Through the ideas competition, the programme services for the SAP UCC User Group Community are enriched and activity within the User Group is fostered.

(5) *Lecturers*: In general, they have extensive teaching responsibilities at their own institution and therefore try to limit their commitment to and time spent on SAP teaching. Extrinsic motives for this group are free usage of UCCs' services (as their own educational institution pays for that) and the possibility to raise reputation within the user group (Mohr et al., 2006). They also have intrinsic motivation to learn about SAP products.

(6) *Students*: Students are the most heterogenic group of stakeholders. They are dispersed over all educational institutions participating in the SAP Global University programme. Their primary motivation is to get rewarded for their idea submitted to the competition. In addition, they do have the possibility to gain a better impression of SAP as a potential future employer.

3.2. The concept of an ideas competition

3.2.1. Definition of characteristics

For the ideas competition, the following specifications of the characteristic values (based on Section 2.2.2) are planned (Table 3).

Table 3. The ideas competition: specification of characteristics

Criteria	Specification of characteristic
Organizer	Public organization: project 'Community for Innovations'
Timeline	Middle: 12 weeks with three phases
Evaluation	Performance-oriented: selection of best ideas by UCC, SAP UA and SAP research
Incentives	Mixture of non-cash prizes and cash prizes: Lecturers: 1st: gift certificates for SAP UA services/software 1st–3rd: on SAP consulting day Students: 1st: 2000 euro cash and SAP training week + SAP certificate (worth: 12,000 euro) 2nd–5th: 200 euro cash and 1 UA UCC training week
Context	New areas of application/new business segments New products/improvement of existing software
Problem specification	Middle: explaining the context and problems customers do have
Elaborateness	Complexity, quality, condition: The teams do have to provide an idea title, description, technological background, benefit for the customer and an attachment for mockups/illustrations
Targeted group	Qualified: students and lecturers in the field of SAP education
Composition of groups	Team: at least on student together with his lecturer as mentor
Idea reviewers committee	Specialists: members of UCC, SAP UA and SAP research
Idea review	Process and product: creativity, presentation, practicability
Nature of competition	Online: providing and online platform to submit ideas

Source: Author's presentation.

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

As we know from other analysed ideas competitions, a *key success factor* is the incentive structure for the expected participants. Because of the need for idea mentoring, lecturers and their students are considered as one team in this setting. An online webpage is provided for all participants with relevant information about the context (processes and products) and procedures of the competition. Additionally, lecturers receive course material for presentation in their classes.

3.2.2. Process of ideas competition and integration of stakeholders

The ideas competition was structured according to the following process: within the pre-phase, expert discussions took place with selected lecturers. The objective was to engage this group of stakeholders (with 'direct access' to their students) at a very early stage of the process. In addition, their expectations and concerns could be addressed in a timely manner. The ideas competition started in the middle of the semester term with the idea generation, followed by students attending a class with a presentation held by the lecturer and gaining access to the ideas competition online platform (http://www.SAPiens.info) to submit their ideas. Figure 4 illustrates this process.

The *SAPiens* (registered users) were asked to submit ideas with a maximum length of 1.5 DinA4 pages. The submission was structured according to the following headings: title, description, functionalities, specialities, potential implementer and expected benefit. To illustrate the idea, *SAPiens* could upload an attachment.

After the submission phase, the ideas were reviewed online by the assigned committee/mentors. The following criteria were applied to identify the award-winning ideas (Table 4).

Telephone conferences helped to identify the three winning teams out of the 15 best-ranked teams. Table 5 shows the 15 best-ranked ideas of the online evaluation.

The score that defines the rank of ideas ('JuryEval') is calculated by the average of weighted grades (from '1 = strong agreement' to '5 = strong disagreement') assigned to each dimension of the evaluation criteria (see Table 4).

A top management representative of SAP research took part in the evaluation process of ideas. He summarized the qualities of the ideas as follows:

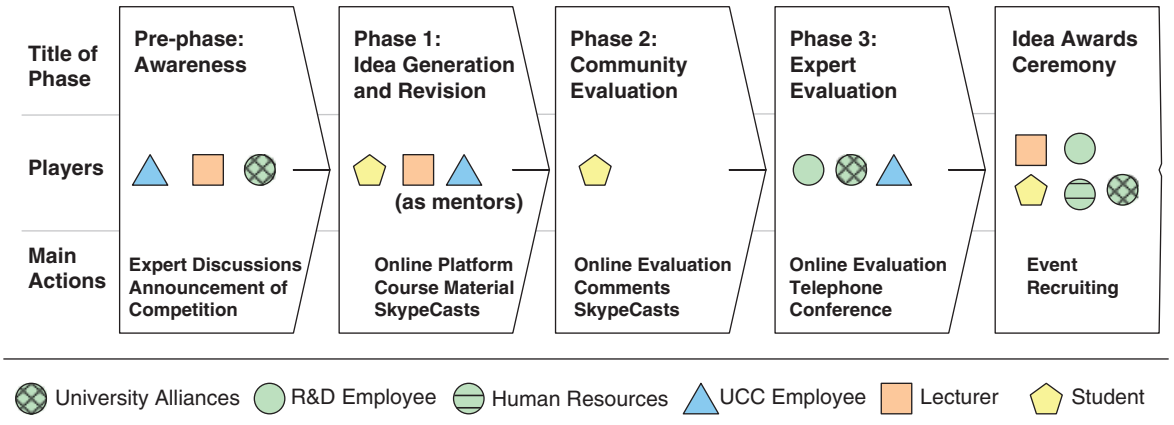
> We were amazed by the diversity and high quality of the ideas brought to SAP by SAPiens. For us, the ideas competition is an alternative to innovation workshops with experts from our own company.

The 15 best-ranked teams were invited to a workshop at SAP to develop two selected ideas to a business case. The closing of the workshop was the *Idea Awards Ceremony*, which took place as the highlight of the annual UCC User Group Meeting.

4. Implementing the Ideas competition

This section provides an insight on the ideas competition:

> We are seeking for SAPiens – Masterminds who want to take part in designing the future of SAP and like to win great prices.



Source: Author's presentation

Figure 4. Process of ideas competition.

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

Table 4. The ideas competition: dimensions and criteria of evaluation

Evaluation dimension	Evaluation criteria	Description
Creativity	Originality	The degree in which the idea is novel and unique
	Degree of Innovation	The idea is a new combination of factors, which can be utilized for economic benefit
Market potential	Customer benefit	The idea is practicable and creates and adds value for the customer
	User acceptance	An existing demand is met by the ideas
	Realizability	The realization of the idea is economically feasible
	Market size	The expected demand of the target market justifies the idea's realization
	Marketability	The idea can be commercialized
Quality	Comprehensibility	The idea is written in an understandable way
	Elaborateness	The length of the description is adequate
Business demands	Risk	The risk of failure is compensated by the potential benefit for the company
	Imitability	The idea is sticky to the company's products and can not easily imitated by competitors
Strategic Fit	Portfolio fit	The expected fit of the idea into the company's product portfolio
	Development potential	The idea is adaptable to new business requirements

Source: Author's presentation.

Table 5. Best-ranked ideas

Rank	Jury-Eval	Title of idea
1	1,733	SAP Userclick
2	1,75	Object Wiki
3	1,917	SAP 2.0 – Rethink Enterprise Software
4	1,933	SAP Re-Design with Image Patterns
5	1,967	Context-sensitive Search for Applications
6	2	Integrated Business Sustainability
7	2,033	SAP Bot/Instant Messenger Help
8	2,033	SAP-Script Cockpit
9	2,15	SAP User-Barometer
10	2,167	Location-Based Asset Management
11	2,233	MySAP Tags
12	2,3	'The new Wrinkles'
13	2,3	Pre-Customizing Software
14	2,4	SAP Quick Translation Addon
15	2,4	Relational Landscapes

Source: Author's presentation.

Using this slogan the ideas competition started on 30 April 2007 with an initial E-Mail to all lecturers of the UCC Community. An information package was provided and the lecturers were asked to announce the competition within their ERP lessons. In follow-up, several communication tools (e.g., newsletters, E-Mails, telephone calls, SAP system notices and postings at related student networking websites) were used to announce the ideas competition.

The competition website for the ideas submission phase is divided into four parts: (1) My SAPiens, (2) Community, (3) Communications and (4) Imprint. 'My SAPiens' provides the overview of submitted ideas and the profile of the registered user. Within the 'Community' area, users can review and comment on ideas of other SAPiens and see a list of all users. The 'Communication' area includes a Chat function, moderated SkypeCasts (with SAP Experts) and a discussion forum to address questions or search for new ideas. The 'Imprint' section provides further information about the competition, e.g., main topics of idea submissions, prices, procedures and the jury.

Finally, Figure 5 shows the navigation of the website together with a list of submitted ideas.

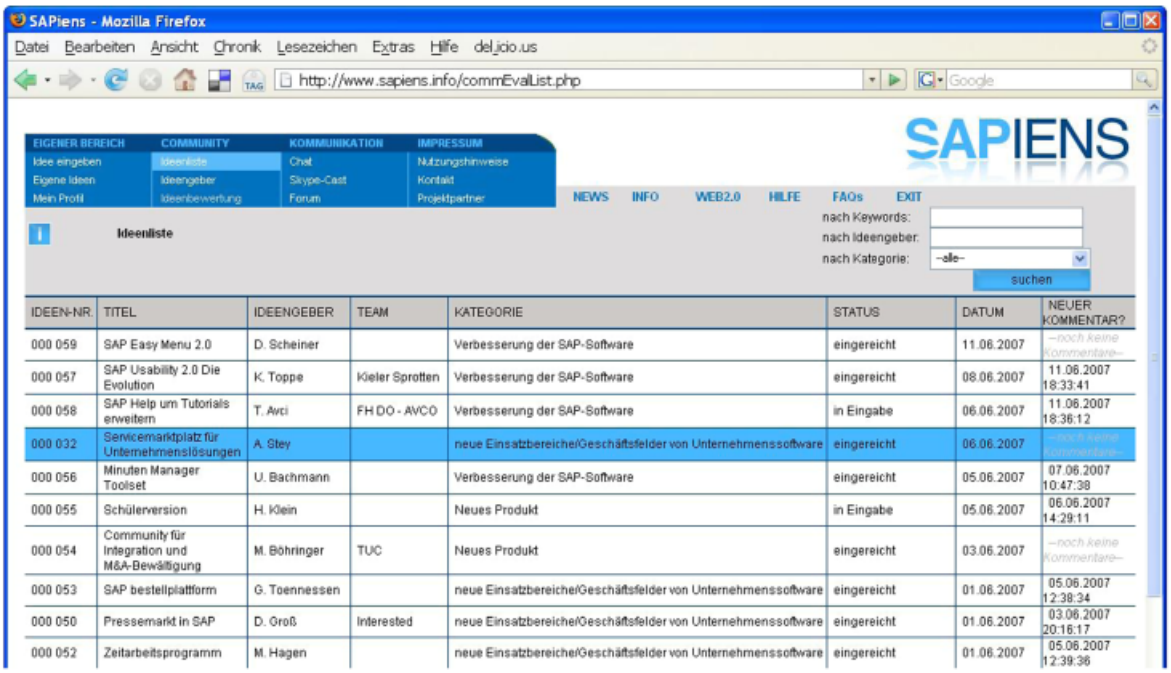
5. Participants' behaviour, motivation and trust

The participants' behaviour has been analysed using different methods. This is considered appropriate for improving the evaluation capacity of action research projects (cp. 2006): both quantitative methods such as log file analysis and management ratios as well as qualitative methods such as online questionnaire and analysis of documents were used to evaluate the ideas competition.

Table 6 shows the key figures of the ideas competition.

The proportion of registered users and idea presenters (users who submitted an idea) is considerable in Table 6. Even though registered users who do not present an idea are not eligible to win a prize, 68% of registered users have not submitted any idea. This refers to the phenomenon of

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd



Source: http://www.SAPiens.info, access date: 07/12/06

Figure 5. Website of the SAPiens Ideas Competition – list of ideas.

Table 6. Key figures of SAPiens ideas competition

Characteristic	Specification
Duration	04/30–06/07/2007
Registered users	220
Idea presenters	70
Submitted ideas	100
Comments of ideas	237
Evaluated ideas by community	593

Source: Author's presentation.

'lurking', but in the sense of helpful 'peripheral participation' (cp. Yeow et al., 2006).

The main evaluation was conducted by an online questionnaire addressed to *SAPiens* at the end of the competition. Table 7 summarizes the important design parameters.

To measure the effect of prizes on behaviour, we asked the following question:

> Which category of prizes has motivated you to participate in the ideas competition?

Figure 6 shows that monetary incentives are not the strongest motivators. Instead, product-related training offerings had the highest motivational value. Overall, prizes were perceived as positive.

To strengthen community building among users, 15 community prizes (books) were awarded

Table 7. Design parameters of online questionnaire

Method	Online Questionnaire
Foundation	Literature review and documents' analyses
Data collection period	06/25–07/06/2007
Possible participants	220
Responders/response rate	73 Questionnaires 33.2% response rate
Organization of questionnaire	5 Categories of questions: Communications Motivation Functionalities and usage Trust Overall evaluation
Number and type of questions	37 Questions; check-boxes, lists, yes/no, 5 scale of agreement and free text

Source: Author's presentation.

to the *SAPiens* of highest activity within the community. The following question addressed the effect of this specific type of award (Figure 7):

> Which activities have you undertaken due to the announcement of the community activity-awards?

Overall, the provision of prizes influenced the level of participation and was an important design parameter in the idea competition concept.

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

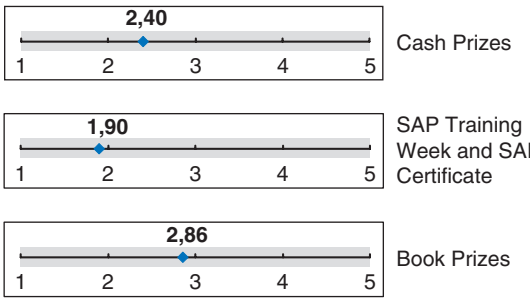
In order to identify the other motivators for participation, we asked:

> How much did the following factors motivate you to participate in the ideas competition?

The strongest motivators are the creative challenge of the competition and the opportunity to come in closer contact with SAP and to learn more about the company's products, as shown in Figure 8.

The literature reports that there are two major trust-supporting factors in the development of trust: *Interpersonal trust* and *System trust* (Leimeister et al., 2005). The following questionnaire items address *System trust* (Figure 9):

> s1: The *SAPiens*-Organizers are trustworthy.
> s2: The *SAPiens*-Organizers support me while having questions about the ideas competition.



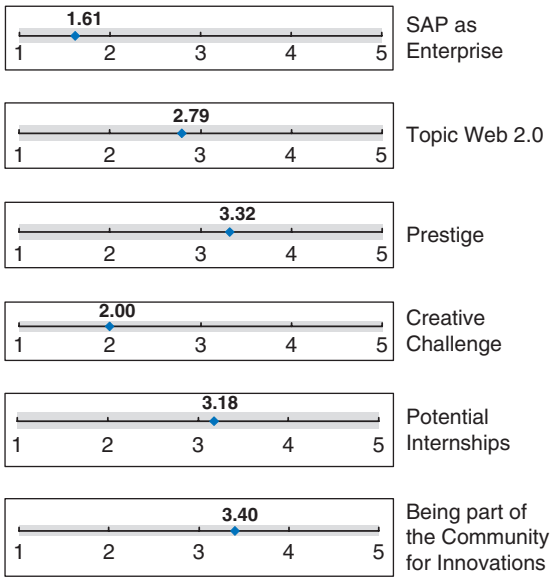
Source: Author's presentation

Figure 6. Mean of prize evaluation as motivation. ($n = 72$, 1 = 'very motivating'; 5 = 'not at all motivating', medium standard deviation in between '1.18' and '1.23').

Both trust in and support from the organizers of the idea competition are very high. As a consequence, *System trust* – the perceived reliance on the idea competition system (cp. Section 2.3) – is very high, too.

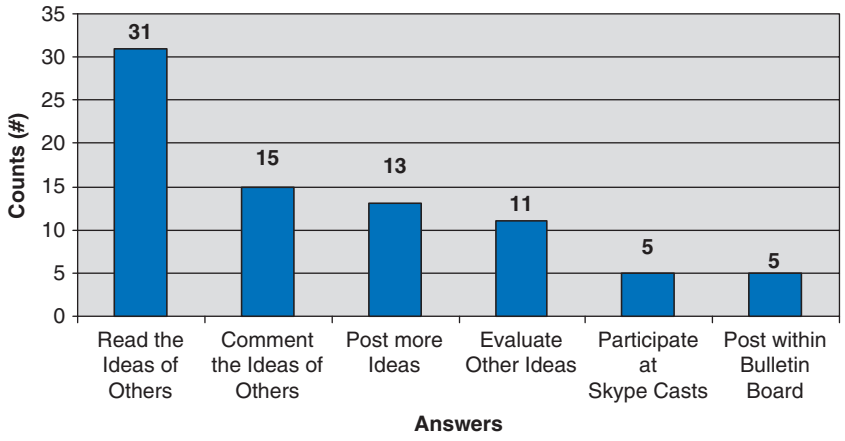
The following three statements target *Interpersonal trust* aspects and focus on the peers in the competition (Figure 10):

> s3: Other *SAPiens* are trustworthy.
> s4: Other *SAPiens* support me while having questions about the ideas competition.



Source: Author's presentation

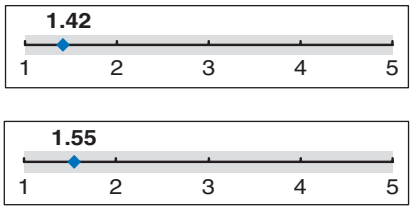
Figure 8. Motivational factors for participation. ($n = 72$, 1 = 'very strong agreement'; 5 = 'very week agreement', medium standard deviation in between '0.86' and '1.41').



Source: Author's presentation

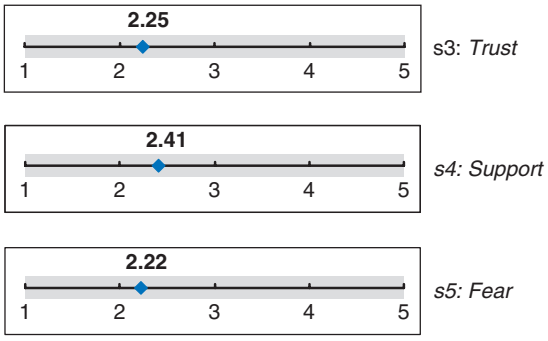
Figure 7. Community-based awards. (80 Answers in total – multiple answers allowed).

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd



Source: Author's presentation

Figure 9. Trust and support from organizers. ($n = 52$, 1 = 'very strong agreement'; 5 = 'very strong disagreement', low standard deviation in between '0.55' and '0.66').



Source: Author's presentation

Figure 10. Trust, support and fear from/of other SAPiens. ($n = 52$, 1 = 'very strong agreement'; 5 = 'very strong disagreement', medium standard deviation in between '0.76' and '1.07').

Source: Author's presentation

Figure 11. Tag cloud of words connected with *SAPiens*. Source.

s5: I do not fear that other *SAPiens* steal my ideas.

Although trust in peers is lower than trust in the organizers, it is still positive. There is no significant fear of idea theft. One *SAPiens* stated in open text question: 'I liked how opened the ideas were discussed – I have never seen that before'.

The last question of the questionnaire attempted to identify 'buzzwords' that *SAPiens* connect with the ideas competition after participating in it. Therefore, three free-form text fields were offered to answer the following question:

Which three words do you connect with the SAPiens ideas competition?

The answers are visualized with a tag-cloud, illustrating more frequently named terms in larger letters (Figure 11).

Judging from the most frequent responses given, the main objectives of the idea competition (idea generation, strengthening brand commitment and fostering innovation culture) were apparently achieved.

6. Conclusions, managerial implications and future research

- Based on the experiences and lessons learned from SAPiens 2007, we derive the following managerial implications for running an ideas competition to nurture a community for innovation:
- From an operator's perspective, it is very important that the main focus of the ideas competition is on the generation of innovative ideas for products and processes. Showing SAPiens that their ideas are valued – e.g., by management attention – drives everybody's motivation to participate. The search and identification of most promising students as future employees can be easily addressed. Integrating idea competitions into HR processes of a company seems to be very fruitful. A fit of wording and design of the information materials and websites to the companies' Corporate Design and HR processes seems to be a first step.
- The specific topic of the ideas competition should be wide enough to attract numerous participants and interesting enough to nurture relevant discussions. For instance, 'Web 2.0' as topic for the first SAPiens ideas competition was suitable for this target group.
- The incentive structure for participants needs to be attractive for the participants and appropriate for the firm. Participants invest considerable time and effort. Students for instance seek an adequate reward for their efforts spent in addition to their daily workload. In the case of SAPiens a mixture of cash and non-monetary prizes was a successful stimulation for both intrinsically and extrinsically motivated participants.
- From a managerial standpoint (as an operator and organizer of an idea competition), the most important success factor so far is that all

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

stakeholders have to participate at a very early stage of the ideas competition development. This seems to be the most effective way to make sure that both motivations and interests of all stakeholders are addressed adequately.

The SAPiens 2007 case yields the following research implications:

- Integrating the concept of an ideas competition into VCs is a very promising approach for all stakeholders. The special characteristics of VCs, including easy communication and coordination, do help to stimulate the ideas competition.
- The technical implementation of the ideas competition is not necessarily the key to success. Researchers have to keep the technical barrier as low as possible to attract innovators that do not necessarily have a strong affinity to information technology. Instead, the right communication instruments, a suitable motivational structure and trust-supporting elements (cp. Ebner et al., 2004) play the most important role in the success of an ideas competition and are the basis for nurturing a Community for Innovations.
- Lessons learned from the literature about open source projects show that it is difficult for organizations to initiate, build and nurture an external community for innovations (cp. West and O'Mahony, 2005; Jeppesen and Frederiksen, 2006; West, 2007). Taking this into account, the concept of the ideas competition presented in this paper builds upon an already existing community and tries to stimulate more activity among the members of this community.

Future work should also aim at developing more mechanisms to support and harvest the wisdom of crowds in selecting the best ideas. Furthermore, there is a conceptual gap between the generation and the selection of ideas and their transformation into innovations. We need to explore further methods, concepts and tools to support the processing of ideas into innovations, also using the wisdom of crowds.

In addition to the limitations of action research stated in Section 2, future work should address (among others) the following new open research questions:

- How could we apply the concept of this ideas competition to target groups other than students and scholars? Transferring the *Community for Innovations* concept to users of the software (e.g., in firms) is stated to be one of the most promising concepts for the future (cp. Riedl, 2007) – but what would need to be adapted and why?
- What are the theoretical implications for open innovation theory applying the concept of an 'ideas competition' e.g., when distinguishing between different cultures, target groups and product domains?

Generally, the interaction structures of such innovation communities require a deeper understanding. More research attention is needed to understand the antecedents, the structural elements, design parameters and the outcomes of idea competitions, especially in the context of innovation communities.

References

Abdul-Rahman, A. and Hailes, S. (2000) Supporting Trust in Virtual Communities. Proceedings of the 33rd Hawaii International Conference on System Sciences (HICSS 33), Maui, Hawaii.

Balasubramanian, S. and Mahajan, V. (2001) The economic leverage of the virtual community. *International Journal of Electronic Commerce*, **5**, 3, 103–138.

Brunold, J., Merz, H. and Wagner, J. (2000) *www.cyber-communities.de – Virtual Communities: Strategie, Umsetzung, Erfolgsfaktoren*. Landsberg/Lech, mi: Verlag Moderne Industrie.

Bullinger, H.-J., Baumann, T., Fröschle, N., Mack, O. and Trunzer, T. (2002) *Business Communities*. Bonn: Galileo Press.

Chesbrough, H.W. (2003a) The era of open innovation. *MIT Sloan Management Review*, **44**, 3, 35–41.

Chesbrough, H.W. (2003b) *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Boston, Harvard Business School Press Books.

Döring, N. (2003) *Sozialpsychologie des Internet: die Bedeutung des Internet für Kommunikationsprozesse, Identitäten, soziale Beziehungen und Gruppen*. Gö ttingen: Hogrefe.

Ebner, W., Leimeister, J.M. and Kcrmar, H. (2004) Trust In Virtual Healthcare Communities: Design And Implementation of Trust-Enabling Functionalities. 37th Hawai'i International Conference on System Sciences (HICSS 37), January 5–8, 2004, Big Island, Hawai'i, IEEE.

Ebner, W., Leimeister, J.M. and Kcrmar, H. (2008) Leveraging the Wisdom of Crowds: Designing an IT-supported Ideas Competition for an ERP Software Company. 41st Hawai'i International Conference on System Sciences (HICSS 41), January 7–10, 2008, Big Island, Hawai'i, IEEE.

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

Enkel, E. and Gassmann, O. (2006) Open Innovation. Die Öffnung des Innovationsprozesses erhöht das Innovationspotential. *Zeitschrift für Führung und Organisation*, **75**, 3, 132–138.

Ernst, H., Soll, J.H. and Spann, M. (2004) Möglichkeiten der Lead User-Identifikation in Online-Medien. In Herstatt, C. (ed.), *Produktentwicklung mit virtuellen Communities: Kundenwünsche erfahren und Innovationen realisieren*. Wiesbaden: Gabler, vol. XI, p. 375 S.

Figallo, C. (1998) Tools, Techniques & Trust. What makes a good virtual community? – Human and social perspectives. First International Conference on Virtual Communities, Bath, UK.

Franke, N. and Piller, F. (2004) Value creation by toolkits for user innovation and design: the case of the watch market. *Journal of Product Innovation Management*, **21**, 6, 401–415.

Gambetta, D. (1990) *Can We Trust Trust? Trust: Making and Breaking Cooperative Relations. D. Gambetta*. Oxford: Basil Blackwell.

Gassmann, O. and Enkel, E. (2006) Open innovation: die Öffnung des Innovationsprozesses erhöht das Innovationspotenzial. *Zeitschrift Führung und Organisation*, **75**, 3, 132–138.

Hagel, J. III and Armstrong, A. (1997) *Net Gain – Expanding Markets through Virtual Communities*. Wiesbaden: Thomas Gabler Verlag.

Hazard, I. (2007) We > me. We are smarter than me. Available at: http://www.wearesmarter.org, accessed September 07, 2006.

Howe, J. (2006) The rise of crowdsourcing. *Wired*, **06**, 6, 176–183.

Hummel, J. and Lechner, U. (2002) Social Profiles of Virtual Communities. 35th Hawaii International Conference on System Sciences, 35th HICSS.

Jeppesen, L.B. and Frederiksen, L. (2006) Why do users contribute to firm-hosted user communities? The case of computer-controlled music instruments. *Organization Science*, **17**, 1, 45–63.

Kagermann, H. (2006) Editorial of magazine. SAP-Info: the magazine of the SAP Group. Walldorf, SAP, 2006, 3.

Kim, A.J. (2000) *Community Building on the Web – Secret Strategies for Successful Online Communities*. Berkeley, CA: Peachpit.

Lau, F. (1997) A review on the use of action research in information systems studies. In DeGross, J.I., Lee, A.S. and Liebenau, J. (eds.), *Information Systems and Qualitative Research*, Chapman & Hall, pp. 31–68.

Laubacher, R. (2007) MIT Center for Collective Intelligence. Available at: http://cci.mit.edu/, accessed September 22, 2007.

Leimeister, J.M. (2005) *Virtuelle Communities für Patienten: Bedarfsgerechte Entwicklung, Einführung und Betrieb*. Wiesbaden: Deutscher Universitäts-Verlag.

Leimeister, J.M., Ebner, W. and Krcmar, H. (2005) Design, implementation, and evaluation of trust-supporting components in virtual communities for patients. *Journal of Management Information Systems*, **21**, 4, 101–135.

Maloney-Krichmar, D. and Preece, J. (2003) Online communities: Focusing on sociability and usability. The Human-Computer Interaction Handbook: Fundamental, Evolving Technologies, and Emerging Applications, Lawrence Erlbaum Associates, pp. 596–620.

Mohr, M., Wittges, H., Nicolescu, V., Krcmar, H. and Schrader, H. (2006) Einbindung und Motivation informeller Multiplikatoren im IT-Training am Beispiel Education Service Providing. In Krcmar, H., Rautenstrauch, C., Wittges, H and Schrader, H (eds.), *Wirtschaftsinformatik-Ausbildung mit SAP®-Software: Reader zum Track der Multikonferenz Wirtschaftsinformatik 2006 in Passau*. Eul: Lohmar, pp. 1–22.

Piller, F.T. and Walcher, D. (2006) Toolkits for idea competitions: a novel method to integrate users in new product development. *Research and Development Management*, **36**, 3, 307–318.

Preece, J. (2000) *Online Communities – Designing Usability, Supporting Sociability*. Chichester: John Wiley and Sons.

Prüfer, D. (2004) Ideen-Wettbewerb Bionik: Virotubes in Microsystems – Schlussbericht. Schmallenberg Hannover, Fraunhofer-Inst. f. Molekularbiologie u. Angewandte Ökologie.

Rapoport, R.N. (1970) Three dilemmas in action research. *Human Relations*, **23**, 4, 499–513.

Reichwald, R. and Piller, F. (2006) *Interaktive Wertschöpfung : Open Innovation, Individualisierung und neue Formen der Arbeitsteilung*. Wiesbaden: Gabler.

Riedl, S. (2007) SAP-Community-Portal vermittelt zwischen SAP-Profis und –Anwendern. Available at: http://www.it-business.de/themenkanaele/dienstleister/allgemein/articles/93708/, accessed October 11, 2007.

Schrader, H. (2005) Früh übt sich. User Group Meeting des University-Alliances-Programms in Magdeburg. SAP INFO, 132.

Schrader, H., Rautenstrauch, C. and Krcmar, H. (2007) Schalten und Walten im Namen der Lehre – SAP University Competence Center (UCC). *SAP INFO*, **146**, 24–25.

Surowiecki, J. (2005) *The Wisdom of Crowds – Why the Many are Smarter than the Few*. New York: First Anchor Books Edition.

Suthhof, A. (2005) *Ideenwettbewerb zur Vorbereitung eines BMBF-Förderprogramms im Bereich Integriertes Wasserressourcen-Management (IWRM)*. Hannover: DLR, Internat. Büro des BMBF.

Tidd, J., Bessant, J.R. and Pavitt, K. (2005) *Managing Innovation: Integrating Technological, Market and Organizational Change*. Chichester: Wiley.

Tseng, M.M. and Piller, F.T. (2003) *The Customer Centric Enterprise: Advances in Mass Customization and Personalization*. Berlin: Springer-Verlag.

Ulrich, H. (1981) Die Betriebswirtschaftslehre als anwendungsorientierte Sozialwissenschaft. In Geist,

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd

M.N. and Köhler, R. (eds.), *Die Führung des Betriebes. Festschrift für Curt Sandig*. Stuttgart: Poeschel Verlag, pp. 1–26.
von Hippel, E. (2005) *Democratizing Innovation*. Cambridge: MIT Press.
von Hippel, E. and Katz, R. (2002) Shifting innovation to users via toolkits. *Management Science*, **48**, 7, 821–833.
Wagner, C. and Prasarnphanich, P. (2007) Innovating Collaborative Content Creation: The Role of Altruism and Wiki Technology. Proceedings of the 40th Hawaii International Conference on System Sciences (HICSS 40), Big Island, Hawaii.
Walcher, D. (2007) *Der Ideenwettbewerb als Methode der aktiven Kundenintegration*. Wiesbaden: Deutscher Universitäts-Verlag.
West, J. (2007) Value Capture and Value Networks in Open Source Vendor Strategies. 40th Annual Hawaii International Conference on System Sciences (HICSS'07), Big Island, Hawaii.
West, J. and O'Mahony, S. (2005) Contrasting Community Building in Sponsored and Community Founded Open Source Projects. 38th Annual Hawai'i International Conference on System Sciences.
Yeow, A., Johnson, S.L. and Faraj, S. (2006) Lurking: Legimate of Illegitimate Peripheral Participation? 27. International Conference on Information Systems (27. ICIS 2006), Milwaukee, USA.

Dr Winfried Ebner works as executive assistant to the Managing Director of T-Mobile Deutschland GmbH, Bonn, Germany. From 2003 to 2008, he worked as researcher at the Chair for Information Systems, Technische Universitaet Muenchen, Munich, Germany. As part of his dissertation 'Community Building for Innovations – The Ideas Competition as a Method for the Development and Implementation of a Virtual Innovation-Community; he planned, built and ran 'SAPiens' – an ideas competition for students in cooperation with SAP AG. Furthermore, he developed the Executive Education Program '"communicate" – communication and leadership'. Winfried graduated 2002 in Communication Science (majors in Information Systems) at the Hohenheim University, Stuttgart, Germany. He worked for companies such as Otto Versand, Kienbaum Consultants International and EddieBauer Inc. His research interests include Information Management, Open Innovation, Community Building for Innovation and Mediated Leadership.

Prof. Dr Jan Marco Leimeister is a full professor of Information Systems and holds the Chair for Information Systems at Kassel University. He is also a research group manager at the Computer Science Department at Technische Universitaet Muenchen, Munich, Germany. He runs research groups on Virtual Communities, eHealth, Ubiquitous/Mobile Computing and manages several publicly funded research projects. His works have appeared in the Journal of Management Information Systems (JMIS), Information Technology & People (IT&P), Wirtschaftsinformatik, Electronic Markets (EM), Communications of the Association for Information Systems (CAIS), Journal of Computer-Mediated Communication (JCMC) and Journal of Organizational Computing & Electronic Commerce (JoCEC). His teaching and research areas include IT Innovation Management, Service Science, Ubiquitous and Mobile Computing, Collaboration Engineering, eHealth, Online Communities and IT Management.

Prof. Dr Helmut Krcmar is a full professor of Information Systems and holds the Chair for Information Systems at the Department of Informatics, Technische Universitaet Muenchen, Munich, Germany, since 2002. He worked as Post Doctoral Fellow at the IBM Los Angeles Scientific Center, as assistant professor of Information Systems at the Leonard Stern School of Business, NYU, and at Baruch College, CUNY. From 1987 to 2002, he was Chair for Information Systems, Hohenheim University, Stuttgart. His works have appeared in the Journal of Management Information Systems (JMIS), Information Technology and People (IT&P), Wirtschaftsinformatik, Electronic Markets (EM), Communications of the Association for Information Systems (CAIS), *Journal of Computer-Mediated Communication* (JCMC) and *Journal of Organizational Computing & Electronic Commerce* (JoCEC). His research interests include Information and Knowledge Management, IT-enabled Value Webs, Service Management, Computer Supported Cooperative Work and Information Systems in Health Care and eGovernment.

© 2009 The Authors
Journal compilation © 2009 Blackwell Publishing Ltd