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Community Engineering for Innovations: The Ideas Competition as a method to nurture a Virtual Community for Innovations

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“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 broadening 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 “SAPiS” includes design, implementation and evaluation of an IT-supported ideas competition within the SAP UCC (University Competence Center) User Group. This group consists of approx. 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 hand, SAP has not tried 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.

future” (Surowiecki 2005).

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

Surowiecki’s bestseller “The Wisdom of Crowds” highlights the potential of a new paradigm: Open 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 becomes more and more important - e.g., employees, suppliers or universities (Surowiecki 2005).

1. Ebner, W.; Leimeister, J. M.; Krcmar, H. (2010): Community Engineering for Innovations -The Ideas Competition as a method to nurture a Virtual Community for Innovations. In: R&D Management, Vol.40, *accepted for publication*.

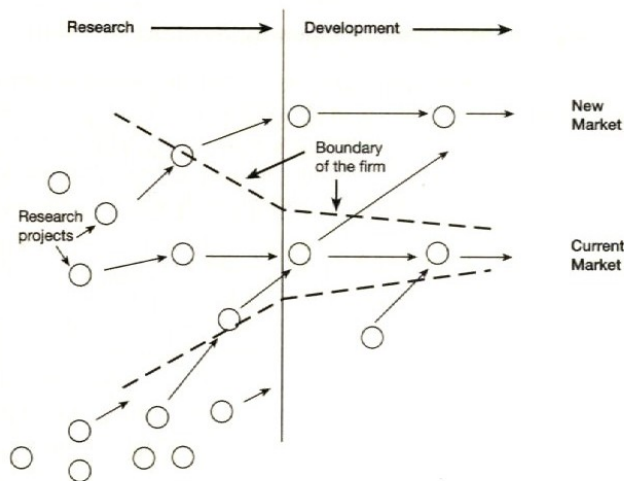
Jeff Howe captures this new approach with the phrase “Crowdsourcing”. He describes this phenomenon as “everyday people using their spare cycles to create content, solve problems, even do corporate R&D” (Howe 2006).

The literature describes the integration of customers as one of the biggest resource 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) 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).



Source: Chesbrough (2003)
Figure 1. Open Innovation Paradigm for Managing Industrial R&D

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.

In addition, existing Virtual Communities (VCs) as a ‘natural’ aggregation of (potential) customers can also serve as basis for the leveraging of innovative ideas. An example is the IT-supported ideas competition on which there is limited research (cp. Ernst, Soll 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 organised as follows. The following section identifies the main stakeholders of the case background and describes their relationships. *Section 2* presents a literature review and 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. The final *Section 6* summarises the managerial implications and gives an outlook for future research.

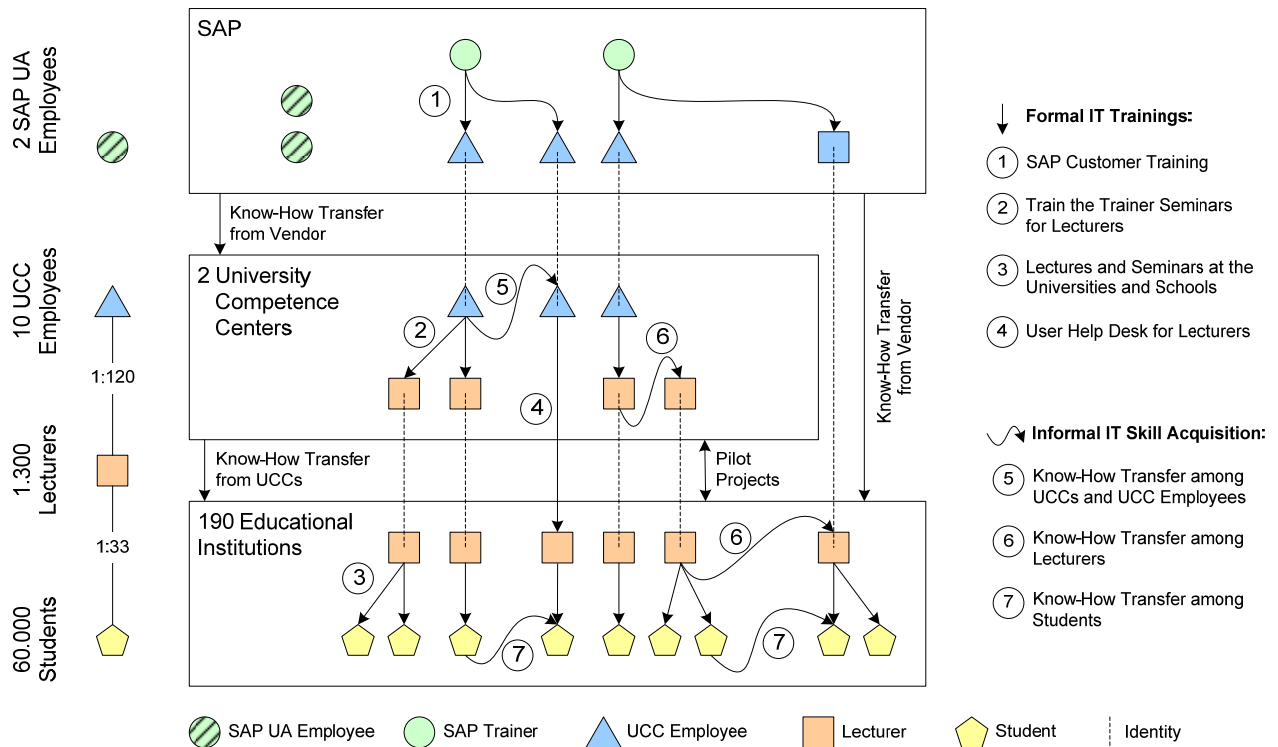
1.3. Case Background

The SAP University Alliances (UA) program 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, Rautenstrauch et al. 2007).

The SAP University Competence Centers (UCC) of both the Technische Universität München (TUM) and Otto-von-Guericke-Universität Magdeburg are part of the SAP UA program 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 (ASP), 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.



Source: Adapted from Mohr (2006)
 Figure 2. Qualification Concept and stakeholders of SAP UCC Program

The total SAP UCC User Group Community surpasses 60,000 users, most of which are students. The two-tier organisation of the UCC Program is important for the concept of the ideas competition. As shown in *Figure 2*, the University Competence Centers – with ten employers - train the trainers (see ②), while the trainers/lecturers have direct contact with university students, e.g., during an ERP-seminar (③). Beside these formal sessions *informal* IT Skill Acquisition is supported by a Virtual Community 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.

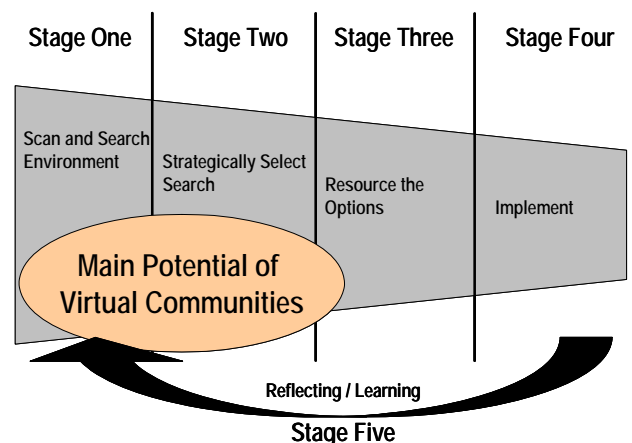
2. Theoretical Backgrounds

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 problematic. According to Ulrich, explorative research starts „(...) in practice, is focused on analysing the context of use and ends in practice” (Ulrich 1981). The intention of this research is to *design reality*, following the tradition of the action research method (Rapaport 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* identify in which phases of the innovation process communities have the strongest impact.



Source: Adapted from Tidd et al. (2005)
 Figure 3. Process of innovation management and potential support of VCs

Knowing the potential and possibilities of VCs, it is probable that the main support of VCs occurs 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 organisational options or a connection between internal and external innovations within an organization (Chesbrough 2003).

The importance of Community Building as research topic emerged with the development of the World Wide Web and the ongoing virtualisation (Leimeister 2005). Starting with the economic perspective of Hagel/Armstrong (1997), this area develop to include business, sociology and psychology (cp. Figallo 1998; Brunold, Merz et al. 2000; Kim 2000; Preece 2000; Balasubramanian and Mahajan 2001; Bullinger, Baumann 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 “Virtual Community (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 Virtual Community 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. Hermanns 2001; 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 the 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. Selected examples of ideas competitions for students

Organizer: Name of Competition [Website]	Topic
IBM: Global Innovation Jam [http://www.globalinnovationjam.com/get_started2006/]	InnovationJam is not only just a large on-line brainstorm. The Jam's goal is to move beyond simple invention and idea generation. IBM want to identify new market opportunities and create real solutions that advance businesses, communities and society in 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): Vison2Market [http://www.initiated21.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 is 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://www.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, Leimeister et al. 2008)

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 literature has not categorised ideas competitions yet, the following systematisation 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 summarised *Table 2*:

Table 2. Characteristics of ideas competition

Criteria	Characteristic values (Examples)
Organiser	Companies, Public Organisations, Non-profit Organisations, Individuals
Timeline	Very Short (seconds / minutes), 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 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.

The competition’s organiser typically represents 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 organisations.

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 prizes of upwards of 1.000 Euro, networking and job opportunities with the organising companies. Other 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 four to 26 weeks.

Depending on how closely a competition is correlated to the primary business field of the organising company, the name and website will be integrated into the organiser’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).

adapted from Walcher (2007)

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

2.3. Trust in the context of idea competitions and Virtual Communities

Trust in virtual communities is acknowledged to be important for generating an environment in which users share their knowledge and expertise (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 ideas of others in reasonable manner.

Trust has been defined from several scientific perspectives - e.g. sociology, philosophy, socio-psychology and economics (Abdul-Rahman and Hailes 2000). For 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 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 virtual community. Interpersonal Trust and System Trust can be attained more easily than Dispositional Trust (cp. Leimeister, Ebner et al. 2005). Consequently the evaluation section will focus on establishing Interpersonal and System Trust in virtual communities.

3. The Concept of the Ideas Competition

After laying the theoretical groundwork by discussing innovation, virtual communities 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) *Organiser*, 2) *Research & Development Department*, 3) *Human Resources Department*, 4) *University Alliances Program*, 5) *Lecturers* and 6) *Students*.

1. *Organiser*: The idea competition is organised by the research team of the project “SAP Community for Innovations”. Their primary 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 & 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. *Human Resources Department*: The motivation of the Human Resources Department is to identify the most promising students in this Virtual Community. By using the tool of an “ideas competition”, which exhibits the phenomenon of self selection among the participating students, the Human Resources 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. *University Alliances Program*: The SAP University Alliances program 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 program 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 concerning 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, Wittges 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 program. Their primary motivation is to get rewarded for their idea submitted to the competition. In addition, they do have the possibility to receive 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. The Ideas Competition: Specification of characteristics

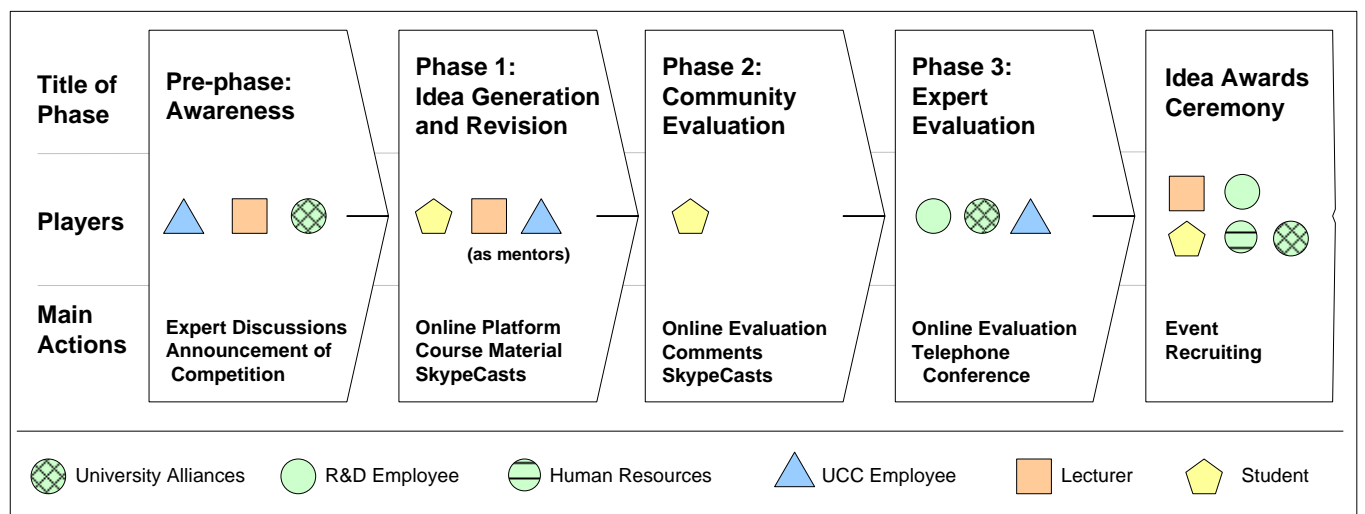
Criteria	Specification of Characteristic
Organizer	Public Organisation: Project "Community for Innovations"
Timeline	Middle: 12 Weeks with 3 Phases
Contest Phases	Idea Submission: 8 weeks Community Evaluation: 2 weeks Jury Decision: 2 weeks Weekly SkypeCasts on Ideas and Topics, e.g. "Web 2.0"
Evaluation	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: One SAP Consulting day Students: - 1st: 2000 € cash and SAP Training Week + SAP Certificate (worth 12.000 €) - 2nd-5th: 200 € 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 one student together with his lecturer as mentor
Idea reviewers committee	Specialists: Members of UCC, SAP UA and SAP Research
Idea review	Process & Product: Creativity, presentation, practicability
Nature of Competition	Online: Providing an online platform to submit ideas

Source: Author's presentation

As we know from other analysed ideas competitions, a *key success factor* is the incentive structure for the expected participants. Due to 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 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 getting access to the ideas competition online platform (<http://www.SAPiens.info>) to submit their ideas. Figure 4 illustrates this process:



Source: Author's presentation

Figure 4. Process of ideas competition

The *SAPi*ens (registered users) were asked to submit ideas with maximum length of 1.5 DinA4-pages. The submission structured with the following headings: Title, description, functionalities, specialities, potential implementer and expected benefit. To illustrate the idea, *SAPi*ens 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. 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 utilised for economic benefit.
Market Potential	Customer Benefit	The idea is practicable and creates an adds value for the customer.
	User Acceptance	An existing demand is met by the ideas.
	Realisability	The realisation of the idea is economically feasible.
	Market Size	The expected demand of the target market justifies the idea's realisation.
	Marketability	The idea can be commercialised.
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

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:

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 Wrinklies“
13	2,3	Pre-Customizing Software
14	2,4	SAP Quick Translation Addon
15	2,4	Relational Landscapes

Source: Author's presentation

The score which defines the rank of ideas (“Jury-Eval”) is calculated by the average of weighted grades (from “1=strong agreement” to “5=strong disagreement”) giving 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 *SAPi*ens. 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 *SAPi*ens – Masterminds who want to take part in designing the future of SAP and like to win great prices.”

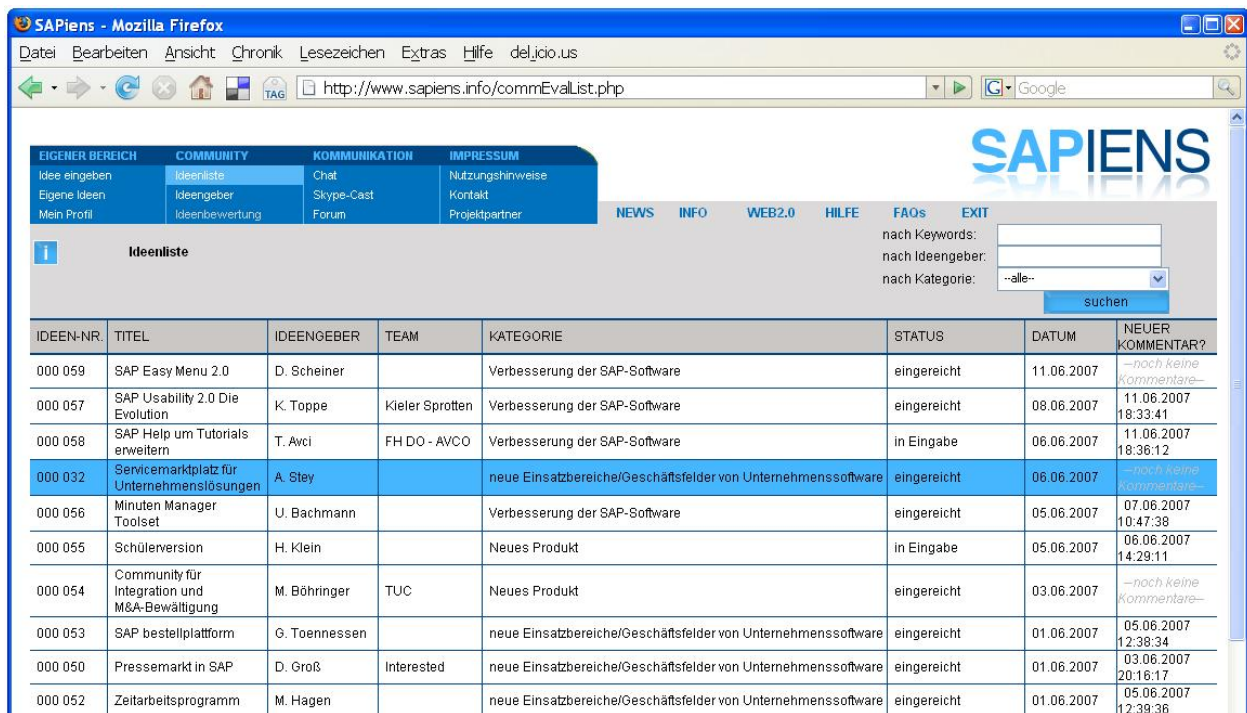
Using this slogan the ideas competition started on April 30th 2007 with an initial E-Mail to all lecturers of the UCC Community. An information package was provided and the lecturers were asked to announce the competition within their ERP lessons. In follow-up, several communication tools (e.g., newsletters, 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 *SAPi*ens, 2) Community, 3) Communications and 4) Imprint. “My *SAPi*ens“ 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 *SAPi*ens 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

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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:



Source: <http://www.SAPIENS.info>, access date: 07/12/06

Figure 5. Website of the SAPIENS Ideas Competition – List of Ideas

5. Participants’ behavior, motivation and trust

The participants’ behavior 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:

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

Considerable is the proportion of registered users and idea presenters (users who submitted an idea) in Table 6. Even though registered users that 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 “lurking”, but in the sense of helpful “peripheral participation” (cp. Yeow, Johnson et al. 2006).

The main evaluation was conducted by an online-questionnaire addressed to SAPIENS at the end of the competition. Table 5 summarises the important design parameters:

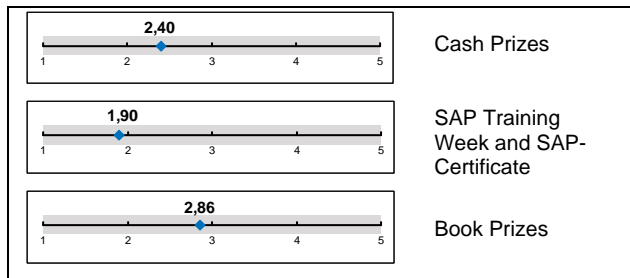
Table 7. Design parameters of online questionnaire

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
Organisation 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 measure the effect of prizes on behavior, we asked the following question:

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



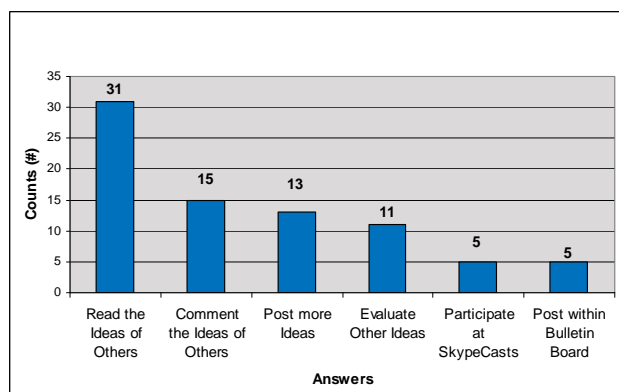
Source: Author's presentation

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”)

Figure 6 shows that monetary incentives aren't 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 to the SAPIens of highest activity within the community. The following question addressed the effect of this specific type of award:

“Which activities have you undertaken due to the announcement of the community



activity-awards?”

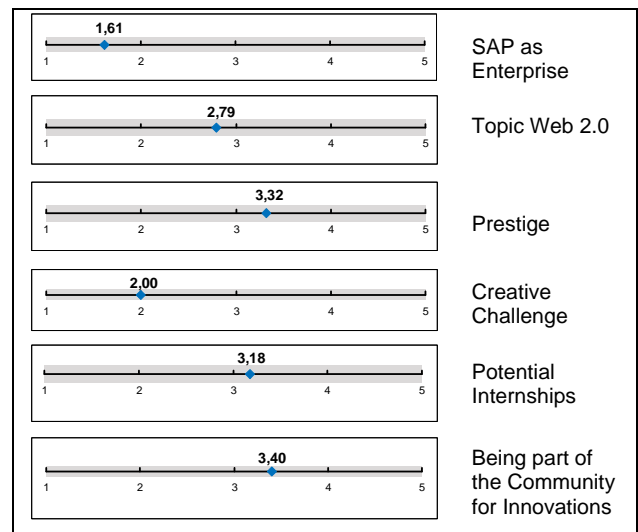
Source: Author's presentation

Figure 7. Community based awards (80 Answers in total - Multiple Answers allowed)

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

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?”



Source: Author's presentation

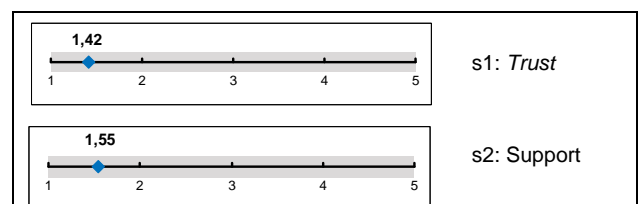
Figure 8. Motivational factors for participation (n=72, 1= “very strong agreement”; 5= “very weak agreement”, medium standard deviation in between “0.86” and “1.41”)

The strongest motivators are the creative challenge of the competition and the opportunity to get 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, Ebner et al. 2005). The following questionnaire items address *System trust*:

s1: “The SAPIens-Organizers are trustworthy.”

s2: “The SAPIens-Organizers support me while having questions about the ideas competition.”



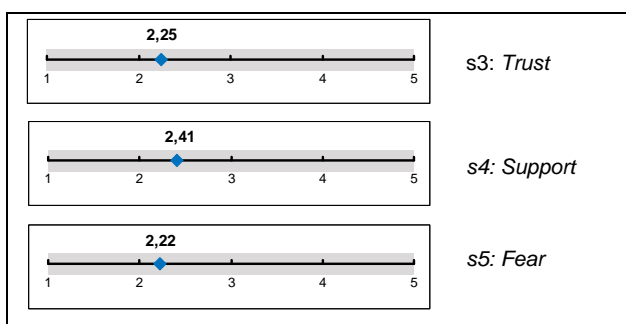
Source: Author's presentation

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”)

Both trust in and support from the organizers of the idea competition is 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:

- s3: “Other *SAPi*ens are trustworthy.”
- s4: “Other *SAPi*ens support me while having questions about the ideas competition.”
- s5: “I do not fear that other *SAPi*ens steal my ideas.”



Source: Author’s presentation

Figure 10. Trust, support and fear from/of other *SAPi*ens (n=52, 1= “very strong agreement”; 5=“very strong disagreement”, medium standard deviation in between “0.76” and “1.07”)

Although trust in peers is lower than trust in the organizers, it is still positive. There is no significant fear of idea theft. One *SAPi*ens 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 *SAPi*ens 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 *SAPi*ens ideas competition?”

The answers are visualised with a tag-cloud, illustrating more frequently named terms in bigger letters:



Source: Author’s presentation

Figure 11. Tag cloud of words connected with *SAPi*ens

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 *SAPi*ens 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 *SAPi*ens 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 *SAPi*ens 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 *SAPi*ens 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 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 *SAPi*ens 2007 case induces 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 for success.

Researchers have to keep the technical barrier as low as possible to attract innovators which 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 and Leimeister et al. 2004) play the most important role for the success of an ideas competition and are the basis for nurturing a Community for Innovations.

- Lessons learned from 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 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 (amongst others) the following new open research questions:

- How could we apply the concept of this ideas competition to other target groups 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 need 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 S. Hailes (2000). *Supporting Trust in Virtual Communities*. Proceedings of the 33rd Hawaii International Conference on System Sciences (HICSS 33), Maui, Hawaii.

Balasubramanian, S. and V. Mahajan (2001). "The Economic Leverage of the Virtual Community."

International Journal of Electronic Commerce 5(3): 103-138.

- Bortz, J. and N. Döring (2006). *Forschungsmethoden und Evaluation für Human- und Sozialwissenschaftler*. Heidelberg, Springer.
- Brunold, J., H. Merz, et al. (2000). www.cyber-communities.de - *Virtual Communities: Strategie, Umsetzung, Erfolgsfaktoren*. Landsberg/Lech, mi, Verlag Moderne Industrie.
- Bullinger, H.-J., T. Baumann, et al. (2002). *Business Communities*. Bonn, Galileo Press.
- Chesbrough, H. W. (2003). "The Era of Open Innovation." *MIT Sloan Management Review* 44(3): 35-41.
- Chesbrough, H. W. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press Books.
- Döring, N. (2003). *Sozialpsychologie des Internet: die Bedeutung des Internet für Kommunikationsprozesse, Identitäten, soziale Beziehungen und Gruppen*. Göttingen, Hogrefe.
- Ebner, W., J. M. Leimeister, et al. (2008). *Leveraging the Wisdom of Crowds: Designing an IT-supported Ideas Competition for an ERP Software Company*. 41st Hawaii International Conference on System Sciences (HICSS 41), January 7-10, 2008, Big Island, Hawaii, IEEE.
- Ebner, W., J. M. Leimeister, et al. (2004). *Trust In Virtual Healthcare Communities: Design And Implementation Of Trust-Enabling Functionalities*. 37th Hawaii International Conference on System Sciences (HICSS 37), January 5-8, 2004, Big Island, Hawaii, IEEE.
- Enkel, E. and O. Gassmann (2005). *Open Innovation Forschung : Forschungsfragen und erste Erkenntnisse. Gestaltung von Innovationssystemen*. M. Weissenberger-Eib. Kassel Cactus Group Verlag: 21.
- Ernst, H., J. H. Soll, et al. (2004). *Möglichkeiten der Lead User-Identifikation in Online-Medien. Produktentwicklung mit virtuellen Communities: Kundenwünsche erfahren und Innovationen realisieren*. C. Herstatt. Wiesbaden, Gabler: XI, 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 F. Piller (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 E. Enkel (2006). "Open Innovation: die Öffnung des Innovationsprozesses erhöht das Innovationspotenzial." *Zeitschrift Führung und Organisation* **75**(3): 132-138.
- Hagel III, J. and A. Armstrong (1997). *Net Gain - Expanding markets through virtual communities*. Wiesbaden, Thomas Gabler Verlag.
- Hazard, I. (2007). "We > me. We are smarter than me." Retrieved 07/09/06, from <http://www.wearesmarter.org>.
- Hermanns, R. (2001). *Leben im Jahr 2020: studentischer Ideenwettbewerb; ein Gemeinschaftsprojekt des Ministeriums für Städtebau und Wohnen, Kultur und Sport des Landes NRW und der Energiesparagentur NRW*. Aachen.
- Howe, J. (2006). "The Rise of Crowdsourcing." *WIRED* **06**(6): 176-183.
- Hummel, J. and U. Lechner (2002). *Social Profiles of Virtual Communities*. 35th Hawaii International Conference on System Sciences (35th HICSS 2002).
- Jeppesen, L. B. and L. Frederiksen (2006). "Why Do Users Contribute to Firm-Hosted User Communities? The Case of Computer-Controlled Music Instruments." *Organization Science* **17**(1): 45.
- 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, Calif., Peachpit.
- Lau, F. (1997). A Review on the Use of Action Research in Information Systems Studies. *Information Systems and Qualitative Research*. J. I. DeGross, A. S. Lee and J. Liebenau, Chapman & Hall: 31-68.
- Laubacher, R. (2007). "MIT Center for Collective Intelligence." Retrieved 22. September 2007, from <http://cci.mit.edu/>
- Leimeister, J. M. (2005). *Virtuelle Communities für Patienten: Bedarfsgerechte Entwicklung, Einführung und Betrieb*. Wiesbaden, Deutscher Universitäts-Verlag.
- Leimeister, J. M., W. Ebner, et al. (2005). "Design, Implementation, and Evaluation of Trust-Supporting Components in Virtual Communities for Patients." *Journal of Management Information Systems* **21**(4): 101.
- Maloney-Krichmar, D. and J. Preece (2003). Online communities: Focusing on sociability and usability. *The Human-Computer Interaction Handbook: Fundamental, Evolving Technologies, and Emerging Applications*, Lawrence Erlbaum Associates: 596-620.
- Mohr, M., H. Wittges, et al. (2006). Einbindung und Motivation informeller Multiplikatoren im IT-Training am Beispiel Education Service Providing. *Wirtschaftsinformatik-Ausbildung mit SAP®-Software: Reader zum Track der Multikonferenz Wirtschaftsinformatik 2006 in Passau*. H. Krcmar, C. Rautenstrauch, H. Wittges and H. Schrader. Lohmar, Eul: 1-22.
- Piller, F. T. and D. Walcher (2006). "Toolkits for idea competitions: a novel method to integrate users in new product development." *R & D Management* **36**(3): 307.
- Preece, J. (2000). *Online Communities - Designing Usability, Supporting Sociability*. Chichester, New York, Weinheim, Brisbane, Singapore, Tokio, John Wiley and Sons.
- Prüfer, D. (2004). *Ideen-Wettbewerb Bionik: Viro tubes 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 F. Piller (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." Retrieved 11.10.2007, from <http://www.it-business.de/themenkanale/dienstleister/allgemein/articles/93708/>
- Schrader, H. (2005). "Früh übt sich. User Group Meeting des University-Alliances-Programms in Magdeburg." *SAP INFO* **132**.
- Schrader, H., C. Rautenstrauch, et al. (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., J. R. Bessant, et al. (2005). *Managing innovation: integrating technological, market and organizational change*. Chichester [u.a.], Wiley.
- Tseng, M. M. and F. T. Piller (2003). *The customer centric enterprise: advances in mass customization and personalization*. Berlin [u. a.] Springer-Verl.,.
- Ulrich, H. (1981). Die Betriebswirtschaftslehre als anwendungsorientierte Sozialwissenschaft. *Die*

Führung des Betriebes. Festschrift für Curt Sandig. M. N. Geist and R. Köhler. Stuttgart, Poeschel Verlag: 1-26.

von Hippel, E. (2005). *Democratizing innovation.* Cambridge, MIT Press.

von Hippel, E. and R. Katz (2002). "Shifting Innovation to Users via Toolkits." *Management Science* **48**(7): 821.

Wagner, C. and Prasarnphanich (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 S. O'Mahony (2005). *Contrasting Community Building in Sponsored and Community Founded Open Source Projects.* 38th Annual Hawai'i International Conference on System Sciences.

Yeow, A., S. L. Johnson, et al. (2006). *Lurking: Legimate of Illegitimate Peripheral Participation?* 27. International Conference on Information Systems (27. ICIS 2006), Milwaukee, USA.