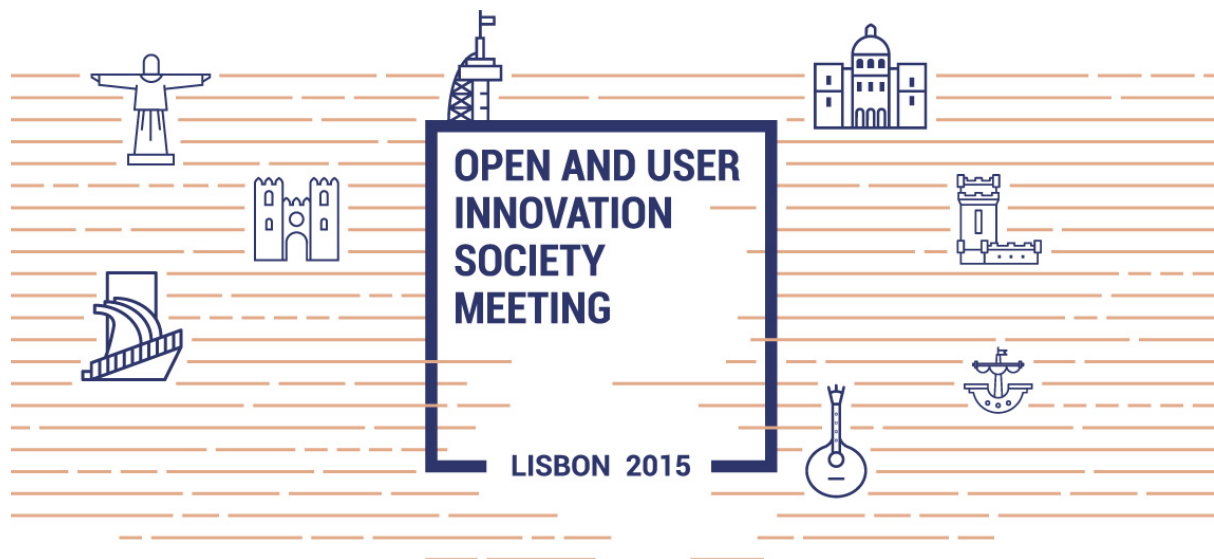


Book of Abstracts



13th Annual Open and User Innovation Society Meeting | OUI2015

2015, July 13-15, Lisbon, Portugal



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July 13-15, 2015, Lisbon, Portugal

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Parallel session 1 - CONTEST AND CROWDSOURCING #1

Session Chair: Karim Lakhani (Harvard)

Lakhani, K., and Boudreau, K., “Innovation Experiments: Researching Technical Advance, Knowledge Production and the Design of Supporting Institutions”

Abstract

This paper discusses several challenges in designing field experiments to better understand how organizational and institutional design shapes innovation outcomes and the production of knowledge. We proceed to describe the field experimental research program carried out by our Crowd Innovation Laboratory at Harvard University to clarify how we have attempted to address these research design challenges. This program has simultaneously solved important practical innovation problems for partner organizations, like NASA and Harvard Medical School, while contributing research advances, particularly in relation to innovation contests and tournaments.

Bettiga, D., Zunino, D., and Lamberti, L., “The more the better? Crowds and NPD performances in a creative crowdsourcing platform”

Abstract

The observed existence of an N-effect, a relevant negative effect of an increased number of participants in a crowdsourcing contest suggests that, despite the enthusiasm paid by both scientific and practitioner literature, crowdsourcing should be carefully designed and remarkably not “over-inflated” in order to provide valuable results and paybacks. On the one hand, a shift of outcomes, due to a lack of motivation has, indeed, been observed in correspondence to a higher number of participants in crowdsourcing contests and an evidence of better contest outcomes is associated to the number of contestants’ reduction. On the other hand, a greater number of competitors generates the possibility to find extremely value outcomes and is also desirable to complete elementary tasks in a timely manner when the task object of crowdsourcing is a routine. This trade-off in performances generates the phenomenon known as parallel effects. The immediate consequence of such an evidence lies in the need for companies to properly design their presence on crowdsourcing platforms and to define the suited engagement of the crowd. The aim of this work is to explore such a trade-off in the crowdsourcing of inventive activities, where the individuals are asked to provide ideas and solutions, a domain insufficiently analyzed in prior research on this issue, which concentrated on crowdsourcing of routine activities or crowdsourcing of solutions. Specifically, we hypothesize that in the presence of a more complex task, such as product development, the trade-off related to an increase of contestants solves in favor of a negative outcome. To study this issue we collected data on all the products on sale on Quirky (www.quirky.com), a creative crowdsourcing platform that solicits inventions from the crowd, obtaining a cross section dataset of 106 observations at the product level. Results show a negative association between crowd size and time to market and sales, confirming our hypothesis and prior literature. We find evidence of a positive impact of patenting on sales and a negative moderation of the crowd size on patent effect on sales: larger crowd size attenuates the impact of patents,

confirming again a decrease in performance with larger number of participants. The evidence presented in this work suggest that different objectives related to crowdsourcing may represent the key for a proper design. Indeed, referring to the largely analyzed exploration-exploitation dichotomy, it seems that inclusive crowdsourcing may be more consistent to exploration, where time constraints could be less pressing and where there is the ability to consider as many options as possible. Conversely, when exploitation is in play, i.e. innovation requires to be turned into specific products, with tighter budgetary and time constraints, a more selective approach to crowdsourcing may be more beneficial.

Schoell, M., “Evaluation of innovation contests as an alternative high-tech procurement tool”

Abstract

Innovation contests have been an intriguing research topic for scholars in the past two decades. However, innovation contests are still a novel and rarely used instrument in the toolbox of innovation managers in practice. While contest design has been the topic of various other studies, this paper will illustrate the economic ramifications. Our intention is to highlight the unique aspects of contests in comparison to their traditional sourcing counterparts. This comparative approach should help managers understand the possibilities and limitations of innovation contests and enable them to identify suitable projects for the application of this tool. For that purpose, we propose a comprehensive framework for the evaluation of innovation contests from a business perspective. Based on the three pillars of costs, benefits and managerial lessons, this framework can be applied for the ex post evaluation of already concluded projects. Given the extensive explanations on the procedures and characteristics of contests, it can also provide aid for the determination of suitable future projects. The framework is tested and validated on a set of four innovation contests, conducted by Harvard’s Crowd Innovation Lab in collaboration with external partners. Juxtaposing the evaluation reports of these four case studies, we identify specific types of problem sets that are more suited to innovation contests than others. The differentiated cost analysis reveals the pre-contest framing phase as the center of cost causation for innovation contests. We show that both, problems that are well framed beforehand and those that would traditionally result in extensive downstream solving costs, elicit a high possibility for a cost-efficient contest outcome. Beyond cost considerations, we present beneficial factors that can justify the application of innovation contest for appropriate problem sets. We also identify open-ended optimization problems as an eminently suitable case for innovation contests.

Reerink, J., Ihl, C., and Kleer, R., “Fear from a Distance: The Effect of Cognitive Distance and Exploitation Concerns on Solver Adoption of Broadcast Search”

Abstract

The open innovation paradigm is exemplified in broadcast search platforms that allow firms, which are unable to solve certain R&D problems by their own means, to external individuals with relevant knowledge on potential solutions. While a few studies have empirically investigated the factors that enable solvers to come up with valuable solutions, it is not fully understood what attracts potential solvers to broadcast search platforms in the first place. It has been shown that solvers from distant fields can contribute more valuable solutions, but we do not know how this cognitive distance affects initial interest in a problem and hence adoption of broadcast search. In less familiar fields,

solvers may also perceive greater concerns of being exploited by distant exchange partners. In this study, we investigate how these two factors, cognitive distance and exploitation concerns, affect solvers' decisions to adopt broadcast search in general and solvers' preferences for certain contractual arrangement in particular. In our empirical study, we propose that algorithms from machine learning can be utilized for a pre-selection of potential candidates: we use a topic modeling approach to match researchers in nanotechnology with real real-world contests broadcasted by innovation intermediaries and analyze their willingness to participate. This analysis is supplemented with a conjoint analysis to confront solvers with variants of contractual arrangements that may underlie the exchange of problem solutions. Our findings reveal three types of potential solvers: (1) expert solvers who see broadcast search as an effective mode of knowledge transfer, (2) suspicious solvers who need to be persuaded by appropriate contractual arrangements, and (3) reluctant scientists who have irreconcilable exploitation concerns outside their field of expertise. All in all, this study contributes to the understanding how to navigate the trade-off implicit in harnessing external solutions and advertising to numerous candidates.

Nishi, D., "A Study on Users Participation Type's New Product Development: Focus on Voting"

Abstract

Voting behavior and its system have an effect on new product development that users submit their ideas and decide which it is the best by voting in them. In case of websites where users submit their ideas like Quirky, voting is done to make decisions many times in any step. In other words, the effect of voting is big and there are some cases where good ideas are rejected due to voting behavior and its system. However, previous literature on user innovation seldom focus on the effects of voting behavior and its system. Therefore, I research voting behavior and its system in users participation type's new product development.

Schemmann, B., Chappin, M.M.H, Herrmann, A.M. "The right kind of people: online behaviour and interaction of valuable ideators"

Abstract

A growing number of companies and organisations count on online idea calls to crowdsource ideas for new goods or services, as well as to find solutions that address societal needs or ecological problems. In contrast to idea contests, these online idea calls are not searching for a single "best" idea or solution. Instead, companies and organisations which count on idea calls aim to generate as many valuable ideas as possible in order to take advantage of external knowledge and creative input for their innovation purposes. In these cases the idea seeker, i.e. the company or organisation looking for ideas, typically aims to generate and eventually implement a whole range of ideas. Idea calls can last between a few weeks and even several years and tend to attract a diverse crowd. Therefore they often result in large numbers of very varied ideas. It is then up to the idea seeker to detect those ideas that are valuable for the organisation. Based on the assumption that not all ideators within the crowd are equally capable to suggest the kind of ideas the idea seeker is looking for, one way to detect the most promising ideas is to identify the ideators who are likely to suggest valuable ideas. In line with Levitt (1963), idea valuableness is here defined as the idea implemented by the idea seeker.

Based on insights from creativity research, our work in progress looks at the ideator's online behaviour and interaction with the aim of analysing whether, and how, the ideator's openness

towards other ideas, the commitment towards the own ideas, the idea elaboration and fluency, the attraction to the idea call, as well as the ideator's position in the network can help to identify potentially valuable ideators. Our regression analyses are based on a dataset from an idea call carried out by the municipality of the city of Munich that asked citizens to suggest ideas for new digital services.

Franke, N., Topic, F., "Self-selection in innovation contests"

Abstract

Due to the easy access to problem-solvers facilitated by the Internet, innovation contests have gained increased popularity in recent years. Self-selection of potential problem solvers has been portrayed as the fundamental reason for the astonishing success of innovation contests (Afuah & Tucci, 2012; Jeppesen & Lakhani, 2010). The underlying idea is that self-selecting individuals know more about their capabilities and knowledge than a central agent who assigns the task. Ideally, an "unusual suspect" (Lakhani & Jeppesen, 2007) for whom the perfect solution to the problem is obvious, self-selects into the competition.

However, there is no guarantee that the voluntary and open character of innovation contests only works this way. Self-selection might also mean that individuals with much over-confidence and little knowledge find their way into the contest, or, even worse, that individuals with the sought capabilities intentionally self-select out of the contest.

Little is known on how self-selection in innovation contests actually works and which factors trigger its positive or negative effects. All we know is that self-selection actually happens to a large degree. For example, the "Save our Energy" contest on energy-efficiency of the German city of Munich, obtained over 20,000 clicks on the innovation contest's website, but only 308 registrations, and 163 eventually submitted ideas (Adamczyk, Bullinger & Moeslein, 2010). Many other accounts suggest that this massive self-selection is a typical figure.

The objective of this project is thus to explore the process of self-selection in innovation contests, its effects, and the factors that trigger the individuals' decisions to select in and out. Enhancing our knowledge on this important aspect is not only of academic interest, it also allows organizers to design their innovation contests more effectively.

In order to structure the problem, we will use theories from the fields of consumer behavior and information processing. We assume that self-selection is a process which contains a selection decision (for a particular contest) and a behavioral component (participate or not). We will investigate the decision steps, its antecedents, and its consequences in a longitudinal experimental setting.

Schaarschmidt, M., and Killian, T., "Co-creation of value in platform business models: The case of QuizClash"

Abstract

We observe an increase in business models that tend to adopt platform concepts. Platforms are mechanisms to bring together customers and producers of complementary goods (i.e. "complementors") in a two-sided market. While a large body of research has conceptualized platforms as multi-sided markets, not every single platform business model is based on a multi-sided design. For example, there are pricing models where platform owners capture all generated value without integrating complementors (West 2014). In this study, we focus on QuizClash, a smartphone app that enables users to compete against each other in answering questions and which has more

than 45 million users worldwide. In this case, complementors are users and not commercial firms as discussed in prior research (Boudreau and Jeppesen 2014). In particular, users can contribute questions (along with one right and three wrong answers) to QuizClash which are then used as questions for all gamers. Thus, QuizClash's attractiveness as a platform is dependent on a frequent renewal of questions, donated by users. Within QuizClash, we also can distinguish co-creators from non-co-creators (based on whether someone had already posted a question or not). Prior knowledge concerning crowdsourcing and design contests were criticized for having a selection biases as only those were asked to participate in a survey who had previously submitted a design or solution (Franke et al. 2013). Here, we have a heterogeneous group of gamers of which some decided to post own questions while others did not. To this end, the goal of this research is to (1) unravel differences between co-creators and users in a platform setting and (2) identify effects of different incentives of users' intention to future co-creation. As such, our results will help to identify the mechanisms that work best for attracting large volumes of external contributions. In a qualitative pre-study we interviewed 15 gamers and asked about their motivation to use the app as well as their motivation to add own questions. In addition, we asked for facts that would increase their willingness for future co-creation. In two experimental studies we then investigated differences between users and co-creators (Study 1, N=304) and how different incentives such as monetary compensation, reputation, and achievement affect future co-creation (Study 2, N=279). Among others, our results indicate that co-creators do not deviate from users in relation to high score and average score, and, surprisingly, that usage intensity (measured in hours played per day) was higher for users than for co-creators. We also asked for several motivational indicators and found that co-creators (N=109) exhibit higher scores for information sharing, perceive less effort in writing questions, and perceive more hedonic value than users (N=195). Study 2 has not been fully analyzed yet.

Parallel session 2 - FIRM'S INTERACTIONS WITH UI

Session Chair: Leid Zejnilovic (Católica-Lisbon)

Schweisfurth, T., "In or out - how does lead userness affect ideas across organizational boundaries?"

Abstract

Next to relying on creativity of internal employees for innovation, firms increasingly direct their attention to external sources of innovation such as users. Until now, research has treated employee and user output as separate sources of innovation. We link these internal and external spheres of innovation and investigate how innovative output (incidence of ideas, originality of ideas, use value of ideas, and market potential of ideas) differs due to the context in which users are embedded (internal vs. external) and their lead userness. We explore these relationships in a sample of 1020 individuals in the home appliances domain which comprises 283 consumers and 864 employees of a home appliance firm. We use external idea raters to rate originality, use value, and market potential as dependent variables.

We find that user ideas are more valuable with respect to originality and use value. Employees, however, have more product ideas. Both incidence of ideas and originality, use value, and market potential are positively related to lead userness of users and employees. We also find that the effect from lead userness on idea incidence is stronger for employees than for users.

Our findings contribute mainly to research in new product development and innovation management which compares innovative contributions by users and employees. We break up this dichotomy of users vs. employees by showing that users can also be found within the firm and that lead userness plays both a role for individuals' innovative contributions both inside and outside organizational boundaries. This introduces a fine grained picture about internal vs. external sources of innovative product ideas. We also contribute to the stream of embedded lead users by carving out how lead userness of employees affects different dimensions of idea quality.

Darlington, J., Striukova, L., and Rayna, T., "Co-creation and User Innovation: The Role of Online 3D Printing Platforms"

Abstract

The aim of this article is to investigate the changes brought about by online 3D printing platforms in co-creation and user innovation. As doing so requires a thorough understanding of the level of user involvement in productive processes and a clear view of the nature of co-creative processes, this article provides a 'presumption' framework and a typology of co-creation activities. Then, based on case studies of 22 online 3D printing platforms, a service-based taxonomy of these platforms is constructed. The taxonomy and typology are then matched to investigate the role played by online 3D platforms in regard to the various types of co-creation activities and, consequently, how this impacts user innovation.

Costa, C., Coelho do Vale, R., and Lages, L., “How Innovative Are They? The importance of depth of consumer input and Firm Reputation”

Abstract

This study looks at how corporate and product characteristics are perceived by consumers across three different product innovation modes: when designed by users, by company’s professionals, and jointly designed by users and professionals. This framework is tested in firms with high and low Reputation for Innovation (RFI). When comparing just between users and professionals (study 1) results indicate that in a context of firms low on RFI consumers prefer a professional design over a user label design, while in the case of high RFI, consumers prefer a user design - higher product evaluation and purchase intention. Interestingly, this effect was reverse for product functionality in firms low on RFI (preference for professional-design) confirming the importance of professionals’ presence when assessing product form. When joint design mode is included in the comparison (study 2), results show that consumers perceive more ability to innovate in a joint design and this is reflected in higher corporate attitudes , higher purchase intention and enhanced willingness to recommend the company, compared with other design modes.

Roberts, D., and Piller, F., “Integrating Input from Users for NPD via Social Media: Insights from the PDMA Comparative Performance”

Abstract

There is widespread acceptance that firms not only need to work closely with customers and users, but also incorporate a broad scope of other external sources of knowledge into the new product development (NPD) process. The ability to capture and exploit external sources of knowledge has long been recognized as a critical component for innovation performance. Recently, new opportunities to interact, collaborate, share knowledge, and innovate have emerged, facilitated by a new class of information technologies, commonly referred to as social media (SM).

Social media, comprising of a variety of internet-based, social networking services, allows users to easily create, edit, evaluate, and share content. The vast numbers of individuals that converge around sites like LinkedIn, Facebook, or Twitter embody a rich source of external knowledge that could be utilized for new product development (NPD). Complementing other approaches to user innovation, SM can provide access to novel information about user needs, and also about technological opportunities unknown to the firm. Anecdotal evidence suggests that there are considerable benefits from using SM during an innovation project but empirical evidence is scarce. Using data from the Product Development and Management Association (PDMA) Comparative Performance Assessment Global Study (CPAS), we attempt to close this gap and identify factors influencing the relationship between SM usage and NPD performance.

This study maps the scale and scope of SM usage during NPD across a number of industry sectors and investigates the SM-performance link. The findings indicate that SM can indeed lead to higher innovation performance but is influenced by a number of contingencies, including the type of innovation and the stage of the NPD process. We also find situations where the use of SM is negatively affecting innovation performance. This calls for an educated and strategic application of SM for innovation, and the study identifies several factors that firms need to take into account to profit from the opportunities of SM for NPD, including innovation culture and learning from past activities.

Lehnen, J., and Herstatt, C., “The lead user approach in innovation practice: Nice-to-know or must-have?”

Abstract

The innovative capacity of closed, intra-company innovation processes is no longer sufficient to remain competitive nowadays. Megatrends like globalization, technological change or the individualization of customer needs cause a paradigm shift in new product development: users and customers play the central role in developing innovations. Hence, innovation processes become opened and external stakeholders, especially users, are integrated progressively. One special kind of advanced users are lead users, being aware of future market needs before and benefit from innovations since they are solutions to their problems. Therefore lead users are superiorly willing to cooperate with companies. Utilizing lead users' input and knowledge companies can minimize the risk of launching innovations since products or services will more likely be accepted by the market. This leads to a larger potential sales volume and finally to an essential competitive advantage. Moreover, insights into other branches and markets can be gained, companies are in addition perceived of being very innovative - a significant aspect in marketing. Companies integrating lead users successfully are e.g. 3M, Johnson & Johnson or Hilti. However, besides those common examples the implementation of lead users into management practice is researched insufficiently in the theoretical environment of lead user innovation. Unexplored questions are: Do companies even know the possibility of integrating lead users? If not, are they open-minded about this approach? If so, do they utilize this method or are other methods preferred?

To address these research questions we conduct a literature review of theoretical papers (n = 69) as well as articles in business press (n = 255).² Thereby we receive a first impression about the understanding and implementation of this approach in practice. Furthermore, we execute seven qualitative interviews with experts of companies that conducted lead user projects. We validate the literature reviews' findings and moreover gain varied experience in the practical implementation. We identify essential barriers and problems within lead user projects as well as managerial solutions to solve these problems. Moreover, we present our intended research approach for the following exploratory study. Within this study we aim to address more than 500 medium-sized companies in the German-speaking area in order to evolve a state-of-the-art of the lead user approach in innovation practice.

Rouvinen, P., and Deschryvere, M. “Does user-/demand orientation enhance productivity?”

Abstract

The important role users and customers play for innovation and firm performance has generally been acknowledged in case studies while empirical evidence remains limited, scattered and inconclusive. This empirical study explores whether or not user-/demand orientation in general, and in innovative activity in particular, has consequences on firm performance. Based on a representative firm sample from Finland a first finding shows that user-/demand orientation has a positive effect on labour productivity. Secondly, no additional positive effect exists between user-/demand innovation and productivity. These findings imply that on average it is good to pay attention to users and customers but that a more active user-producer interaction for innovation activities does not necessarily translate into productivity gains. Finally there is little evidence that user-/demand orientation and innovation have a positive significant impact on productivity growth

although quantile regression results indicate that in the lower quantile of productivity growth user-/demand orientation does matter for firm performance.

Trones, M., Lunnan, A., and Nisar Shah, A. "Hybrid Organizations: Defining Characteristics and Key innovation Factors"

Abstract

Hybrid organizations surpass the boundaries between typical for-profit and non-profit entities, by being both market-oriented and mission-centered. Hybrid organizations use market forces to solve social and environmental issues, and engage in commercial activities to sustain their operations. They can be promising agents of multiple value creation, by offering alternative approaches for addressing economic, social and environmental needs. However, as these organizations don't correspond with established organizational forms, they may experience difficulties in maintaining their hybrid form. Such organizations often exist between the institutionally legitimate forms of organizing, as they combine conflicting institutional logics. As a result, these organizations face challenges related to legal form, financing and organizational culture. This paper looks at the characteristics of hybrid organizations, and how they can maintain their organizational sustainability and hybrid nature. Through a phenomenological research design consisting of individual interviews with five entrepreneurs who have experienced success with their hybrid business in Latin America, the study links existing theories of hybrid organizations with empirical evidence, and shows that the organizations are characterized by having realistic visionaries as founders, innovative business model design, novel forms of financing like crowdfunding and environmental/social mission embedded in the organizational identity. Moreover, the study shows that the legal and financial framework for hybrids are not fully developed yet. The majority of the founders have considered novel forms of financing like crowdfunding as a viable source of finance, but only one of the companies have conducted a campaign on a crowdfunding platform. In this paper, we argue that key factors in understanding how the organizations sustain their hybrid nature are related to their activity system and organizational identity. Organizations can more easily sustain their hybrid nature by designing business models that have integrated social, environmental and commercial activities. The organizations from this study have managed to foster an organizational culture committed to multiple missions and effective operations, despite having diverse workforces as well. This means that identifying and communicating organizational values are crucial for the viability of hybrid organizations. Several of the companies report to benefit internally from their hybrid nature, which may be explained by how the individuals define themselves and the enterprise.

Abu-el-Ella, N., and Pinkwart, A., "A hidden/forbidden source of innovation: Enablers for the involvement of qualified external employees"

Abstract

This study aims at exploring the different organizational factors that either encourage or hinder the involvement of highly qualified external employees in innovation. Growing pressures of competition and rapid technological changes force companies to continuously innovate while maintaining their flexibility. We believe that our topic is very important nowadays because the potential to benefit from external innovative ideas is often opposed by knowledge protection concerns. Employee involvement in innovation had been extensively studied and there is considerable evidence around the potential contribution which engaged employees can make, especially in incremental innovation (Imai, 1987; Bessant, 2003; Fu, 2012). In such high employee involvement

systems there is the possibility for sharing and building on ideas and for voting and mobilizing support for strong ones. But the question is raised as to whether the different contractual and social conditions attached to contingent / external employment would permit involvement of this group of employees.

Using a qualitative case study approach, empirical data is being collected through interviews from 20 German companies coming from different industries, including automotive, chemical, pharmaceutical, and others. Semi-structured interviews with CEOs and top managers are being conducted and analyzed using content analysis.

Findings suggest that companies might be possessing a rich yet unused source of innovative ideas, and that there is still a lot to be done to maximize the innovative potential of the flexible workforce. Some implications for research and practice will be presented. The paper contributes to these three interrelated research strands: open innovation, employee involvement in innovation, and flexible employment and aims to provide valuable recommendations for practitioners.

Aoki, K., "The relationship between co-creation activities and "parallel careers""

Abstract

Co-creation with consumers has become more diffused among firms, and the process of managing co-creation platforms seems to have reached a mature stage. In addition, the abilities of user-innovators have become more important from the perspective of the social benefits such actors bring to the table.

We found that, through the co-creation activity, some of the active participants found opportunities to demonstrate their abilities outside of the community and were sometimes rewarded financially. Another finding of our study was that the most active participants in the co-creation community showed higher interest in being rewarded for their abilities in relation to co-creation activities. However, these people maintained their original careers, so they were likely to seek more attention to satisfy their needs for self-actualization.

From the above, the idea of a "parallel career" comes up. Drucker (1999) encouraged the development of a second career and pointed out that it could help people to do what they always wanted to do but had not been able to do because of the circumstances. This research will show the relationship between co-creation activities and parallel careers to determine how users and firms can achieve sustainable co-creation activities. Furthermore, we aim to discover the social value of user innovations beyond corporate activities.

Parallel session 3 - CONTEST AND CROWDSOURCING #2

Session Chair: Karim Lakhani (Harvard)

Blasco, A., Isselbacher, E. A., Jung, O. A., Lakhani, K. R., and Menietti, M., “Motivating Employee Ideas through Contests: Field Experimental Evidence”

Abstract

Making use of direct email solicitation for an online competition for ideas sent to nearly 1,300 employees of a large medical organization, we provide an understanding of why employees at every level of an organization decide to contribute with their ideas to frequently encountered organizational problems, and what can encourage them to develop new ideas, evaluate and build upon the ideas of their peers, and what factors attenuate these influences. For example, controlling for the quality of ideas, we find that employees are more likely to make a proposal when they expect to be awarded a monetary prize, rather than when rewards are non-monetary (e.g., reputation, improving patient care) or long-term, such as running own projects. We also find that revealing employees a target quality dramatically reduces participation, while it does not significantly raise the quality of submissions. Finally, we document significant differences in behavior between the genders. Not only reflecting what may be a different competitive inclination (also found in previous works), but also a difference in the underlying (intrinsic) reasons to participate to the contest.

Haeussler, C., and Vieth, S. “Exploring Drivers of Advice Discounting from Crowds and Individuals: A Quantitative and Qualitative Analysis”

Abstract

The study of advice discounting is an integral part of the judge-advisor paradigm. We extend prior studies by shedding light on the type of advisor to investigate under which conditions judges discount advice from aggregated crowds, advisors which are directly approached or identified via an open call. We use an exploratory approach to analyze advice taking behavior on the German television game show “Who wants to be a Millionaire?”. Our quantitative analysis (study 1) reveals that judges’ willingness to discount advice increases with problem difficulty and the strength of social influence. Interestingly, these findings are regardless of the type of advisor. However, as many drivers of advisor-specific advice discounting are expected to be found beyond the quantitative angle, we use an additional qualitative study 2 for further analysis. For study 2, we analyze the conversations surrounding advice seeking and advice discounting and reveal that judges discount advice from aggregated crowds due to a crowd bias, i.e. the expectation that crowd advisors can be influenced by judges’ expressed comments, arguments and opinions. In terms of individual advisors addressed via direct approach or open call, we find that judges often discount advice when they misperceive advisors’ humble and hesitant behavior while not fully understanding the motives for such behavior.

Garaus, C., Lettl, C., and Schirg, F., “Exploring Motivations of Participants in Grand Challenges: A Comparative Case Study in the Space Sector

Abstract

Understanding the motivations of participants in crowdsourcing contests for grand challenges is important. It allows organizers of such contest to design the competition in a way that it attracts critical mass of encouraged and capable contesters to work on those large and difficult problems. In our embedded case study of the Ansari X Prize and the Google Lunar X Prize we explore two questions: (1) what are participants’ motivations to enter the tournament and (2) how do their motivations change over time as a reaction to critical incidents in those multi-year contests. We find that idealism plays an important role in the decision to participate and also leads to different reactions to the same critical events. Our data also reveal that perceived positive events lead to increased extrinsic motivation, when related to the prize, while it can lead to dropping out of the contest, when the positive incident is unrelated to the challenge. Perceived negative critical incidents lead to cognitive dissonance that is either resolved by withdrawal from the contest or finding an enriched set of justifications and thus developing “winning-despite-losing strategies”.

Grad, T., “Exploring Crowd Evaluations of Crowdsourced Ideas”

Abstract

Today many organizations do not struggle to generate ideas but are rather confronted with vast amounts of different ideas (Eppler & Mengis, 2004; Piezunka & Dahlander, 2014). Thus, the problem that these organizations face shifts from generating enough ideas to selecting the best ideas (Berg-Jensen, Hienerth & Lettl, 2014; Reitzig, 2011).

A second problem arises when organizations aim to access knowledge which is distant to the focal organization, e.g. via crowdsourcing (Piezunka & Dahlander, 2014). Because this knowledge is *ex definitione* unknown by the focal organizations, it remains unclear how capable the focal organization is in evaluating ideas that are based on distant knowledge (Afuah & Tucci, 2012; Piezunka & Dahlander, 2014).

In that line, there is rising interest in the involvement of crowds in the idea selection phase (Guinan, Lakhani, Boudreau & Riedl 2014; Hienerth & Riar, 2014; Magnusson, Wästlund & Netz, 2014; Möslin, Haller & Bullinger, 2010; Lakhani & King, 2013; Toubia & Florés, 2007), which is also known as crowd evaluation. In crowd evaluations the task of evaluation is outsourced to an a priori unknown group of self-selected evaluators (adapted from: Keinz, 2015), who first evaluate the evaluation object individually and whose evaluations are then aggregated. Thus, questions arise about the differences of crowd evaluations and traditional forms of evaluation, especially a) regarding the individual evaluations of self-selected evaluators and b) regarding the aggregation of the individual evaluations to a crowd evaluation.

Therefore, the research project at hand aims to investigate the following research questions: How do the characteristics (esp. expertise) of evaluators influence their evaluations? How should a crowd be constituted to arrive at valid evaluations? How should individual evaluations be aggregated to arrive at valid evaluations?

Given the fact that crowd evaluations can vary in how they are organized with regard to - among other factors – the interaction of evaluators, the transparency of evaluation results, and the incentives for evaluators, it will further be experimentally investigated how these factors a) influence evaluators decisions b) shape the results of crowd evaluations, and c) interact with one another.

By answering the above stated questions we aim to contribute to theory and practice in the following ways: With regards to theory we hope to shed light on how individual characteristics like expertise are connected to the validity of evaluations and what that means for the organization of innovation efforts. With regard to practice we hope to help practitioners to a) better understand crowd evaluations b) make use of evaluations more wisely and c) help to understand the conditions for appropriate usage of crowd evaluations.

Foegen, J.N., "How much is just enough? Resource imitability and information concealing in crowdsourcing contests"

Abstract

Broadcast search or tournament-based crowdsourcing (TBC) is an important tool for firms extending their innovation efforts beyond internal R&D. TBC enables seeking organizations to gain access to and internalize external knowledge that is critical to solve a specific technological problem (e.g., Afuah and Tucci, 2012, Jeppesen and Lakhani, 2010). In exchange, the succeeding solution provider receives a prize money, a funding contract, or engages in collaborative R&D with the seeker. Thus, crowdsourcing is a two-sided market organized and supervised by an independent open innovation (OI) intermediary. Research in the field of TBC emphasizes the immense potential for enhanced ideation and creative problem-solving that lies within TBC-practices (Piezunka and Dahlander, 2014, Jeppesen and Lakhani, 2010, Afuah and Tucci, 2012). However, seeker and solution provider do not necessarily profit both from this exchange. For solution providers participating in TBC may come at the cost of losing core intellectual property (IP) to seeking organizations without being adequately compensated. For instance, if an individual reveals a viable solution, but fails to win the tournament, the seeking organization may apply the IP or further develop the idea without remunerating this particular solution provider. This drawback causes severe appropriation concerns among solving individuals. They face an underlying tension between revealing to win and concealing to safeguard valuable IP. If solution providers perceive the imitation threat as too high, they might even decide to not participate in the first place. This again would narrow the solution space and make this particular TBC a less powerful tool for seeking organizations. As a consequence, they might abandon TBC or switch to other platforms. In order for OI intermediaries to create a sustainable system of a two-sided market, it becomes necessary to better understand what attributes of the (1) technology, (2) seeking organization, (3) intermediating platform, and (4) solution provider drive perceived imitation threats (PIT) and what factors beyond these enable knowledge exchange, while maintaining value appropriation. For my analysis, I created a unique dataset of (1) archival data and (2) survey data on solution providers, and (3) archival data on seeking organizations' characteristics. My final sample comprises data on 983 individuals. Initial results from regression analyses yield that the perceived imitation threat mediates the positive relationship between resource imitability and information concealing. Moreover, seeker trustworthiness and legal protection moderate the positive link between resource imitability and perceived imitation threat in a way that this link is weaker the higher the seekers trustworthiness and the more effective the legal protection.

Scheiner, C.W., Baccarella, C.V., Krämer, K., Voigt, K., “Moral Disengagement in Idea Competitions – The Dark Side of Participation”

Abstract

Idea competitions are used by organizations in order to gather as many ideas as possible from organizational insiders and outsiders in order to find the best ideas for the given purpose. To fulfill this task, it is essential that the best idea can be identified. But what happens, if an idea competition is manipulated and the system is gamed by participants intentionally? In this case, the whole concept of idea competitions is led ad absurdum, as not the best idea is selected but the one, which only appears to be the best.

Previous research has completely neglected this problem in idea competitions. Even if scholars examined motives for participation (e.g. Boudreau et al., 2009; Bretschneider et al., 2012; Füller, 2007; Janzik & Herstatt, 2008; Leimeister et al., 2009; Bullinger & Möslin, 2010; Walcher, 2007), the dark side of participation mostly has been overlooked. Moreover, in those isolated studies, which acknowledged and pointed to this problem (e.g. Scheiner, 2015; Witt, 2013), no explanation was given, why participants could try to gain advantages in an unethical way. In explaining the reason for unethical behavior, recent research has started to examine moral disengagement as a cognitive process (Baron et al., 2014; Detert et al., 2008; Moore et al., 2012). Moral disengagement describes a process in which people are able to disengage the self-regulatory process that normally impedes individuals to act in a way, which is contradicting and violating their own moral standards (Bandura et al. 1996; Detert et al., 2008). Within this study, we examine the role of moral disengagement in participants' tendency to unethical behavior. A quantitative study with 123 participants serves as basis for the analysis. Linear regression modeling has been applied to analyze the direct effect of moral disengagement (Detert et al., 2008) on unethical decisions and the mediating influence of moral disengagement on the relationship between moral identity (Aquino & Reed, 2002) and motives for participation (Walcher, 2007) on unethical decisions. In order to identify unethical decisions, vignettes of unethical decisions were presented to participants, who had to evaluate those vignettes according to their unethical character. A following factor analysis revealed that 3 different types of unethical behavior exist (idea manipulation, social manipulation, and system manipulation). The findings show that moral disengagement is positively related to perform unethical behavior. Moral identity and hedonistic motives have an indirect effect on unethical behavior through moral disengagement. No effect could be detected for benefit motives and norm motives. It can be subsequently concluded that organizers of idea competitions should particularly place an emphasis on such elements, which target hedonic motives such as gamification in order to reduce unethical behavior.

Hutter, K., and Fueller, J., “Crowdsourcing Social Innovation”

Abstract

Using the concept of crowdsourcing has become increasingly popular within companies to foster creative problem-solving. So far, little attention has been given on using crowdsourcing to stimulate social innovation. With the help of an in depth social network analysis of a successful initiative using crowdsourcing for social innovation, this article will shed light on how to conduct a crowdsourcing initiative for social innovation. Furthermore patterns of interaction behavior influencing idea quality will be explored. This article provides valuable insights to use the wisdom of the crowd for creative idea generation within the context of social innovation.

Parallel session 4 - GOVERNANCE AND/OR POLICY

Session Chair: Nik Franke (WU)

Torrance A., von Hippel E., “Innovating not Waiting – NightScout inside the Innovation Wetlands”.

Abstract not available

Santos, A.B.M., “Determinants of Open Innovation in Clusters – The Portuguese Case”

Abstract

Given the lack of research linking clusters and open innovation, this paper attempts to analyze the determinants for the adoption of open innovation in clusters, based on existing clusters in Portugal - currently there are 19 clusters, recognized by the Portuguese Government.

Ihl, C., and Vossenb, A., “Copyright or copy right? Users as market makers by infringing the copyright of digital products”

Abstract

We provide empirical evidence on how user-induced copyright infringements, e.g. online file sharing, affect the commercial and creative success of digital products. As opposed to the traditional view of copyright infringers as harmful, supply consuming market takers, we propose an example of copyright infringing users as supportive, supply providing market makers. We use data from the international Anime TV series market to analyze the impact of users’ online distribution of Japanese series that aired in Japan, but are yet to air in the international market. Analyzing over 1,800 anime TV-series aired between 2002 and 2012 we find that series that are “victim” of a supportive copyright infringement by users are likely to sell better and receive better audience evaluation. We attribute this effect to the promotional effect of users’ market making behavior, as the positive effect of copyright infringements is smaller for series that are less contingent on promotion, such as sequels and award winning series. This paper introduces and tests the concept of users as market makers and contributes to the debate on the impact of copyright infringements on the success of digital products.

Gorbatyuk, A., “IP Ownership in Coupled Open Innovation Processes”

Abstract

Open innovation (OI) is high on the commercial and political ‘agenda’. It is observed that more and more R&D partnerships facilitating coupled OI activities are established to keep up with the rapid technological developments. The allocation of Intellectual Property (IP) ownership is a difficult task during the negotiation of R&D partnerships. The challenge is complicated by the lack of regulation and harmonization of IP legislations. For instance, many legal systems impose co-ownership as a default regime for jointly developed technologies. The exploitation rights, however, may significantly vary and prescribe the consent of other owners in case of use, licensing and sale of co-owned patents. Both the consent requirement and need to consult a considerable number of legal systems may harm interests of collaborating parties and complicate or substantially delay future exploitation of technology. To avoid the complexity, parties can establish their own applicable rules. The confidential nature of contracts will, however, preclude third parties from obtaining the relevant information required for initiating an OI process. Our analysis illustrates that neither the default

regime nor contract-based regime provides the necessary level of transparency and legal certainty to secure the smooth exploitation of jointly developed IP and future engagement in OI. After examining the recent legislative initiatives to improve legal certainty and transparency, both at the national and EU level, we suggest potential legislative measures that could be imposed to improve the legislative framework.

Fauchart, E., and Rayna, T., “IP norms regulating commercialization behaviors in open innovation contexts”

Abstract

This early stage research is interested in the intellectual property norms that regulate commercialization behaviors in open innovation contexts. Evidence from the 3D printer area shows that contexts in which people have been sharing freely their achievements (e.g. sharing code or blueprints for improving 3D printers) can give rise to commercialization behaviors at some point where some actors commercialize innovations that build on others' freely shared inputs. For instance, MakerBot, one of the 3D Printer market leaders, originally based its products on open source designs made available by a community of 'makers' (the RepRap project). While MakerBot did at first contribute 'back', by releasing the designs of its own products under open source license, overtime its products became increasingly closed until they eventually (from the 4th generation onwards) became completely proprietary. In this research we investigate the IP norms regulating commercialization behaviors in the 3D printer area and seek to understand whether commercializing innovations that build on others' freely shared inputs is considered a deviant behavior (others regard it as a bad behavior and condemn it) or if, on the contrary, it is regulated by IP norms that in some specific conditions or boundaries allow for some commercialization. In particular we seek to understand if the timing matters that is if there are phases in which norms of non-commercialization cease to exist and commercialization becomes acceptable. In the case of MakerBot, this move from open to closed hardware and software has created quite a controversy, as many of the innovations and improvements of MakerBot 3D Printers were contributed by the community. Yet, MakerBot is not alone in this case and other 3D Printer manufacturers have been accused of 'ripping off' the community. Communities are usually assumed as being regulated by norms of behaviors, especially when it comes to intellectual property, and we seek to understand if this behavior is actually accepted by most of the community and why. This issue is particularly relevant in the context of the 3D Printing community because, unlike software, reproduction of hardware necessarily comes at a cost, which makes commercial ventures a necessity for diffusion to occur. We are in the process of conducting interviews that will lead to the collection of qualitative data on these possible IP norms and acceptable behaviors re the commercialization of innovations in open innovation contexts. We plan to present our preliminary results at the minitalk session of the OUI in July.

Aziz, M.H., “Using Crowdsourcing in Policymaking as a Tool in Ethnic Conflict Resolution”

Abstract

Many of today's ethnic conflicts around the world are rooted in the historical failure of governments to address the needs of certain minority groups through specific policies. We have seen this in nascent democracies like Myanmar (e.g. Shan ethnic rebels) and Pakistan (e.g. Baluchistan's separatists), where ethnic minorities have felt ignored by government policy and so have become

armed insurgencies. Ceasefire deals, external mediators, bilateral negotiations and attempts at devolving power have failed to produce any significant change in these conflicts in recent decades. The bottom line is traditional political institutions and ethnic conflict resolution techniques have failed. This project will consider if crowdsourcing technology might be a relatively simple way to reduce ethnic tensions by involving ethnic minorities in some way in policymaking. Perhaps these minorities could be given a chance to offer their input on policies that cater to their specific needs. At the very least, it could be the first step in rebuilding strained relations between both sides so they can get on a more solid footing toward long-term conflict resolution. It could even be part of the UN's conflict resolution toolkit.

[Azevedo, S., Canhao, H., and Oliveira, P., “Are patient innovations above the threshold of regulatory agencies? Are the regulatory agencies ready for patient innovations?”](#)

Abstract

The present study aims to explore the extent to which patients and caregivers (as user innovators) develop innovative solutions that would be successful through clearance and approval processes of both United States and European Union medical device regulations, FDA and EMA. We classified a sample of patient and caregiver innovations according to each device-approval system. To address the question of which regulations accesses earlier to user-driven medical devices, we also analyze the time requirements to obtain approval in each cases. The knowledge generated from this process would inform a whole body of innovation that not only these solutions have positive impact on the patient’s overall quality of life but they are also considered both effective and safe according to each regulatory agencies.

Parallel session 5 - User Innovation in Health care

Session Chair: Helena Canhão (Lisbon Medical School)

Oliveira, P., Zejnilovic, L., Canhão, H., von Hippel, E., “Innovation by patients with rare diseases and chronic needs”

Abstract

We provide the first empirical exploration of disease-related innovation by patients and their caregivers. Our aims were to explore to what degree do patients develop innovative solutions; how many of these are unique developments; and do these solutions have positive perceived impact on the patients' overall quality of life? In addition, we explored the factors associated with patient innovation development, and sharing of the solutions that the patients developed.

Moors, E.H.M, and Peine, A., “New user value spaces for health innovations”

Abstract

Health innovation is moving from the professional medical spaces, in which the patient is often regarded as passive receiver of healthcare, into more domestic, informal care spaces, in which patients and users are actively involved in self managing their disease or health. The ‘e-revolution’ causes a shift in information distribution between medical professional and patient, in which digital self-diagnosis is becoming more important. These innovations also lead to issues such as awareness raising, privacy related threats, patient surveillance, treatment compliance and user acceptance. So, besides efficacy, safety, quality and costs parameters, various social expectations, values and norms of patients/users constitute as normative rules, emphasizing more quality-of life related values. The aim of the paper is to address the way we conceptualize and assess health innovations and underlying user values, and to re-conceptualize the so called ‘value spaces’ in which health technology is traditionally designed, evaluated and used. We show that shifts from secondary to primary to mobile care necessitate changes in the way we think about the value of health technology, such as a diagnostic innovation. More specifically, we argue that personal health systems fulfill an interesting hybrid configuration, posing hybrid values of users. Health technology should provide them with means to cope with emerging diseases and care, and they should stimulate activities and lifestyles that prevent diseases, indicating a hybrid identity of the health technology user.

This twofold objective implies an inherent tension between the values of medical treatment – for which compliance is essential, and evidence should be available and measurable about its effects regarding efficacy, safety, quality and costs of good functioning- and the values underlying the quality of life – for which exploration, do it yourself in the domestic environment, co-creation and meaning are essential elements, giving more power to the patient and/or user. We use Callon’s distinction between prosthetic and habilitation social policies to argue that responsible diagnostic innovation should be simultaneously prosthetic and habilitating, that is, should enable individual users to follow pre-configured scripts, as well as empower them to explore their needs and preferences.

We use Point-of-Care diagnostics as an illustrative case study in the domains of primary and secondary patient care. 12 interviews with representatives of the main organizations in the Dutch health care system were conducted, including medical specialists, scientists, business developers, health policy actor, coordinator secondary patient care, health insurance, and General Practitioners. By contrasting primary and secondary patient care we demonstrate how different logics of

addressing values in innovation feed into either prosthetic or habilitation policy decisions about diagnostic health innovations.

Andriani, P., Ali, A., Mastrogiorgio, M., "Measuring Exaptation in the Pharmaceutical Industry"

Abstract

Exaptation, the preadaptation of technologies for unintended functions, is an important mechanism in the expansion of the technosphere. In this paper we propose a method to measure the frequency of exaptation. We apply it to the pharmaceutical sector and offer the first measure of the frequency of exaptation in an industry. We show that exaptation accounts for about half of all innovations in the uses of drugs. We also show that some exaptations have a radical character and trigger cascades of innovation.

Boon, W. "Off-Label Use of Drugs as User Innovation – Patterns of Diffusion"

Abstract

This contribution concerns the diffusion of ideas proposed by users in their communities. This 'work in progress' study is about off-label drug use. DeMonaco and colleagues (2006; 2013) paid attention to users as ultimate sources of new off-label use. Despite this finding, there is still a need for conceptualizing and unravelling the diffusion pathways in the post-implementation phase (Bogers et al., 2010). I am particularly interested in the role of and dynamics within user communities. The research question is, then: how do dynamics in user communities contribute to the diffusion of off-label drug use? Related to this: what determines the development of new ideas in user communities, how are these new ideas put into practice and how are these practices spread? And what does user innovation mean for (demand-oriented) innovation policy? I use bibliometric methods as well as in-depth case studies in specific indication areas related to off-label drug use to uncover these diffusion patterns and user community dynamics.

Roldão, J., Zejnilovic, L., Oliveira, P., and Canhao, H., "The effectiveness of diffusion attempts of user-developed health-care solutions"

Abstract

The challenges to healthcare systems are common worldwide. The need to identify new treatments and solutions that reduce the burden on society is top priority for all public policy makers. Drawing on Rogers' diffusion of innovations theory, we explore how well are users in the medical field communicating their novel solutions. Based on a sample of 248 submissions in a patient innovation platform, we assess the likelihood of innovation diffusion. Besides the problem of under-diffusion of user-developed solutions, the results of this study suggest that even when shared, the user-developed solutions are not effectively communicated online. We find that only the levels of radicalness and complexity of the solutions have a positive impact on the quality of communication. Our findings are important as communication strongly influences diffusion and, consequently, adoption. Hence, educating users on how to better communicate their solutions on dedicated online communities is appointed as the key to boosting adoption by others, which in turn leads to increased social welfare. We conclude this paper with a discussion of implications of this study on theory and practice.

Goeldner, M., and Herstatt, C., “Patients and relatives as user entrepreneurs – a case study analysis in the healthcare sector”

Abstract

Users have been proven to be a major source of innovation across various industries. User entrepreneurship literature has been extending user innovation theory by describing the commercialization process of user innovators. According to Shah and Tripsas (2007), enjoyment during the development and commercialization process as well as low opportunity costs have been identified as main drivers for user entrepreneurship. In contrast to these propositions, we want to extend user entrepreneurship literature by discussing the case of innovative patients and relatives – persons that develop and commercialize medical devices according to their own / their relative’s needs. Existing research about user innovation in healthcare has been focusing mostly on healthcare professionals. So far, little is known about patients and relatives as user innovators and user entrepreneurs. This is, to the best of our knowledge, the first study evaluating the case of patients and relatives as user entrepreneurs. We analyze their opportunity recognition and exploitation process and link it to user entrepreneurship literature. In our study, we used a multiple case study design to analyze the innovation and commercialization of user-innovated medical devices. We conducted seven semi-structured interviews with developers from Germany, Austria, UK and Israel – four patients and three relatives. Our findings indicate that patients and relatives are a valuable source of innovation for medical devices. In five cases, the user founded a company and commercialized the product himself/herself. In the two remaining cases, the idea was licensed out to a company. In all cases, IP protection was achieved early in the development process. In six out of seven cases, the product has gained a CE-certificate and therefore is an approved medical device. The development process lasted between 2 and 20 years. In four cases, time between the first idea and the market entry of the product was more than 15 years. We conclude that there is evidence for serious product development activity by patients and relatives. Although regulations and other market entry barriers hinder commercialization activities, some patients and relatives succeed in successfully selling their products within the healthcare system. Policy makers should develop structures to support non-professionals in developing and commercializing their medical devices. Healthcare companies should take advantage of this so far disregarded source of innovation and try to integrate innovative patients and relatives into their development process.

Parallel session 6 - Open & User Innovation LAW, POLICY & IP

Session Chair: Andrew Torrance (U Kansas)

Chim, J., and Kuk, G., "Is it fair that 'Bits are free, but atoms cost money'? A trust perspective"

Abstract

In December, 2013, the open source hardware association has openly acknowledged that copying hardware without permission will not infringe copyright (OSHOWA, 2015). The copyright which is used to protect the freedom of software as in open source software is unenforceable with open source hardware. This realisation has direct and indirect consequences on both community interests and business growth especially when hardware is leveraging on software to induce sales of hardware (West and Kuk, 2014). This paper examines a unique case when software and hardware is closely intertwined to an extent software have both independent and interdependent relationship with hardware. The latter makes the decoupling of one from the other controversial when software stays open whereas software side of the hardware and also hardware are closed. This divide induces intra-relational tensions between the commercial interests of institutions and the community and inter-relational tensions between different stakeholders in the community. We use the relationship between Thingiverse and Makerbot to illustrate the contention between open and closed, and develop a trust/distrust perspective to account for this tension.

Fukami, Y., and Ogawa, S., "Open collaborative innovation through standardization at the W3C"

Abstract

This paper analyzes expansion of developers' participation in innovation through standardization. Regarding how the World Wide Web Consortium (W3C) developed a process that realized open collaborative standardization activity. This analysis involved a study of internal documents and more than 230,000 emails from archives since the standard-setting organization was established. Particular focus was placed on standards that realized web applications. HTML5, the newest version of the W3C's standard, realizes web applications. Web application is an architectural innovation with standardization for multiple modules can be realized only with "concerted innovation" among firms and community of developers outside. Implementation-oriented policy takes advantage of network externality and enjoys the benefits of accelerated implementation cycles, feedback that leads to the sophistication of specifications, and spread of market receptivity. Developers outside of the standard setting organization are encouraged to implement proposed specification and send feedbacks. Implementation-oriented policy encourages developers outside to take part in standard development process. Test the Web Forward is open collaborative activity to develop test program for specifications. The activities consist of hackathon events. Programs developed at events stored and shared with GitHub, a major tool for open source software development. Introduction of tools frequently used at OSS development is one of factors to reduce barriers to contribute, and increase developers' participation in collaboration. Such tools enable to modularize tasks, increase transparency of contribution and cooperation of distributed engineers.

Gil, N., “Polycentric Commons Governance: Decentralizing Development Of Loosely-Coupled Systems Of Monolithic Solutions”

Abstract

Little is known about the governance of multilateral, consensus-oriented developments of indivisible design solutions for shared problems. In an abductive study of an interorganizational collaboration formed to develop a loosely-coupled system of monolithic school buildings, and involving schools, public agencies, firms, and local and central governments, I found that when many independent parties share the right to directly influence interdependent design choices, the design-in-the-making qualifies as a common-pool resource. This is it juxtaposes low excludability of many parties from directly influencing design decisions with high rivalry in the preferred choices for the final design. In these pluralistic enterprises, the risk is real of developments succumbing to collective-action problems, i.e., budget overruns, scope creep, bogged-down processes, or parties leaving the collaboration. And yet, I argue, robust decentralized governance aligned with system-level decomposability can avoid a tragic outcome. Polycentric commons governance gives local groups autonomy to develop non-decomposable solutions for their shared problems but the groups must keep to a set of high-level rules. I conclude with the rudiments of a theory describing when and why a polycentric commons can be advantageous for governing a multilateral development of a loosely-coupled system of monolithic solutions for shared uses.

Deimel, M., “The role of selective revealing in the formation of networks”

Abstract

Selective revealing has developed as an area of interest for academics and practitioners alike (Henkel, 2006; von Hippel, 2005). Conceptual work has focused on the conditions of why, when and how firms reveal knowledge for innovation (Alexy, George, & Salter, 2013). On one hand empirical research on antecedents, consequences and conditions remains scarce, on the other hand this rationale has been attributed to recent actions of firms. For example, Tesla has pledged its patents to support the nascent field of electric vehicles or GlaxoSmithKline made available a “Malaria Box” to enable research on neglected tropical diseases.

One important aspect of select revealing is the signaling of the firms’ research interests. Upon this signal previously unknown firms can self-select to collaborate with the focal firm. What role plays selective revealing in the formation and development of collaborations for the focal firm? Through these new collaborations the focal firm may benefit from reciprocal actions instead of otherwise costly distant search (Henkel, Schöberl, & Alexy, 2014). Reciprocity to selective revealing arguably depends on how externals perceive this act. These perceptions may be based on characteristics of the focal firm, like its reputation, size or position in the network. What are the corresponding contingencies that influence the effectiveness of selective revealing in forming collaborations? The research project will address these questions empirically. Potential findings should add not only to the literature of selective revealing of firms, but also to networks of innovation and resource dependence theory. This is early stage work and welcomes feedback on relevance, theoretical underpinnings and research design.

Shrestha, Y.R., Ben-Menahem, S., and von Krogh, G., “Title: Coordinating Co-opetition: Insights from Open-Source Cloud Software Development”

Abstract

Co-opetition—i.e., cooperation between competing firms—has attracted significant research attention in recent years (e.g., Gnyawali & Park, 2011; Madhavan, Gnyawali & He, 2011). Studies show that over half of the new cooperative alliances are formed between competitors (Harbison & Pekar, 1998), and suggest that this development will increase (Ketchen, Snow, & Hoover, 2004: 795). Scholars have argued that “firms can generate economic rents and achieve superior, long-run performance through simultaneous competition and cooperation” (Lado et al., 1997: 11), and that co-opetition is “the most advantageous relationship between competitors” (Bengtsson & Kock, 2000: 411). Despite its potential advantages, co-opetition also involves inherent challenges. Cooperating competitors face a trade-off between joint value creation and the risks of opportunistic behavior in value appropriation (Lavie, 2007; Ritala & Hurmelinna-Laukkanen, 2009). This tension creates the need for careful coordination (Bengtsson & Kock, 2015). Yet while the trade-offs between advantages and challenges of co-opetition are well recognized in the management literature, little is known about how organizational members effectively coordinate these collaborative activities among competitors. The purpose of this study is to examine how differences in coordination of activities among cooperating competitors explain why some firms benefit more than others. Specifically, we develop a conceptual model of the cooperation among software development firms and their competition for human resources. We test our model using archival data on task allocation and -completion within the OpenStack project—a global collaboration ecosystem of developers from 200+ competing firms producing an open standard cloud-computing platform. OpenStack is one of the fastest growing open source communities worldwide, with more than 24,000 contributors from over 162 countries, OpenStack presents an apposite setting for studying coordination of co-opetition. With the emergence of the digital age, co-opetition is increasingly taking place within online communities, and in particular, within platforms for knowledge creation (e.g, Majchrzak et al. 2013) and innovation (e.g., von Krogh & von Hippel 2006). Our empirical analysis draws from data sources including (a) GitHub—a code hosting service, (b) Gerrit—a code review system, (c) Launchpad—a collaborative workspace and (d) Stackalytics—which provides statistics on companies’ contributions to OpenStack. By analyzing how different coordination patterns (i.e., task allocation and completion) explain the degree to which firms efficiently use their own and competitors’ resources in completing software development tasks, our study provides new theoretical insights into coordination as a source of competitive advantage in a cooperative ecosystem, In so doing, it provides important insights into coordination mechanisms in new forms of organizing (Preece 2000, Puranam et al. 2013), and extends classical co-opetition theory.

Kuk, G., “The virtue of smallness in open source software development”

Abstract

One of the most salient features of successful open source projects is the smallness of the core group of developers within each project, i.e. a small percentage of developers carry most of the code development and maintenance. Yet less is known about how smallness can sustain the community growth and development despite an increase in the complexity over time relating to the code and the user base. In this paper, I argue smallness as depicted in the extant literature of small world networks has two dual positive effects on the individual developers and their relations to others.

First, it sustains contribution through an increase in the technical dependency among code over time. Second, it decreases attrition rate through co-opting with new recruits. Specific research hypotheses are formulated and tested using a longitudinal data on a panel of 719 developers between 1996 and 2009. The developers were the 'lead' users who collectively contributed 102 million lines of code to an open source content management system. The results show the said project exhibits small-world characteristics but no scale-free property over time. Smallness not only sustains contribution but also notably dampens the attrition rate. This study has shown once the project has acquired the small world characteristics, it can prolong the longevity and performance of up to 5 years. Smallness not only sustains contribution but also notably dampens the attrition rate. This study has shown once the project has acquired the small world characteristics, it can prolong the longevity and performance of up to 5 years.

dos Santos C.D.Jr., “Seeking Completeness: Who Is Involved In Free And Open Source Software Projects”

Abstract

Much is known about the main participants in a free and open source software project, the developers, the testers, the bug reporters, the users, the sponsors, etc. However, it is also known, through the stakeholder theory, that these key participants do not represent all the people involved in, or affected by, the activities of these projects. There are always those who do not directly engage in the development or the use of an application and are still affected by it, being eventually influential in its success or failure (e.g., politically or competitively). Especially in successful and funded by public or private organizations projects, the stakeholders' ecosystem is more diverse and complex than the free and open source software literature recognizes, at least in a generic conceptual model that can be abstracted and used for making decisions related to the organizational objectives and activities. This article aims to provide this model, a strategic tool that enables the assessment of the interests, motivations and influences of all groups responsible for the survival and success of free and open source software projects today.

Parallel session 7 - TOOLKITS & PROBLEM SOLVING

Session Chair: Georg Von Krogh (ETH)

Kyriakou, H., and Nickerson, J.V., “Novelty in Collective Design Landscapes”

Abstract

Design has often been seen as a search through space. Using an objective, repeatable measurement of shape distance in a 3D collective design online community, an empirical fitness landscape is created. From this landscape, shape novelty is computed. The relationship between novelty and design outcomes is assessed. In the case discussed, designs very novel at the time of invention attract 2.4 times more downloads, 2.1 times more likes, and 2 times more reuse than very imitative designs. In addition, very novel designs were manufactured 1.9 times more than very imitative designs. This last result is particularly noteworthy because the instantiation of product designs can be seen as an indication of utility. In most studies of creativity, novelty is thought to tradeoff with utility: in this community, novel designs have better outcomes. The evaluation of the community members may be acting to highlight designs that are both novel and useful. Implications for theory and the design of online communities are discussed.

Cheruy, C., Nassim, B., and Hind, B., “Formulate or not formulate: Solving Problems with a Dynamic Capabilities Perspective”

Abstract

When company decides to outsource a problem, it expects to meet the optimal solutions from external solvers. However, usually firms struggle first on how to perform the right problem solving process to generate the best ideas. Second, when they figure out which strategy to follow, they still have hard time to decide if they are going to formulate or not. Our research, designed on a crowdsourcing context, explores this question by drawing on the dynamic capabilities perspective applied to both problem formulation and need solution pairs. The dynamicity and complementarity between these two processes uses the evolutionary theory of ideas to optimize the search of solutions.

Haeussler, C., and Vieth, S., “Me, the Crowd or the Expert? An Empirical Analysis of Solution Seeking through a Problem-based View”

Abstract

In an era of open innovation, sourcing of external knowledge to develop solutions has gained momentum. Technology improvements have made the crowd a viable source of knowledge. So far, the selection of crowds versus other traditional ways of seeking solutions is far from being understood. In this paper, we introduce a framework in which we propose four problem solving approaches which include 1) solving the problem yourself, 2) using crowd knowledge, 3) asking experts by using an open call, and 4) approaching them directly. Our empirical analysis of 3086 problems solved by 262 individuals from the television game show “Who wants to be a Millionaire?” suggests that problem solving approaches are selected based on problem difficulty, field-related expertise, and the strength of social influence. Moreover, the strength of social influence moderates the effect of problem difficulty on solution seeking. Our study offers implications for the knowledge-

based and open innovation literature as well as implications for practitioners in terms of problem solving on the individual and organizational level.

Coorevits, L., and Schuurman, D., "Increasing Relevance Of Living Lab Outcomes Through Proxy Technology Assessments"

Abstract

Living Labs or other in-situ research are capable of capturing contextual and personal data of end-users in real life environments, yet their impact on technological development cycles is often limited. In this paper we present how a proxy technology assessment can improve the overall prototyping process and enhance the impact of Living Labs. Capturing experiences and actions of the users enable the researcher and designers to reflect upon the potential future use and adjust the product development accordingly. The findings have important implications on how to facilitate multi-stakeholder prototyping and problem solving early in the development process.

Franke, N., Metz, F., and Moreau, P., "The Journey and the Reward: A Longitudinal Study of Value Generation during Self-Designing"

Abstract

Companies in various industries introduced toolkits for user innovation and design (von Hippel, 2001, Thomke, von Hippel, 2002) as a means to provide users with the opportunity to create self-designed products in a web-based setting. The underlying notion of this approach is that users are capable of self-designing products of higher subjective value (von Hippel, 1988, Franke, Piller, 2004, Franke, von Hippel, 2003, Levin et al., 2002). Much research shows its great value increment for the individual customer (compared to "off-the-shelf" standard products) and identified its different components, namely (1) closer preference fit (Franke, Schreier, 2004, Franke, von Hippel, 2003, Kamali, Loker, 2002, Franke, Keinz, Steger, 2009), (2) higher perceived uniqueness (Franke, Klanner, 2013), and (3) feelings of accomplishment (Franke, Schreier, 2010, Franke, Klanner, 2013). However, one aspect is striking: all extant studies measure the subjective value of the self-designed product at a specific point in time, namely when the individual self-design process has been finished. This moment is of course very important – actually the buying decision is made then, and before the product design does not yet exist. However, self-designing involves a process and it may well be that perceptions, evaluations, and subjective value generation expectations undergo changes in different stages of the process. A slight indicator for this may be that very many self-design processes are actually terminated before arriving at a final product respectively before a buying decision could be made – apparently, expected value was too low for the customer. So far, no study investigated the process of self-designing and the perceptual, cognitive, and affective processes taking place in a longitudinal manner. Thus, our research questions are: Which subjective value is perceived (or expected) in the different stages of self-designing? More detailed: How do the different components develop (preference fit, "I designed it myself" effect, perceived product uniqueness)? Which factors (motivation, personality, individual resources, process experience) determine the respective levels? To answer those questions, data will be gathered in a laboratory experiment where participants (n=200) self-design a certain product. To uncover the process itself, a longitudinal measurement of all constructs (value, components, and factors) before, during, and after the process is planned and will be based on (1) established scales, (2) BDM auctions (3) FaceReader 6 software, and (4) clicking behavior. Participants will be randomly assigned to groups which will be interrupted for measurement at different times. We plan for a between-subject comparison and every participant

will be questioned once as probably measurement will affect behavior. The objective of this research project is to analyze subjective value expectations and compare the changes the main components and factors (influencing this value expectation) undergo.

Mizuno, M., “The Important Role of Users in Pop Culture-Related Business in Japan”

Abstract

In this study, we argue the role of the user in the pop culture-related business. There are various pop culture businesses related to comics, animation, and video games in Japan. In this field, handling of highly sticky information is the key for success because users are extremely particular about their worldview. The manufacturers and service providers have to run their businesses while meeting their needs and honoring their worldview faithfully. On the other hand, it is very difficult to understand such user’s worldview because this type of information depends on their values and is in the territory of sensitivity. As a result, user innovation happens easily. A large number of user communities in the pop culture field might be an evidence that this hypothesis is not irrelevant idea. However, when the user's idea requires the high level technological knowledge and facilities to realize, manufacturers play a role to carry out the innovation. In such case, producers need to reduce the stickiness of the user’s idea. As the first step to discuss this problem, we show a case of a Japanese Photo Booth manufacturer which is developing a lot of unique amusement photo booths by collaboration with “photo booth hackers”. The hackers, who have extreme experiences of photo booths, have contributed to succeed in reducing the stickiness of user’s sensuous needs and in translating the ambiguous impressions into precise terms to the manufacturer’s product idea.

Kucukkeles, B., von Krogh, G., and Ben-Menahem, S., “The Division of Labor Between Human and Computerized Technologies: A Problem Solving Perspective”

Abstract

One of the fundamental elements of organization concerns the division of labor and integration of efforts. Organization theorists have typically taken tasks or human agents performing those tasks as the unit of analysis (Puranam, 2014). Yet while recent technological advancements have rendered information systems increasingly effective for replacing human problem solving, insights into how organizations manage the division of labor between humans and computerized technologies in organizational problem solving are largely lacking from organization theory literature. Replacing human activity in organizations has limited value for organizational knowledge creation. Indeed the delegation of tasks to computers requires a more intricate organizational designs of the interface with human (Brynjolfsson and McAfee, 2012). A fundamental reason for this is that computers lack the human insight required for formulating problems. The aim of this study is to shed light on the division of labor among human and computerized agents from problem solving perspective in the setting of drug development. Kaplan and Simon (1990) point out that insight is an important element of the problem solving process, and that changes in problem representations are needed to attain insight. Even if artificial intelligence technologies empower information systems to have some capabilities of learning and pattern recognition, information systems still heavily rely on existing information and some level of problem definition. However, not all the problem solving processes start and continue with a clear problem definition (von Hippel and von Krogh, 2013). Instead, in some cases problem solving occurs by matching of a need and a solution. This instantaneous matching of a solution and a need is clearly observed in drug repositioning—a special case of drug development—defined as searching for additional indications for existing

drugs. Drug repositioning builds strongly on computerized technologies; however, it also still relies heavily on human insight since additional indication is in another area of diseases than the drug is initially developed for. Therefore, this combination means that drug discovery tasks require intricate combination of tasks performed by humans and computers, and the only way to perform this division of labor effectively is to understand underlying problem solving mechanisms. Building on both qualitative and quantitative data on problem solving process in drug development, and in particular drug repositioning setting, our preliminary findings are that full automation by technology might lead to miss an opportunity of novel development in the cases where integration of distant knowledge domains needed and there is a lack of clear problem formulation. Moreover, even heavier reliance on the technology is desired, our results from drug repositioning setting show that approach to classical problem solving logic needs to be changed.

Naik, H.S., “A Feedback Based Toolkit to Recommend Solutions that Match User Needs”

Abstract

The approach of toolkits for user innovation and design is to enable users to carry out trial-and-error cycles as they design products based on their needs (von Hippel, 2001; von Hippel, 2005). We argue that toolkits have to do more than just transfer need related information for the average user (Franke & Schreier, 2002), when the toolkit solution space is large and user needs are not explicitly formulated (von Hippel & von Krogh 2013). This research in progress paper addresses the research problem by following design science research method (Hevner, March, Park, & Ram, 2004; Peffers & Tuunanen, 2007) and presenting artifacts that support a proposed alternate toolkit design: feedback based recommendations toolkit. Set in the context of designing storage cabinets, the toolkit is a web based system that generates designs of cabinets based on explicit needs entered by the user as well as feedback in the form of the user’s preferred recommendation. The preference selection is assumed to suggest the user’s unformulated implicit needs. It iteratively recommends multiple designs to the user, who then provides feedback to the toolkit by selecting the recommended product closest to the user’s needs. With every iteration, the user narrows down the solution space and at any time can store matching solutions, thus storing multiple need-solution pairs. The final paper will present two artifacts which form key results of the research: an ontology for mapping explicit user needs to product design characteristics and an algorithm to traverse through the solution space and categorize solutions based on how similar they are to the user. The final research paper will also compare usage of the designed toolkit with traditional toolkits as part of the design evaluation. This approach firstly captures both explicit and implicit user needs. Secondly, it reduces user involvement. Instead of performing laborious low-level design steps, the user only searches through final solutions generated and recommended by the toolkit. The paper is increasingly relevant as flexible manufacturing technologies and processes like additive and subtractive manufacturing proliferate. They can offer average users a larger solution space to design their products with the availability of low-involvement toolkits.

Parallel session 8 - USER COMMUNITIES

Session Chair: Christopher Lettl (WU)

Hauck, M., and Hienerth, C., “Investigating the Properties of Recent Business Ecosystem Development: A Conceptualization Based on Literature Streams and Case Illustrations”

Abstract

With rising importance of the external economic environment of organizations and open and collaborative innovation, the recent two decades have seen an emergence of diverse literature streams on business ecosystems. Investigating the phenomenon, some authors took a rather holistic approach and relied strongly on the ecological metaphor. Others have discussed and conceptualized the functioning and building parts of ecosystems, contributing also with first empirical insights. However, those authors mainly focused on ecosystems that function in the information and telecommunication technology industries - companies such as Apple, IBM, Intel and Microsoft - and primarily included actors which were driven by economic interests. After reviewing diverse literature streams, we argue that the conceptual foundation of the business ecosystems remains rather vague, making “business ecosystem” rather an umbrella term. With the goal to contribute to the extant literature and better understand the central factors that foster evolution, functioning and growth of business ecosystems, we provide a systematic overview of the ecosystem concept evolution in the literature. We draw on open and user innovation, cluster, platform and entrepreneurship literature to identify novel ecosystem properties. We then illustrate them by using prominent recent ecosystem case illustrations and propose that increased influence of creative individuals, power of crowds and communities, and culture can serve as additional units of ecosystem analysis, and that aspects such as the role of geographical and virtual hubs, and user entrepreneurship can add a new perspective to the understanding of the ecosystem concept.

Shaikh, M., “Managing the ‘Source’ in Open-Sourcing: The Uncertainty of Establishing the Worth of a Community”

Abstract

In this paper we show that historically companies that adopt and invest in open source have found it difficult to make sense of what to expect from an open source community in regards to quality of software, sustainability of the product, upgrades and other characteristics that set open source apart from traditional development. Such ambiguity is seen by companies as a form of uncertainty that needs to be managed and made less problematic. In other words, managers interested in bringing open source into the company need to show how the uncertainties of open source can be converted into risks (something that has a probability and thus can be measurable and understandable). We conducted in-depth interviews of employees at various levels of two global technology companies that have been involved with open source for over a decade. This paper addresses the question of how companies convert uncertainties to risks in relation to an open source community by a) evaluating what are desirable characteristics (qualifiers) in open source communities, and b) forcing the qualifiers to become more understandable by moulding them closer to characteristics sought in traditional software companies. The main contribution of our work is an explanation of the process of how the health of an open source community is evaluated.

Miric, M., “How do non-monetary motives influence the rate and direction of innovative activity? A study of competition and innovation in digital markets.”

Abstract

A growing share of innovation is being performed on top of digital platforms, largely by individuals with non-monetary motivations. Existing research has looked at how attracting large numbers of third party complementers to a digital platform may influence innovation. However, it remains unclear how motivations influence this relationship and the role that that monetary and non-monetary motivations play in influencing the rate and direction of innovative activity. In this study, I look at how the entry of large numbers of complementers on top of a digital platform influences the rate and direction of innovative activity, and how these effects are influenced by the presence of non-monetary motivations. I exploit a novel hand collected dataset on the jailbreak platform (unofficial apps market for iPhone) and look at how changes in competition affected paid third party producers (with monetary motivations) relative to unpaid producers (with non-monetary motivations). I find that increasing competition had a stronger effect on the rate of innovative activity by paid relative to unpaid producers. However, I find that while increasing competition leads paid producers to reduce costs and rely more on existing software components, increasing competition leads unpaid developers to rely less on existing software components and to rely more on novel inputs in developing products. I test the robustness of these results to a variety of specifications and discuss the theoretical and practical implications at length.

Zeng, M.A., Dennstedt, B., Koller, H., and Schulte, B., “Democratizing Journalism – How User-Generated Content And User Communities Affect Publishers’ Business Model”

Abstract

Publishers today struggle with their business model: their efforts to convert traditional content into digital products seem to be insufficient as recipients expect more than just the mere digitalization of content. Dissatisfied with solely being informed by selected journalists, modern recipients often are interested in information from various sources, wish to discuss with others or even to contribute with their own content, thereby possibly becoming part of a sharing community.

With their new role of being both reader and contributor, we refer to recipients as users. User-generated content and user involvement were examined already in other fields and industries. However, the direct inclusion of recipients or readers into the content creation process as part of the business model of publishers has not been addressed directly. The aim of the paper is (1) to examine users’ expectations towards sources of content, (2) to identify users’ willingness to provide own content and how to include them into the content creation process and (3) to assess the extent to which this inclusion influences the business model of publishers. Data for the study was gathered through a survey amongst German recipients of digital content regarding their reading behavior, expectations towards content, and intention to contribute with their own content. In particular, we examined (a) perceived output quality as antecedent of expectations towards content as well as (b) community joining motives, usability features, and self-efficacy as antecedents of intention to contribute to a community platform. Finally, we also asked for the willingness to pay in relation to users’ expectations and their intention to contribute.

This study aimed to identify if the customer value proposition should be professional journalists based or rather, user-generated content and community based. It was found that both user-generated content and professional journalists’ content is of value to users. Second, we showed that users are mainly driven to contribute by their own expertise, welfare of others, and personal acceptance in the community. Thus, this paper combines the research streams of industry changing

business model innovations and the open and user innovation phenomena by showing the impact of user involvement on the business model of publishers.

de Vries, G.W., Peine, A., and Boon, W.P.C., “Construction of user-driven configurations? Lessons from Dutch civil energy communities”

Abstract

In this explorative research into the internal dynamics of five Dutch civil energy communities, it is shown how and why actual innovative projects in communities of end-users organized around desired socio-technical changes are typically preceded or accompanied by a process in which the rationale, conditions and competences needed to identify and implement innovative solutions are shaped in and by the community. These challenges of collective learning and configuring provisional actor-networks require a variety of preparatory efforts (or: ‘pre-alignment work’) by community members, that may be of a seminal importance to the eventual nature and success of new socio-technical arrangements. Moreover, it is suggested that the dynamics found here result from a specific user logic that may be characteristic more generally for user communities innovating in configurational settings, i.e. combining and tinkering with innovative as well as mundane technological devices into a local and tailored configuration.

Christian, J., and Flowers, S., “User Communities as a source of complimentary resources”

Abstract

User communities are often seen as a valuable external resource to the firm, serving as a repository for user-specific knowledge. The current literature focuses on the primary output of communities, such as software development in open source software or product prototypes in extreme sports equipment. The creation and dissemination of knowledge and collective innovation process are two of the often-cited benefits user communities provide to the firm. This study adds to the current literature by finding that, in an open source project, a user community can also provide access to complimentary skills, such as translation and graphic design, and additional resources, such as hardware.

Lichtner, R., “Deciphering idea quality in OUI communities as a prerequisite for effective idea assessment”

Abstract

Since the late 60’s idea quality (IQ) has widely been used as the “most important indicator of group brainstorming performance” in creativity research (Barki and Pinsonneault 2001). Meanwhile, OUI tools have been companywide introduced at an increasing rate, actively involving users as a valuable source of inspiration (Keinz et al. 2012), but simultaneously confronted with the flooding of external ideas exhibiting different levels of maturity (King and Lakhani 2013). Being aware that raters urgently need an intuitive, still logical understanding of the IQ dimensions when rating ideas (Dean et al. 2006), it is of utmost importance to properly understand and measure IQ in order to design adaptable ideas assessment processes in an efficient and effective way. Therefore, this research in progress proposes a two-segmented structure for handling IQ dimensions and sub-dimensions in OUI communities. A systematic literature study in creativity and OUI research was conducted,

applying refined screening for management and organization studies through Web of Science Core Collection pinpointing lead articles concerning IQ dimensions. The previous fuzziness of IQ definitions was revealed and requirements for OUI communities reflected, depicting possibilities to develop a more precise concept to be applied for user and combined company expert assessments. Developing step-by-step a dimensional and sub-dimensional framework, the multi-dimensional IQ construct will be more adequately capturing different creative product and service ideas in OUI communities. For extracting appropriate IQ dimensions for effective idea assessment in OIC, research findings point out the relevance of the scholarly reflected four-dimensional approach. Mapping IQ like this provides a full and exact framework (introduced by MacCrimmon and Wagner 1994 and precised by Dean et al. 2006), however lacking somewhat the concise and clear manner specifically required to address user and company expert needs in the OUI communities. Therefore a modified parsimonious approach was established introducing a two weighted segment structure – with the one segment being characterized by attribute-oriented dimensions, and the other segment by performance-oriented dimensions. The attribute-oriented segment includes the dimensions novelty and elaboration, and the performance-oriented segment is covering the dimensions effectiveness and efficiency, each further clarified in sub-dimensions. Especially implementability and resource usage as sub-dimensions of efficiency are challenging to be tracked, so a new taxonomy will be proposed to capture ideas which differ in maturity and type, adjusted to the respective OUI community setup. A viable research stream would include more accurately analysing and categorizing idea assessment processes in OUI communities through a series of laboratory experiments, capturing (1) company needs for adaptability and IP protection, and (2) user needs for comprehensible assessment descriptions and purposeful networking with company experts - prospectively via customized software solutions.

[Karlusch, A., “Are user communities the better lecturers? Social Learning in Social Media Environments”](#)

Abstract

Social media technologies are deeply embedded in students' lives (Madge, Meek, Wellens, & Hooley, 2009). Students use social network sites (SNS) to establish and maintain social relationships and to express themselves (Cheung, Chiu, & Lee, 2011). To nurture satisfying relationships, people seek social acceptance (Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007) and similarities in norms and culture. Although the motivation to spend time on SNS is primarily enjoyment and not usefulness (Lin & Lu, 2011), research has shown that the use of SNS increases students' social capital, self-esteem, life satisfaction (Ellison, Steinfield, & Lampe, 2007), satisfaction with their university and problem-solving abilities (Yu, Tian, Vogel, & Chi-Wai Kwok, 2010). In online communities, people show more willingness to participate and share their knowledge if they can enhance their own reputation, and when they are structurally embedded in the network (Wasko & Faraj, 2005). Effects like these are similar to those described in social learning theory (Bandura, 1971) in which individuals continuously learn while interacting with their environment. According to this theory, people use interaction and their ability to self-regulate to continuously create new knowledge and adapt their behavior based on environmental norms in order to gain others' social support. Today, technologies like SNS support such interactions without the need of a personal presence. In the future, educational institutions might be able to create fundamental new course designs. However, the pedagogical potential and impact have received scant attention in the research so far. Most prior studies have focused on either students' acceptance of SNS (Albayrak & Yildirim, 2015), the informal learning dimensions (Wodzicki, Schwämmlein, & Moskaliuk, 2012) or the student-

lecturer relationship (Imlawi, Gregg, & Karimi, 2015; Rahman & Amin, 2014). Only a few studies have evaluated the positive influence of online social learning processes on learning outcomes (Park, Cha, Lim, & Jung, 2014; Yu et al., 2010), although none of these studies considered either the dynamic aspects of the online social learning process over time, or analyzed the actual increase of knowledge. From a practical perspective, the existing studies didn't investigate the social learning processes in the context of real course-related situations.

The present empirical study is conducted to close this research gap. The underpinning theoretical model consists of the exogenous variable participation; the mediator variables social acceptance, attitude and acculturation; and the endogenous variables cognitive-, affective- and skill-based learning outcomes. The empirical study starts with preliminary interviews, continues with main surveys, and is completed by experiments in university courses in which either the dynamic aspects of the social learning process or the actual outcomes are analyzed. The final result is an enhanced model, supported by experimental data, that explains the online social learning process and its outcomes in course-related scenarios.

Parallel session 9 - LEADERSHIP AND ORGANIZATION FOR OUI #1

Session Chair: Frank Piller (RWTH)

Pollok, P., Lüttgens, D., and Piller, F., “How Firms Develop Capabilities In Crowdsourcing: Evidence From A Mixed-Method Study”

Abstract

This paper presents the results of an explanatory sequential mixed-method study investigating organizational factors that help explain how seeker firms build capabilities in intermediary mediated crowdsourcing. We test hypotheses using survey data collected from a sample of 365 manufacturing companies and triangulate our findings using qualitative data collected through depth interviews with managers from 14 crowdsourcing seeker firms to broaden our understanding of the capability development process in intermediary mediated crowdsourcing. We find that the presence of key individuals, process formality, and dedicated organizational structures are important antecedents for the development of crowdsourcing capability. More importantly, our results indicate that dedicated organizational structures provide formalization mechanisms through which crowdsourcing know-how can be internalized and shared throughout the firm, providing empirical support for the argument that the institutionalization of learning mechanisms via organizational structures is an important means to develop firm-wide routines and capabilities.

Zynga, A., Lüttgens, D., Ihl, C., and Piller, F., “Successful and sustainable implementation of open innovation: an empirical analysis”

Abstract

Open innovation is a management method that requires intensive organizational change in order to implement it successfully. This paper provides a framework for step-wise implementation of open innovation through the building and utilization of certain management capabilities. Based on a sample of 756 companies our paper shows that these capabilities are important requirements for the implementation of open innovation. Directing attention to the micro-foundations literature our study provides important insight into the issue of capability development at the different stages of implementation. More specifically, we find that organizations can ensure effective implementation of open innovation by building on four management capabilities: internal processes, external networks, global networks and external capabilities at a stage-based level.

Salampasis, D.G., Mention, A, and Torkkeli, M., “Financial institutions in the era of open innovation: individuals and organizations at a crossroads”

Abstract

This qualitative empirical paper, by talking across discipline lines and adopting a multidisciplinary approach, aims at shedding light to the highly neglected and under-developed human side of open innovation by bringing insights from the financial industry. There is a need to gain more knowledge, insights and a better understanding regarding the role human and organizational factors play-together with technology and capital-in the process of adopting and implementing open innovation practices in the financial industry. On these grounds, this paper contributes to the limited existing literature by unveiling the peculiarities of the dynamic interconnection between the individual and the organizational spheres. This multifaceted interconnection captures a) the profile of an open

innovation leader and b) the organizational ingredients, practices and mechanisms contributing to the creation of an open innovation corporate environment. Primary data has been collected from 21 in-depth semi-structured interviews conducted with C-level Executives of major financial institutions in Europe, Americas and Asia-Pacific. This paper accentuates the emergent need for sharpening the understanding that for open innovation to be meaningful and successful, in the financial industry, the human element must be put back on the agenda and strategic intent of the industry, per se, especially in the face of unprecedented global and organizational challenges. The adoption and implementation of open innovation practices, in the financial industry, requires the development of dedicated internal open innovation capabilities and the establishment of dedicated open innovation teams. Capturing the individual multifaceted profile of an open innovation leader requires the contribution and nurturing through the organizational climate and culture along with solid talent acquisition/retention mechanisms and adequate education, training and motivation. This paper shares novel academic and managerial implications on the dynamic co-dependence of the individual and organizational spheres towards embracing open innovation within “humanly-embedded” financial institutions.

Hoeber, B., “Innovation contests within firm boundaries – Areas of action to increase organizational support”

Abstract

During the last decade, innovation contests as popular and frequently realized application of the open innovation approach have gained attention in theory in practice. Nowadays, many companies enlarge the innovation capacity by integrating a wider group of externals (e.g. users, suppliers, customers) as well as employees into corporate innovation initiatives. Employees, even not directly involved into R&D, are furthermore assessed as critical source of innovative ideas (‘the peripheral inside innovators’) with a continued importance.

For innovation contests hosted inside a firm’s environment, the influence of organizational support on the success is regarded as important. Innovation contests have to be managed thoroughly in order to reach the underlying goals. Managing an innovation contest incorporates challenging tasks, but essential ones. Additionally, researchers point out that internal management practices that explain why some firms benefit from open innovation more than others are still largely unexplored. Regarding the state-of the art, little is known about a structured differentiation and holistic representation of the organizational support construct for increasing the success of corporate innovation contests. We concentrate on this gap and the research question sounds: “Which constituents regarding organizational support are existent that influence employees’ motivation and intention to participate in innovation contests?”

The study uses a qualitative content analysis to analyze, identify and breakdown the constituents and sub-constituents of organizational support for innovation contests hosted inside a company. Best-practice presentations of 16 large, multi-divisional customer firms (including Airbus, Daimler, Deutsche Post DHL, BASF, Evonik, Nokia, and Ergo) and from a leading software provider (with more than 140 installations worldwide) serve as rich basis for the analysis. Presentations are video-recorded and prepared for the purpose of this study. The recordings last between 22 and 60 minutes. The inductive approach starts with an identification of more than 250 single text passages. By increasing the abstraction level, similar paraphrases were summarized into 22 second-order codes and finally into 13 latent constructs.

The findings result in 13 constituents laid out in a framework distinguishing three levels: On the ‘top management level’ (support by the CxO), ‘Strategic Sponsorship’ and ‘Vision & Strategy’ are

emphasized. Second, the 'program level' considers all areas of actions important for the entire innovation program. Here, in total seven constituents ('Visibility', 'Transparency', 'Knowledge Protection', 'Communication', 'Incentives', 'Human Resources', and 'Controlling') are highlighted. The 'campaign level' focuses explicit on running innovation contests and includes another four constituents ('Alignment', 'Preparation', 'Execution', and 'Transition').

This study helps to increase the understanding of organizational support for innovation contests running in an organization. On the basis of this explorative study, a survey study is designed to empirically investigate the influence of the organizational support constituents on the motivation of employees to participate in corporate innovation contests.

Bodas Freitas, I., and Marques Argou, R., "The organizational challenges of involving Users"

Abstract

Innovation is a process of search, experiment, and recombination of knowledge and ideas with objective of developing new designs, technical solutions, and products. In that process, users' knowledge and information is of great importance for increasing innovation quality and acceptance mainly in the case of new products, associated technologies and designs. The literature has provided many insights on the benefits of collaboration with customers and lead users (von Hippel, 1986; Belderbos et al., 2004; Weterings and Boschma, 2009), the dynamics of lead-users communities (Franke and Shah, 2003; von Hippel and von Krogn, 2003) and of crowd sourcing initiatives (Franzoni and Sauermann, 2014). This literature has contributed to a better understanding of the benefits of involving users in the innovative process (Kristensson, Gustafsson, and Archer, 2004), the motivations for lead-users to innovate and share (Franke and Shah, 2003), as well as the contexts in which different types of arrangements for innovation development and production are more likely to prevail (Afuah and Tucci, 2012; Felin and Zenger, 2014). Despite these advances, we still know very little about how firms organize their innovation processes in order to integrate users' knowledge and information. The objective of this study is to understand how companies manage the integration of users' information and knowledge in their innovative activities. In order to explore this issue, this study examines in detail and compares the process of development of three new product designs: one that relies on crowd sourcing, and two others that did not involve directly users in the design and development process, but have involved different external organizations as providers of specific expertise or inputs or components. Empirically, this study focuses on FIAT Brazil; a car manufacturer that in 2010 has launched MIO, a car idealized and designed after the ideas and solutions provided by the crowd. The study relies on a series of interviews to managers and to engineers involved in product development. This research will provide insights on the specific organizational challenges and structures associated with integration of the users' crowd in the innovative activities. Hence, it will shed some light on different unanswered questions such as the following ones. Can knowledge and information from the crowd once selected be managed in a similar way as knowledge developed internally or collaboration with established innovation partners, such as suppliers or university? Which are the specific characteristics of an organizational structure that permit innovation projects that are relatively close and/or structured in terms of involvement of third parties, and projects that involve the crowd of users and innovation be undertaken in parallel?

Juntunen, J., Korsunova, A., Zimmerling, E., and Nielsen, K.R., "Enabling consumer participation in sustainability-oriented open innovation processes"

Abstract

Sustainability-oriented innovation is typically seen as within the purview of the firm or manufacturer, with consumers apart from offering critical input only playing a peripheral role in the development of product(s) and service(s). This notion of the closed innovation process runs contrary to the recommendations of open innovation literature which suggests that firms may benefit from opening their innovation processes. Specifically since consumers may effectively help garner the widely dispersed knowledge, that is necessary for successful innovation. Incorporating consumers to the innovation process could thus provide critical user input, and thereby improve the proliferation of green products and services - consequently unfolding innovations' positive impact on the environment and society. On the other hand, some authors argue that close integration of users can harm companies' innovativeness. Besides the general barrier of the "not invented here" syndrome, the literature mentions different barriers to open innovation activities, such as the imbalance to the daily business, as well as resource and time constraints. Regarding the involvement of users in open innovation activities, it has been suggested that especially SMEs see barriers regarding property rights issues and too specific customer demands. While there is a growing body of literature that examines end-user innovation and innovation communities (i.e. grassroots innovations) within sustainability, we argue that there is a lack of the literature examining open sustainability oriented innovation processes. Speaking in the words of Edward W. Constant - depictions of functional organizational modules (e.g. R&D) represents an environmental interface, a semipermeable membrane through which the organization both receives information and acts on the external world. Against this background we therefore explore why and how the incumbent firms opened modular membranes to user-participants in open sustainability-oriented innovation processes. Our data set is based on product, service and business model innovations that were developed by six incumbent European firms. We make a cross-case analysis of innovation processes that relied on consumer participation and involved collaboration with other stakeholder groups. For each sustainability innovation, the data comprises interviews with firms, integrated consumers and other involved stakeholders. Our results suggest that especially in the context of sustainability-oriented innovations, the motives for integration range from marketing reasons to acquiring sticky information via consumer experts, who identified and developed the critical points of the innovation. Difficulties associated with consumer integration to the innovation process tend to form a "protective membrane" around the innovation funnel. Networking with stakeholders plays an important catalytic role in overcoming this protective membrane and stimulating the exchange of knowledge and ideas between firms and end-user consumers.

Parallel session 10 - CROWDFUNDING

Session Chair: Pedro Oliveira (Católica-Lisbon)

Schreier, M, and Bitterl, S., "When Consumers Become Backers: The Psychological Consequences of Participating in Crowdfunding"

Abstract

Crowdfunding has emerged as an alternative form of funding new ventures by relying on a relatively large number of individual project backers. These crowdfunding participants are oftentimes also customers as they typically receive the venture's new product as a reward for their financial support. Economically, the focal exchange relationship thus mimics the more traditional market exchange mode in which customers get a product in return for paying a predetermined price. Yet, the present research highlights that crowdfunding has some unique psychological advantages over the classical purchasing process that are of managerial interest. Findings from a longitudinal experimental study indicate that participating in crowdfunding causally increases the extent to which customers can identify with the underlying venture which, in turn, helps to explain a series of effects on managerially important outcome variables. Findings thus highlight that crowdfunding might be an effective "tool" to build strong(er) relationships with the venture's initial customer base.

Kaminski, J., Hopp, C., and Tykvova, T., "The Wisdom of the Crowd and the Dough of Sand Hill Road - Can Crowdfunding Predict VC Investments?"

Abstract

In an ongoing study, we investigate two time series of (1) successful Kickstarter crowdfunding campaigns in the United States and (2) venture capital investment transactions. According to our preliminary analysis of a timeframe ranging from 10/2011 to 02/2015, we can conclude that Kickstarter investments Granger cause venture capital investments at a time lag of about 2-5 months. The effect is in particular strong for projects and investments in the sectors of "Hardware and Consumer Electronics" as well as "Media & Entertainment". Last but not least, we might have found little evidence for crowding out of VC Seed & Angel investments through crowdfunding in a fundraising range of \$50,000 to \$250,000. Taken together, our preliminary results might not only show how the crowd's bets might serve as a predictor of sector bets in venture capital but also how crowdfunding might replace early stage venture capital.

Franzoni, C., and Tenca, F., "Crowdfunding: the impact of entrepreneurial passion on the acquisition of financial resources"

Abstract

We investigate the role of entrepreneurial passion displayed through affective passion and preparedness as a persuasive mechanism in crowdfunding. We develop a series of hypotheses grounded on the insights of the 'Unimodel of persuasion' (Kruglanski and Thompson, 1999), to assess how the language embedded in entrepreneurial narratives (i.e. project descriptions), may influence the decision process of crowdfunders. We apply content analysis methodology and probit models to a sample of more than 14,000 crowdfunding campaigns, conducted in Kickstarter. Preliminary results show that preparedness is positively correlated with project success, while the

relationship does not hold for affective passion. We also show that project complexity and project uncertainty moderate the positive correlation of preparedness and crowdfunding success.

Moser, N., "Exploring roles of crowdinvestors in start-ups"

Abstract

In the last years crowdfunding, i.e. the online pooling of money from private individuals in return for some kind of reward, has become a viable source for funding social, creative and entrepreneurial projects. Project owners, who have successfully funded their ideas via crowdfunding platforms, report that the crowd does not only provide capital, but also help with the distribution of the product or generally increase awareness for the project. Especially young ventures who suffer from liabilities of newness and smallness would benefit from such seemingly free marketing efforts of a crowd of investors. Research in related areas, such as customer participation in new product development, viral marketing or user communities, shows that individuals can help and assist an innovator or venture in many ways. However, these individuals are customers or users with shared interests and not investors, hindering the transfer of findings one-to-one. As the literature on equity-based crowdfunding, also called crowdfund investing, has not explicitly addressed the activities and role behavior of investors, this study tries to shed light on what crowdinvestors provide to the start-up (e.g. resources, know-how, networks, feedback) and under which preconditions. The purpose of this study is to address the following research questions: (1) Which roles do crowdinvestors take that go beyond funding? And (2) what are the antecedents of this role engagement? Insights with regard to these questions are relevant both from a theoretical and managerial perspective. This study will improve our understanding of the power of the crowd and contribute to the establishment of crowdfund investing as a new form of venture finance. It is supposed to create managerial implications for start-ups which are interested in successfully pooling the funds of private individuals who are willing and able to provide added value to the venture. For answering the research questions a two-step approach was chosen: First, a multiple case study design seemed necessary to generate deeper insights into the nascent field of crowdfund investing. Four German start-ups that had funded themselves via a crowd were selected, and various forms of data including semi-structured interviews with investors, archival and survey data were collected and analyzed. Insights from the qualitative study were used to refine the preliminary conceptual framework. In a second step the resulting framework is tested via an online survey among German crowdinvestors. Results of this study will increase our understanding of investor's roles and their antecedents and are expected to be valuable to start-ups, which intend to benefit most from this form of investment and their crowd respectively.

Feldmann, N., and Schwarz, L. K., "Fostering the Design of Enterprise Crowdfunding Platforms? A Taxonomic Approach"

Abstract

Until recently, the scientific community called crowdfunding and related research 'nascent'. Meanwhile, crowdfunding has become a phenomenon that has spread across different countries, cultures, and areas of application. Thus, hundreds of platforms of different sizes and designs have emerged. Recently, crowdfunding has also seen early adoption from public organizations and corporations. For instance, municipal administrations perceive it as a mechanism for participatory budgeting, i.e. involving citizens in the funding of municipal projects. Moreover, larger companies have started to experiment with the internal application of crowdfunding (enterprise crowdfunding). However they struggle with its design. In our study, we build on lessons learned from several

successive enterprise crowdfunding trials conducted by the technology company IBM in different corporate departments and geographies. A series of interviews with managers of IBM and, as a complementary perspective, of further companies planning to implement enterprise crowdfunding unveiled conceptual differences between crowdfunding on the Internet and enterprise crowdfunding. Crowdfunding platforms on the Internet are primarily intermediaries in two-sided markets ensuring a vivid market place in order to financially participate in the funding of projects. By contrast, managers implementing enterprise crowdfunding strive for portfolio outcome optimization and for driving cultural change (e.g. cross silo collaboration or community building). Nevertheless, when designing enterprise crowdfunding platforms, they seek inspiration from established forms of crowdfunding. Specifically, they are interested in gaining an overview on the design parameters, e.g. features or policies, used on crowdfunding platforms as well as common patterns of combining those parameters to consistent platforms designs. Hence, we propose to build a taxonomy on crowdfunding platforms that takes the specific challenges of designing enterprise crowdfunding platforms into account. Existing papers on taxonomies of crowdfunding platforms primarily employ concepts from a market perspective. Arguably, objectives such as driving cultural change call for a more prominent focus on additional (e.g. social) features. Therefore, we decided to build a taxonomy of crowdfunding platforms by (1) capturing the spectrum of design parameters used by crowdfunding platforms, (2) categorizing this spectrum of design parameters, and (3) clustering existing platforms according to this newly developed categorization scheme. For developing the spectrum of design parameters we sampled data from existing platforms, aiming for diversity, and coded them in an open coding approach until concept saturation was reached. In a second step, a categorization scheme of the codes was built bottom up and subsequently matched with literature from related fields of research. Finally, in a future step, we will code data from 100 randomly sampled platforms and use cluster analysis to complete the taxonomy. At OUI we will present findings on executives' objectives when implementing enterprise crowdfunding in their organization as well as an overview of the spectrum of design parameters and the developed categorization scheme.

Wagner, K., and Beier M., "The Financial Scope of Nascent Entrepreneurs? Projects-Evidence from Crowdfunding"

Abstract

Considerable attention has been given to nascent entrepreneurs in their very early stages of activities and the importance of funding in understanding the firm creation process. However, much analyses have emphasized reports of self-employment omitting the substantial number of team efforts to create new ventures. In this study, we shed light on this subtle field of entrepreneurship research by using field data from the dominant crowdfunding platform in Switzerland. Crowdfunding provides a setting that allows observing early entrepreneurial activities of single founders and teams based on a project or business that partly does officially not yet exist. We seek to answer the following research question: What factors influence the financial size and scope of a project presented on a crowdfunding platform? We explore the size of the funding goal in reward-based crowdfunding projects and how it is influenced by personal, business and project-related factors for 740 crowdfunding projects. Our results show that several significant factors influence the funding goal size of projects. For example, crowdfunding campaigns with a man as the main initiator of the project have significant higher funding goals than women. Furthermore, projects with a high-level reward structure also have significantly higher funding goals. However, for the number of project initiators and the organizational status of the new firm, we do not find a significant relationship with

the funding goal size. With regard to the project categories as control variables, we find significantly higher funding goals for categories such as “Society”, “Startup & New Business” and “Sustainability”.

Hutter, K., "Equity-based Crowdfunding: Is it disrupting the Real Estate Industry?"

Abstract

The launch of the JOBS Act in the U.S. has opened the market for commercial real estate crowdfunding allowing the general public to receive equity in exchange for funding. While emerging equity crowdfunding platforms are experiencing tremendous growth, industry experts are sharing concerns and tackling risks. In this study, we detected ten major categories of risks raised by 200 potential capital seekers and investors through focus group discussions. A framework will be presented to show strategies of how crowdfunding platforms seek to mitigate these risks and thereby leverage potential new paths that may challenge traditional players to change their game.

Parallel session 11 - LEADERSHIP AND ORGANIZATION FOR OUI #2

Session Chair: F Piller (RWTH)

Schuurman, D., De Marez, L., and Ballon, P., “Living Labs – a structured approach for implementing Open and User Innovation”

Abstract

Open and User Innovation present two ways of looking at distributed innovation processes. However, a lot of companies are still struggling with the practical implementation of distributed innovation. Living Labs are an innovation approach, advocated by the EU, that aims to provide structure to distributed innovation processes. However, this concept is much more practice driven than based on a rigid theoretical basis. Therefore, this paper presents a systematic literature review of the body of scientific Living Labs literature. Based on a general review of the Google Scholar and Web of Science databases, we can conclude that the Living Labs movement in terms of theory and research has taken off since 2006 in quantity of published papers. However, in terms of quality and impact, the academic field of Living Labs is still rather insignificant. An analysis of the 45 most cited papers reveals that the practice-based side is much further developed than the theoretical side, with only few references to more established innovation theories such as Open Innovation and User Innovation, despite the fact that concepts from both literature streams are present in all papers. Strikingly, 18 out of 45 papers refer to no framework at all, remaining merely descriptive. There is also a lack of empirical, more quantitative and comparative studies that focus on the added value of Living Labs. This paints the picture of Living Labs as a research domain in development which calls for a better anchoring within more established innovation theories in order to advance the field. Based on the observation that there are inconsistencies in terms of levels of analysis within these papers, and that these different levels correspond with Open and User Innovation concepts, we propose to distinguish three separate, but interrelated levels. This three-layered Living Labs model illustrates that Living Labs are an emanation of both Open and User Innovation, and that these paradigms can assist in advancing the theoretical foundation of Living Labs, but that Living Labs also provide fertile playgrounds for Open and User Innovation scholars for theory testing and validation.

Zimmerling, E., and Purtik, H., “User-centered business model innovation - A comparative case study analysis in the context of electric mobility”

Abstract

While there is a wide amount of literature on user integration in product and service development, the role of users in business model innovation is still unclear. The purpose of this paper is to contribute to fill this gap by analyzing the user-centric development process of two electric mobility solutions in incumbent firms. We outline the methods and underlying rationale of user-centered business model innovation, its impact on the final business model as well as factors that facilitated the user-centered approach. The results of our comparative case study analysis show that the user-centric development approach allowed both companies to overcome risk aversion towards business model innovation and helped them to develop and refine new electric mobility solutions that show a strong product service character. Managers can promote user-centered innovation processes when they create favorable conditions for the formation of independent and cross-functional innovation teams.

Chrysos, P., “From problem-solving to “value care”: the business logic of online support forums.”

Abstract

This paper explores the way pioneering Web-based enterprises manage the emergence of new value, by studying the phenomenon of external developers support. Value care emerges thus as an original business module, enabling the management of both immanent and potential value for the enterprise.

Guertler, M.R., and Lindemann, U., “How to find suitable partners for an (open) innovation project?”

Abstract

The basic idea of both, Open Innovation (OI) and User Innovation (UI), is the purposeful exchange of knowledge and collaboration with and between innovation partners. These partners can be manifold, such as users, consumers, suppliers, universities or even competitors. Besides single individuals or companies, this also includes crowds. These can be unspecific or partly focused, e.g. users of a particular product or students of a specific university. The choice of suitable innovation partners is crucial for the performance and success of the (open) innovation project. They define quality and quantity of the project's outcome as well as influences the selection of suitable collaboration methods, incentive strategies and risk management. However, different studies showed that OI-teams, who plan and coordinate OI-projects, still face challenges when selecting suitable partners. This can mean the selection of unqualified OI-partners or missing important ones. Often the problem also is a solely focus on the OI-partners' skills and expertise for developing a solution of the OI-project's task. Besides this “solution-oriented” perspective, a strategic perspective often is neglected, e.g. a political aspect (Who decides about the OI-project and its outcome?), a social aspect (Who influences the collaboration?) and a networking aspect (Who can influence or acquire other OI-partners?). In the case of OI, this can also include focusing on external partners and neglecting internal stakeholders. To solve these challenges, we developed a methodology supporting OI-teams planning an OI-project – focusing on the selection of relevant OI-partners and OI collaboration methods. Though the primary focus is on OI, the methodology also supports teams

planning UI-projects. The methodology itself combines elements from project management, Lead-User identification methods (e.g. pyramiding, netnography), stakeholder-analysis and Systems Engineering. Starting with a detailed analysis of the internal and external boundary conditions and the specific goal of the OI-project, existing stakeholders are identified and fields for searching for new potential partners derived. The search differentiates two search strategies: an active search by the OI-team and a passive “getting-found” by using a self-selection of potential OI-partners. Subsequently, the potential partners are assessed and ranked regarding their solution-oriented potential (contributing to solve the OI-goal) and their strategic relevance (political influence, networking). The regarding, software-based SH-portfolio also allows the depiction and analysis of dependencies between potential OI-partners. This ensures the consideration of positive and negative links between partners, which might influence the success of the OI-project. The methodology was successfully evaluated in different industry projects. In the context of OUI2015, we like to present selected elements of our methodology to an expert audience from the field of open and user innovation in order to allow an exchange of experience regarding the planning of (open) innovation projects, and identify and discuss points of further improvements of our methodology.

Fang He, V., Raj, S.Y., Puranam, P., and von Krogh, G., "The emergence of consensus in non-hierarchical organizations: A study of OSS projects in GitHub"

Abstract

Why are contemporary organizations still hierarchical? An influential answer points to the importance of authority as a substitute for lengthy and possibly intractable peer-to-peer bargaining. Classical benefits of authority include its a) ability to monitor, motivate, and reward efforts (e.g., Alchian & Demsetz, 1972); b) provision of superior knowledge (e.g., March & Simon, 1993); and c) efficiency in dispute resolution (e.g., Mintzberg, 1979). The increased importance of knowledge based work—in which individuals are recruited primarily for their expertise and creativity rather than their docility—raises doubts about the first two traditional benefits of authority (Freeland & Zuckerman, 2014). In a knowledge economy, the necessity of having authority to monitor and motivate, or to provide superior knowledge, decreases significantly (Tsoukas, 1996). As a result, the continued relevance of authority as an organizing principle depends on its third benefit regarding dispute resolution. The last benefit of authority assumes that peer-to-peer dispute resolution has its limits because informal authority cannot easily be stabilized, scaled or delegated. However, the existence of moderate to large sized organizations such as Valve, GitHub, Gore, and Wikipedia suggest that this assumption must be examined carefully. In this study we aim to understand how organizations that lack formal authority structures resolve disputes among its members and reach consensus regarding strategic decisions. An unusual opportunity to pursue our research question lies in the analysis of texts from issue pages on GitHub, an online platform for open source software projects. The platform enables users to take part in project related discussion and make decision collectively. We sample 41 episodes of software license discussion—a form of strategic decision within open source project (Bonaccorsi, Giannangeli, & Rossi, 2006)—from GitHub and conduct an inductive study of their consensus-building processes. Using SentiStrength (Thelwall, Buckley, Paltoglou, Cai, & Kappas, 2010), an advanced text mining algorithm, we find evidence that users (efficiently) resolve disputes over strategic decisions with neither a hierarchical structure nor the interference of formal authorities. Furthermore, we find that while the variance in negative sentiments displayed in discussions generally influences the emergence of consensus, reforming consensus entails different mechanisms than building initial consensus. Our analysis, although

preliminary, promises useful advances in the knowledge of non-hierarchical organizations as well as in the methodology to study consensus- building processes using secondary data. In the next steps, we will increase the number of episodes to 200 and further explore the data to understand how the variance in negativity arises and how individual participants influence the process. Our ultimate

objective is to develop a process model that explains the emergence of consensus in non-hierarchical organizations.

Reischauer, G., “The Edges of the New: Practicing Open Innovation at the Firm Boundaries”

Abstract

Open innovation relies on external relationships. While there are many findings on how firms can utilize them, we know little about what individuals positioned at the firm boundaries actually do when addressing external relationships. In other words, our understanding of ‘doing open innovation’ at the firm boundaries is limited. I address this gap by exploring the social practices of boundary positions that are engaged in open innovation. Social practices denote shared routines for acting and using ‘things’. A social practice, the unit of analysis, thus encompasses both a behavioral and a material dimension and is thereby characterized by a broader scope than the concept of boundary spanning that centers knowledge transfer. Using a comparative case study design and content analysis, I will develop ideal types of social practices of boundary positions that are engaged in open innovation, or open boundary practices for short. Data is generated by conducting semi-structured interviews with boundary positions of Green Technology firms in leading Austrian, Danish and US ecosystems. Data collection and analysis is ongoing. The typology of open boundary practices will deepen our understanding of how individuals positioned at the firm boundaries cope with open innovation, add to insights on boundary spanning, and provide a foundation for surveys. The findings will also support managers in leading open innovation.

Antons, D., Kleer, R., and Salge, T-O., "Three decades of JPIM research: Taking stock of topics, their evolution, relations, and impact”

Abstract

Research on innovation management deals with a great variety of thematic areas. The aim of this paper is to structure these areas and show their interdependencies. In order to do so, we analyze the publications of the leading journal with a dedicated focus on innovation management – the Journal of Product Innovation Management – with the help topic modeling algorithms. Topic modelling has been developed in the field of machine learning. This procedure allows estimating the number of topics of a given text corpus and determines the most concise terms per topic. We used the full text of 1028 articles from 3 decades of JPIM research to allocate the different research streams in this journal to 61 topics. Analyzing the most relevant articles for each topic also allows for assessment of the development of topics over time. With respect to the OUI workshop, we identified both User and Open Innovation as hot topics in JPIM. The analysis reveals specific interdependencies to other topics in JPIM. Additionally, we analyzed citations of articles based on their categories, which shows the impact of topics and their combinations. Our findings are relevant both for researchers aiming to structure the review of their field and practitioners who want to identify the leading experts regarding a certain topic.

Lang, A. “Transforming companies into Open Organizations to help Open Innovation to succeed at last”

Abstract

Over the last years it has been proved that integrating external knowledge in companies has many advantages. Methodologies in order to gather the information, such as Lead User, Communities, Cross Industry approaches and many others have been developed successfully and have been integrated in many companies. However, looking at the Open Innovation aspects, gathered by means of the methodologies mentioned above, and which were carried through the product development process (PDP) and which should now be part of newly marketed products are very little.

One strategy to help the Open Innovation Information (OII) to travel along the PDP is to open the companies and transform their organizational set-up into an Open Organization (OO). In interviews conducted with 15 German companies nine opening options were identified. The spectrum spans from opening the department within one business unit and letting colleagues from other departments interfere in the PDP to collaborating with competitors selling products to the same market.

Contrarily to first assumptions the nine steps are not based on each other. In an expert workshop with seven Munich-based companies it showed, that a company might be very open to work with suppliers, but does not exchange employees in-between departments, which is a simpler way of collaboration with a lot less risk. In a recently started research initiative 1,000 German-speaking companies are interviewed in order to understand their opening strategies and collaboration behavior in regard to the nine identified opening options. Besides the task to identify the most interesting companies and to conduct further interviews afterwards, the companies will be sorted in a sinus milieu diagram in order to predict which kind of opening strategy would be successful for what kind of company. The criteria to describe the companies and sort in the diagram will be defined via a multivariate analysis.

In a next step, depending on the results of the research described above, a smaller group of companies will be identified and the opening level of each process step within the PDP of a certain project will be identified. Similar opening strategies will be clustered and finally normative opening strategies will be developed, answering the question: what kind of time dependent course of opening one's PDP should one follow to benefit from the external knowledge but to reduce the risk which always comes along with the companies' transformation into an OO.

Parallel session 12 - USER INNOVATION & PSYCHOLOGY

Session Chair: Ruth Stock (U. Darmstadt); Christian Luthje (Hamburg University)

Wu, C-H., de Jong, J.P.J., Poldervaart, S., and Raasch, C., "A Necessity Perspective on Innovation: Lead Userness and Individual Innovative Behavior"

Abstract

A necessity perspective of individual innovative behavior suggests that negative circumstances can motivate employees to innovate. This perspective, however, did not receive strong empirical support in previous studies when negative circumstances were indicated by work dissatisfaction. In this study we propose that individual lead userness, the extent to which employees face work-related personal needs for which no solution is yet available, better reflects the perceived necessity to innovate. Drawing on the social cognition theory of self-regulation, we hypothesize that lead userness is directly related with individual innovative behavior. This hypothesis is strongly supported by multi-source data of 106 workers and their supervisors in a forensic services organization. We also find that the relationship between lead userness and innovative behavior is stronger for employees high in self-efficacy, but only if they perceive their work-methods autonomy to be low. This suggests that, for work-related personal needs to materialize in innovation, both individual self-regulation capability and contextual factors merit consideration.

Schnarr, L.N., Holthaus, C., Stock, R.M., and von Hippel, E., " The Nature of Need-Solution Pairs: Learning From Research in the Fields of Innovation and Psychology"

Abstract

Being dissatisfied with existing sport equipment, facing the need to adapt or fix household appliances, or simply looking for a solution to organize more effectively – in daily life, every human being is likely to face problems like these. According to cognitive psychologists, the underlying problem solving efforts follow a strict process starting with problem definition and, if appropriate, constraints that restrict problem and solution space (see for example Gick & Holyoak 1980; Newell & Simon 1972; Ormerod et al. 2002).

However, problem solving research is facing a new perspective where prior problem formulation is not required at all, making it much more efficient. E.g., fewer resources are required and less restrictive constraints that limit solution diversity have to be defined.

Building on a recent essay by von Hippel and von Krogh (2013) and interviews with experts in the field of cognitive psychology, this study seeks to gain a deeper understanding of need-solution pairs and the underlying mechanisms as well as antecedents based on an extended literature review. Specifically, we identify and review several related fields of research that provide further insights into the Need-Solution Pairs Paradigm. In essence, we seek to answer the following research questions:

What are related research fields and what can we learn from them?

Taking a cognitive psychologist's perspective, what are the underlying mechanisms behind need-solution discoveries?

What are important antecedents (e.g., conditions, individual characteristics) that might increase the likelihood of need-solution discoveries?

Overall, this study is a first step in the further elaboration of how to make problem-solving processes easier by increasing the frequency of need-solution pairs and, as a consequence, more fruitful for

individuals in private and business contexts. Based on our results, we also provide preliminary recommendations for appropriate test design to assess need-solution pairs empirically.

Stock, R.M., and Holthaus, C., “User Innovator ... And What’s Next? – Entrepreneurial Clouds as Platform for Innovating Consumers.”

Abstract

In recent years, electronically connected freelancers, referred to as e-lancers (Malone & Laubacher 1998) have started to build their own businesses via social media platforms. Using so-called “entrepreneurial clouds”, e-lancers offer their services to potential clients by maintaining online profiles to present and describe their expertise and engage in “virtual entrepreneurship”. Because the customer—client relationship is fully mediated by the internet, globally available, and independent of space and time, a new mode of working has been created. At the same time, entrepreneurial clouds may offer a valuable platform for user innovators to commercialize their innovations. In entrepreneurial clouds like freelancer.com or upwork.com, users who developed a software for themselves may commercialize this software as a professional tool and create value. Because prototyping user innovators have been found to be more introverted, entrepreneurial clouds may be a suitable platform, because face-to-face sales activities are replaced by internet technology (Stock et al. 2014). Therefore, this study attempts to examine the performance implications of e-lancers’ personal traits and compare those traits with crucial traits, found for user innovation success. This may lead to implications regarding the value of entrepreneurial clouds for user innovators. Another important characteristic of entrepreneurial clouds is that sales activities largely rely on market-related signals. In particular, two types of signals have been distinguished in extant literature (Donath 2007; Shami et al 2011): Costly-to-fake signals are difficult to imitate and can be provided by information, such as certificates, tests and guarantees. Not-costly-to-fake signals can be easily conducted by any involved partner in a market and include activities, such as boasting and an individual’s claims to possess certain positive skills. In this study, we investigate these two types of signals as mediators of the relationship between e-lancers’ personal traits and individual performance outcomes in entrepreneurial clouds. The empirical basis for this study is two-fold: In a first step, we gathered data by crawling a major e-lancing platform. We gained objective data about individual e-lancers’ performance, activities, and demographics. In a second step, we surveyed 1,600 e-lancers to gain information about their personal traits and the use of market signals. We will rely on signaling theory, theory of distraction, and self-perception theory as a conceptual basis for our study. Finally, implications for research on (virtual) entrepreneurship and innovation, especially in the field of user innovation are discussed.

Hausberg, J.P., and Spaeth, S., “Why Makers Make What They Make Motivations to Contribute to Open Source Hardware Development”

Abstract

Open Source Software (OSS) and Hardware (OSH) are two expressions of one broader concept and its related movement. One of the most fundamental questions relative to these phenomena is why developers contribute with their private resources to these public goods. While this question has been discussed, theorized and empirically investigated in the context of OSS, there is no research so far in the context of OSH. The intellectual property rights work considerably different for hardware than for software in many national legal frameworks. Hence we have to ask: What are the motivations behind the development of OSH and how do they differ from those of OSS? In order to

contribute to the theories of user innovation, private-collective innovation and in particular open source development, we collected data from the most common and active open source hardware communities. We thus have a unique cross-sectional data set with participants from over 30 different countries using all kinds of different OSH-platforms. Our analysis reveals several important findings: Firstly, the motivations are in some aspects very similar to those in open source software notwithstanding different possibilities, hurdles, and hence incentives regarding OSS and OSH. Secondly, intrinsic motivation is a far stronger motivating factor than payment. Given the imminent changes in business models throughout manufacturing industries in order to adapt to the challenge that OSH will increasingly pose, our findings have important implications not only for OSH-communities and 3D-development-platforms, but also for businesses that want and probably soon have to engage in open innovation.

[Bradonjic, P., Franke, N., and Luethje, C., "Underestimation of user innovation: extent, reasons, and consequences"](#)

Abstract

For scholars active in the area of open and user innovation the importance of the phenomenon is obvious. Hundreds of studies, case examples, and personal observations make clear that user innovation is widespread behavior, both among firms and end-users, leads to highly innovative products and services, and contributes significantly to welfare (von Hippel, 2005; de Jong, 2014). Supported by technological developments, we observe a paradigm-shift from the producer-centric model to the user-centric model of innovation (Baldwin and von Hippel, 2010). However, many of us have experienced skepticism among students, managers, and public administration regarding the frequency and value of user innovation. Despite the “hype” about open innovation and many examples, it appears that the idea of user innovation is still counter-intuitive – which impedes or at least slows down its acceptance, diffusion, and support. To date, there is no research focusing on this important aspect. There is related research investigating the question why companies tend to fend off external knowledge in general (Antons and Piller, 2014) or regarding barriers to user innovation (Braun and Herstatt, 2007; Lüttgens, Pollock, Antons and Piller, 2014). But to the best of our knowledge nobody investigated systematically the following research questions: (1) Which populations (e.g. marketing function vs. R&D function, specific industries, managers vs. politicians, etc.) underestimate the frequency and significance of user innovations to what degree? (2) What are the reasons for this underestimation? Answers to these questions will support the development of strategies that facilitate and support the ongoing paradigm-shift. We are currently developing a valid method for measuring the underestimation of user innovation in a large sample. We hope that we will be able to provide preliminary answers to the first research question already in Lisbon.

Keijl, S., “Evaluating and being evaluated: The community versus experts”

Abstract

Most of the research on user innovation has focused on the role of users in the process of creating innovation (Franke & Shah, 2003; Harhoff, Henkel, & von Hippel, 2003). These individual users represent sources of creativity that can be tapped into by firms in order to fuel the innovation process (von Hippel, 2005). In addition to users as being a functional source for innovation, users are also heavily used as a source for evaluating innovations (Hienerth & Riar, working paper). That is, the viability and longevity of many creative programs such as the Eurovision song contest show that users are frequently used as a way to monitor and evaluate innovations and creative contributions. Not only in a commercial context, but also in the academic environment such as universities, users, e.g. students, are often included in order to enhance the outcome of educational programs. The evaluation of these programs as well as their users in terms of grading becomes troublesome when the creator and evaluator are equal. Concretely, this would mean that students would not only create and attend a given course, but that they would also grade themselves after the course is finished. Moreover, in this study we question whether users, e.g. students, are indeed able to grade them (Magnusson, Wästlund, & Netz, 2014; Mollick & Nanda, 2014) and other students in a reliable matter or if they would systematically over- or underestimate their efforts.

A comparison of the grade, which a student would give him or herself, with the grade he or she receives from the grader, e.g. the course instructor, would inform us whether users would be able to come up with valid and reliable estimates of their performance. Furthermore, comparing the average of the grades, which are given to a student by all other students of his class, with the grade he or she receives from the grader, e.g. the course instructor, would inform us whether the ‘crowd’ is able to provide valid and reliable evaluations of someone’s performance. The first results of this study will be part of a two-minute presentation during the 13th open and user innovation society meeting.

* This is a preliminary abstract of the study mentioned. Please do not cite.

Parallel session 13 - USER INNOVATION AND DIFFUSION

Session Chair: Jeroen de Jong (Erasmus University)

Mendonça, J., “Is user innovation male?”

Abstract

This paper compares female and male user innovation and studies the effect of gender on user innovation. Literature on patenting shows that women are less likely to patent than men, and tend to focus on different technology fields. In what concerns technology commercialization, entrepreneurship research has shown significant differences between genders, attributed to various factors, including different objectives and expectations for business and different propensities towards risk. However, there is no rigorous evidence explaining differences in user innovation activity between male and female individuals. This paper addresses this gap by exploring gender's effects on users' probability to innovate, and investigating direct and indirect effects through fields of education and personality traits, such as risk taking, innovativeness and aspirations. Using data from a unique survey on user innovation, we find that men innovate more, but that female innovators behave similarly to male innovators, showing no clear differences in innovation patterns. We find that gender has a direct effect on the probability of users to innovate and an indirect effect on user innovation through education fields, but that the direct effect of gender on innovation is stronger. These results have important implications, showing that a high innovation potential is currently lost, but can be recovered through directed education and innovation policies.

Stockstrom, C., Hüner, A., and Lüthje, C., “The use of path-dependent and boundary-spanning knowledge by user inventors: Antecedents and consequences”

Abstract

It is well-documented that users frequently generate innovation ideas which are primarily based on their use-related knowledge and their idiosyncratic needs. But users have also been found going far beyond idea generation by developing functioning prototypes and reliable solutions. This highlights that inventing users also assimilate and apply solution-related, often technical knowledge. Because the extant research rather focuses on the role of need information, the present study investigates the use of solution-specific knowledge in user invention work. We explore the varying degrees by which users access and apply existing technical knowledge and specifically differentiate between path-dependent and boundary-spanning knowledge. We propose that the use of both types of knowledge will be influenced by inventor characteristics and theorize that the level of knowledge use, in turn, determines the newness and the impact of user inventions on follow-on inventive work. The propositions are tested with a set of 148 patented inventions of medical devices developed by users (physicians, nurses, and clinic staff). The study draws upon two distinct data sets, namely patent data and survey data, which allows us to capture research variables on the inventors, the knowledge use and the inventive outcome. In line with our hypotheses, the findings show that the openness of inventing users is associated with a more intensive use of boundary-spanning knowledge while users with a higher level of use experience tend to access more path-dependent knowledge. Furthermore, we find support that the newness of user inventions is primarily related with the use of boundary-spanning knowledge. Finally, the findings suggest that the newness of user inventions explains their impact on subsequent inventive work. Inventions of high technological novelty are less likely to be assimilated by follow-on inventions. Inventions offering new use benefits, however, serve more often as foundation of subsequent inventive work.

Hyysalo, S., and Usenyuk, S., “The user dominated technology era: Dynamics of dispersed peer-innovation”

Abstract

Users invent new products and product categories, but the assumption has been that manufacturers will supplant users if their innovation is of value to many. The current paper examines Russian all terrain vehicles “karakats” to discuss a case of an era of extended user dominated technology and the related dynamics of dispersed peer-innovation. Karakat users have invented, modified, diversified and iterated this technology, as well as continued to self-build and self-maintain it. These vehicles are wide spread, have half a century of history and hundreds of design variants. Despite this, manufacturers have captured only a small subsection of the karakat market, albeit they have established new markets based on karakat principles. We find that the combinatory effect of previously known dynamics in user innovation research and science and technology studies offers a plausible explanation for the user dominance and dispersed peer innovation pattern, and manufacturers’ failure to conquer the market.

[Zejnilovic, L., Oliveira, P., and Canhao, H., “Patient innovation and adoption, and the role of the content of social interactions.”](#)

Abstract

This paper is a multi-method study of the ways the patients solve their healthcare related problems by either developing a solution or adopting one developed by another patient. In the qualitative part of the study, we consider the patients’ problem-solving process with a focus only on patient-developments. Interpreting 30 cases collected by interviewing 15 chronic disease patients, we map the develop-or-adopt process and explore the role that individual search, experts, and peers may play in this process. In the quantitative part of the study, we survey 822 elderly rheumatic diseases patients and measure their innovation and adoption activity. We explore the factors that may influence their adoption behavior with respect to the patient-developed solutions, by analyzing actual adoption outcomes and intentions to adopt the solutions. We discuss the importance of the findings from theoretical, practitioners’, and public policy standpoints.

[de Jong, J.P.J., von Hippel, E., Gault, F., Kuusisto, J., and Raasch, C., “Market failure in the diffusion of consumer-developed innovations: Patterns in Finland”](#)

Abstract

Empirical studies have shown that millions of individual users develop new products and services to serve their own needs. The economic impact of this phenomenon increases if and as adopters in addition to the initial innovators also gain benefits from those user-developed innovations. It has been argued that the diffusion of user-developed innovations is negatively affected by a new type of market failure: value that others may gain from a user-developed product can often be an externality to consumer-developers. As a result, consumer innovators may not invest in supporting diffusion to the extent that would be socially optimal.

In this paper, we utilize a broad sample of consumers in Finland to explore the extent to which innovations developed by individual users are deemed of potential value to others, and the extent to which they diffuse as a function of perceived general value. Our empirical analysis supports the hypothesis that a market failure is affecting the diffusion of user innovations developed by consumers for their own use. Implications and possible remedies are discussed.

[Baik, Y., and Kim, Y., “Why and How Are User-Firm Process Innovations Protected?”](#)

Abstract

This study investigates why and how user firms protect new process innovations. Despite little incentive for user firms to protect process innovations as a market failure related to user innovations, a significant amount of user-firm process innovations are protected. This study proposes that a main reason be to avoid the leakage of existing technological knowledge bases. Drawing on the organizational learning literature, we hypothesize that innovative searches within technological and organizational boundary tend to increase the propensity for user firms to protect new process innovations, thereby affecting the choice of protection mechanism. Using the survey data of Korean user manufacturing firms, we find that exploitative (vs. explorative) and internal (vs. external) searches increase the probability for process innovations to be protected, subsequently leading user firms to prefer secrecy-based protections to intellectual property rights. We discuss the implications to the literature of user innovations, innovation in general, and strategy.

Bengtsson, L., and Svensson, P., “Consumer innovations in Sweden – incidence and diffusion”

Abstract

Following the method for surveying consumer innovations developed by de Jong (2011) and Kuusisto et al (2013) we have surveyed a representative sample of 1000 Swedish consumers aged 18-65. The survey aims to measure the number of consumer innovators among the Swedish population and the extent of diffusion of consumer innovations. The results will be analyzed and compared to previous surveys such as in Finland (Kuusisto et al, 2013), the Netherlands (de Jong, 2011) and the UK (Flowers et al, 2010). As the survey is ongoing and is expected to be finished in the end of May we will be able to report some preliminary results from the survey.

Reis, A., and Mendonça, J., “Is there really user innovation in aeronautics?”

Abstract

Users create or modify products and services in order to fulfill their own needs, and are expected to benefit from using these products or services, in contrast with producers, who expect to benefit from commercializing a product or a service ((e.g., von Hippel 1977, 1988, 2005). Previous studies have shown that users have developed many existing products and processes in a wide range of fields (e.g., von Hippel et al. 2012, Shah and Tripsas 2007). In this paper we look at the role of users in aeronautics industry, and at the airplane as a complex product, while considering the industry’s tight regulation and the product’s large time to market. We look into other two groups of lead users, the pilots and maintenance crew, to analyze how they develop innovations to satisfy their own needs, and how these are then spread. We base our analysis in interviews with pilots, complemented with a survey to both pilot and maintenance crew. The interviews revealed that, even though pilots do not see innovation as integrated in their activities, due mainly to tight regulation and certification procedures, they recognized that there is user innovation in specific activities. In particular, our interviews revealed that test pilots develop products for their own benefit, as they are able to integrate systems that are not subjected for certification. These test pilots develop solutions to help them in their tests, and have a special permission to use them in their flights. Examples given include metal clamps to attach their flight information, flight clipboards and covers for fighters top in cardboard or wood. In addition, following the certification of iPhones and iPads by the FAA, there were a series of apps developed by and for pilots. Our survey results also

indicate that a large number of maintenance personnel is developing a wide group solutions for their own use, which include “supports for fairings removed in C checks, supports for flaps, slats and elevators that need to be defined by the users”, and several examples of tools and supporting devices, some of which are later shared with colleagues and spread, and later may be commercialized. These preliminary results indicate that, even though the aeronautics is tightly regulated which constrains the integration of user innovation in aircraft, there is a wide group of solutions which were first developed firstly by users.

Parallel session 14 - CROWDFUNDING & ENTREPRENEURSHIP

Session Chair: Lars Bo Jeppesen (CBS)

Roma, P., Petruzzelli, A. M., and Perrone, G., "The Role of Product-Based Crowdfunding Performance in Attracting Professional Investors"

Abstract

In this paper we focus on new entrepreneurial ventures engaging in product-based crowdfunding and examine how their performance in such funding channel, as measured by the amount of money pledged, influences the access to subsequent funding from professional investors, required to favor further growth and expansion. Specifically, we investigate whether new entrepreneurial ventures better performing in the crowdfunding campaign are more likely to be associated with subsequent financing from professional investors than less successful ones. We also study how the effect of the performance in the crowdfunding campaign on the likelihood of securing subsequent funding is influenced by two important signals for new venture financing, i.e., the presence of patents granted for the given new product idea and the entrepreneur social capital. Relying on an ad-hoc dataset consisting of entrepreneurial projects available for funding on Kickstarter and related to industries that usually attract professional investors, we find that pledging a higher amount of money in the crowdfunding campaign can ignite professional investors' interest and thus help secure subsequent funding. However, interestingly, this positive signal is truly effective only when it is complemented by the presence of patents granted for the given new product idea or when the entrepreneur has built a large network of social ties.

Greul, A., West, J., and Bock, S., "Finding the crowdfunding window for 3D printing startups"

Abstract

Entrepreneurial firms leverage crowdsourcing to obtain resources and improve their chances of success. Recently, firms have begun to use crowdfunding — an open call for financial support — to fund product development. Here we examine the results of 128 crowdfunding campaigns for 3D printers, supplemented by interviews with entrepreneurs, campaign investors and other 3D printing enthusiasts. Our data suggest a three-stage process model for crowdfunding adoption, and the importance of targeting the 'crowdfunding window' of optimal adopter and product innovativeness.

Stuiver, D.M., Groen, A.J., and Ehrenhard, M.L., "Setting the stage for social user entrepreneurship: a systematic literature review on user entrepreneurship in relation to social entrepreneurship"

Abstract

This research explored the boundaries of the theories on user entrepreneurship and social entrepreneurship by examining the differences and analogies between them. This research was the first to explore the relationship between user entrepreneurship and social entrepreneurship and theorized about the value these types of entrepreneurship combined can bring. By doing so, we explored the possibility of social user entrepreneurship as an independent phenomenon. Social user entrepreneurship would entail the commercialization of products and services by (lead) user innovators that aim to address societal pain and create social wealth. Contextual factors can cause

unmet needs, which can trigger the social user entrepreneurship process. We argue that social user entrepreneurs are valuable for deprived regions as a bottom-up approach to empower people and create economic growth. Knowledge gained on social user entrepreneurship, and whether it serves as a valuable instrument to address societal unmet needs was therefore an important motivation for this research. This research provided interesting avenues for conducting future research which will contribute to a more solid understanding of social user entrepreneurship, and social innovation by lead users in context characterized by social unmet needs.

Carolus, R., “Living labs as arenas for participation and open innovation. A critical view.”

Abstract

The advantages of involving users in innovation processes as a way to both empower the user and create products and services more likely to be adopted have been widely documented (e.g. Thomke and von Hippel, 2002; von Hippel, 2005; Flowers and Henwood, 2010).

In recent years, and within the traditions of open and user innovation (von Hippel, 1988; Chesbrough and Appleyard, 2007), living labs have emerged as an apparent valid way of testing and promoting user participation in the creation of new products and services.

For the purpose of this mini-talk, living labs will be looked at as real-world contexts and experimental environments, where users and producers collaborate in the development of innovations, as well as approaches that facilitate the influence of users in open innovation processes (Bergval-Kåreborn et al., 2009; ENoLL, 2014).

Living labs research has been mainly focused on finding what key principles underlie living labs\ activities (Bergval-Kåreborn et al., 2009) and on mapping the type of actors and their roles in the innovation process (Nyström et al., 2014).

However, an understanding of the “drawbacks and bottlenecks” of living labs (Füzi, 2014: 2) appears to be missing. A clearer picture of the ways producers, users and other stakeholders interact in the practice of living lab, as well as the challenges they face in learning from one another is needed (Hakkareinen and Hyysallo, 2013). Also, future research on living labs will need to be more focused on how the involvement of users happens in practice rather than on who does what in the process. The PhD research behind this mini-talk draws from recent research that challenged the idea of living labs as open innovation ecosystems (Kommonen and Botero, 2013), as well as research with community-based organisations showing how democratizing innovation can also be about enhancing living conditions and democratic practices rather than simply creating more products (Björgvinsson et al., 2010).

By making use of a qualitative approach – a multiple case study – this PhD research (in progress) is looking closely at three living labs working in the development of independent living conditions. Its aim is to help understand the ways in which the practice of living labs is enacted, whether its context mediates user-producer interactions and whether living labs are amenable spaces for community participation. A more reflective, in-depth and critical view of the living lab phenomenon is proposed.

Finkenzeller, M., “The Silence of the Entrepreneurs: Why Founders are Overly Reluctant Talking about their Business Idea”

Abstract

The Silence of the Entrepreneurs: Why Founders are Overly Reluctant Talking about Business Ideas
Martin Finkenzeller Institute for Entrepreneurship and Innovation, Vienna University of Economics

and Business May, 2015 Field of Research Innovation, innovative projects and start-ups do not emerge in one single step (Brown, 2008; Verworn, 2003). In most cases, the original idea is developed in an iterative and evolutionary process in which the core concept is modified and revised until it is sustainable. Especially early stage start-ups constantly face fundamental change until their business model is fully developed (Bhave, 1994; Aldrich, Martinez, 2001). This is of particular importance as the breadth, source, and clarity of the initial business idea are significantly related to the start-up success (Van de Ven, Hudson & Schroeder, 1984). In order to get valuable input and much-needed resources to create and run a stable business, founders have to open themselves up to third parties and behave very similar to companies pursuing the way of open innovation (Chesbrough, 2003). That way external resources become an important input for new business ideas and can save time, cost and generate competitive advantage (Kessler, Bierly & Gopalakrishnan, 2000). Yet anecdotal evidence from many venture capitalists, founders and policy-makers suggests that there is a systematic behavioral tendency: Nascent Entrepreneurs give away opportunities because they are holding back information and knowledge. Research Question The present research project therefore seeks to explore why nascent entrepreneurs are overly reluctant talking about their business ideas: (1) Are nascent entrepreneurs not revealing in situations they should? (2)

What are the reasons for it? (3) Which are the most influential factors? Feedback on the theoretical model and research design is highly welcome. References Aldrich, H., Martinez, M., 2001. Many Are Called, But Few Are Chosen: An Evolutionary Perspective for the Study of Entrepreneurship. *Entrepreneurship Theory and Practice*, 25(4), p.293-311. Bhave, M., 1994. A Process Model of Entrepreneurial Venture Creation. *Journal of Business Venturing*, 9(3), p.223-242. Brown, T., 2008. "Design Thinking," *Harvard Business Review*, June, p. 84-92 Chesbrough, H., 2003. *Open Innovation: The New imperative for Creating and Profiting from Technology*. Harvard Business School Press: Boston MA. Kessler, E., Bierly, P., Gopalakrishnan, S., 2000. Internal vs. external learning in new product development: effects of speed, costs and competitive advantage. *R&D Management* 30 (3), 213. Van de Ven, A., Hudson, R., & Schroeder, D., 1984 Designing new business startups: Entrepreneurial, organizational, and ecological considerations. *Journal of Management*, 10(1), p.87-107. Verworn, B., Herstatt, C., 2003: Prozessgestaltung der frühen Phasen. In: Herstatt, C., Verworn, B.: *Management der frühen Innovationsphasen*. Gabler-Verlag, Wiesbaden, p.195-214.

Robijt, S., "User Innovation in a Public Service Media Firm. Case Study: the Flemish Public Broadcaster VRT"

Abstract

The Flemish public service media (PSM) institute VRT used to be very technology-oriented and rigid when it comes to new product development. Recently, they shifted both strategically and organizationally wise to allow for more user innovation. Despite a plethora of initiatives to detect user needs and interact with users, the shift towards more user-oriented innovation happens rather faulty. By means of six expert interviews with people working within UX and user innovation at VRT, we discovered user innovation to be somewhat problematic. Not only do they struggle to translate user needs because strategic decisions resonate louder, organizational flaws also counteract their aim for user innovation. Preliminary, we found a lack of knowledge, poor communication and knowledge distribution, working in silos, the lack of an overarching vision and policy and an overall poor innovation approach to be main barriers impeding new product development, with, for and by users.

Homscheid, D., Kilian, T., and Schaarschmidt, M., “Application Developer Engagement in Open Platforms: An Empirical Study Based on Apple and Android”

Abstract

Many distributed innovations involve a platform business model. Although the platform is developed and maintained by a single entity—that is, the platform operator—peripheral development activities complement the value that the platform offers to its customers (Boudreau 2010). External contributions may be encouraged in different ways, for example, by compensating developers' efforts or by sharing generated revenue. However, we know little about what drives developer engagement and work behavior when a third party—for instance, the platform operator—monetizes a share of the value created by developers. The literature on platform business models predominantly addresses the platform operator's perspective (e.g., Boudreau 2010). In turn, literature related to developers' motivation and work behavior, such as the rich literature pertaining to open-source software developers, only covers situations in which developers contribute to a public good, that is, open-source software (Hippel and Krogh 2006; Lakhani and Hippel 2003). Thus, the extant research lacks insights related to the determinants of developer engagement and work behavior in situations involving distributed innovation and platform business models. This is an important oversight because external developers are not contractually bonded to platform operators and can refrain from contributing to a platform's value. Thus, research is warranted that (1) addresses developer motivation and work behavior in situations of distributed innovation and platform business models, and (2) relates the results to platform characteristics. The aim of our research is to examine different antecedents of developer engagement in distributed innovation, that is, innovation activities in which third parties, such as platform operators, capture a share of generated value. Moreover, this research investigates platform characteristics, such as platform openness, in relation to developer engagement. To address these research gaps we surveyed 395 smartphone application developers. Drawing on self-determination theory and the theory of reasoned action, we suggest that a developer's level of development activity is a function of his or her job satisfaction and willingness to take risks. We further suggest that these antecedents are partly influenced by the perceived platform openness of the platform for which a developer works. By comparing Apple iOS and Android application developers, we are further able to investigate how platform openness as perceived by developers corresponds to objective measures of openness. The research is in the stage of hypotheses testing.