

Verband der **Hochschullehrer**
für **Betriebswirtschaft** e.V.



Programm und Abstracts der 11. Fachtagung

**der Wissenschaftlichen Kommission für
Technologie- und Innovationsmanagement**

RWTH Aachen, 4. bis 6. November 2009

Mittwoch, 4. November 2009	
10-17:00	Nachwuchsworkshop

Donnerstag, 5. November 2009		
10:00	Begrüßung durch den Vorsitzenden Begrüßung RWTH und RWTH-TIM Vorstellung des Programms und der neuen Mitglieder	
10:30	Geladener Plenarvortrag I: “Promotors, Champions and Gatekeepers: State of the Art and Future Research” Prof. Dr. Hans Georg Gemünden, TU Berlin Sessionchair: Martin Möhrle	
11:45	Kaffeepause	
12:00	Parallelsession 1: Entrepreneurial Decisions and Success Sessionchair: Peter Witt	Parallelsession 2: Innovation Management Sessionchair: Achim Walter
	Vortrag 1.1: Starting a new company – does experience help? <i>Christin Merz; Andreas Schroeter; Peter Witt</i> Korreferat: <i>Malte Brettel</i>	Vortrag 2.1: Portfolio Innovativeness – How Respondents’ Functional Backgrounds Influence its Assessment and what that Implies for its Performance Impact Carsten Schultz; Søren Salomo; Katrin Talke Korreferat: <i>Patrick Spieth</i>
12:50	Mittagspause	
14:00	Vortrag 1.2: Do family firms invest more in R&D than other firms?” Joern H. Block; Andreas Thams Korreferat: <i>Marcus Kölling</i>	Vortrag 2.2: Alternative Motives to File for Patents: Profiting from Pendency and Publication Joachim Henkel; Florian Jell Korreferat: <i>Michael Stephan</i>
	Vortrag 1.3: Metricised limit conjoint analysis as method to elicit corporate entrepreneurship decisions – A simulation study for validating a modification’s outcome Ronny Baierl; Dietmar Grichnik Korreferat: <i>Stefan Wagner</i>	Vortrag 2.3: Systematic identification of problem solvers from analogous markets: an empirical exploration of the potential of the search method ‘Pyramiding’ Reinhard Prügl; Marion Poetz Korreferat: <i>Christian Lüthje</i>

15:45	Kaffeepause	
16:00	Geladener Praxisvortrag: „Winning the Future – Innovation at Henkel“ Juan-Carlos Wuhrmann Strategic R&D / Technology Laundry & Home Care, Henkel AG &Co. KgaA Sessionchair: Frank Piller	
17:00	Kaffeepause	
17:15	Parallelsession 3: Collaboration in Research and Development Sessionchair: Christian Lüthje	Parallelsession 4: Scientists and Inventors in the Innovation Process Sessionchair: Joachim Henkel
	Vortrag 3.1: Dysfunktionen in F&E-Kooperationen: Präventivmaßnahmen und Kooperationserfolg Sascha Walter ; A. Walter, D. Müller Korreferat: <i>Katharina Hölzle</i>	Vortrag 4.1: Sharing in Academia and Industry: A Comparative Study Carolin Häussler Korreferat: <i>Ulrich Lichtenthaler</i>
	Vortrag 3.2: Costs of Knowledge Collaboration in the New Product Development Alexander Fliaster ; Florian Schloderer Korreferat: <i>Thorsten Posselt</i>	Vortrag 4.2: The Jack of All Technologies: Knowledge Recombination across Technological Boundaries <i>Marc Gruber, Dietmar Harhoff, Karin Hoisl</i> Korreferat: <i>Christoph Ihl</i>
19:00	Ende des ersten Tagungstages	
20:00	Tagungsdinner in der „Tonne“ des Aachener Ratskellers (im Aachener Rathaus, Marktplatz) in der historischen Innenstadt von Aachen	

Freitag, 6. November 2009		
9:00	Mitgliederversammlung	
10:15	Verleihung der Auszeichnungen für Nachwuchsforscher	
10:30	Kaffeepause	
10:45	Parallelsession 5: Open Innovation Sessionchair: Marc Gruber	Parallelsession 6: International Aspects of Technology and Innovation Management Sessionchair: Gerhard Schewe
	Vortrag 5.1: Determinants of Absorptive Capacity: The Value of Technology and Market Orientation for Open Innovation Ulrich Lichtenthaler; Holger Ernst; Wayne D. Hoyer Korreferat: <i>Oliver Baumann</i>	Vortrag 6.1: Young, Open and International: The Impact of Search Strategies on the Internationalization of New Ventures <i>Jörg Zimmermann, Christoph Grimpe, Wolfgang Sofka</i> Korreferat: <i>Jan Hendrik Fisch</i>
	Vortrag 5.2: The role of peripheral information for innovation success: The moderating effect of discontinuity Frank Piller; Dirk Lüttgens Korreferat: <i>Torsten-Oliver Salge</i>	Vortrag 6.2: International Orientation: Antecedents and Outcome for Innovation <i>Holger Ernst; Mohan Subramaniam; Anna Dubiel</i> Korreferat: <i>Anne-Katrin Neyer</i>
12:30	Mittagspause	
13:30	Geladener Plenarvortrag II: User Integration in Product Innovation and Design Prof. Dr. Nikolaus Franke, WU Wien Sessionchair: Holger Ernst	
14:45	Schlussplenum: Paneldiskussion – „Schlüsselfragen der Innovationsforschung“ <i>Achim Walter, Christian Lüthje, Joachim Henkel, Gerhard Schewe, Wolfgang Burr</i> Diskussionsleitung: <i>Dietmar Harhoff</i>	
15:30	Verabschiedung und Ende der Veranstaltung	

Plenarvorträge

Promoters, Champions and Gatekeepers: State of the Art and Future Research

Hans Georg Gemünden

Innovator roles have a long tradition in the innovation management literature. Research on champions, gatekeepers, and promoters has shown that these roles are very critical for the success of innovations. However, not all of these informal roles influence innovation success equally, the strength of their impact varies depending on the research design, and some studies could even show adverse influence of selected roles at specific points in time. In this paper, we make a first attempt to summarize all present empirical findings on these roles in innovation management and their characteristics in form of a meta-analysis. In a systematic literature search, we could identify over 50 quantitative empirical studies ranging from 1973 to 2008 which investigate performance impacts of various innovator roles. We have compiled 135 effect sizes from 28 independent samples to examine the respective influence of different roles on innovation success. After correcting for artifacts and sample size effects, we find that all innovator roles have a significantly positive influence on innovation success. Here, we can observe a stronger influence on innovation effectiveness than on efficiency. Moreover, promoter roles show overall stronger influences on both dimensions than the champion role does. With regard to innovativeness, the results are mixed. Based on the literature review and the metaanalysis the concepts of champions and promoters, we propose an integrated model for innovator roles. Implications for research, theory, and practice are discussed.

User Integration in Product Innovation and Design

Nikolaus Franke

Many companies offer websites which enable customers to design their own individual products, which the manufacturer can then produce to order. To date, the economic value of products self-designed using mass customization (MC) toolkits has been attributed to the two factors of preference fit achieved (which should be as high as possible) and design effort (which should be as low as possible). On the basis of behavioral decision making literature, we suggest a third factor, namely the awareness of being the "creator" of the product. In the course of five different studies, we provide experimental evidence that this creates economic value for the customer. Independent of the two other factors, self designed products result in a significantly higher willingness to pay. This effect is mediated by feelings of accomplishment and moderated by the outcome of the process as well as the individual's perceived contribution to the self-design process. This has important implications for MC companies: it is not enough merely to design MC toolkits in such a way that preference fit is maximized and design effort is minimized. In order to capture the full value of MC, toolkits should also elicit "I designed it myself" feelings.

Session 1: Entrepreneurial Decisions and Success

Vortrag 1.1

Starting a new company – does experience help?

Christian Merz, Andreas Schroeter, Peter Witt

This paper investigates the relationship between entrepreneurial experience and start-up success. We propose four extensions to earlier studies on the subject. First, we distinguish among different types of experience. Second, we consider non-linear relationships between experience and startup success. Third, our measures for start-up success correspond to the different stages of the entrepreneurial process. Fourth, we measure the “breadth” of experience in different fields in addition to the “depth” of experience per field. In the empirical part of the paper, we test all hypotheses using a sample of 137 German start-ups.

Vortrag 1.2

Do family firms invest more in R&D than other firms?

Joern H. Block, Andreas Thams

Investments in R&D can influence a firm’s ability to develop new products and to create and adopt innovative technologies that may enhance productivity. However, investments in R&D require a long-term business horizon. Family firms are often considered to be long-term oriented. This paper analyzes the level of R&D spending in family firms versus non-family firms. A distinction is made between family firms and lone founder businesses in which no relatives of a founder are involved. The results are surprising. Family ownership decreases the level of R&D spending, while ownership by lone founders has a positive effect. Our paper contributes to the understanding of entrepreneurial orientation, risk-taking and innovation behavior of family and lone founder firms.

Vortrag 1.3

Metricised limit conjoint analysis as method to elicit corporate entrepreneurship decisions – A simulation study for validating a modification’s outcome

Ronny Baierl, Dietmar Grichnik

Abstract

Corporate entrepreneurship is widely accepted for being one of the most emerging fields of entrepreneurship research. Hereby, researchers are forced to find effective structures that spur intrapreneurial activities. Admittedly, the opportunities’ (mis-)identifications and the decision-making process within existing organizations have not found its well-deserved attention. By modifying an established variant of conjoint analysis this paper shows how our introduced metricised limit conjoint analysis solves this problem and, hence, enriches the field of corporate entrepreneurship. Furthermore, we validate our approach with a simulation of 45 000 assessments. Our results indicate excellent future prospects of the metricised limit conjoint analysis for corporate entrepreneurship research as well as for practitioners.

Session 2: Innovation Management

Vortrag 2.1

Portfolio Innovativeness – How Respondents' Functional Backgrounds Influence its Assessment and what that Implies for its Performance Impact

Carsten Schultz, Søren Salomo, Katrin Talke

Concerning the impact of portfolio innovativeness on performance, empirical evidence is mixed. The authors strive at clarifying which role the innovativeness scale's properties and the respondents' functional background play in this respect. Based on a sample of 746 top managers, marketing and technology professionals, two fundamental questions are answered: (1) Do different facets of innovativeness reflect different degrees of innovativeness and does the choice of a measurement model influence the performance effect? (2) Do different functional groups respond to innovativeness measurement instruments differently and does this influence the performance effect? Our results imply that innovativeness is a multifaceted construct where different facets are related to different degrees of innovativeness and influence the performance effect systematically. In particular we find a need for integrating external resource fit aspects. Further we show that marketing and technology professionals correspond largely concerning the aspects considered when assessing portfolio innovativeness. However, marketing professionals assess their firm's portfolio as considerably more innovative than their colleagues from technology functions. These assessment differences lead to different performance effects. While portfolio innovativeness as assessed by marketing professionals produces a positive linear performance effect, an inverted U-shaped curve results from the technology experts' ratings. The results are discussed in light of different thought worlds and risk assessments. Implications are drawn both for research and management practice.

Vortrag 2.2

Alternative motives to file for patents: profiting from pendency and publication

Joachim Henkel, Florian Jell

Many patent applications lapse before they are reviewed by patent examiners. In this paper we analyze how even a lapsed patent application yields benefits to the applicant. We argue that these benefits are attributable to pendency and publication of patent applications. Based on an analysis of all direct first filings at the German patent office between 1986 and 2000 we find that more than 20% of all applications are left pending for the maximum of seven years before examination is requested or the application is deemed to be withdrawn. Our findings, which are supported by 25 interviews with inventors, indicate that firms keep patents pending in order to gain time for evaluating if an exclusion right is worth its cost and to create insecurity for competitors. Further 2% of all applications could turn out to have defensive publishing as their sole purpose, that is, the publication of inventions with the purpose of creating prior art. In this way, firms secure freedom to operate (FTO), which is a central precondition for appropriating profits from own-used inventions. This finding gives an indication that, for all other applications, the share of their value attributable to creating FTO might be considerable.

Vortrag 2.3

Systematic identification of problem solvers from analogous markets: an empirical exploration of the potential of the search method 'Pyramiding'

Reinhard Prügl; Marion Poetz

Developing innovations used to mainly happen within the boundaries of organizations' own R&D and/or marketing departments. The negative effect of local search on the novelty of outcome ('local search bias'), however, is one of the reasons why recently a strong trend towards opening up innovation processes drawing on external problem solvers can be observed. Especially problem solvers from *analogous markets* are capable of contributing to overcoming 'local search biases': not suffering from 'functional fixedness' but experiencing a similar ('analogous') problem they come up with highly novel solutions. The search method 'Pyramiding' theoretically provides the potential of crossing domain-specific boundaries and thus performing the challenging act of identifying problem solvers from analogous markets. Although first practical applications of this search method, e.g. in the course of applying the lead user method, provide anecdotal evidence, systematic research on the potential of 'Pyramiding search' for identifying problem solvers from analogous markets is still lacking to date. We address this topic by analyzing 1146 interviews made in the course of 'Pyramiding-search' processes in eight lead user studies. More than one third of those interviewees who were able to provide a referral in their interview performed the creative task of referring into one or more analogous domains *previously unknown* to the problem-holding searcher. Level of expertise of interviewees and their market origin both influence the likelihood of a boundary-crossing referral. Moreover, the type of industry in which the search field is located is found to moderate the effect of expertise on the likelihood of a referral into an analogous domain.

Session 3: Collaboration in Research and Development

Vortrag 3.1

Dysfunktionen in F&E-Kooperationen: Präventivmaßnahmen und Kooperationserfolg

Sascha Walter, Achim Walter, D. Müller

Kooperationen mit Wettbewerbern (Kooperationen) zählen zu den potenzialreichsten, aber auch riskantesten Formen von F&E-Kooperationen. Dieser Beitrag untersucht, inwiefern sich Unternehmen schon in der Anbahnungsphase vor negativen Konsequenzen derartiger Partnerschaften (Dysfunktionen) schützen können und wie sich derartige Dysfunktionen gegebenenfalls auf den Erfolg der Zusammenarbeit, gemessen als Beziehungswert, auswirken. Unseren Befunden zufolge vermindern Zielfit und Schutzvereinbarungen den Verlust wichtigen Wissens, der jedoch überraschenderweise durch Formalisierung verstärkt wird. Nur Zielfit wirkt einer strategischen Manipulation durch den Partner entgegen. Strategische Manipulation, nicht jedoch ein Wissensverlust beeinträchtigen den Beziehungswert. Unsere Befunde besitzen wichtige Implikationen für die zukünftige Forschung und das praktische Management von F&E-Kooperationen.

Vortrag 3.2

Costs of knowledge collaboration in the new product development

Alexander Fliaster, Florian Schloderer

Previous management and organizational research demonstrated that social ties among employees constitute important conduits for transactions of resources. However, it ignored the costs that result from maintaining and using of network ties. We argue that tie-related fixed and variable costs are associated to the key attributes of transactions mentioned in the transaction cost economics (TCE). We test these hypotheses using longitudinal data on the full networks among employees in a medium-sized German aerospace company who are involved in the new product development. Our results indicate that the transaction costs are most affected by attributes that determine the strength of the focal network tie. These findings help build a new theoretical link between TCE and SNA.

Session 4: Scientists and Inventors in the Innovation Process

Vortrag 4.1

Sharing in Academia and Industry: A Comparative Study

Carolin Häussler

This paper investigates how scientists decide whether to share information with their colleagues or not. Detailed data on the decisions of 1,694 bio-scientists allow us to detect similarities and differences between academia-based and industry-based scientists. In both realms, we find that the likelihood of sharing decreases with the economic value of particular information. Social factors, i.e., expected reciprocity and the extent to which a scientist's community conforms to the norm of communalism, either directly affect information-sharing or moderate considerations of economic interest on information sharing. The effect depends on the system to which a scientist belongs. Keywords: information-sharing; reciprocity; social norms; bio-sciences; IP protection mechanisms Acknowledgements: we would like to thank the scientists who participated in the survey for their time and effort. Jim Adams, Jeff Furman, Dietmar Harhoff, Jacques Mairesse, Mike Scherer, Marie Thursby and Jerry Thursby provided helpful comments. Financial support from the German Research Foundation (DFG) through SFB/TR15 "Governance and the Efficiency of Economic Systems" and the Munich Center for Health Sciences is gratefully acknowledged.

Vortrag 4.2

The Jack of All Technologies: Knowledge Recombination across Technological Boundaries

Marc Gruber, Dietmar Harhoff, Karin Hoisl

Research on learning and innovation suggests that the ability to engage in distant technological search is of particular importance for sustaining the firm's competitiveness. While the extant literature primarily focuses on organizational-level mechanisms as a means to facilitate distant searches (e.g., interfirm alliances or acquisitions), the present study focuses on the micro-level by examining technological knowledge recombination in invention processes. In particular, we argue that there are significant differences across the human capital endowments of inventors, their knowledge sourcing practices and the composition of inventor teams, and that those differences are associated with differential ability to recombine knowledge either within or across technological domains. Our findings highlight that a theory of organizational search and knowledge recombination needs to account for the abilities of the focal agent engaging in a search of the technological landscape. To date, however, many of the studies on technological search model the firm as the focal agent, and thus implicitly assume homogeneity in individual abilities to recombine knowledge across boundaries. Furthermore, our results complement recent research on star scientists. Notably, the 'Jacks of All Technologies' identified in this paper have a superior track record in knowledge recombination across technological domains, yet they would go unnoticed when applying established output-based approaches for identifying star scientists. We base our empirical analysis on a comprehensive data set covering 35,764 EP patents that was matched with an original survey data set obtained from 2,216 inventors.

Session 5: Open Innovation

Vortrag 5.1

Determinants of Absorptive Capacity: The Value of Technology and Market Orientation for Open Innovation

Ulrich Lichtenthaler, Holger Ernst, Wayne D. Hoyer

Firms increasingly establish open innovation processes which involve an active acquisition of external technological knowledge, often through alliances and licensing. To explain interfirm heterogeneity in external knowledge acquisition, marketing researchers have recently adopted the concept of absorptive capacity which refers to a firm's ability to explore, retain, and exploit external knowledge. Building on this concept, the authors draw on a knowledge-based view of the firm to emphasize that prior internal knowledge is critical to acquiring external technological knowledge. Specifically, this article identifies technological and market knowledge as two essential components of prior knowledge for developing absorptive capacity. The authors use data from a multi-informant survey of 175 industrial firms to test hypotheses relating technology orientation, responsive market orientation, and proactive market orientation to the three process stages of absorptive capacity. Technology orientation positively affects all three process stages. Responsive market orientation is negatively related to knowledge exploration, and it positively affects knowledge retention. Proactive market orientation positively influences knowledge exploration and knowledge exploitation. Beyond the relevance of technology and market orientation in internal innovation, the authors show their importance for acquiring external technological knowledge in open innovation processes. Absorptive capacity is an essential complement to internal innovation in linking strategic orientations and firm performance.

Vortrag 5.2

The role of peripheral information for innovation success: The moderating effect of discontinuity

Frank Piller, Dirk Lüttgens

Successful innovation frequently demands the combination of inputs from diverse sources which are often in the periphery of the firm. This view contrasts the earlier understanding of research and development as a closed system taking place within the borders of a firm or within a closely managed network of vertically integrated partners. By getting access to information about needs, applications, and solution technologies from customers, retailers, suppliers, and other external parties, an innovating firm should overcome, for example, constraints of local search for technical solutions or a lack of information about customer demands. Following this understanding of "open innovation", firms are increasingly building strategies to manage the access to input from external sources. Using a sample of 137 innovation projects in the German manufacturing industry, we systematically analyze the effect of interacting with diverse external actors on project performance. Actors considered include customers, suppliers, complementors, competitors, and research institutions like universities. While our data confirms the positive effect of external input proposed by the open innovation paradigm, we find that this relationship doesn't hold in general. Only when including moderating effects of this interaction, precise results can be obtained. Beside other factors, we especially investigate the moderating effect of the level of discontinuity, controlling for the fact that innovation projects differ in their uncertainty and risk. We find that interactions with different external sources influence innovation success differently according to the level of discontinuity of the respective project.

Session 6: International Aspects of Technology & Innovation Management

Vortrag 6.1

Young, Open and International: The Impact of Search Strategies on the Internationalization of New Ventures

Jörg Zimmermann, Christoph Grimpe, Wolfgang Sofka

Abstract:

Young firms with the ability to internationalize early and decisively have received much attention in recent academic discussion. However, relatively little is known about the underlying processes that enable them to skip several stages of the internationalization process. We contribute to this research stream by establishing theoretical links with the emerging open innovation paradigm of firms optimizing their R&D activities by interconnecting them with external partners such as leading customers, universities or specialized suppliers. Based on a sample of more than 2,500 firms in Germany we contrast young and mature firms with regard to the effect of open innovation strategies on internationalization performance. Our results show that both the breadth and depth of search strategies for external knowledge help young firms to enter international markets. Once they have entered these markets, though, the drivers for success seem to shift from general knowledge sourcing to targeted and specific ones.

Vortrag 6.2

International Orientation: Antecedents and Outcome for Innovation

Holger Ernst, Mohan Subramaniam, Anna Dubiel

Abstract:

We examine the antecedents and outcomes of international orientation – or, a firm's capabilities at recognizing and availing of opportunities outside its country borders. Drawing on two primary data sets from 129 companies and 138 business units from five export-intensive German industries our results suggest that a firm's international orientation is strongly influenced by its strategic intent, top manager's international exposure, intercultural training processes, and an interdependent international R&D structure. Additionally we also find that international orientation influences international new product development success.