

IWI Discussion Paper Series # 83 (February 5, 2018)¹



ISSN 1612-3646

Assessing Research Projects: A Framework

Jens Passlick², Sonja Dreyer², Daniel Olivotti², Benedikt Lebek³ and
Michael H. Breitner⁴

Title:

Author:	Format:	Deadline:
<u>Problem Identification</u>		<u>Goal(s)</u>
<u>Related Studies</u>		<u>Hypotheses / Research Question(s)</u>
<u>Research Design</u>		
<u>Risks</u>	<u>Methods / Phases</u>	<u>Time</u>
<u>Limitation(s)</u>		

¹ Copies or PDF file are available on request: Institut für Wirtschaftsinformatik, Leibniz Universität Hannover, Königsworther Platz 1, 30167 Hannover (www.iwi.uni-hannover.de).

² Research Assistant, Leibniz Universität Hannover, Information Systems Institute, Hannover, Germany {passlick | dreyer | olivotti}@iwi.uni-hannover.de

³ Ph.D., Research Fellow, BHN Dienstleistungs GmbH & Co. KG, Aerzen, Germany

⁴ Full Professor for Information Systems and Business Administration and Head of Information Systems Institute, Leibniz Universität Hannover (breitner@iwi.uni-hannover.de)

1 Introduction

In the day-to-day life of researchers, they are constantly faced with new research opportunities. At a first glance it is not always clear whether an idea can be put into real-world research. A researcher has to select the most suitable ideas for his personal research. A suitable tool is required that helps to decide whether a research idea has the potential to contribute to close a research gap and to academic and/or practical knowledge. Challenges and possible problems have to be uncovered in an early stage, ideally before starting the research. Additionally, further aspects have to be considered, such as hypotheses, goals and potential methods. Not only the assessment of own ideas but also of those from other researchers requires a compressed overview. A short summary of the rough research idea should enable an early assessment whether the research approach is promising. This is similar to the situation of company founders or investors who have to identify the best ideas from many business opportunities.

The “Business Model Canvas” by Osterwalder et al. (2010) is often used for evaluating business models. The works of Latham (2016) as well as Nagle and Sammon (2016) have already shown that it is also possible to develop a canvas for research. As Nagle and Sammon (2016) have already described, such a framework is similar to “Design Thinking” and “Visual Thinking” (Ware 2010) methods as they visualize ideas and enable collaboration on them. Nagle and Sammon (2016) focus on the application of a research canvas in the design science environment. On the other hand, Latham's research canvas aims to be universally valid. He divides his canvas into the parts foundation and method. When applying the research canvas to assess ideas for own ideas and publications, we have missed aspects in both models. We think that an examination of the problems and risks that can arise in a research project should be part of a framework for assessing research ideas. The rough research design should also emerge from the framework. This leads us to the research question of this paper:

RQ: How does a framework for assessing research ideas look like?

We developed our framework in different steps. We analysed existing literature and frameworks in the field of research idea evaluation. Based on this, in combination with our own experiences of important aspects, we designed a first prototype of a framework. We and further participants tested this prototype. Through tests and focus group discussions the prototype was improved and led to the final framework.

The paper is organized as follows: Chapter 2 presents existing literature concerning frameworks for evaluating and assessing research approaches. It is followed by the development of an own framework. The results are discussed in the fourth chapter. The paper closes with conclusions in chapter 5.

2 Related Literature

To get a comprehensive overview of existing literature dealing with frameworks for assessing research ideas, a systematic literature review was conducted. In order to ensure a structured search process, the following three search terms were predefined:

- “Evaluating research”
- “Presenting research”
- “Research canvas”

As representative for an academic database in the field of information systems, we chose “AISeL”. This database includes peer-reviewed papers from different high ranked journals and conference proceedings. “Google Scholar” was used to include research from all research disciplines. In this way, potential articles that are not assigned to the information systems research can also be found. As already explained, the aim of this paper is to develop a framework that is useful in practice for researchers. Google Scholar also helps here, because it includes also non-academic publications such as whitepapers and book chapters.

The objective of research is to contribute to academic and/or practical knowledge (Hassan et al. 2013). To reach this, gaps that are promising for future research have to be identified (Müller-Bloch and Kranz 2015). Important publications in the research field should be identified as well as definitions of key terms should be determined. Based on this, research questions can be formulated and the objective of research can be clarified (Wang et al. 2010). To be able to do this in a structured way, a framework is helpful. Fulfilling this purpose, two different frameworks are identified from literature, Latham (2016) and Nagle and Sammon (2016).

Latham (2016) developed a framework called “Research Cancas”, to design and structure research ideas. The framework aims at general applicability and comes from an application in the social sciences. The Research Canvas is divided into two big blocks: Foundation and methodology. The foundation consists of the areas: Problem, purpose, research question/hypotheses and the conceptual framework. The methodology block consists of a literature review, an overview of how research questions should be “approached”, the data collection, the data analysis and the last block in which conclusions are to be drawn. Further, Latham shows interdependencies and connections of the individual areas of the model. The framework aims to show a research process from the problem formulation to the problem solution. This is only a suggestion and the research process can include several iterations or jump over some steps.

A framework by Nagle and Sammon (2016) is called “Design Research Canvas” and focuses on design research approaches. This means that quantitative research, for example, cannot be mapped optimally. The aim is to support the connection between practitioners and researchers as described by Hevner et al. (2004). The model itself is even developed in a design research process. The framework is divided into four different aspects which are “problem”, “impact”, “design & build” and “evaluation”. The

practical and scientific aspects of each aspect is examined. So, there is a concentration on the cooperation between practitioners and researchers. Two of the five considered aspects deal with the impact of research. On the one hand it is viewed on the research idea from a practical perspective. It is intended that the practical impact should be evaluated. On the other hand, the academic impact has to be determined, coming from a researcher's perspective. Continuing the two different perspectives, three further aspects are considered in the framework, namely problem, design and build as well as evaluation. Nagle and Sammon emphasize that iterations are very important in design research. That is why they recommend to adapt the framework in each iteration of the research approach development process.

In order to be able to assess research ideas, the problems and risks that can arise in carrying out research play a major role for us. Not only the possible impact should be considered but also potential risks. The presented frameworks from Latham (2016) as well as from Nagle and Sammon (2016) do not consider this at all or only secondary. Therefore, we developed a framework to assess research ideas that does also focus on potential limitations, the planned time for each phase of the research and the risks in the different phases.

3 The Developed Framework

The framework that we developed to assess research ideas consists of six main blocks. The first four blocks help to locate the research idea in its context. The last block consists of in total five sub-blocks. In this, it is focused on the research design and approach. Our framework is based on the work by Latham (2016) in the first blocks. The first one has the heading "problem identification". In this part the research problem should be specified. This can be both a practical or an academic problem. Afterwards, two different processing sequences are conceivable. One possibility is to first define the goal of the research based on the problem. This refers to a description of a goal regardless of existing research. It leads to the box "related articles" which is based on the block "literature review" by Latham (2016). Here, first papers can be mentioned that serve as a foundation or follow a similar idea. The mentioned literature may also show that only a certain aspect of the goal has not yet been researched. Based on the review of the existing literature, the hypotheses and/or the research questions of the planned research can be described. This also represents the research gap and completes the first part of our framework. It is also conceivable to describe similar studies directly after defining the problem. Coming from existing literature in the research field, goals and research questions/hypotheses arise. Which way is more suitable for the respective idea has to be determined individually.

The second part of the framework describes the research design. First of all, there is space to mention the basis of the research design (e.g. Design Science Research). The block also contains the sub-blocks "risks", "phases/methods" and the time required for the conduction of the research. The phases/methods block lists the scientific

methods which should be used in the presented research. For example, “literature review”, “expert interviews” or “survey” is entered here. The block "risks" shows which problems might arise with each method or in each phase. For example, a risk could be that not enough participants are found for a survey. The scheduled time for each phase/method is entered in the block "time". It can be checked whether the planned time is sufficient for the execution of the respective method/research phase.

The framework is arranged in such a way that both the risks and the expected duration can be assigned to the different phases. The separation into single phases in the research design block is adapted from the framework presented by Nagle and Sammon (2016). However, we enrich it through the risks, the planned time and the limitations of the respective research. The limitations will then describe what cannot be treated in the described research project. By presenting the risks and the planned time in one line with the individual phases of the research, it is possible to see more quickly where problems might occur and whether the time is sufficient or not.

Figure 1 shows the final framework.

4 Discussion

The framework proved to be very helpful in the first tests when using the framework for bachelor and master theses of students. Additionally, focus group discussions with testers of the developed framework led to further findings. In the first version, the framework had even more boxes which caused confusion among some students, as the delimitation of the boxes were much more difficult. It was also important for the students to know if and how they have to follow a certain order when completing the form. As supervisors of the work, we found that it is important for us to quickly identify which research design and methods should be used, also in order to assess the risks of the application.

We find it very helpful to divide the framework into two parts. This is similar to the design by Latham (2016). However, the two parts have very different focuses. Latham (2016) assumes a fixed sequence of research, which can be described as follows: Literature review, overall approach, data collection, data analysis and finally drawing conclusions. We do not consider this structure to be flexible enough. In addition, we believe it is important that the risks are also taken into account at every stage of research. For each method it should be checked whether it can lead to valid results or whether it could be problematic. Compared to Nagle and Sammon (2016), we have detached from a particular information systems research design. With the developed framework, behavioural as well as design-oriented research can be presented. The appendix contains two examples of filled out frameworks. They show how it can be used. So far, no statements can be made about the transferability of the framework from information systems research to other research disciplines such as the social sciences. We have only tested the framework in the information systems research environment. But this might be an interesting starting point for further research.

Title:

Author:

Format:

Deadline:

<u>Problem Identification</u>	<u>Goal(s)</u>	
<u>Related Studies</u>	<u>Hypotheses / Research Question(s)</u>	
<u>Research Design</u>		
<u>Risks</u>	<u>Methods / Phases</u>	<u>Time</u>
<u>Limitation(s)</u>		

Figure 1. The developed research assessment framework

5 Conclusions

The first approaches to the evaluation of research ideas by Latham (2016) and Nagle and Sammon (2016) are already a good basis for a framework. However, we have seen room for improvement in the analysis of risks and the presentation of the research design. Our developed framework is divided into two parts. The first part describes the basis of the research. The second part is devoted to research design, limitations, the planned time, individual methods and their risks in the elaboration. During the development phase, the first tests with bachelor and master theses of students have already been incorporated into the structure of the framework. It has been shown that it is important for the students that the individual areas of the framework can be easily delimited. The maturity of the model is to be further enhanced by additional tests with students and doctoral students.

References

- Hassan, N. R., Benbasat, I., Nunamaker Jr, J. F., Briggs, R. O., & Mueller, B. (2013). Benefitting from IS Research – Who and How? A Panel on the Value of IS Research. In: Proceedings of the Americas Conference on Information Systems, Chicago, August 15–17, 2013.
- Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design Science in Information Systems Research. *MIS Quarterly* 28(1), pp. 75–105.
- Latham, J. R. (2016). *The Research Canvas: A Framework for Designing and Aligning the “DNA” of Your Study*. (2nd ed.). Colorado Springs, Colorado: Organization Design Studio, Ltd.
- Müller-Bloch, C., & Kranz, J. (2015). A framework for rigorously identifying research gaps in qualitative literature reviews. In: Thirty Sixth International Conference on Information Systems, Fort Worth, December 13–16, 2015.
- Nagle, T., and D. Sammon (2016). The Development of a Design Research Canvas for Data Practitioners. *Journal of Decision Systems* 25(1). pp. 369–380.
- Osterwalder, A., Pigneur, Y. & Smith, A. (2008). *Business Model Generation*. (<https://strategyzer.com/canvas/business-model-canvas>, accessed December 21, 2017).
- Wang, Y., Xu, D., & Rohde, F. H. (2010). A Systematic Framework of IT-Enabled Service Research towards Formulating Research Questions in IS Realm. In: Proceedings of the Americas Conference on Information Systems, Lima, August 12–15, 2010, paper 68.
- Ware, C. (2010). *Visual thinking: For design*. Burlington, MA: Morgan Kaufmann.

Appendix

Examples of filled out frameworks

A quantitative study

Research Assessment Framework

Title: Individual Factors for using SSBI

Author:	Format:	Deadline:
<p><u>Problem Identification</u></p> <ul style="list-style-type: none"> Data Quality because of Shadow BI Introduction of SSBI Software does not necessarily lead to an active use of SSBI tools 	<p><u>Goal(s)</u></p> <ul style="list-style-type: none"> To understand what leads to the use of SSBI 	
<p><u>Related Studies</u></p> <ul style="list-style-type: none"> Işık et al. (2013) Hou (2014) Bani-Hani et al. (2017b) Daradkeh and Moh'd Al-Dwairi (2017) 	<p><u>Hypotheses / Research Question(s)</u></p> <ul style="list-style-type: none"> How do individual factors influence the intention to use SSBI and the expected success of SSBI applications? 	
<p><u>Research Design</u></p> <ul style="list-style-type: none"> Quantitative research Structural equation modeling 		
<p><u>Risks</u></p> <ul style="list-style-type: none"> Constructs which are not validated enough Not enough participants 	<p><u>Methods / Phases</u></p> <ul style="list-style-type: none"> Literature review Model & hypotheses development Survey development Conducting the survey Analysis of the survey Writing 	<p><u>Time</u></p> <ul style="list-style-type: none"> 30 days 10 days 5 days 90 days 30 days 20 days
<p><u>Limitation(s)</u></p> <ul style="list-style-type: none"> Only the individual factors that influence SSBI are considered Limitations of quantitative research 		

Title: Literature Review in the Field of Smart Services

Author:	Format:	Deadline:
<p style="text-align: center;"><u>Problem Identification</u></p> <ul style="list-style-type: none"> • No structured overview of existing smart service literature • No existing research agenda available 	<p style="text-align: center;"><u>Goal(s)</u></p> <ul style="list-style-type: none"> • Comprehensive overview of current state of research in the field of smart services • Identification of research gaps 	
<p style="text-align: center;"><u>Related Studies</u></p> <ul style="list-style-type: none"> • Allmendinger and Lombreglia (2005) 	<p style="text-align: center;"><u>Hypotheses / Research Question(s)</u></p> <ul style="list-style-type: none"> • Which topics in the field of smart services in the academic literature are focused on which lifecycle phases? • Which important research gaps are promising for further research? 	
<p><u>Research Design</u></p> <ul style="list-style-type: none"> • Structured literature review according to Webster and Watson (2002) 		
<p style="text-align: center;"><u>Risks</u></p> <ul style="list-style-type: none"> • No interesting analysis results • Identification of an existing research agenda 	<p style="text-align: center;"><u>Methods / Phases</u></p> <ul style="list-style-type: none"> • Literature search • Analysis and categorization of literature • Identification of research gaps • Writing 	<p style="text-align: center;"><u>Time</u></p> <ul style="list-style-type: none"> • 25 days • 50 days • 10 days • 25 days
<p><u>Limitation(s)</u></p> <ul style="list-style-type: none"> • Use of predefined search terms • Limited to eight databases 		

IWI Discussion Paper Series/Diskussionsbeiträge

ISSN 1612-3646

Michael H. Breitner, *Rufus Philip Isaacs and the Early Years of Differential Games*, 36 p., #1, January 22, 2003.

Gabriela Hoppe and Michael H. Breitner, *Classification and Sustainability Analysis of e-Learning Applications*, 26 p., #2, February 13, 2003.

Tobias Brüggemann and Michael H. Breitner, *Preisvergleichsdienste: Alternative Konzepte und Geschäftsmodelle*, 22 p., #3, February 14, 2003.

Patrick Bartels and Michael H. Breitner, *Automatic Extraction of Derivative Prices from Webpages using a Software Agent*, 32 p., #4, May 20, 2003.

Michael H. Breitner and Oliver Kubertin, *WARRANT-PRO-2: A GUI-Software for Easy Evaluation, Design and Visualization of European Double-Barrier Options*, 35 p., #5, September 12, 2003.

Dorothee Bott, Gabriela Hoppe and Michael H. Breitner, *Nutzenanalyse im Rahmen der Evaluation von E-Learning Szenarien*, 14 p., #6, October 21, 2003.

Gabriela Hoppe and Michael H. Breitner, *Sustainable Business Models for E-Learning*, 20 p., #7, January 5, 2004.

Heiko Genath, Tobias Brüggemann and Michael H. Breitner, *Preisvergleichsdienste im internationalen Vergleich*, 40 p., #8, June 21, 2004.

Dennis Bode and Michael H. Breitner, *Neues digitales BOS-Netz für Deutschland: Analyse der Probleme und mögliche Betriebskonzepte*, 21 p., #9, July 5, 2004.

Caroline Neufert and Michael H. Breitner, *Mit Zertifizierungen in eine sicherere Informationsgesellschaft*, 19 p., #10, July 5, 2004.

Marcel Heese, Günter Wohlers and Michael H. Breitner, *Privacy Protection against RFID Spying: Challenges and Countermeasures*, 22 p., #11, July 5, 2004.

Liina Stotz, Gabriela Hoppe and Michael H. Breitner, *Interaktives Mobile(M)-Learning auf kleinen Endgeräten wie PDAs und Smartphones*, 31 p., #12, August 18, 2004.

Frank Köller and Michael H. Breitner, *Optimierung von Warteschlangensystemen in Call Centern auf Basis von Kennzahlenapproximationen*, 24 p., #13, Januar 10, 2005.

Phillip Maske, Patrick Bartels and Michael H. Breitner, *Interactive M(obile)-Learning with UbiLearn 0.2*, 21 p., #14, April 20, 2005.

Robert Pomes and Michael H. Breitner, *Strategic Management of Information Security in State-run Organizations*, 18 p., #15, May 5, 2005.

Simon König, Frank Köller and Michael H. Breitner, *FAUN 1.1 User Manual*, 134 p., #16, August 4, 2005.

Christian von Spreckelsen, Patrick Bartels and Michael H. Breitner, *Geschäftsprozessorientierte Analyse und Bewertung der Potentiale des Nomadic Computing*, 38 p., #17, December 14, 2006.

Stefan Hoyer, Robert Pomes, Günter Wohlers and Michael H. Breitner, *Kritische Erfolgsfaktoren für ein Computer Emergency Response Team (CERT) am Beispiel CERT-Niedersachsen*, 56 p., #18, December 14, 2006.

Christian Zietz, Karsten Sohns and Michael H. Breitner, *Konvergenz von Lern-, Wissens- und Personalmanagementsystemen: Anforderungen an Instrumente für integrierte Systeme*, 15 p., #19, December 14, 2006.

Christian Zietz and Michael H. Breitner, *Expertenbefragung „Portalbasiertes Wissensmanagement“: Ausgewählte Ergebnisse*, 30 p., #20, February 5, 2008.

Harald Schömburg and Michael H. Breitner, *Elektronische Rechnungsstellung: Prozesse, Einsparpotentiale und kritische Erfolgsfaktoren*, 36 p., #21, February 5, 2008.

Halyna Zakhariya, Frank Köller and Michael H. Breitner, *Personaleinsatzplanung im Echtzeitbetrieb in Call Centern mit Künstlichen Neuronalen Netzen*, 35 p., #22, February 5, 2008.

IWI Discussion Paper Series/Diskussionsbeiträge

ISSN 1612-3646

- Jörg Uffen, Robert Pomes, Claudia M. König and Michael H. Breitner, *Entwicklung von Security Awareness Konzepten unter Berücksichtigung ausgewählter Menschenbilder*, 14 p., #23, May 5, 2008.
- Johanna Mählmann, Michael H. Breitner and Klaus-Werner Hartmann, *Konzept eines Centers der Informationslogistik im Kontext der Industrialisierung von Finanzdienstleistungen*, 19 p., #24, May 5, 2008.
- Jon Sprenger, Christian Zietz and Michael H. Breitner, *Kritische Erfolgsfaktoren für die Einführung und Nutzung von Portalen zum Wissensmanagement*, 44 p., #25, August 20, 2008.
- Finn Breuer and Michael H. Breitner, *„Aufzeichnung und Podcasting akademischer Veranstaltungen in der Region D-A-CH“: Ausgewählte Ergebnisse und Benchmark einer Expertenbefragung*, 30 p., #26, August 20, 2008.
- Harald Schömburg, Gerrit Hoppen and Michael H. Breitner, *Expertenbefragung zur Rechnungseingangsbearbeitung: Status quo und Akzeptanz der elektronischen Rechnung*, 40 p., #27, October 15, 2008.
- Hans-Jörg von Mettenheim, Matthias Paul and Michael H. Breitner, *Akzeptanz von Sicherheitsmaßnahmen: Modellierung, Numerische Simulation und Optimierung*, 30 p., #28, October 16, 2008.
- Markus Neumann, Bernd Hohler and Michael H. Breitner, *Bestimmung der IT-Effektivität und IT-Effizienz serviceorientierten IT-Managements*, 20 p., #29, November 30, 2008.
- Matthias Kehlenbeck and Michael H. Breitner, *Strukturierte Literaturrecherche und -klassifizierung zu den Forschungsgebieten Business Intelligence und Data Warehousing*, 10 p., #30, December 19, 2009.
- Michael H. Breitner, Matthias Kehlenbeck, Marc Klages, Harald Schömburg, Jon Sprenger, Jos Töller and Halyna Zakhariya, *Aspekte der Wirtschaftsinformatikforschung 2008*, 128 p., #31, February 12, 2009.
- Sebastian Schmidt, Hans-Jörg v. Mettenheim and Michael H. Breitner, *Entwicklung des Hannoveraner Referenzmodells für Sicherheit und Evaluation an Fallbeispielen*, 30 p., #32, February 18, 2009.
- Sissi Eklun-Natey, Karsten Sohns and Michael H. Breitner, *Buildung-up Human Capital in Senegal - E-Learning for School drop-outs, Possibilities of Lifelong Learning Vision*, 39 p., #33, July 1, 2009.
- Horst-Oliver Hofmann, Hans-Jörg von Mettenheim and Michael H. Breitner, *Prognose und Handel von Derivaten auf Strom mit Künstlichen Neuronalen Netzen*, 34 p., #34, September 11, 2009.
- Christoph Polus, Hans-Jörg von Mettenheim and Michael H. Breitner, *Prognose und Handel von Öl-Future-Spreads durch Multi-Layer-Perceptrons und High-Order-Neuronalnetze mit Faun 1.1*, 55 p., #35, September 18, 2009.
- Jörg Uffen and Michael H. Breitner, *Stärkung des IT-Sicherheitsbewusstseins unter Berücksichtigung psychologischer und pädagogischer Merkmale*, 37 p., #36, October 24, 2009.
- Christian Fischer and Michael H. Breitner, *MaschinenMenschen – reine Science Fiction oder bald Realität?* 36 P., #37, December 13, 2009.
- Tim Rickenberg, Hans-Jörg von Mettenheim and Michael H. Breitner, *Plattformunabhängiges Softwareengineering eines Transportmodells zur ganzheitlichen Disposition von Strecken- und Flächenverkehren*, 38 p., #38, January 11, 2010.
- Björn Semmelhaack, Jon Sprenger and Michael H. Breitner, *Ein ganzheitliches Konzept für Informationssicherheit unter besonderer Berücksichtigung des Schwachpunktes Mensch*, 56 p., #39, February 3, 2009.
- Markus Neumann, Achim Plückebaum, Jörg Uffen and Michael H. Breitner, *Aspekte der Wirtschaftsinformatikforschung 2009*, 70 p., #40, February 12, 2010.
- Markus Neumann, Bernd Hohler and Michael H. Breitner, *Wertbeitrag interner IT – Theoretische Einordnung und empirische Ergebnisse*, 38 p., #41, May 31, 2010.
- Daniel Wenzel, Karsten Sohns and Michael H. Breitner, *Open Innovation 2.5: Trendforschung mit Social Network Analysis*, 46 p., #42, June 1, 2010.

IWI Discussion Paper Series/Diskussionsbeiträge

ISSN 1612-3646

Naum Neuhaus, Karsten Sohns and Michael H. Breitner, *Analyse der Potenziale betrieblicher Anwendungen des Web Content Mining*, 44 p., #43, June 8, 2010.

Ina Friedrich, Jon Sprenger and Michael H. Breitner, *Discussion of a CRM System Selection Approach with Experts: Selected Results from an Empirical Study*, 22 p., #44, November 15, 2010.

Jan Bührig, Angelica Cuylen, Britta Ebeling, Christian Fischer, Nadine Guhr, Eva Hagenmeier, Stefan Hoyer, Cornelius Köpp, Lubov Lechtchinskaia, Johanna Mähmann and Michael H. Breitner, *Aspekte der Wirtschaftsinformatikforschung 2010*, 202 p., #45, January 3, 2011.

Philipp Maske and Michael H. Breitner, *Expertenbefragung: Integrierte, interdisziplinäre Entwicklung von M(obile)-Learning Applikationen*, 42 p., #46, February 28, 2011.

Christian Zietz, Jon Sprenger and Michael H. Breitner, *Critical Success Factors of Portal-Based Knowledge Management*, 18 p., #47, May 4, 2011.

Hans-Jörg von Mettenheim, Cornelius Köpp, Hannes Munzel and Michael H. Breitner, *Integrierte Projekt- und Risikomanagementunterstützung der Projektfinanzierung von Offshore-Windparks*, 18 p., #48, September 22, 2011.

Christoph Meyer, Jörg Uffen and Michael H. Breitner, *Discussion of an IT-Governance Implementation Project Model Using COBIT and Val IT*, 18 p., #49, September 22, 2011.

Michael H. Breitner, *Beiträge zur Transformation des Energiesystems 2012*, 31 p., #50, February 12, 2012.

Angelica Cuylen and Michael H. Breitner, *Anforderungen und Herausforderungen der elektronischen Rechnungsabwicklung: Expertenbefragung und Handlungsempfehlungen*, 50 p., #51, May 5, 2012

Helge Holzmann, Kim Lana Köhler, Sören C. Meyer, Marvin Osterwold, Maria-Isabella Eickenjäger and Michael H. Breitner, *Plinc. Facilitates linking. – Ein Accenture Campus Challenge 2012 Projekt*, 98 p., #52, August 20, 2012.

André Koukal and Michael H. Breitner, *Projektfinanzierung und Risikomanagement Projektfinanzierung und Risikomanagement von Offshore-Windparks in Deutschland*, 40 p., #53, August 31, 2012.

Halyna Zakhariya, Lubov Kosch and Michael H. Breitner, *Concept for a Multi-Criteria Decision Support Framework for Customer Relationship Management System Selection*, 14 p., #55, July 22, 2013.

Tamara Rebecca Simon, Nadine Guhr and Michael H. Breitner, *User Acceptance of Mobile Services to Support and Enable Car Sharing: A First Empirical Study*, 19 p., #56, August 1, 2013.

Tim A. Rickenberg, Hans-Jörg von Mettenheim and Michael H. Breitner, *Design and implementation of a decision support system for complex scheduling of tests on prototypes*, 6 p. #57, August 19, 2013.

Angelica Cuylen, Lubov Kosch, Valentina, Böhm and Michael H. Breitner, *Initial Design of a Maturity Model for Electronic Invoice Processes*, 12 p., #58, August 30, 2013.

André Voß, André Koukal and Michael H. Breitner, *Revenue Model for Virtual Clusters within Smart Grids*, 12 p., #59, September 20, 2013.

Benjamin Küster, André Koukal and Michael H. Breitner, *Towards an Allocation of Revenues in Virtual Clusters within Smart Grids*, 12 p., #60, September 30, 2013.

My Linh Truong, Angelica Cuylen and Michael H. Breitner, *Explorative Referenzmodellierung interner Kontrollverfahren für elektronische Rechnungen*, 30 p., #61, December 1, 2013.

Cary Edwards, Tim Rickenberg and Michael H. Breitner, *Innovation Management: How to drive Innovation through IT – A conceptual Mode*, 34 p., #62, November 29, 2013.

Thomas Völk, Kenan Degirmenci, and Michael H. Breitner, *Market Introduction of Electric Cars: A SWOT Analysis*, 13 p., #63, July 11, 2014.

Cary Edwards, Tim A. Rickenberg, and Michael H. Breitner, *A Process Model to Integrate Data Warehouses and Enable Business Intelligence: An Applicability Check within the Airline Sector*, 14 p., #64, November 11, 2014.

IWI Discussion Paper Series/Diskussionsbeiträge

ISSN 1612-3646

Mina Baburi, Katrin Günther, Kenan Degirmenci and Michael H. Breitner, *Gemeinschaftsgefühl und Motivationshintergrund: Eine qualitative Inhaltsanalyse im Bereich des Elektro-Carsharing*, 53 p., #65, November 18, 2014.

Mareike Thiessen, Kenan Degirmenci and Michael H. Breitner, *Analyzing the Impact of Drivers' Experience with Electric Vehicles on the Intention to Use Electric Carsharing: A Qualitative Approach*, 22 p., #66, December 2, 2014.

Mathias Ammann, Nadine Guhr and Michael H. Breitner, *Design and Evaluation of a Mobile Security Awareness Campaign – A Perspective of Information Security Executives*, 22 p., #67, June 15, 2015.

Raphael Kaut, Kenan Degirmenci and Michael H. Breitner, *Elektromobilität in Deutschland und anderen Ländern: Vergleich von Akzeptanz und Verbreitung*, 75 p., #68, September 29, 2015.

Kenan Degirmenci and Michael H. Breitner, *A Systematic Literature Review of Carsharing Research: Concepts and Critical Success Factors*, 12 p., #69, September 29, 2015.

Theresa Friedrich, Nadine Guhr and Michael H. Breitner, *Führungsstile: Literaturrecherche und Ausblick für die Informationssicherheitsforschung*, 29 p., #70, November 29, 2015.

Maximilian Kreutz, Phillip Lüpke, Kathrin Kühne, Kenan Degirmenci and Michael H. Breitner, *Ein Smartphone-Bonussystem zum energieeffizienten Fahren von Carsharing-Elektrofahrzeugen*, 11 p., #71, December 9, 2015.

Marc-Oliver Sonneberg, Danny Wei Cao and Michael H. Breitner, *Social Network Usage of Financial Institutions: A SWOT Analysis based on Sparkasse*, 12 p., #72, January 14, 2016.

Jan Isermann, Kathrin Kühne and Michael H. Breitner, *Comparison of Standard and Electric Carsharing Processes and IT-Infrastructures*, 21 p., #73, February 19, 2016.

Sonja Dreyer, Sören C. Meyer and Michael H. Breitner, *Development of a Mobile Application for Android to Support Energy-Efficient Driving of Electric Vehicles*, 15 p., #74, February 29, 2016.

Claudia M. König and Michael H. Breitner, *Abschlussbericht des KIQS-Projekts „Verbesserung der Koordination von, der Interaktion Studierende- Lehrende in und der Integration aller Lehrinhalte in sehr großer/n Lehrveranstaltungen im Bachelor Grundstudium“*, 45 p., #75, April 27, 2016.

Wilhelm G. N. Jahn, Kenan Degirmenci and Michael H. Breitner, *Portallösungen für Elektro-Carsharing: Stakeholderanalyse und Konzepte*, 94 p., #76, May 12, 2016.

Mareike Thiessen, Kenan Degirmenci and Michael H. Breitner, *Electric Carsharing Usage and Shifting Effects between Public Transport, Car Ownership, Carsharing, and Electric Carsharing: A Data Mining Analysis and a Survey of Electric Carsharing Users*, 188 p., #77, May 12, 2016.

Bjarne Neels, Marc-Oliver Sonneberg and Michael H. Breitner, *IKT-basierte Geschäftsmodellinnovationen im Gütertransport: Marktübersicht und Analyse*, 38 p., #78, October 6, 2016.

Ines Thurk, Nadine Guhr and Michael H. Breitner, *Unterstützung des Wissensmanagements mit Electronic Learning – Eine Literaturanalyse*, 22 p., #79, October 30, 2016.

Vi Kien Dang, Marc-Oliver Sonneberg and Michael H. Breitner, *Analyse innovativer Logistikkonzepte für urbane Paketdienstleister*, 66 p., #80, November 3, 2016.

Christoph Thermann, Marc-Oliver Sonneberg and Michael H. Breitner, *Visualisierung von Verkehrsdaten der Landeshauptstadt Hannover*, 16 p., #81, February 17, 2017.

Rouven-B. Wiegard, Kenan Degirmenci and Michael H. Breitner, *What Influences the Adoption of Electronic Medical Record Systems? An Empirical Study with Healthcare Organizations Executives*, 28 p., #82, May 30, 2017.