# Jahresbericht 2021

## Fachgebiet „Design Thinking and Innovation Research“

Prof. Dr. Falk Uebernickel

HPI Hasso Plattner Institut
Digital Engineering · Universität Potsdam

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# Introduction

Dear Ladies and Gentlemen,

In 2021 the world is still primarily affected by the global pandemic around Covid-19. Since we all have become familiar with hygiene procedures and remote teaching, we should not forget how privileged we at the HPI are. While we still miss the opportunity to teach, present, and discuss our research in person with other scholars and students, we are still grateful for what the chair team has achieved over the past 12 months. The annual report provides you with a short overview of these achievements.

The first positive news comes from new joiners. Since our start in 2020 with a small team, we have been growing continuously with new Ph.D. candidates researching sustainability and digital innovation. Further new team members support us in our teaching activities by running our flagship program, Global Team-Based Innovation, or helping us with specific research projects.

In terms of teaching, we celebrated the closing of the batch 20/21 in summer together in Bologna, Italy, as part of the global Sugar program. Also, we started our next batch as part of the Sugar Global Kick-Off in Nice, France. In 2021, we collaborated closely with the University of St Gallen (HSG), the Karlsruhe Institute of Technology (KIT), d.school Paris, France, Alto University in Finland, University Bologna, Italy and Stanford University, USA.

Regarding research, the team managed to publish their work in 2021 at prestigious conferences in information systems (ICIS, ECIS, AMCIS, HICSS). It was also able to deliver journal publications in management outlets. Specifically, the opportunity to attend the International Conferences in Information Systems in Austin, Texas was a highlight for the team members. One of the chair's research papers was awarded as Best Paper, a notable end of the year for the team's research activities.

Are you curious about the details of what the team was able to achieve? This annual report will provide you with insights into our activities in 2021. Furthermore, we also want to give you a glimpse of what you can expect from us this year!

All in all, we look forward to an insightful and fruitful collaboration, and we hope you enjoy reading the report!

Warm regards, Prof. Dr. Falk Uebernickel and team,

Chair for Design Thinking and Innovation Research

# Mission

Climate change and digitization are probably the two most essential megatrends that humanity has to cope with in the 21st century. However, as liberal societies, one approach to master these challenges is the human mind's creativity resulting in game-changing innovations. It's the ideas of individuals that have helped us to cope with changing environments for a long time. Also, it is necessary to embrace the power of innovations in different dimensions and areas in today's world. However, addressing the mega challenges in front of us also needs a new way to think about innovation. Beyond addressing technical or financial issues, we need a more inclusive, holistic and sustainable, *human-centered concept of innovation*. Thus, a key question that is guiding our research and teaching activities is:

*"How can we incorporate customer-centricity and human-centered design in daily work routines of organizations for the purpose of creating meaningful, sustainable, and desirable software-related services, products, and processes?"*

Like the Hasso Plattner Institute has committed itself to the UN's Sustainable Development Goals (SDG), our chair understands our research especially contributing to SDG 3. Thus, we aim to foster human-centered innovation in our society.

Solving the riddle of innovation requires knowledge from different perspectives. Thereby we deploy an inter- and transdisciplinary approach in our way of working. This approach towards knowledge creation shall also be the aim internally. We strive to *cross bridges* between software engineering, computer science, and application fields here at Hasso Plattner Institute.

Thus, we collaborate with partners from other Universities and private companies to solve our time's urgent issues for the next generation. Enabling young and talented minds in research and teaching is our mandate as part of an academic institution.

The Chair for Design Thinking and Innovation Research (DTIR)

# Team

The team of the chair has backgrounds in Information Science, Computer Science, Psychology and Management and collaborates in an international and interdisciplinary environment.

| Position | Name | Background | Status |
|---|---|---|---|
| Chair | Prof. Dr. Falk Uebernickel | Business Administration and Information Science | HPI |
| Chair Assistant | Anne Klonower | Business Administration | HPI |
| Post Doc | Dr. Danielly de Paula | Computer Science | HPI |
| Ph.D. Candidates | Carolin Marx | Business Psychology, Strategic Management | HPI |
| | Thomas Haskamp | Business Innovation | HPI |
| | Uliana Polyakova | Business Innovation | HPI |
| | Vincent Beermann | Psychology | HPI |
| | Selina Mayer | Psychology | External |
| | Harish Karthi Natarajan | Mechanical Engineering | External |
| | Annalena Lorson | Management | External |
| Affiliated Members of the Chair | Maia Kuhnen | Psychology | SUGAR |
| | Vanessa Robayo Ladino | Strategic Design | SUGAR |
| | Leo Wendt | IT-Systems Engineering | HPI |
| | Hendrik Patzlaff | IT-Systems Engineering | HPI |
| | Dominik Meier | IT-Systems Engineering | HPI |
| | Nis-Jonas Harmsen | Management | UP |
| | Aaron Smith | Astrophysics | UP |

**Chair for Design Thinking and Innovation Research - Employees**

# Lecturing and Teaching Activities

Teaching allows us to discuss our research with passionate students and offers us the chance to inspire the next generation with our topics. Therefore, the chair hosts many different lectures and seminars on different levels.

- Firstly, we provide lectures as part of the Executive Education at the University of St Gallen (HSG).
- Secondly, we offer our Research Seminar Series for those aiming to write their dissertation with us.
- Thirdly, the chair hosts two classes on the master level at HPI, namely, Global Team-Based Innovation I/II and Requirements Engineering for Software Engineers. And we also offer a class on Sustainable Innovation through Human-Centered Design at the University of St. Gallen (HSG). Fourthly, the chairs also supervise bachelor and master thesis from HPI and HSG. Additionally, the chair also delivered an Online Course - Mastering Design Thinking in Organizations.

**Teaching Activities - 2021**

| Class | Term | University | Level |
|---|---|---|---|
| CAS Digital Leadership & Transformation | Summer and Winter | University of St. Gallen | Exec |
| Executive Master in Business Engineering: Agile Work & Human-Centered Design' | Summer and Winter | University of St. Gallen | Exec |
| Workshop on Design Thinking and Business Innovation | Summer and Winter | Hasso Plattner Institute | PhD |
| Seminar on Scientific Publishing | Winter | Hasso Plattner Institute | PhD |
| Global Team-Based Innovation I & II | Summer and Winter | Hasso Plattner Institute | Master |
| Requirements Engineering for Software Engineers | Summer | Hasso Plattner Institute | Master |
| Sustainable Innovation through Human-Centered Design | Summer | University of St. Gallen | Master |
| Thesis Supervision | Winter and Summer | Hasso Plattner Institute, University of St. Gallen | All |

# Research Seminar Series (PhD)

The chair hosts the Research Seminar Series (RSS) aimed at students on a Ph.D. level and other researchers. The series aims to support students pursuing their Ph.D./Doctorate by providing an environment that facilitates learning about research methods and designs. The support takes place through high standing contributions, well-prepared presentations, and intense discussions by the participants. Furthermore, the series helps students to identify their research fields. Additionally, the RSS aims to foster networking among similarly minded researchers (all researchers from HPI and partner universities are invited to participate in the RSS program). Last but not least, Ph.D. students can also find collaborators within their community. The chair has developed the RSS concept consisting of two seminars, bi-weekly research updates, and a monthly journal club.

**Workshop on Design Thinking and Business Innovation:**

The workshop on Design Thinking and Business Innovation aims to improve the dissertation projects along with the Ph.D. / Doctorate life cycle. The workshop used different formats depending on the development stage of every Ph.D. candidate. The two-day seminar is prepared through previous review cycles. Thus, within the workshop, literature reviews and structured field analyses are conducted, and Ph.D. 's have the chance to pitch their proposals and Research in Progress.

| Course | Presentation Date | Lecturer |
|---|---|---|
| *4th RSS Workshop - Research Workshop on Design Thinking and Business Innovation* | 15.09.2021 | Prof. Dr Falk Uebernickel, Dr. Danielly de Paula |

**Research Update:**

The biweekly research update meeting aims to regularly update students on Design Thinking and Business Innovation related research at HPI. Sometimes, guest researchers also join for discussions or presentations. Furthermore, students writing their bachelor or master thesis are invited a few times to present their status. Thus, students can get feedback and improve their research projects.

**Journal Club:**

The monthly gathering aims to facilitate regular exchange on foundational or newly published papers. Participants of the journal club receive the paper to be discussed in advance. During the session, the participants discuss the paper in terms of structure, methods, novelty, etc. In terms of outcomes, participants get an overview and an in-depth understanding of high-quality research work.

# Global Team-Based Innovation (Master)

## I - Batch 2020/2021

At the first time, the course Global Team-Based Innovation was hosted completely through the DTIR in close collaboration with the Sugar Network. This network of several Universities around the world aims to educate future Design Thinking practitioners by an interdisciplinary, experiential learning approach.
For nine months, three students of HPI team up with students from other universities and work on a challenging problem of a corporate partner using Design Thinking. Thus, students learn how to work in an interdisciplinary and international environment on real-world problems. Each team is facilitated by two teaching assistants closely accompanying the teams along the journey. In 2020/21, the chair supervised seven student teams working on exciting and highly relevant problems with the following companies and universities:

| Corporate Partner | Team Members | Partner University | Teaching Team |
|---|---|---|---|
| **Hyundai** | Ben Hurdelhey, Hendrick Patzlaff, Carla Terboven | Stanford University, United States | David Hahn, Carolin Marx |
| **Takeda** | Soumya Suvarna, Theresa Hradilak | Kyoto Institute for Technology, Japan | David Hahn, Roman Reinert |
| **Rohde & Schwarz** | Kris-Fillip Kahl, Paul Brachmann, Eric Ackermann | Linköping University, Sweden | Carolin Marx, Leonard Pabst |
| **Nestlé** | Sebastian Brito, Zoe Hille, Jan Westphal | University of Sao Paulo, Brazil | Danielly de Paula |
| **HUK-COBURG** | Georg Lange, Benedikt Schenkel, Jonathan Gadea Harder | Karlsruhe Institute of Technology (KIT), Germany | David Hahn, Leonard Pabst |
| **Takeda** | David Justen, Dominik Meier, Leo Wendt | Stanford University, United States | David Hahn, Thomas Haskamp |
| **Postfinance** | Samuel Hummel, Florian Hübscher | Linköping University, Sweden | Thomas Haskamp, Roman Reinert |

Teaching Team: Falk Uebernickel, Danielly de Paula, David Hahn, Thomas Haskamp, Carolin Marx, Leonard Pabst, Roman Reinert

## II – Batch 2021/2022

As part of this class, we provide students with the opportunity to participate in the Sugar Network. This network of several universities worldwide aims to educate future Design Thinking practitioners by an interdisciplinary, experiential learning approach.
For nine months, three students of HPI team up with students from other universities and work on a challenging problem of a corporate partner using Design Thinking. Thus, students learn how to work in an interdisciplinary and international environment on real-world problems. Each team is facilitated by two teaching assistants closely accompanying the teams along the journey. In 2021/22, the chair supervised six student teams working on exciting and highly relevant problems with the following companies and universities:

| Corporate Partner | Team Members | Partner University | Teaching Team |
|---|---|---|---|
| **Postfinance** | Julian Zabbarov,<br>Fabian Lange,<br>Sebastian Apitz | HSG St. Gallen University,<br>Switzerland | Uliana Polyakova,<br>Hendrik Patzlaff |
| **LBBW** | Anna Shopova,<br>Martin Schilling,<br>Marcus Ding | HSG St. Gallen University,<br>Switzerland | Thomas Haskamp,<br>Dominik Meier,<br>Florian Kässberger |
| **HUK-COBURG** | Daniel Woelki,<br>Paul Mattes,<br>Niklas Kämmer | Karlsruhe Institute of Technology (KIT),<br>Germany | Thomas Haskamp,<br>Dominik Meier,<br>Carolin Marx |
| **Rohde & Schwarz** | Antonio Dimeo,<br>Thure Nebendahl,<br>Robert Richter | D.School,<br>de l'École des Ponts ParisTech,<br>France | Carolin Marx,<br>Leo Wendt |
| **Takeda** | Florian Sold,<br>Asma Aborobb,<br>Rohan Lukas Sawahn | Aalto University,<br>Finland | Vincent Beermann,<br>Leo Wendt |
| **Nestlé** | Leonard Petter,<br>Björn Benedikt Heyder,<br>Anna Gabriela Matic | University of Bologna,<br>Italy | Danielly de Paula,<br>Hendrik Patzlaff |

Teaching Team: Falk Uebernickel, Danielly de Paula, Thomas Haskamp, Carolin Marx, Uliana Polyakova, Vincent Beermann, Leo Wendt, Hendrik Patzlaff, Dominik Meier

## Human-centered Design and Requirements Engineering for Software Engineers (Master)

**Teaching Team:** Prof. Dr. Falk Uebernickel, Dr. Danielly de Paula, Thomas Haskamp

**Semester:** Summer 2021

**Participants:** 10

**Description:** What does human-centered design mean for digital products and services? How can information systems be designed in a way that serves people's needs best? What kinds of frameworks exist to translate human needs into software requirements? Are there quantitative measures to identify human behaviors and needs? As part of this lecture, we will address these and more questions regarding human-centered design and requirements engineering in the context of software engineering. This lecture will help you improve your skills and capabilities to prioritize software requirements based on your user's and customers' needs. Furthermore, we will cover topics like the C-K theory, affordance theory, design thinking, design as a cognitive and social activity, or creativity in software design.

## Sustainable Innovation through Human-Centered Design (Master)

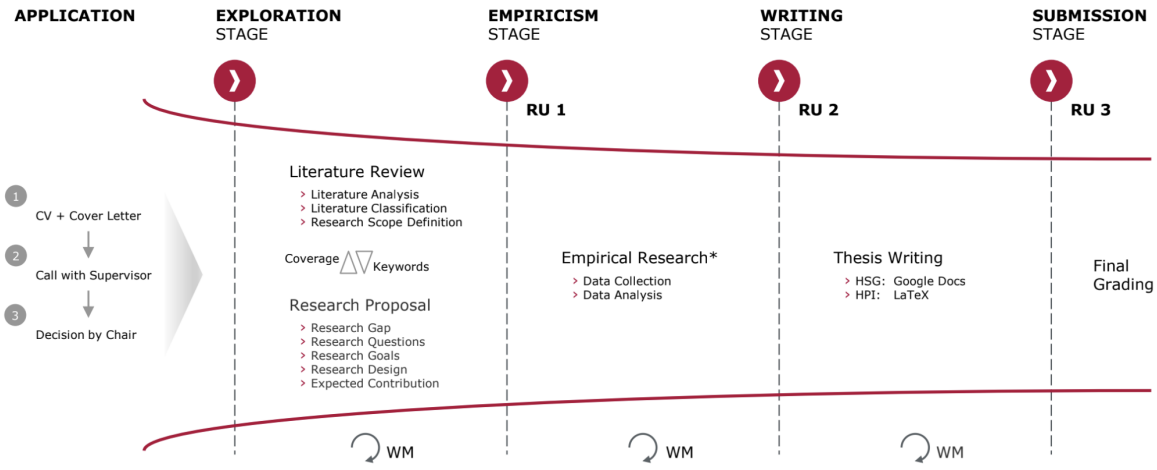
**Teaching Team:** Prof. Dr. Falk Uebernickel,

**Semester:** Summer 2021

**Description:** Lastest since the publishing of the 17 Sustainable Development Goals (SDGs) by the United Nations in 2015, it became clear on the world stage, that nations and societies must follow a rigorous plan to overcome the most pressing challenges of humanity like poverty, health, clean environment, and education. Since then, the search for transformative pathways has been started by many nations and organizations globally. Despite all these efforts, our current period in time is still critical in time and effort to advance our responses to those critical challenges. In recent years top economists and large organizations tried to address the SDGs by promoting new business paradigms that foster a change to the good. For example, numerous scientists have proposed so call ″Win-Win″ strategies to build a link between the profit of a firm and the possibility to still achieve sustainability goals. For instance, in the 2010s contemporary strategies like ″Reverse Innovation″ and ″Circular Economy″ were proposed widely and lately adopted by many global corporate players. However, there is an increasing suspicion, that many of these models are based ″on false believes and flawed mental models″. The intention of this 2-day course is to equip students with the knowledge to be able to think and develop sustainable innovations based on human-centered design methods like Design Thinking. As part of the course, the students will learn about 1) The importance of Foresight and Future Thinking for sustainable innovation by anticipating change concepts as well as 2) Transformational innovation as a core concept to achieve sustainability through innovation and 3) Design-driven innovation to anticipate the human-context and behavior for sustainable innovations

# Master and Bachelor Thesis (HPI/HSG – BA/MA)

The chair for Design Thinking and Innovation Research supervises numerous thesis on bachelor and master level. Students work on interdisciplinary research topics in the area of technology and Design Thinking. By supervising these students closely, the chair aims to qualify the future generation for research in academia. We supervise our students following a thesis funnel, which ensures methodological rigor and close exchange.




**Thesis Process**

Student theses are written in close collaboration with different organizations such as private or public companies. The chair aims to deliver a master thesis written by the students that can be published at a conference level.

### Overview

| Topic | Name | Status |
|---|---|---|
| Organizing between tradition and innovation: cases on the adaptability of an automotive incumbent in the VUCA-environment | Nis Jonas Harmsen | In Progress |
| The Added Value of University-Industry Collaboration for the Digital Transformation of Companies. | Samuel Hummel | In Progress |
| Skill requirements for digital innovation units leaders | Zoe Hille | In Progress |
| Skill requirements for Digital Transformation projects | Eliias Wetzel | In Progress |
| The role of customers in a circular business model for the sale of LEGO | Sophie Douma | In progress |
| Automating literature reviews - using natural language processing to analyze scientific papers | Marvin Thiele | Submitted |

| | | |
|---|---|---|
| Social aspects in organizational design and their influence on cyber-security | Tom Hoffmann | In Progress |
| Identifying nudges for the development of a context-sensing app for hypertension management | Elena Müller | In Progress |
| User requirements for process models in Hospitals | Tobias Wuttke | Submitted |
| The future of medical reporting | Marina Walter | In Progress |
| Architecture of the Hospital Information System 2030 | Antonia Rollwage | In Progress |
| Management of Ideas within Retail | Nicole Brühwiler | In Progress |
| Digitalization of product management at industrial companies | Frederick Reiß | In Progress |
| Learning effectiveness in training for developing an innovative mindset | Deborah Dhanapal | In Progress |
| Identifying user requirements for the development of a context-sensing app for hypertension management | Niharicka Chandra | In Progress |
| The development and evaluation of a context-sensing app for hypertension management | Justus Coester | In Progress |
| An Empirical Analysis of Case Model Comprehensibility | Carolin Goerke | In Progress |

**Overview of Master Theses**

# Research Activities

The chair aims to conduct research around the topics of Design Thinking and Innovation Research. In specific, the chair has done research activities in mainly two areas in 2021. Firstly, one group has looked more detailed into the role of Digital Innovation Units and Digital Transformation efforts of companies that aim to strengthen their innovation capabilities. Second, another group has investigated the role of Design Thinking on various levels, for example, looking at how we can measure design thinking in organizations, and how design thinking is implemented on different levels in organizations.

# Hasso Plattner Design Thinking Research Program

**Picture of the HPDTRP Workshop**

## 2020/21: Human-Centered Digital Innovation I

**Subtitle:** Strategies, Routines and Metrics for managing human-centered digital innovation in Digital Innovation Units

*Start and End Date:* 01.10.2020 till 31.09.2021

*Description:* In their attempt to enhance their ability to develop digital innovations, many incumbent firms have set up digital innovation units as an exploratory organizational setup to develop digital innovations.
Especially due to the COVID-19 pandemic, these innovation activities are under pressure and need to show accountability for the resource investment made. Furthermore, research shows that knowledge about their performance is limited. While the need for human-centered digital innovation is still unbowed, this proposal aims to develop management instruments that improve the effectiveness and efficiency of human-centered digital innovation efforts. This results in the following main research question: How can digital innovation units manage the development of human-centered digital innovations in the most efficient and effective way? As an outcome, we plan high-level publications, practitioner reports, and the development of several artifacts that practitioners can use.

*Participants:* Prof. Dr Falk Uebernickel, Dr. Danielly de Paula, Thomas Haskamp, Carolin Marx

*Outcomes:* As part of the project, the team published multiple papers and, also developed a measurement tool for design thinking capabilities of companies.

Publication as part of the HPDTRP program:

1) Haskamp, Thomas, Annalena Lorson, Danielly de Paula, and Falk Uebernickel. 2021. "Bridging the Gap - An Analysis of Requirements for Performance Measurement Systems in Digital Innovation Units." In Proceedings of the 16th International Conference on Wirtschaftsinformatik. 2021.
2) Haskamp, Thomas, Selina Mayer, Lorsson Annalena, and Falk Uebernickel. 2021. "Performance Measurement in Digital Innovation Units - An Information Asymmetry Perspective." In ECIS 2021 Proceedings.
3) Marx, C., T. Haskamp, D. de Paula, and F. Uebernickel. 2021. "Design Thinking Diffusion Model: Empirical Insights into the Status Quo." In Event Proceedings.
4) Marx, Carolin, Thomas Haskamp, Danielly de Paula, and Falk Uebernickel. 2022 (under review). "The Nexus of Design Thinking and Intrapreneurship: Insights from a Large- Scale Empirical Assessment." In Conference Proceedings HICSS 2022.

We have developed a useful tool to assess, benchmark, plan, analyze, and communicate the use of Design Thinking in your organization. Our Design Thinking Compass is a utile self-assessment instrument in the form of a multidimensional model which measures the Design Thinking capabilities of your firm and compares it to your peers. We have already collected a huge body of benchmark data that gives interesting insights on the current use of Design Thinking in practice.


**Welcome To the Design Thinking Capability survey!**

Dear participant,

As part of a research project at the Hasso-Plattner Institute we want to know more about the firm-level application of Design Thinking capabilities.

In the study, you will be asked to assess statements regarding Design Thinking initiatives and the way of doing things in your organisation. We would appreciate it a lot if you could spare approximately 10 minutes of your time for this.

The participation in this study is voluntary and your answers will be handled confidentially.

Next

Chair for Design Thinking and Innovation Research, Hasso Plattner Institute for Digital Engineering gGmbH – 2021 0% completed

**Capability Survey**

## 2021/22: Human-Centered Digital Innovation II

**Title:** A Cognitive Perspective on Challenges in Human-Centered Digital Innovation Activities

*Start and End Date:* 01.10.2021 till 31.09.2022

*Description:* The rise of digital technology requires established organizations to substantially reorganize their structures, processes and capabilities. Many have started this process by using human-centered digital innovation activities to foster the values of customer-centricity and agility. However, many of them experience substantial challenges when doing so as the existing organization and its members are coping with significant inertial forces and cognitive biases. Addressing this challenge using a cognitive lens, this research proposal aims to investigate the phenomenon of inertia and escalating commitment in the context of the use and implementation of human-centered digital innovation activities. We do so by using a mixed methods research design consisting of case studies with organizations pursuing this path combined with experiments and quantitative surveys to investigate our phenomena of interest with organizational members. Our findings will contribute as they allow for a more fine-grained understanding of inertia and escalating commitment in human-centered design activities. This may serve as the foundation to develop corresponding interventions. In terms of outcomes, beyond numerous publications in prestigious journals and conferences, we intend to deliver workshop designs and assessment tools for inertia and escalation of commitment.

# Ph.D. Topics

### Selina Mayer - Impact of Design Thinking in Organizations and on Individuals

Roger Martin describes Design Thinking as “the most powerful formula for competitive advantage in the twenty-first century”. Up to date, scholars and practitioners discuss the added value of DT as quite controversial. Johansson-Sköldberg, Woodilla and Çetinkaya even sum it up as being “easy for the temporarily intensive discourse to be dismissed as hype or a fad.”. One critical argument is that the impact of DT on organizational performance is lacking empirical evidence. Therefore, Selina Mayer aims in her dissertation to better understand the impact of DT in organizations and on individuals. As a first step, a qualitative research design following the grounded theory approach is applied. Preliminary results indicate that while organizations implement DT for creating innovation outcomes, individuals experience change on a personal level. Therefore, the individual and organizational level have to be considered when it comes to the impact of DT.

### Annalena Lorson - The Role of Digital Innovation Units in Digital Transformation

Digital Transformation – “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” – is currently one of the key challenges, especially for pre-digital organizations. Closely

interrelated with Digital Transformation is the ability to successfully manage and bring about Digital Innovations – "the creation of (and the consequent change in) market offerings, business processes, or models that result from the use of digital technology". In order to do so, many companies have established "Digital Innovation Units" that are separated from the firm's remaining organization (e.g., in terms of location, mindset, collaboration, communication, etc.) and bundle their exploration efforts to foster (digital) innovation. These "fast-lanes" of innovation represent a fairly new phenomenon and so far, literature regarding DIUs is sparse. Within the framework of her dissertation, Annalena would like to build a deep understanding of DIUs in the manufacturing industry and their role in Digital Innovation and Transformation in these firms by e.g., looking at how they are set up and work on the ground.

**Thomas Haskamp - Managing Inertia and Resistance in Digital Transformation**

Digital Innovation has triggered many companies to initiate Digital Transformation projects and initiatives. As part of these activities, managers are often confronted with resistance - referred to as organizational inertia - from organizational members. Overcoming this resistance often decides whether transformation fails or succeeds. Taking a critical realist stance on transformation and using the morphogenetic approach from Archer, this dissertation investigates the role of inertia in the context of Digital Transformation. The first step aims to develop the theoretical foundation by developing a critical realist perspective on how digital transformation unfolds. In a second step, the thesis investigates specific initiatives and projects and how its organizational members dealt with different upcoming inertia types. Based on this, different strategies or capabilities shall be identified to overcome the different levels of inertia. Its contribution lies in the sophisticated analysis of inertia on which mitigation strategies for dealing with inertia can be developed.

**Carolin Marx - Understanding Escalating Commitment in Digital Transformation**

Escalating commitment (EC) - the failure to withdraw from losing courses of action - is a major challenge in organizational digital transformation (DT) projects. Individual's cognition and affect have been shown to guide such irrational managerial action, particularly in contexts involving change and decisions under uncertainty. However, research incorporating a cognitive-affective perspective to understand the determinants of such challenges is in a nascent stage and highly fragmented. My dissertation addresses this gap by applying a cognitive-affective lens to DT research with the aim to understand the interrelations between individuals' cognition, affect, reactive behaviours and their impact on organizational DT. After conceptualizing an integrative framework, the dissertation builds on psychophysiological experiments, repertory grid interviews and design science research to investigate the impact of cognition and effect on the emergence of EC. The thesis' contribution is its explanatory character, which paves the way for developing mitigation strategies for practitioners to detect and overcome EC.

**Vincent Beermann - From Innovation to Impact: Nudging for Pro-Environmental Behavior**

By conducting research on Digital Nudges for Pro-Environmental Behavior the aim is to understand (i) the variety of components of Digital Nudging and (ii) find application areas where we can investigate the effectiveness of those Digital Nudges. Digital Nudges leverage psychological mechanisms to influence human behavior in a specific direction. For example, people do not like to lose. In fact, we as

humans tend to have a loss aversion. Proposing that people will lose something will have an influence on their decision-making. Pro-environmental behaviors inform us about the application areas where we can try to apply those Digital Nudges. For example, we can foster environmentally friendly behavior at home, when consuming food or when we commute or use transportation in general.

**Harish Karthi Natarajan - The Role of Digital Technologies in Sustainability Transformation**

Environmental Sustainability and Climate Change are some of the grand challenges in this Century for practitioners and researchers. While industry and research is focusing on sustainability topics, there exists a research gap on how emerging digital technologies such as artificial intelligence, blockchain, etc. can help in achieving the sustainable goals. With various theoretical and empirical research methods, I investigate how Organizations can leverage the potential of such emerging technologies for sustainable innovation.

# Scientific Tracks

## HICSS Track - Human-centered Design for Digital Innovations

*Date:* 4-7 January 2021

*Location:* Hawaii, USA

*Track Chairs:*

- Prof. Dr Falk Uebernickel, Hasso Plattner Institute
- Prof. Dr Matthias Söllner, University of Kassel
- Prof. Dr Manuel Wiesche, TU Dortmund University
- Prof. Dr Daniel Mendez, Blekinge Institute of Technology

*Description:* Digital products and software-intensive products/services are progressing in their importance for our contemporary economy. Besides technological considerations, the alignment to human and user needs is of high relevance for the success and sustainable use of digital innovations and related software systems.
This minitrack offers a stimulating forum where researchers and practitioners investigate the field of „human-centered design“ in close relationship with digital innovations, digitization, and software/requirements engineering. Participants are invited to present and discuss recent research results on a wide range of topics. We particularly welcome qualitative and quantitative contributions in the following domains, but not limited to:

- The impact of human- and user-needs on technology decisions
- Innovation management practices for digital innovations
- Archetypes of human behavior in relationship to digital innovations and innovation outcomes
- Integration of human-centered design and software engineering methods
- Measurement and impact of human-centered design on organizational and project level on digital innovations
- Skills and capabilities for human-centered design in organizations
- Incorporation of human-centered design in business process modeling
- (Advanced) techniques for human-centered design in the development process for digital innovations
- The application of human-centered design and Design Thinking as part of digital transformation programs
- Approaches to increasing the acceptance of digital innovations by users and other stakeholders
- Human-centered design and innovation management practices for digital innovation
- Governance models for digital innovations
- Virtualization of digital innovation methods
- Prototyping methods

Selected manuscripts had the opportunity to get a recommendation to the Business & Information Systems Engineering Journal (BISE) in the department of Human-Computer Interaction and Social Computing.

## AMCIS Track - Digital Agility and Digital Innovation Units

*Date:* 5-7 August 2021

*Location:* Montreal, Canada

*Track Chairs:*

- Prof. Dr. Falk Uebernickel, Hasso Plattner Institute
- Dr. Marta Caccamo, Jönköping International Business School

*Description:* The mini track offers a stimulating forum where researchers and practitioners, who are investigating the field of „digital agility“ in close relationship with Digital Innovation Units can present and discuss recent research results on a wide range of topics, in addition to exchanging ideas, experiences and challenging problems. We are looking for qualitative and quantitative contributions.

- Digital Innovation Units (as an expression of digital agility)
- Innovation management practices in digital innovations units
- The interlink between digital agility and digital innovation
- Skills and capabilities for digital agility in Digital Innovation Units

# Publications & Research


Haskamp T., Mayer S., Lorson A., and Uebernickel F.; 2021. “ Performance Measurement in Digital Innovation Units - An Exploratory Study on Barriers and Potential Enablers” In *ECIS 2021 Research Papers, Proceedings of the European Conference on Information System.*

Mayer S., Haskamp T., de Paula D.; 2021. “Measuring what Counts: An Exploratory Study about the Key Challenges of Measuring Design Thinking Activities in Digital Innovation Units” In *Proceedings of the 54th Hawaii International Conference on System Sciences*, 4951-4960.

Uebernickel F., and Thong C.; 2021 “Contextualizing Design Thinking with Multiple Intelligences - The Global SUGAR Program as a Case”, Springer.

Marx C., de Paula D., Haskamp T., Uebernickel F.; 2021. “Design Thinking Diffusion Model: Empirical insights into the status quo” In *ISPIM Innovation Conference.*

Haskamp T., Lorson A., de Paula D., Uebernickel F.; 2021. “Bridging the Gap - An Analysis of Requirements for Performance Measurement Systems in Digital Innovation Units.” In *The 16th International Conference on Wirtschaftsinformatik (WI).*

Marx C., de Paula D., Uebernickel F.; 2021. “Dynamic capabilities \& digital transformation: A quantitative study on how to gain a competitive advantage in the digital age.” In *Proceedings of the European Conference on Information System 2021 (ECIS).*

Staszak W., de Paula D., Uebernickel F.; 2021 “The power of habits: Evaluation of a mobile health solution for the management of narcolepsy.” In *The 23rd International Conference on Engineering Design.*

Klinker K., Przybilla L., Viljoen A., Uebernickel F., Krcmar H.; 2021. “Design Principles for mHealth Application Development in Rural Parts of Developing Countries: The Case of Non-Communicable Diseases in Kenya.” In *IEEE Transactions on Engineering Management,* Institute of Electrical and Electronics Engineers IEEE.

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**Research Metrics of Prof. Dr Falk Uebernickel:** h-Index: 26, i10-Index: 65
**Research Metrics of Dr. Danielly de Paula:** h-Index: 6, i10-Index: 6

# Guest Talks and Presentations

## Guest Talks hosted by the DTIR

| Description | Speaker | Date | Location |
|---|---|---|---|
| Digital Transformation @ Haufe – held for the Corporate Partner Circle of the Sugar Network | Christian Steiger, Geschäftsführer Haufe Group | 17.02.2021 | Online |
| Requirements Engineering @ Uber – held as part of the class HCD for and ReqEng for Software Engineers | Femke Van Schoonhoven, Uber Eats | 19.05.2021 | Online |

## Guest Talks given by DTIR

| Description | Speaker | Date | Location |
|---|---|---|---|
| Nestlé IMMP program Campfire | Prof. Dr. Falk Uebernickel | 19.03.2021 | Online |
| Vortrag Design Thinking in Action – Stiftung deutsche Wirtschaft | Prof. Dr. Falk Uebernickel | 23.03.2021 | Online |
| Panel Talk Melbourne Design Week: Designing change through cross-cultural collaboration | Prof. Dr. Falk Uebernickel | 29.03.2021 | Online |
| Postfinance Workshop IZV Challenge Topic: “Die Methode Design Thinking” | Prof. Dr. Falk Uebernickel | 20.05.2021 | Online |
| HSG Referat für Bär & Karrer College/ Thema: Human-centered Design and Design Thinking for Lawyers | Prof. Dr. Falk Uebernickel | 11.08.2021 | Online |

# Events

**SUGAR EXPO Cloud Event 2021**

*Date:* 01.06.2021
*Location:* Online

*Description:* Due to the on-going COVID-19 pandemic, this event had to happen in a full digital format. Student teams from across the globe presented their final product ideas and prototypes in this SUGAR network event. Representatives from the partner companies (such as Takeda, BMW, GF+, NKC, IBM and HUK) attended to network with each other and give feedback to the student teams. The yearly SUGAR EXPO is the summit of a 9-month journey, full of international cooperation and product development ideas. The students have the chance to network, present themselves and their ideas and are celebrated for their successful work. The program is augmented with keynote speeches from industry and academia.

**SUGAR Global Cloud Kick Off 2021**

*Date:* 25.-29.10.2021
*Location:* Online and Local in Nice, France

*Description:* At this event, the global SUGAR network meets internally with the current batch, so that the student teams can meet their counterpart and kick off their projects in their global team. The program offers a mix of team building activities, inspirational talks, keynotes and project meetings with a global teaching team. The global program was augmented by a local agenda at Hasso Plattner Institute, including team building activities and lectures.

**SUGAR+ Fall Presentations**

*Date:* 06.12.2021
*Location:* Online

*Description:* The Sugar Fall Presentations present the first meeting where students present their findings from an extensive analysis of the need finding phase of their project.

**SUGAR Bar Talks:**

*Description:* SUGAR Bar Talks are bimonthly virtual meet-up events open to public audience, in order to discuss subjects related to innovation and design. These get-together events are often hosting artists, authors, or alumni, occasionally as a panel of different speakers, and provide an interactive environment for individuals who are interested in SUGAR Network to meet and exchange ideas.

| Title | Date | Location |
|---|---|---|
| 3rd SUGAR Bar Talks on questioning assumptions and conventions | 18.02.2021 | Online |
| 4th SUGAR Bar Talks, open discussion panel with alumni | 06.05.2021 | Online |
| 5th SUGAR Bar Talks on Planet Centric Design | 23.06.2021 | Online |
| 6th SUGAR Bar Talks on Failures | 23.09.2021 | Online |
| 7th SUGAR Bar Talks, open discussion panel with alumni | 10.12.2021 | Online |

# Outlook

The chair has already planned many activities for the upcoming year of which many are open to the public. We look forward to welcoming you to one of our many events. Furthermore, the chair regularly hosts research-oriented events (tracks/mini-tracks/conferences) that allow us the opportunity to learn and discuss our findings with the community.

**SUGAR+ Winter Presentations**

*Date:* 14.03.2022
*Location:* Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany.
*Description*: The second milestone of the Design Thinking projects within the Global Team-Based Innovation course, where students present a plethora of prototypes from low-fidelity to higher-fidelity prototypes.

**SUGAR EXPO**
*Date:* 02.-06.06.2022
*Location:* San Francisco, USA.
*Description*: The Sugar Expo in San Francisco is one important highlight for our students that take part in the Global Team-Based Innovation projects. One last time all students from partner universities around the world as well as many corporate partners participate to enjoy the final, deeply elaborated prototype of the student projects.

**SUGAR+ Final Presentations**

*Date:* 20.06.2022
*Location:* Hasso Plattner Institute (HPI), Potsdam, Germany.
*Description:* The Sugar Final Presentations mark the end of an insightful journey. Together with their corporate partners and students from other universities, we want to celebrate the results of the projects and the work of the students at the Hasso Plattner Institute.
**SUGAR+ Global Kick-Off**

*Date:* 15.-21.10.2022
*Location:* Kyoto, Japan.
*Description:* The Sugar Global Kick-Off (GKO) meeting in Kyoto marks the start of a new class of GTI students from HPI. It's the first opportunity for the students to connect with their global partner team and also with many different corporate partners from different areas of the world. Thus, the event aims to create an inspiring atmosphere to Kick Off the projects for the year.

**SUGAR+ Fall Presentations**

*Date:* 06.12.2022
*Location:* Hasso Plattner Institute (HPI), Potsdam, Germany.
*Description:* At the Sugar Fall Presentations student team present their initial insights from their design space exploration and present a variety of prototypes to test critical experiences and functions.

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