

Syllabus

Doctoral Course: Design Science Research

Course Description

Information and communication technologies (ICT) have transformative impact on businesses and society. Organizations, individuals and the entire society are challenged with the effective design, delivery, use, and impact of ICT. The information systems (IS) discipline addresses these challenges and investigates the phenomena that emerge when the technological and the social system interact (Lee, 2001).

Design science research (DSR) is a research paradigm that received growing attention in the last decade in the IS field. Design science research provides answers to questions relevant for real-world problems via scientifically grounded creation of innovative solutions. Design knowledge is about means-end relationships between problem- and solution spaces (Venable, 2006). DSR contributions can appear in very different forms, such as as the situated implementation of an artifact in the form of software instantiations, constructs, models, methods (Hevner et al., 2004) or a design theory (Gregor & Hevner, 2013).

Course Objectives

The course intends to introduce PhD students to the field of DSR in IS. It wants to provide insights into multiple perspectives of DSR, e.g., the theoretical foundation of DSR, the different contributions of DSR as well as methodologies and activities to conduct DSR. With this knowledge, students will be enabled to assess the rigor and relevance of DSR in general, but also be prepared to plan and execute their own DSR projects successfully.

Students ...

- understand the foundations of the DSR research paradigm
- explore the different types of DSR contributions
- know the most important DSR genres, frameworks and methodologies
- are able to manage a DSR process and get hands-on method know-how for running typical DSR activities such as problem analysis and solution creation
- understand how to setup and run their own DSR project

Course Requirements

The course is offered by the Institute of Information Systems and Marketing (IISM) at the Department of Economics and Management of KIT. It is designed for doctoral students in the IS field. However, doctoral students from other disciplines (e.g. management, marketing, computer science) are also welcome.

Grading

Each student is required to read a set of assigned paper in advance and contribute to a discussion on its content. In addition, students work in teams in order to setup a DSR project and present their results to the class.

Registration and Organization

Please register via sending an email to Sabine Schneider ((office-issd@iism.kit.edu). For specific dates and location of the lecture, please check the Website or ILIAS portal. All questions regarding content, organization, and certificates are answered by the lecturer Alexander Maedche (alexander.maedche@kit.edu).

Course Materials

Course material is provided in the form of a presentation slide deck and a list of reference papers. Furthermore, the design research books by Hevner and Chatterjee (2010) and Vaishnavi and Kuechler (2007) represent a valuable addition to the class.

Course Outline

Day 1	
Introduction	9.15 – 9.45
The Research Paradigm DSR	9.45 – 12.15
Lunch Break	12.15 – 1.30
The DSR Process	1.30 – 3.00
DSR Activity: Problem Analysis	3.00 – 4.30
Day 2	
DSR Activity: Solution Creation	9.15 – 11.15
Tool-Support in DSR	11.30 – 12.15
Lunch Break	12.15 – 1.30
DSR Project Work	1.30 – 4.00
Summary & Recap	4.00 – 4.30

References

Gregor, S., & Hevner, A. R. (2013). Positioning and Presenting Design Science Research for Maximum Impact. *MIS Quarterly*, 37(2).

Hevner, A. and Chatterjee S. (2010). *Design Research in Information Systems (Integrated Series in Information Systems)*, Springer, New York.

Lee, A. S. (2001). Editorial, *MIS Quarterly*, 25(1), pp. iii–vii.

Vaishnavi, V.K. and Kuechler, W. Jr. (2007). *Design Science Research Methods and Patterns: Innovating Information and Communication Technology*, Auerbach Pubn.

Venable, J. R. (2006). The Role of Theory and Theorising in Design Science Research. In *DESRIST 2006 Proceedings*.