Smart services

General Information

Number of ECTS Credits
3

Module code
CM_SmartSer

Valid for academic year
2021-2022

Last modification
2019-12-11

Coordinator of the module
Jürg Meierhofer (ZHAW, meeo@zhaw.ch)

Explanations regarding the language definitions for each location:
- Instruction is given in the language defined below for each location/each time the module is held.
- Documentation is available in the languages defined below. Where documents are in several languages, the percentage distribution is shown (100% = all the documentation).
- The examination is available 100% in the languages shown for each location/each time it is held.

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<tr>
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<th>Berne</th>
<th>Lausanne</th>
<th>Lugano</th>
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Module Category
CM Context module

Lessons
2 lecture periods and 1 tutorial period per week

Entry level competences

Prerequisites, previous knowledge
Prior to joining the module, the students should have an understanding of business process modeling and engineering, e.g., terms like process charts, swimlanes, process models, resources, value chain etc. (see, e.g., the paper of John Krogstie: Introduction to Business Processes and Business Process Modeling, https://link.springer.com/chapter/10.1007/978-3-319-42512-2_1)

Brief course description of module objectives and content

Smart Service Design and Engineering - Value Creation:
- Basics of Smart Service Design (Customer insight, customer journey, value proposition design, use of data insights)
- Selected topics of Service Science and Service Dominant Logic
- Service blueprinting as a relevant step in the service engineering process
- Characteristics of Data Services and Data Products
- Use of data in the smart service design process and in the services themselves - Smart Data
- data sources
- Iterative improvement up to product maturity
- Discussion of applications in the industrial and the sector
- Discussion of real-life cases

**Smart Business Model Design - Value Capturing:**
- Fundamentals for Engineering Value Flows in Service Ecosystems and Service Business Models
- From Service Blueprint to Business Model
- Quantification of service business models
- Basics Business Model Design and Business Model Canvas
- Service Ecosystem Design
- Quantification of the business model
- Discussion of real-life cases

**Data Protection, Data Security, Data Ethics:**
- Fundamentals of data protection and data security
- Relevant aspects for Data Product Design
- Legal aspects vs. ethics
- Discussion of real-life cases

**Aims, content, methods**

**Learning objectives and acquired competencies**

- Understand and apply the essential principles of Smart Service Design and Engineering - i.e. the development of intelligent services on the basis of data (comprehensive methods for the development of novel data-driven services, for their operation as well as their improvement in operations).
- Able to integrate the data specific aspects into their service design.
- Apply the methods of data-driven service engineering in practical case studies primarily in industrial environments (B2B), but also in consumer areas (B2C)
- Know and understand the relevant basics of Service Business Model Design including the types of industrial Service Models.
- Evaluate these business models quantitatively. To weigh up variants and draw conclusions about the engineering process with the aim of achieving an operationally and economically balanced model.
- Understand the design of service ecosystems.
- Able to understand the essential principles of data protection, data security, and data ethics.

**Contents of module with emphasis on teaching content**

Smart Service Design and Engineering - Value Creation: 40%
Smart Business Model Design - Value Capturing: 40%
Data Protection, Data Security, Data Ethics: 20%

**Teaching and learning methods**

- Lectures
- Group work, presentation and discussion of case studies
- Self study of papers and analysis of business case studies

**Literature**

- E. Siegel, Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die, Wiley, 2016.
- D. S. Evans, R. Schmalensee, Matchmakers, Matchmakers: The New Economics of Multisided Platforms, Harvard Business Review Press,
### Assessment

<table>
<thead>
<tr>
<th>Certification requirements</th>
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<td>Module does not use certification requirements</td>
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**Basic principle for exams**

*As a rule, all the standard final exams for modules and also all resit exams are to be in written form*

<table>
<thead>
<tr>
<th>Standard final exam for a module and written resit exam</th>
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<tr>
<td>Kind of exam</td>
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<td>written</td>
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<td>Duration of exam</td>
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<td>120 minutes</td>
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<td>Permissible aids</td>
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*Aids permitted as specified below:*

**Permissible electronic aids**

- open book, all materials including PC, laptop, tablets etc. allowed
- during the exam session, any telecommunication (network, wifi, bluetooth, wlan etc.) and the respective programs/apps for communications must be turned off

**Other permissible aids**

No other aids permitted

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<th>Special case: Resit exam as oral exam</th>
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<td>Kind of exam</td>
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<td>oral</td>
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<td>30 minutes</td>
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<td>Permissible aids</td>
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</table>

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**Other permissible aids**

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