Chapter 25
Summary - General Reflections on Design Methodology

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The third group of authors does not directly phrase suggestions for optimisation, enhancement or replacement of Design Methodology. Instead, the focus is on how Design Methodology is developed and how it’s further development should be carried out, looking at the surroundings in which product development operates and which requirements can be derived for further development.

25.1 Internal and external requirements for developing Design Methodology

In two contributions requirements are regarded in a kind of design-internal view concerning designers qualification and in a kind of design-external view concerning future economic systems.

In his contribution “What designers can learn from Leonardo, an ingenious artist, scientist and engineer” Franke examines the special features of Leonardo da Vinci and his activities as an artist, scientist and engineer. By reflecting on the special abilities of Leonardo, the skills necessary for developers in today’s development context are derived. As an engineer, Leonardo was amazingly modern. He clarified the task consciously, worked out alternative proposals for solutions, often by referencing various disciplines and optimised solutions to achieve requirements and goals. A true increase in knowledge is only reached by precise observation of experiments. Franke emphasises the significance of experience for engineer-like thoughts and actions. A characteristic of engineering work in general and design work in particular is diligence in the development of solutions, ongoing analysis and overcoming of difficulties and the precise observation of natural phenomena. Leonardo was a master of sketching, which he understood as a presentation and documentation medium and as an extremely important medium for problem solving. However, this conscious visualisation and design of mental models is increasingly reduced by computer deployment, especially by modeling three-dimensional parts, components and products in CAD systems. In total, the contribution makes it clear that Leonardo was an extraordinary man and a protagonist of a modern engineer and designer, whose thinking and behaviour had remarkable similarities to current design activities.
In his contribution “Design...but of what?” Cantamessa considers the current and future change in business models and user involvement in creating value in the dramatically changing situation of a global, increasingly interconnected world. Analyses of publications show that designing as an action is increasingly addressed by fields other than product development and that the classical picture of design as a solution of given design tasks within design departments becomes increasingly indistinct. Customer, user and stakeholders have different roles in the product, which does not necessarily mean that they all use the product, as shown by the case of mobile phone providers. The focus of design is extended beyond the actual product use to the goal of interaction friendliness, which helps everyone involved in the product reach their goals. Flows of goods and services are no longer linked to flows of money. Profitability studies instead follow increasingly complex paths that are formed in accordance with a superior business model and are aligned to intercompany tradeoffs. This trend is intensified by the change towards Product Service Systems (PSS). The demand for value, that a PSS system can cater to individual stakeholders, may even cause product changes that contrast with common requirements solely related to product usage. Such complex business models are much more dependent on public policies, which define or outline a superior usage framework. Both influence the design of PSS in a complex way, where common cost-benefit analyses from the perspective of manufacturers and customers are no longer sufficient. The concept for development methodology for PSS being considered for global business models is completely open at present.

25.2 The unsolved problem of Design Methodology transfer into practice

Unlike the creation, the transfer of methods and tools into design practice is rarely addressed in design research.

Wallace starts his contribution “Transferring design methods into practice” with a description of the dramatically increased requirements of design practice over the last few decades. He emphasises the central significance of design to the prosperity of companies and societal welfare. After this explanation of the relevance of design, he examines Design Methodology with its models, recommendations for procedure and methods that should reflect this importance but only meet the requirement due to its temporary nature and limitations in an insufficient way. Besides the deficiencies in content of the Design Methodology for practical use, he sees a substantial deficit in the inadequate transfer of design knowledge into practice. In the context of design practice, it is hugely important to use the right method at the right time. However, the task of selectively providing methods cannot be assigned to the individual designer. Unfortunately, design research barely addresses the task of method transfer and method implementation, which results in