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Technology Experience Research: A Framework for Experience Oriented Technology Development

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Abstract. The optimization as well as exploitation of various aspects of user experience is crucial for future technological innovation and adoption. As a consequence of individualization, industrialization and lifestyle orientation, user experience is becoming more and more a major paradigm in the industry as well as in research & technology organizations. This applies at the level of products (goods, services), at the level of (public) technical infrastructures as well as on the level of human oriented innovation cultures and approaches. Based on several years of experience in applied HCI research the *Business Unit Technology Experience* within the Innovation Systems Department at the Austrian Institute of Technology (AIT) has been established as a horizontal unit to bridge between innovation in technological infrastructures and the diverse needs of users, costumers or diverse infrastructure contexts. Providing different viewpoints of technology experience and applied HCI thinking is a vehicle to facilitate improved levels of experiential quality.

1 Viewpoints towards a Business Agenda

Specific application areas and application situations comprise specific interaction contexts, which leads to a comprehensive concept of contextual experience. Over the past years, the field of Human-Computer Interaction (HCI) moved beyond the desktop and explored new forms of interaction in different contexts. An in-depth understanding of contextual characteristics and the focused orientation of future experience approaches are the prerequisite for mature applications and technologies. Contexts are built by a variety of technological building blocks. This demands a structured integration of technology experience into development cycles as well as strong movement towards experience oriented thinking rather than pure technological orientation.

An applied research environment has to be supported by a clear definition of dedicated business cases. **Institutional Experience** deals with experience-oriented strategies, methods and tools within organizations. Technology Experience has to be implemented within the organizations in the right way. Current internal mechanisms need improvement under the regime of a user and experience driven mindset.

Experience Innovation Scouting delivers detailed needs as a prerequisite for successful technologies of the future. Supporting the detailed and contextual understanding of experience needs is a major element in an optimized user-driven development strategy.

Experience Creation is transforming requirements, needs and contextual insights into tangible experiences (interfaces) to allow access to the different features of a technological system. There is growing awareness that future market success will highly depend on the quality at the interface level as well as on appropriate ideas for future interaction approaches.

With **Experience Trials** new experience approaches combined with different technological building blocks call for effective and methodological experimentation and evaluation approaches. There is still a gap between a mature setup of such studies and the current practice in technological development.

2 Viewpoints towards a Research Agenda

The Unit is organized in four research streams. **Social and Collaborative Experience** aims to enhance the quality of experience for joint activities using various technologies, with specific technologies as well as induced by technologies. The enhancement and focused consideration of personal values in the existing as well as upcoming information and technology society is forming the second research stream on **Personal Value Enhancing Experience**. Users seek to achieve their values and technological artifacts are used to deliver these values. Technology Experience should support different values at the user side and gain understanding of the importance of different values from the perspective of an individual user.

In addition we are living in a mobile society where technological artifacts are ubiquitous. However, the very essence of needs of users on the move (e. g. intermodal transport information), characteristics of specific user groups (e. g. elderly users on the move) or enhanced experiences of specific mobility situations still offers some challenges. So the research stream of **Mobile User Experience** is dedicated to enhancing the experience of different situations of users on the move. **The Experience Foundations** research stream will complement theses more contextual viewpoints by investigating basic aspects such as key ingredients and understanding of technology experience, future methodological approaches (e.g. including the perspective of Quality of Experience) as well as emerging interaction paradigms.

3 Conclusion

The efficient synergy of these two levels of viewpoints allows a methodological driven research and innovation strategy. Technology experience research services are positioned between industrial and research technology providers and different kinds of end users and user groups, which will be more motivated to accept, utilize and invest in technologies with a higher degree of user experience quality.

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