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“User-oriented Evaluation of Intelligent Building Technology”

Fifty-eight percent (58%) of the German people say that they will use building automation systems in a new house (Handelsblatt, 2013). Similarly, fifty-seven percent (57%) of office experts expect that by 2030 each workplace will have the capacity to automatically adjust settings for the indoor environment (e.g. room climate, lighting) to individual profiles – thanks to smart room technology (Fraunhofer IAO, 2013). At the same time, there are factors that continue to limit the acceptance of smart home technology by building users who perceive the costs for installation and operation to be too high (70%) or user-interface too complicated (29%). Furthermore, occupants could get frustrated when their long-experienced interaction with buildings will be hampered by automation systems. Frustration may result in behaviors that neutralize or undermine the benefits of the technologies.

In the terms of the integration of intelligent building technology, the building is not the primary focus – neither the design by architects nor the installation of products by craftsmen. It is the needs, worries and concerns of building users throughout the life cycle of the building. What are the barriers for acceptance? What is the impact of participatory planning processes? Which measures will increase well-being and acceptance?

These questions are the starting point of the author's interdisciplinary sub-project 'Well-being and Acceptance in the Intelligent Building'. This work is part of the campus-based research project 'Acceptance of Intelligent Building Technologies: Energy-efficiency, Well-being, and Security'. The work is a collaboration between nine professors from six disciplines including architecture, civil engineering, psychology and informatics along with practitioners and industry partners.

In this presentation the author explains

- the framework of the planned multi-disciplinary research project, funded through the State Ministry of Innovation, Science and Research;
- the goals of the research;
- steps of implementation, including participatory methods of building performance evaluation like POEs during the occupancy phase; and
- recommendations for optimization.

Keywords:

Intelligent Building Technology; Smart Home; Building Performance Evaluation; Post-Occupancy Evaluation; Multi-disciplinarity; Participatory Planning.

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