

## Guest editorial to the special issue TWR 2020, no. 1

### *Future workspaces*

It is not only the pandemic-related upheavals that are intensifying questions and considerations about the design of modern and future-oriented workplaces. A whole range of factors have been acting as catalysts for change in the world of work for some time. Most obvious are the changes brought about by digitization. Digitization and the development of a global IT infrastructure in the form of the internet are having an impact on the perception, meaning and interaction of spaces and places and are the basis for the emergence of an “information space.” This is by no means only for the storage and processing of information and information objects but also enables their exchange as well as the establishment of relationships and the interaction of people independent of time and place. The latter marks a difference from earlier human–machine systems, which were limited to human–machine interactions and were primarily relevant to the production of goods. With regard to work, the new information space offers above all new possibilities for organization and division of labor, collaboration and the utilization in knowledge work. This is linked to a redefinition of place and space from a practical point of view as well, because the information space leads to the possibility of rethinking and redesigning work spaces and places that are both virtual and physical at the same time.

Work processes are changing fundamentally, becoming standardized and reorganized. Collaboration is increasingly taking place across spatial distances and, with growing frequency, simultaneously in the office and in the virtual space. New technologies, media, devices and software are coming into use and are driving the development beyond the office workplace to workspaces in which workplaces, the built environment and virtual extensions are interwoven and can no longer be thought of separately.

In addition, there are changing demands on work, which are discussed in the context of concepts such as New Work or New World of Work. Employees are increasingly demanding that work be more compatible with their lives. The work environment should be beneficial to both productivity and health, taking into account personality, task profile, age and family situation. The consideration of individual needs and healthy behaviors, as well as the changing conditions for recruiting skilled workers, lead to an overall desire to design (office) work environments in a way that better meets the heterogeneous preferences and needs of employees. These diverse requirements cannot be surveyed from a purely disciplinary perspective nor can sound solutions be found on such a basis. Instead, it requires the interaction of different scientific disciplines, each with its own focus, but looking at the workplace as holistically as possible and in a transdisciplinary way.

This is where the Transdisciplinary Workplace Research (TWR) Network takes off. The network pursues the approach of bringing together individual disciplinary considerations and putting the design of the workplace and everything related to it into a transdisciplinary perspective. This is done by network members jointly organizing events and beginning to implement TWR in specific research projects. A special role is played by the network’s biennial conference, the most recent of which took place in 2020, for the first time in a truly hybrid form due to pandemic conditions, in Frankfurt and online. The conference was held under the theme “Future Workplaces,” which also provided the framework for the call for papers for this special issue following the TWR Conference 2020.



In this first edition of a special issue (a second is following during the second half of 2022), we are presenting the following topics:

We are starting with needs of knowledge workers and how space design can support their job performance and well-being. The first paper “Office Relocation: Changes in Privacy fit, Satisfaction and Fatigue,” written by Clara Weber, Life Sciences and Facility Management at the Zurich University of Applied Sciences and the University of Surrey, provides first evidence-based insights about how the variety of settings, autonomy to choose one’s work setting and adherence of others to protocols in open space environments can positively influence the privacy fit and resulting job and workplace satisfaction. It furthermore leads to decreases in emotional and mental work fatigue. Another important insight is that an increase in perceived environmental and behavioral flexibility are positively related to changes in coping appraisal.

Providing various settings and giving people flexibility to choose thus is important. But how to find out how those settings could and should be designed? How to better understand office users, get a deeper insight into their user perspective and to find more fitting workplace designs? This is the content of the second paper, “Methods for eliciting user experience insights in workplace studies: Spatial walkthroughs, experience curve mapping and card sorting,” written by Maral Babapour Chafi from Chalmers’ division of Design and Human Factors. In the paper, three methods and their variants were tested in studies of user experience in flexible offices:

- spatial walkthroughs;
- experience curve mapping; and
- card sorting.

These methods have not previously been applied in workplace studies though they facilitate dialogue, participation and user involvement and provide insights for making evidence-based recommendations for designing or redesigning office environments that fit users’ needs and preferences.

As new tools to assist work evolve, their impact has to be taken under consideration. This is what the third paper “Experiencing an Augmented-Reality Assisted Assembly Task: Autonomy, Passive Work Attitude, and Responsibility,” contributed by Thomas Meneweger from University of Salzburg’s Center for Human-Computer Interaction, does. He leaves the office environment and dives into industrial workplaces. Yet, comparable to the first two papers, user experiences are investigated in regards to workers’ health, well-being and productivity. In particular, their sense of autonomy and control during an AR-assisted assembly task is studied to draw conclusions for the design of future industrial workplaces. The indication of the study findings is that a limited perception of autonomy is connected to an increasingly passive working attitude and limited sense of responsibility concerning the output of the AR-assisted assembly task. At the same time, however, the participants still attributed assembly errors internally. This combination, in which limited autonomy and the internal attribution of errors occur simultaneously, seems not to support a motivating, health-promoting working environment. The study therefore offers some design implications for digital work technology and practical implications for corporate real estate management focusing on industrial workplaces.

In the fourth paper, physical and digital work and learning environments are integrated in a hybrid way and a cross-cultural approach. In “Co-working, Co-learning and Culture – Co-creation of Future Tech Lab in Namibia,” Marco Lahti, University of Turku, Finland, describes how a Finnish space concept is applied and further developed in Namibia. With an

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action design research approach a functional framework to cocreate hybrid environments in two ways, a tool is used that helps to design digital and physical solutions as integrated entity while also analyzing decision-making processes as well as design initiatives from a cultural perspective. The cultural context of the case study presents an interesting comparison between the Finnish and Namibian ways of doing things. Furthermore, remote presence and its requirements give new insights and guidelines for the co-creation of hybrid environments. Very important: Shared vision, concept and plans are decisive when operational construction process practices might differ both in organizational and national culture.

The four papers show once again how varied and diverse, on the one hand, and how human-centered, on the other, the content and research topics of transdisciplinary work environments are. It was a great pleasure for us to host TWR 2020, to collect the contributions, to accompany and support their further development into highly exciting papers as guest editors and now to publish them here in this first special issue of TWR 2020. The second special issue will be worth reading again. Stay tuned and see you soon.

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