

Global Summit on ENVIRONMENTAL HEALTH

October 10-11, 2022 | Webinar

BIM for Landscape Design Improving Climate Adaptation Planning: The Evaluation of Software Tools Based on the ISO 25010 Standard**Evelina Keibach***Middlesex University London, UK*

Statement of the Problem: Climate change is one of the biggest threats to humanity. Specialists warn that increasing temperatures are harmful to health while promoting cardiovascular and respiratory diseases including mental problems. Nonetheless, scientists agree that climate change is inevitable, therefore more concern is growing on climate adaptation strategies besides climate mitigation. Meanwhile, planners are challenged to design the outdoor spaces efficiently and effectively adapting to the forthcoming floods and heatwaves caused by climate change. However, the potential of digital tools allowing to improve climate adaptation planning and supporting decision making is not fully realized in practice. Furthermore, the comprehensive comparative analysis of different software tools calculating and simulating the adaptive capacity of design is rather missing. The purpose of this study is to investigate the capabilities and limitations of software tools simulating landscape design adaptability using the ISO 25010 quality model.

Methodology & Theoretical Orientation: the implementation of the ISO 25010 framework to the research ensures a wide range of quality measures including software functionality, reliability, performance efficiency, usability, compatibility, and information quality. The objective experiments are conducted with five software tools implemented on the case study project - a residential urban quarter in the South of Germany.

Findings: The comparative analysis of different climate adaptation software tools have different focus on climate adaptability aspects and measures which leads to different types of output. However, most of the tools deal with compatibility issues causing data loss and remodeling. Moreover, climate adaptation tools are limited to functional aspects or performance efficiency.

Conclusion & Significance: This paper compares a wide range of climate adaptation planning tools considering the implementation process, time resources used and final results of the case study project. The results inform software developers on the limitations of software tools and inform planners on their potential.

Biography

Evelina Keibach passed her BIM Management studies with distinction at the Middlesex University of London. She has developed her expertise in the climate adaptation planning as part of the healthy and livable cities program while working in the world-leading engineering company of Ramboll. Her recent research is focused on the software tools enabling climate adaptation planning and the evaluation methods using the ISO 25010 framework. Therefore, the significance of her research is the practical and theoretical approach.