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Your World, Our World: Resilient Environment and Sustainable Resource Management for All

Digital Twins of the built Environment – Challenges and Perspectives for Surveyors

Abstract: The term “Digital Twin” in connection with the built environment is currently on everyone’s lips. Main features of a digital twin are the use case-related holistic virtual representation of the of a physical object and the tightly coupling of virtual and real object. In the AECO industry, building information modeling (BIM) is seen as an important basis for digital twins of built assets. However, the digital documentation of the real built environment is a fundamental task of surveying and geographic information systems (GIS). The integration of data from BIM, GIS, and others such as sensor data or physical models is therefore the key to creating holistic digital twins of the built environment. The merging of data from BIM, GIS and sensors can bring considerable added value for many digital twin use cases, but at the same time also leads to new challenges: On the one hand at the data level due to the different modeling paradigms and on the other hand at the process level due to the changed and new geodetic tasks. The current digital transformation requires geodetic know-how when setting up digital twins and offers enormous potential for surveyors in the future.