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ABSTRACTS

Geodesy for Smart Construction

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Abstract

Smart Cities are needed to secure future attractive living conditions in cities, especially mega cities. In Germany we would even talk about smart regions or villages. Digitalization is one keyword that will help to solve challenges like environmental pollution, demographic change, population growth and financial crises in an efficient way. Digitalization is supported strongly by geodesists since they deliver key elements for e.g. virtual reference frames, autonomous driving and digital or smart construction. Geo data and positioning is needed everywhere in the digital and in the real environment.

This talk focusses on smart construction meaning mainly automation in design and construction. The digital chain from planning and engineering, manufacturing and construction up to facility management and deconstruction and recycling is the first step for digitalization. In general this is understood as Building Information Modelling (BIM). The next step is the digital feedback leading to an integrative computational design and construction creating new building form through the construction process. Geodesy can contribute to these concepts e.g. by the provision of geo data but also by means of seamless positioning of UAVs, construction machines and large-scale robots, by four-dimensional monitoring of construction sites and by quality models and assurance methods. The talk will give some insights into the smart construction concept and the geodetic challenges to be solved.