AMEST invited session

Title: "Digital twins for maximising value from infrastructure"

Organisers:

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Abstract:

The Architecture, Engineering, Construction and Operation (AECO), transportation and utilities sectors are increasingly embracing the digital age. Building Information Modelling (BIM) and Management are spreading fast across infrastructure companies, thus enabling a better control of cost and activities throughout their lifecycle. Companies are now realising the potential of digitisation to deliver value not only in the design and engineering phase but also in the other phases of the asset lifecycle (construction, usage, renovation, and demolition).

Concepts such as Smart Cities, Internet of Things and Industry 4.0 are now seen as major opportunities for actors in the infrastructure sectors to improve their products, processes, systems and services. The linkage between the real world and the virtual world enabled by these emerging technologies - supported by new data models and innovative data management strategies - allow to set up Dynamic Digital representations of the real World, called Digital Twins. This session will focus on Digital Twins applied to the infrastructure sector, particularly focussing on how this emerging approach can be used to realise value from existing and new infrastructure in a sustainable manner. In this context, authors are invited to submit unpublished contributions in the following areas of interest:

- Building Information Modelling and Building/Infrastructure Data Management
- Digital Twins of buildings and infrastructure systems;
- Smart cities and digital twins
- Intelligent and Predictive infrastructure asset management;
- Augmented/Virtual/Mixed Reality for building and infrastructure management;
- Blockchains/Distributed Ledger Technologies for infrastructure;
- Strategies for managing whole-life asset data through digital twins;
- Case studies and Demonstrations.

Keywords:

Digital Twins, BIM, Asset management, Data modelling, Distributed Information Architectures, AECO

Invited papers (titles are tentative):

Mohsen Jafari et. al. "Digital Twins and Sustainable Smart Cities"

Nicola Moretti et. al. "Federated data management for building Digital Twins"

Qiuchen Lu et al., "Digital tools for tracking carbon footprint in buildings"

Jorge Merino et al., Digital Twins of Quay cranes to improve seaport productivity"