

Presentation title: Understanding levels and principles of interoperability in the AEC sector: a first step towards improved common data environments

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Abstract:

Nowadays, we are witnessing an increasing number of tools, systems and data types operating simultaneously in the Architecture, Engineering, and Construction (AEC) sector. In the path towards a successful implementation of construction 4.0, interoperability becomes a crucial concept, having a growing importance for value creation throughout the whole built asset' life cycle. Construction projects, because of its intrinsic nature, require the participation of diverse stakeholders with high level of specialisation, creating different needs that develop into the emergence of different preferences to accommodate data and tools to their specific needs. This fact makes the creation of integrated data environment in the AEC industry very complex and challenging. In order to address this issue, many studies focus on semantic interoperability – the interoperability of different software systems and data types - as the core element to achieve interoperability in the construction ecosystem. This approach mainly tries to automate the integration of data from different systems, keeping metadata, and avoiding the loss of information during conversion process. However, these technical perspectives delve into information interoperability while overlooking the focus on knowledge-based interoperability. Therefore, there is a need to adopt a more holistic approach taking into consideration different layers (i.e., legal, organisational) and principles of interoperability. By understanding more deeply what *broad interoperability* in the AEC sector means, we could shed light on main challenges and potentially identify key factors to improve the creation of more efficient common data environments (CDE) able to bring construction 4.0 closer to the promised advantages.