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FACTS SHEET to the research project BIM-T

SHORT TITLE / ACRONYM

BIM-T

LONG TITLE

Building Information Modelling in Tunnelling

DESCRIPTION

Digitalisation is now an essential part in the construction industry. One of the newest and most innovative technology in this field is Building Information Modelling (BIM). The principal of BIM is to first build virtual and then real. BIM is widely known for its application in structural engineering, but at infrastructure projects (e.g., tunnels) BIM gets used more frequently too.

The current focus of the project is to investigate the interfaces between 3D geological models, 3D geotechnical codes and the BIM model. This includes an automatized implementation of the geometry of the CAD model to the geotechnical model, as well as to the 3D geological model, as such a transfer of coordinates currently is a time consuming and error proven process.

With the combination of the geotechnical and geological features (e.g. rock parameters) in one model it is also possible to create an iterative process to optimize the tunnel design, regarding different parameters, such as the deformations and the bending moment.

Another very important aspect is the possibility of quickly adapting the design to the as-build state, as the expected geological features can differ greatly from the actual ones, and the excavation and support measures have to be adapted accordingly.

Only if the design model is constantly updated it is possible to generate a "Digital Twin", which can be used to maintain the structure during its entire lifecycle cost-effective.

PROJECT COORDINATOR

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RELATED MASTER'S THESES

YEAR	AUTHOR	WORKING TITLE
2019	Emam	BIM in Tunnelling (working title) <i>still in progress</i>