Impact of using BIM on project management (Design for obtaining a construction permit and Detailed design) for section of main railroad between Maribor and Šentilj

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Abstract:

- The complexity and the scope of the project (new railway line near to existing one, road connections, a new tunnel with a length of 1,530 m, a maintenance shaft and a new viaduct with a length of 897 m) has presented a challenge for the management of all information transmitted through the whole process. The whole project consisted of more than 90 different plans from more than 12 different companies, prepared by more than 40 project developers.

- A peculiarity and a first example of using a rigid track on a new railway line in Slovenia.

- The challenge was also guaranteeing the transportability of existing track throughout the construction of new one.

- In order to manage big working groups all the available technological solutions that enable a better control of information need to be applied.

Solutions - Methods / Results - Findings

- The contractor wished to realize the potential benefits of a digital approach to design and later construction and operation of the project by using Building Information Management (BIM) delivery processes.

- The BIM strategy framework centered around the information modeling and management was developed on the basis of employer information requirements (EIR). Main principles:
  - An open BIM approach structure.
  - To extend the use of BIM beyond 3D models to include wider information attributes.
  - 4D BIM modeling and construction scheduling.
  - A life cycle centric approach to information delivery and use (CDE).
  - Improved cross project coordination with better quality and trustworthiness of deliverables.

Novelty - Value / Relevance to...

- As the project is an infrastructure project on the railway network, not even abroad there are comparable practice examples to be found. For this reason, we were obliged to develop our own practice that has been tested on the management and planning process.

- To encourage and support design and construction sector to use BIM tools and technology in design and construction of the railway and other infrastructure objects.

Keywords:

BIM; Railway; Design; Management; Strategy