

IFC Rail project

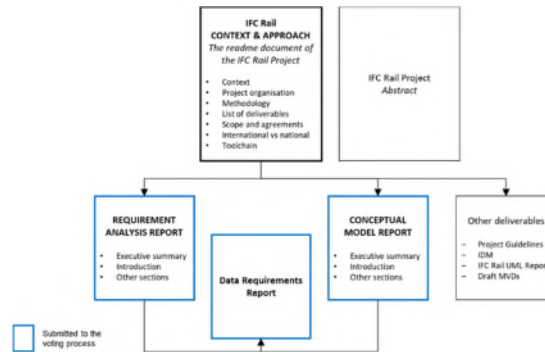
Abstract

The speedread file of the IFC Rail Project

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This document explains the results of requirement analysis and business conceptual model expanding the IFC specifications for the rail domain by describing its purpose, driving force, making and the results.



In many countries a well-operated railway infrastructure is a central element for its economic well performance. Throughout decades railway infrastructure became often owned by relatively large government-attached companies. In addition, it is regulated by standards and even laws influencing its technical, financial and operational setup which vary from country to country. In its very nature, it is nevertheless a linear asset with its own inherent logic.

Digitalisation of the domain allows a data driven operation, which is expected to make both operations processes and asset management more efficient throughout their lifecycles. Railway-infrastructure stakeholders are mainly owners and operators. They do already have well setup databases for the business, but it lacks the holistic data-driven interoperability of domain-experts along the lifecycle of each asset. Openly documented data-concepts and requirements are of interest for the owners as it creates known benefits related towards data-ownerships and market competition of service providers. buildingSMART's specifications are a promising foundation to build on. A close collaboration of eight railway infrastructure owners with buildingSMART international was setup on organisational and technical matters.

The results presented in this and adjacent documents to buildingSMART were elaborated within two years by domain experts which are skilled in design, construction, management, operation and technical experts for data modelling of linear assets and neighbouring domains. The trigger was the proposal by China Railway BIM Alliance from 2014 to buildingSMART. Use cases were formulated in order to find a global consensus despite national regulations. These requirements are thus expanding the 'classical' use of IFC which are seen benefitting the design stage of buildings. Key of this expansion is the previously mentioned target of supporting operation processes. Thus, a lifecycle view on data is introduced resulting in a demand driven approach. Examples on logical and technical level are: the importance of alignment, parts of the assets and sites having geometric dimensions of hundreds of kilometres whilst maintaining high numeric precision, implementing or referring to existing data concepts which are already used by the stakeholders, topological descriptions, requirements to represent legal ownership, etc. One key finding is: the ability to have localisation of the standard.

These data requirements are an approved consensus by some of the world's largest stakeholders of the railway infrastructure domain. It is the foundation for future more detailed requirements. It is Iteration 0, which is the base of future expansions. Whereas existing software might handle some of the requirements with ease, a specific software might only be used by a stakeholder in case it supports an IFC rail core aspect: a specific alignment view.