

Concept of an information framework for management, simulation and decision making in construction projects

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ABSTRACT: Decision making in construction planning and management requires access to information about latest building and construction plans as well as respective controlling information in the context of the construction process. Until today, this information resides in engineering and management models maintained separately on owner and constructor side. Despite the progress in model-based planning the application-specific models still vary in focus, conceptualization, structuring and detailing and still lack bridging concepts and interoperability technologies. This paper presents the conceptual development of a Management Information System that should enable decision making on the different management levels within the owner and the constructor organisations and respective distributed databases. Backbone of the system is an open service platform and a layered ontology-based model framework integrating the distributed multi-model information space. Central to that multi-model space are process models that provide for inter-relating various engineering and management models in regard to the planning, production and controlling tasks within the owner and the constructor organisations. The paper discusses (1) the ontology-based multi-model framework, (2) the use of central platform services providing for horizontal, vertical and longitudinal integration of the information models, and (3) the use of the overall platform to dynamically model construction processes and verify them in simulations.