The product model and Fourth Dimension project

This Product Model and Fourth Dimension (PM4D) paper presents the findings from the design and construction of the Helsinki University of Technology Auditorium Hall 600 (HUT-600) project in Finland. Running simultaneously with the design and construction of the HUT-600 project, an international research partnership extensively applied the product modeling approach, tested the Industry Foundation Classes (IFC) interoperability standards, and employed an array of design, visualization, simulation, and analysis tools on the 17-month, USD $5-million capital project. Through our dissemination of this experience and analysis, we hope that building owners, end-users, and project teams will take advantage of the current capabilities and benefits of the PM4D Approach to leverage commercially available state-of-the-art analytical and visualization tools to optimize the design, construction, and operation of a proposed facility during early project phases. Project examples demonstrate that owners could choose among comprehensive life-cycle alternatives, end-users could provide input to the facility design in a timely manner, and project team members could differentiate themselves from their competitors with higher efficiency, quality, and more effective application of their expertise. Most participants in this project were surprised by the large number of design, engineering, and analysis tasks that can be supported productively with IFC-based product models today Even though the PM4D Approach improved upon conventional practices in terms of design quality, project risks, and life-cycle values, we encountered technical, cultural, and business barriers to extending the benefits of the PM4D Approach. Project participants in the HUT-600 project could have enjoyed further benefits if product modeling tools supported revision-handling, two-way exchanges, simpler mapping of data formats from exporting to importing applications, and if IFC-compliant software tools were extensible and robust.

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