The utilisation of building information models in nD modelling: A study of data interfacing and adoption barriers

Entity-based modelling and Object-based modelling have been two distinct lines of products since the introduction of Computer-Aided Design (CAD) in the marketplace some twenty years ago. Although the majority of practitioners have opted for entity-based modelling, the enhancement of object-based modelling has continued. In line with the increasing capabilities of computer hardware and software, most CAD vendors have launched more powerful object-based CAD software in recent years. These software are now commonly known as Building Information Modelling (BIM), Virtual Building, Parametric Modelling, or Model-Based Design. The move is considered revolutionary in the world of the construction CAD market, and would enable seamless downstream applications of the rich information generated by the model. Research such as the 3D to nD modelling project at the University of Salford has been started to explore other design dimensions using BIM. In addition to technical considerations, there are other soft factors, such as people, cultural and process factors, that fundamentally affect the uptake of BIM. Based on hands-on testing and a questionnaire survey administered in Hong Kong, this paper addresses these factors and recommends ways of making improvements. The use of BIM is revealed to still be quite low and conventional entity-based CAD software remain the de-facto drafting tools. The core barriers include the spilt between architecture design and drafting, inadequate objects and object customisation capability, a complicated and time-consuming modelling process, a lack of training and technical support, a lack of requirements from clients, extra file acquisition costs and the unavailability of free trial software. Obviously, the separation of design and drafting has been a common practice and may be the most salient obstacle to the widespread use of BIM and the future of nD modelling.

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