

Research project: The development of the use of building information modelling and new work roles in building projects

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Abstract

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The adoption of new technologies to use is a long and complex process in construction companies. The longitudinal view on these processes has not, however, been taken in many studies. The perspective of a key player, the virtual design and construction (VDC) team, to the adoption of (BIM) is examined longitudinally in the study. How did the VDC team enable the adoption and use of the BIM? What kinds of tensions emerged during the process of adoption and use and how were they solved? The adoption of new technologies is studied from the perspective of practice-based studies and cultural-historical activity theory. The narrative methodology and methods are applied in the empirical study of VDC team retrieved through open interviews. The findings of the study feature a story of BIM adoption in four phases 2006-2015. The successful process involved continuous customization of available programs, re-organization of the team's responsibilities and practices in the construction work but also evaporation of some uses. The study contributes to methodologies and methods for studying the long-term of BIM adoption in construction companies. It also gives a realist picture of BIM adoption on the level of practices.

New expert roles are emerging during the adaptation of BIM. How practitioners define and interpret the roles of BIM managers and coordinators are examined in building projects. The theoretical resources of the sociological role theory and the cultural-historical activity theory are applied in the analysis of interviews with project managers, principal designers and BIM experts. The method of "open interviewing" and the thematic method of analysis are applied in the study. The activity-theoretical method is applied in the analysis of underlying contradiction of role change and role ambiguity. According to the findings, the roles of BIM management and coordination are not yet an established practice in construction industry. The role descriptions vary from project to project and depend on the size and type of a project. There are also overlaps in the roles of BIM management and coordination. Especially, the roles of a project management and principal designer are ambiguous in BIM-based projects. In future, it would be important to organize

and nurture situations in which different interpretations, underlying tensions, and role ambiguity could be negotiated.

Keywords: BIM adoption, social practice, roles, BIM management, BIM coordination, narrative methodology, cultural-historical activity theory, building industry