Abstract

Vertical integration refers to a combination of several or all functions in the value chain under a single firm. Many researchers have suggested that vertical integration facilitates the development and implementation of systemic innovations. However, systemic innovations require significant adjustments in other parts of the business system in order to be implemented successfully.

Building information modeling (BIM) is an example of a systemic process innovation in the construction industry. BIM is a set of interacting policies, processes, and technologies generating a methodology to manage the essential building design and project data in digital format throughout the life-cycle of a building. BIM has been expected to bring significant improvements in productivity in the construction industry since the 1980's but the implementation and diffusion of BIM have been proved to be slower and more difficult than expected, largely due to its inter-organizational and systemic nature. At the same time, there has been a trend of vertical integration in the construction industry in recent years. This study aims to shed more light on the connection between BIM implementation and the organizational structure, and examines the advantages and disadvantages of vertical integration in the implementation of BIM as an example of a systemic process innovation.

The findings of the study propose that there are seven structurally relevant factors in BIM implementation; (1) management support, (2) coordination and control, (3) learning and experience, (4) technology management, (5) communication, (6) motivation, and (7) defining roles. There are both advantages and disadvantages of vertical integration related to each of these implementation factors. Thus, in order to achieve as smooth implementation as possible, managers should understand the impact of the organizational structure in BIM implementation and plan the implementation projects accordingly.