

PROCESS- AND PROJECT-LEVEL ISSUES OF DESIGN MANAGEMENT IN THE BUILT ENVIRONMENT

ABSTRACT

It is generally understood that the quality of the design decisions determines the faith of every project. This is not any different in the built environment context where projects are oftentimes large, complex, and involve contributions by a number of disciplines. In practice, techniques of traditional project management are used to organize the interdisciplinary design processes in the built environment. Very often, however, such management techniques fail when applied to design. The main reason for this failure is an insufficient knowledge of design as a cognitive activity as opposed to physical activities of production. A strong justification, therefore, exists to advance the theory and practice of design and its management in the built environment context. This thesis endeavors to explore and describe the reasons for the failure of concepts from production project management in managing multidisciplinary design in the built environment.

The study in this thesis is devised as a two-fold research approach including an investigation of the project-level characteristics of design integration and the process-level characteristics of design decomposition. The first phase of this research includes an exploratory study with six major design organizations as a set of case studies to uncover the project-level issues of design management. The second phase of the research includes a retrospective in-depth case study of a major public-funded railway engineering design-build project. The goal of this phase is to uncover the process-level of design management issues. The study combines exploratory techniques of open-ended interviewing with a detailed review of project documentation to map process- and project-level issues in design management. The data collected is analyzed by using the theoretical background of interpretive process tracing and sensemaking for the process-level and macro-level theories in sociology and economics for the project-level.

The findings from the study suggest that management frameworks currently used in practice do not take into account the specificities of design as a cognitive activity comprising problem-solving and interactive inquiry with the designed object. As a result task isolation is not possible in the way advocated by traditional project management. Instead, design should be viewed as a web of interdependence that needs to be decomposed and managed using a mindset based on loops of cause and effect instead of hierarchical breakdown structures. Based on the complex decomposition features, the findings suggest that project-level integration of design contributions should be conceptualized as a stream of knowledge transactions in the expertise market.

The nature of theory built in this thesis is mostly descriptive with the main aim to broaden the understanding of the design processes and their management within the built environment. This thesis thus fulfills its main goal of providing a solid basis and a direction for further research and practice in the area of design management in the built environment.