

Chapter 5.2

Limitations and Perspectives on Use of E-Services in Engineering Consulting

Hanne Westh Nicolajsen
Aalborg University, Denmark

Morten Falch
Aalborg University, Denmark

ABSTRACT

In this chapter we analyse organizational challenges when an engineering consultancy in the building industry integrates information and communication technologies (ICT) in the production and delivery of their services, and discuss how the e-service concept can be applied in this context. The analysis is based on a field study on introduction of 3D-modeling tools within one of the leading engineering companies in Scandinavia (Ramboll). The analysis focuses on the changes in knowledge creation and transfer both within the company and in inter-organizational relations. The analysis points towards a need to change the business model as the project engineering part of the technical engineering service becomes standardized.

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INTRODUCTION

This chapter analyses how the use of information and communication technologies (ICT) in an engineering consultancy has led to increasing codification of the knowledge delivered, and how this affects the potential for using the e-service business concept within this particular industry.

Knowledge Intensive Business Services (KIBS), such as engineering consultancy, produce and sell knowledge to other businesses. The knowledge service they sell is often customized to a particular customer and made in interaction with the customer, but builds on in-house expertise from the consultancy. Engineering consultancies must continuously upgrade and develop knowledge if they want to be capable of delivering unique and competitive services. On the other hand it is necessary to reuse

the same knowledge in several projects in order to reduce costs. Knowledge management is therefore a key parameter for the success of an engineering consultancy.

The organization of production of engineering consultancy services is like production of other KIBS highly affected by use of ICT. However engineering services cannot be termed e-services in a narrow sense because engineering service is only partly subject to electronic delivery. Engineering consultancy is a complex service involving intensive communication between several parties, including suppliers, contractors, architects, and customers. The end product is to a large extent a physical product in the form of a building. However, the different KIBS involved within this “production” process deliver various knowledge services. The service delivery can thus be seen as a large number of separated deliveries to the building owner (as the primary customer) or to the other partners as “internal customers,” which is further complicated through the feedback cycles involving the customer or other parties in the building process. Some of these services may be partly produced or delivered through e-mail communications and other Web-based interaction, others at business meetings, and so forth. It is however unlikely that electronic communication will be able to replace all types of communication in full. The e-service concept must therefore be understood more widely as the use of ICT to produce, collaborate, or deliver parts of the service package. ICT is used both as a means of producing services in the sense of new production tools and for creating an electronic communication infrastructure enabling communication with partners and customers, thus facilitating both production and delivery of services.

This chapter analyses how ICT is used to facilitate intra- and inter-organisational collaboration in production and delivery of engineering consultancy services within the area of building construction. Based on information from a field study of the engineering consultancy Ramboll,

the chapter studies how use of ICT affects internal organisational issues in relation to securing future innovations, development of new ways of working, and building and maintenance of staff competences needed. First, the chapter provides background information on the field study and a description of the drivers for introducing ICT systems in provisioning of engineering services. Thereafter a general presentation of Ramboll follows together with a detailed description of its building division. This is followed by an outline on the usage of ICT within engineering consulting. Finally organisational implications and the status of engineering consultancy as an e-service are discussed.

BACKGROUND

For decades the building industry has been characterised by increasing costs, low productivity, and often poor quality. This is in part due to labour intensive production processes in design, projection, and construction, which have proved to be hard to automate. Another problem is lack of coordination between the large numbers of partners involved in building projects. Knowledge that flows between partners from different companies is often limited by lack of common standards, lack of common understanding on how the building process is organised, and the varying division of labour and responsibilities between the partner companies. This results in unnecessary conflicts and errors. In addition the lack of knowledge flow within building projects reduces accumulated learning both across projects and across partners. These problems are reinforced by the temporary character of partnerships within the building industry, where each project in general presents a new partner constellation. Moreover, along with increased competition, the ongoing globalisation taking place in segments of the building industry will further complicate coordination between partners.

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