15th Bled Electronic Commerce Conference
eReality: Constructing the eEconomy
Bled, Slovenia, June 17 - 19, 2002

eSite

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Keywords

e-construction, construction management, mobile computing, construction industry, construction site, process automation

Abstract

One of the major problems in using information technology (IT) in civil engineering is the fact that production (construction) process is dispersed and site locations frequently change. Compared with other industries, these factors have represented a great limitation in giving construction sites adequate IT support.

Most construction IT solutions, like complex product and process models, require highly organized and standardized project environments, which are not found in real-life construction projects. Partners involved in a construction project are typically at very different organisational and IT levels. Therefore, they are forced to use mutual digital communication at a quite low level. However, there have been some “minor”, typically isolated IT solutions, which did have a tremendous, albeit not mainstream, impact on the construction industry *e.g.* telefax machines, mobile

phones. Unfortunately, in such a case the level of process automation was actually non-existent, but at least distance was not such a problem any more.

Despite that, recent research and development in the field of construction information technology has not delivered any significant process automation. Information between project partners on a construction site is mostly exchanged in a paper form and for that reason data is frequently incomplete and delivered too late.

In January 2001 a multipurpose experimental, educational and research project called Mobile Computing at a Construction Site (or shortly **e-site**) began at the Faculty of Civil Engineering of the University of Maribor. The project is being conducted by the Construction IT Centre and carried out by students and engineers from the construction industry. Through this project we intended to explore the potential of quite new, fastgrowing area of information technology - mobile computing, in construction industry with intention to improve information flow (electronic commerce, data communication) with and at a building site. The assumption was, that only cost-effective, commonly available and standardised mobile computing technology would bring any real change in the construction industry, as was also the case with personal computers in the 80's. We have intentionally not focused on special devices, prototype equipment and concepts, which cannot be used right now, or which would require high investments. Instead, we concentrated on commercially available mobile devices, software and services that can be easily obtained for a reasonable investment.

We designed and tested a prototype of a simple and effective document management system. The tests showed that by using mobile computing technology significant improvements in information exchange with and at a building site could be achieved. In addition, benefits encompass also better work co-ordination, quality and overall productivity which actually are the main objectives of every construction company.

This fact encouraged us to continue with research and try to find solutions to the many open problems that have emerged while studying on-site processes.