

Design, Implementation, and Evaluation of a Technology-Supported Collaboration Methodology for Distributed Requirements Determination

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Abstract

ICT has become crucial to overcome distance and to enable collaboration between system users and analysts. This study presents the design, implementation, and experimental evaluation of a new technology-supported collaborative methodology for requirements determination. The new ICT-supported methodology enables the elicitation, analysis, specification, and validation of requirements in a distributed environment. Its design follows the theoretical principles of Te'eni's cognitive-affective model of organizational communication for IT design and combines established methods as well as techniques for requirements identification, formulation, dependency determination, prioritization, and selection in a coherent and innovative way. The resulting prototype has been evaluated in an experiment. It is one of the first to compare the performance of traditional ways of communication via interviews and document exchange with that of communication via an Internet-based collaboration platform for requirements determination.

The results show that, both, the efficiency of the overall requirements determination process as well as the overall quality of the resulting requirements, are higher when using the new collaborative methodology. In terms of quality, the completeness and modifiability of requirements are particularly improved. In terms of efficiency, the user and analyst perspectives need to be distinguished. While the effort for requirements elicitation increases for the analysts, this up-front investment pays off in terms of significantly lower effort for the later specification and validation of requirements. In contrast, the users benefit in particular from lower effort during requirements elicitation and analysis.

After the presentation, the audience will be offered a live presentation of the software prototype.