Planning the Quality Management Organization with the Systematic Support of a Web Application

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Context: Challenges that arise from ongoing globalization, digitization and increased complexity overall have been common topics on management levels for years. Today, decentralized processes require an increased level of interdisciplinary coordination. With increasing interdependencies between processes and immense data generation, efficiency depends on how well organizational processes can be aligned and data sufficiently integrated. As the coordinator of process flows, the quality management organization (QMO) plays a critical role in aligning the organizational goals and supporting initiatives. To do so, it requires progressive networking and a holistic, cross-process view on the organization. These aspects must be supported by an integrated method to plan for the large variety of quality-supporting initiatives and related data.

Objective: This paper presents the concept and development process for a web-application, which aims to support quality management in its organizational planning tasks. The basis for the implementation is a previously developed, roadmapping-based planning method, which pro-actively supports the QMO's strategic development. By digitally applying a suitable method, the challenges of the increasing complexity of process landscapes as well as the increasing digitization are addressed effectively.

Method: A user survey and a comprehensive literature research were carried out to identify relevant requirements towards a suitable planning methodology. The software requirements analysis was essentially divided into two parts. The first part involved the identification of requirements arising from the method itself. This includes contextual requirements, as well as deduced user interface and functionality requirements, that form the basic framework of the application. The second part took standardized quality criteria into account to determine generic requirements that led to initial development decisions. The development of the software has been realized within the framework of an agile model. This suitable model supported the implementation methodically by iterative re-adapting to changing requirements throughout the development process. In addition, the implementation was based on test driven development cycles to assure the integration of previously defined software requirements. A final validation of the developed web application was carried out by a user trial which aimed specifically at the usability. Feedback that addresses the fulfillment of contextual requirements has been raised through a questionnaire.

Results: Method-related requirements must be considered so that the implemented method can be applied purposefully. Standardized quality criteria for software development in conjunction with the intended purpose of the application can form a more specified guideline for the development process. The advantages of an agile model result from increased flexibility in software development and continuous integration of changing or new requirements. Based on the

mentioned framework a computer aided quality solution has been created. Field trials show that the developed web application is capable of supporting QMO planning in an effective manner.

Conclusions: By applying a specifically designed planning method, the QMO can be ideally supported in its planning. However, the right framework must be provided for realizing a user-friendly application. The implementation of a software application is particularly suited to meet mentioned challenges and fulfill identified requirements. Therefore, a web-based solution has been implemented, which proves to be effective in practical use.

Keywords - computer aided quality, corporate planning, development framework, quality management organization