



Chapter 10

An Information Systems Design Framework for Facilitating TQM Implementation

Nazim U. Ahmed
Ball State University, USA

Ramarathnam Ravichandran
Design Systems, USA

This paper provides a framework for information systems (IS) design for TQM implementation. The framework consists of three main phases. In the first, TQM implementation tasks are established. These tasks include identifying customer satisfaction variables (CSV), translation of CSV to firm response variables (FRV), benchmarking, and continuous improvement. The second phase includes analyses of communication effectiveness requirements between the organizational entities such as sales/marketing, top management, operations, accounting/finance and also with the customers. In the third phase, appropriate IS component inventories for different communication interfaces are generated. This was accomplished by first mapping the TQM implementation tasks for the communication interfaces. Then appropriate IS/IT solution was recommended for each interface. The final IS design is achieved by integrating IS components at technological, functional, and strategic levels. Finally, a hypothetical example for a large manufacturing firm is provided.

Previously Published in the *Information Resource Management Journal*, vol.12, no.4, Copyright © 1999, Idea Group Publishing.

This chapter appears in the book, *Human Computer Interaction Development and Management* by Tonya Barrier.

Copyright © 2002, Idea Group Publishing.

Total Quality Management (TQM) is a philosophy that emphasizes customer satisfaction as a driving force for all organizational activities. It results in many benefits to organizations (Chalk, 1993; Sabbaghi, 1990; Rooney, 1990; Vansina, 1990). Several approaches to TQM have been proposed (Adam, 1994; Flynn, 1994; Caudron, 1993; Powell, 1995). We adopt the definition of TQM from Flynn (1994) "An integrated approach to achieving and sustaining high quality output, focusing on the maintenance and continuous improvement of processes and defect prevention at all levels and in all functions of the organization in order to meet or exceed customer expectations."

A number of studies have discussed TQM implementation processes (Ayres, 1993; Sabbaghi, 1990). Some others tried to relate TQM to operating and financial performance (Adam, 1994). Some of the current research have identified an integrated organizational communication system as a critical success factor for TQM Implementation. For example, Schoenberger (1983) and Tillery (1985) concluded that co-operation, coordination and integration of many different functions within the organization is a key aspect of total quality management. Flynn (1994) describes the necessity of linkages between every pair of functions, and forming a web like networking of all functions. Adam (1994) and Powell (1995) through empirical studies have concluded that factors such as objective feedback on performance, and empowerment are more significant than certain other factors such as process improvement and training.

Several of the above-mentioned studies in the TQM area have established the importance of an integrated organizational communication system. However, there is a lack of theoretical or empirical research to suggest how this can be done.

In a traditional organization, growth of information technology (IT) often is not well planned. Most of the growth in IS/IT occurs in pockets and in isolation (Doll and Vonderembske, 1987). Generally, departmental or individual managers vie for sophisticated IT in their own domain. Most often, a decision to implement such technology is born out of the individual desire to be technologically up-to-date rather than from some business necessity. This is contrary to the TQM strategy. Innovative organizations are relying increasingly on IT for maintaining and sustaining the strategic advantage over their competitors (Ali and Miltenburg, 1991; Goldhar and Jelnik, 1985; Kettinger, et al., 1994; King and Teo, 1994).

In the last few years, we have seen the explosion of technologies such as the Internet, intranet, extranet, data mining, and data warehousing which have the potential of alleviating some of the pitfalls of traditional culture. Also, the

18 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/information-systems-design-framework-facilitating/22212

Related Content

Does Anybody Read SMS-Advertising?: A Qualitative and Quantitative Study of Mobile Users' Attitudes and Perceived Ad-Clutter

Claire Gauzente (2010). *International Journal of Technology and Human Interaction* (pp. 13-29).

www.irma-international.org/article/does-anybody-read-sms-advertising/42154

Fat Talk: Constructing the Body through Eating Disorders Online among Swedish Girls

Ann-Charlotte Palmgren (2011). *Youth Culture and Net Culture: Online Social Practices* (pp. 64-82).

www.irma-international.org/chapter/fat-talk-constructing-body-through/50693

Massive Open Online Courses and Completion Rates: Are Self-Directed Adult Learners the Most Successful at MOOCs?

Amanda Sue Schulze, Doug Leigh, Paul Sparks and Elio Spinello (2017). *Handbook of Research on Individualism and Identity in the Globalized Digital Age* (pp. 24-49).

www.irma-international.org/chapter/massive-open-online-courses-and-completion-rates/162944

A Risk Based View of Influential Factors in IT Outsourcing Relationship for Large Multinational Companies: A Service Buyer Perspective

Georg Hodosi, Lazar Rusu and Seungho Choo (2012). *International Journal of Social and Organizational Dynamics in IT* (pp. 29-47).

www.irma-international.org/article/risk-based-view-influential-factors/72888

A Proposal for UTAUT Model Extension in the Virtual Learning Environments use as Presential Learning Support Context

Ivo Pedro Gonzalez Junior and Ernani Marques dos Santos (2017). *International Journal of Technology and Human Interaction* (pp. 33-46).

www.irma-international.org/article/a-proposal-for-utaut-model-extension-in-the-virtual-learning-environments-use-as-presential-learning-support-context/181659