

Relationship between total quality management and information systems management ...



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The title is “ Exploring the Relationship between Total Quality Management and Information Systems Development” which is written by three authors. First, Lillian Y. Fok, conducted research in TQM, information system and human factor after receiving her PhD degree from the Georgia State University. She is now a professor of management at the University of New Orleans. Wing M. Fok, received her PhD degree from Georgia State University, is the MPA director and an associate professor at the Loyola University New Orleans. Her research interests include technology management, management information system and forecasting. Lastly, Sandra J. Hartman, conducted research in organizational behavior and organization theory with emphasis upon international issues in these areas after receiving her PhD from the Louisiana State University. Currently she is a professor of management at the University of New Orleans.

Researchers' frequently make simplifying assumptions when tackling complicated issues or problems, while the results might provide some insight these answers will also likely have boundaries. The purpose of this study is to examine the associations between total quality management (TQM) and information systems (IS) development.

Furthermore, There is a potential relationship between two adopted strategies, which is related to TQM and IS, in order to deal with organizations' need to competitiveness through the US. Hence, it plays a major role in the examination stage for this relationship. Falling under the total quality management (TQM) rubric, the first strategy involves the adoption of many quality management programs. As a vehicle for attaining quality, information system (IS) or information technology (IT) is the second strategy approach that has been emphasized.

The study shows the effect of both programs on many things, such as responding to customer needs, effective cost saving and like. Last but not least, there is an impact for all of them on each other. For this reason, the researchers go in depth in this study in order to discover this impact and to measure the strength of it as well.

Following on the next point examines the inter-relationships among three main managerial factors: the adoption of TQM's program, the development of IS and culture, which lead us to the research questions. The research questions for this study were:

Research question 1. TQM maturity, which is refers to the degree of TQM implementation in an organization in a qualitative sense, of an organization
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is a reflection of the use of TQM programs within an organization, people's perception of their influence on quality issues, and individual understanding of TQM concepts. This question comes from the need to develop useful measures for TQM.

Research question 2. Increases in TQM maturity (defined as use of TQM programs, people's perceived influence on quality issues and individual understanding of TQM concepts) will be associated with changes in several IS development variables. The second question deals with the impacts of TQM maturity upon system development. It divided to four sub-research questions in order to deal with specific issues.

Research question 2a. As TQM maturity increases, system development projects will have more emphasis on people-related goals or social goals, when developing IS. It deals with the organizations that are higher in TQM maturity and their empowerment. In addition to the association of TQM ideas and IS design.

Research question 2b. As TQM maturity increases, the system design philosophy will emphasize employee empowerment and self-learning. In this part, the study looks to the relationship between IS people and the users.

Research question 2c. As TQM maturity increases, system users will report that the MIS staff makes more positive assumptions about system users. This solve the issue of should the system users be viewed as internal customers and if IS staff should have positive attitudes to them.

Research question 2d. As TQM maturity increases, system users will report higher levels of participation in the system development process. Dealing with the responsibility of system development with organizational levels will be discussed in this part.

Research question 3. TQM maturity will be associated with a TQM supportive culture. Last question looks for if the Organizational culture should be related to the TQM philosophy or not.

In IS technology research has generally viewed IS in isolation to focus on developing and implementing successful IS in the organization.

Conversely, this study is going to discuss and point out that achieving of synergies might happen when the development of IS occurs in the TQM environment.

The study of IT impacts

Unstable nature of Costumers' opinion plays a major role in constantly changing demands, for this reason their tastes has become more sophisticated. There is an improvement in the maturity and diverse of the work force. Due to these conditions, many US organizations gradually found it more difficult and complex to compete. There are a number of ways to enhance productivity and responsiveness in order to return their competitiveness and to improve their financial performance.

IT is one of the main solutions, it has been used with the aim of achieving many objectives like increasing productivity, quality improvement, enhance the organization's competitive edge, reduce costs as well as increasing

service (DeJarnett, 1993). In order to know how to use IT successfully at any organization, they should know how to use this IT in a proactive and deliberate way as well as generalizing IT which means using this new technology in all organizational functions' aspects, from the first stage of any order process, which is order entry, to after-sales services and support. Nonetheless, as one of the critical factors, technology might lead to ultimate failure.

IS isolation in addition to concentrating on the way of implementing and developing a successful IS system within an organization is what most research is interested in. While, only few researches have pointed out that if IS is developed very well in the TQM environment, synergies could be achieved (Ahmed, 1999).

The study of TQM impact

As an integrative management philosophy, TQM has been commonly adopted. The reason is to improve the quality of products consequently, to exceed or meet customer expectations (Ahire, 1996). According to Fok's study, there are many things under TQM. First of all, needs of customers could be divided to two parts: internal and external. Regarding this, organizations began emphasizing the importance of satisfying these needs of customers. Also, evolvement stage was the direction of companies in order to increase their vertical functional structure to an oriented horizontal process. Additionally, workers asked to empower and make their own decisions beside their participation in decision making.

There are many TQM success stories which suggest that TQM can potentially increase the level of competitiveness (Anderson, 1997). On the other hand, not all organizations which adopted TQM were successful, there are several reasons for that. First, the expectation of time framing and TQM implementation costing is unrealistic. Second, unsustainable culture in addition to the failure in developing the quality-oriented of it. Thirdly, employees' cooperation and motivation lack, but the main reason for the failures is the lack of top management commitment (Masters, 1996).

Measuring TQM maturity

TQM maturity, in a qualitative sense in relation to this study, refers to the TQM's degree of implementation. In order to measure it, there are three dimensions that might help. First, TQM programs perceive usage. Second, employees' perceived influence on quality issues. The level of understanding of specific TQM tools/techniques by employees.

Isolation is one of the previous or general TQM programs' areas which should not be used anymore. As an alternative TQM programs should be used in various functional areas as well as throughout the organization. Employee should report that they have influenced and control over more than one factor, quality issues is a good example for that. If quality affected all employees' job in the corporation, where TQM is more fully prepared, good and sufficient understanding of various TQM tools and techniques should be taken from employees' side. However, the opposite is expected to occur if an organization has very little on or no experience with TQM as well as lack of understanding of the new system or tools.

A systems approach to TQM and IS

The researchers discovered that most managers would agree about the main goal of this study, which is important linkages and synergies appears when TQM and IT considered together. Then, having an effective information system as well as an appropriate infrastructures are two reasons that helps in implementing successful quality systems In addition, it is important for IT to be successful, incorporating quality into the initial IS design and development will be necessary.

Conversely,

“ almost no research has been published on exactly how IS development affected in organizations which adopt high levels of TQM. In this case, researchers suggest that organizations which have more fully incorporated TQM in qualitative sense (i. e. higher in TQM maturity) would approach the design/development of a new information system very differently and faster than those which have not” (Fok, 2001).

The study here built on many parts and relationships. The first relationship is based upon the employee-centered aspects of more TQM mature association. Many factors and relationships were bases in this study. The most important one being the fact that the relationship was more focused on employee centered features of higher TQM maturity. There are four principles that TQM maturity has to develop more on: to what extent the customer is satisfied, persistent improvement, empower the employee as well as teamwork.

Dealing with the level of empowerment in companies which have high level of TQM maturity, will be the next part in this research. It shows that users of the new system should have more authorities specially in controlling their work environment. It should be helpful for the users to learn multiple skills as well. Lastly, allowing personal growth in addition to help them to work in a team environment effectively. There are three points that make TQM successful and helpful. There is a particular sequence to the process that TQM must follow. Firstly, it have to be an approach or attitude, after that a philosophy and lastly to be an organizational process. (Hemphill, 1996).

Finally, in order to solve quality and organizational problems, TQM should be used as it is a type of management that encourages employee involvement.

TQM and organizational culture

This part deals with the expectation of higher TQM maturity organizations in order to approach the IS development process. In addition, the involvement of the culture in which the expectation of successful way of implementing IT plus TQM by researchers. There is similarity in organizational cultures requirements for both IT and TQM; also it is necessary for both of them in order to be successful to have an appropriate organizational culture, as similarities in cultures playing a major role in all business stages (Tata, 1998).

Methodology

- In the design phase, this study focuses on the relationship between total quality management and the development of information system and how they going to affect each other. For this reason, an appropriate research

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method to investigate it is surveys. Nevertheless, there are many other types of research designs which are commonly used in the management or business literature. For example, case studies and field experiments which might be more practical than surveys. Specially, for new system applications (Zakuan, 2010).

- Subjects of this study are consisting of 221 managers from the Southern United States. There are 153 male and 63 female. These managers were from firms that already have had a computer IS development. In this study, both manufacturing and service companies were examined. As subjects of this study, these managers were the users of the new system. Evaluating the perception of managers' organizations, its culture, its maturity as well as knowing how IS staff carried out its responsibilities in system design, were the reasons of designing this study.

In fact, there are many strength points for the subjects of this study, such as the sample among male and female; they are managers with enough experience in the system and from different companies. However, there are few weaknesses like number of female's managers is fewer than male which means that the results are gender biased. Moreover there is likely to be individual differences among those who were studied, which means that the results cannot be applied to everyone (Zakuan, 2010).

- Data are one of the main factors of this research. According to Fok's study (2001), TQM maturity was measured by different ways: the perceived use of TQM programs within an organization, the alleged influence on quality issues and the understanding of specific TQM tools in association with concepts.

System development goals were measured by the managers' rating of the perceived importance of technical goals.

Results

First step was the examination of the scales. Recall that researchers had said there are three characteristics that organizations with higher implementing rate of TQM maturity should have: employ TQM programs all over the organization, the relationship between part of organizational members and observation of influence on them. Lastly, members who have enough experience and good understanding for TQM concepts should make the reports.

Then, the researchers used factor analysis to look for dimensionality within the sub-scales. Factor analysis provided a two- factor solution for the first TQM maturity dimension. Factor 1, as organizational use " technique oriented TQM programs". Factor 2, is " people oriented TQM programs". The results imply that the created scales are dependable and can be used for subsequent analyses. At the end of the study of these scales, almost all the results are positive. Especially on culture phase. They suggest that in order for TQM program to be effective, the organization will require to shift to a TQM supportive culture/climate. Although, there are many other critical factors in order to measure TQM or analysis it. For instance, top management control, role of the quality department, training and preparation, product design, employee relation and quality data reporting. Each one of these factors has multiple qualifying variables (Saraph, 1988). Black and porter (1996) also performed a study to determine the TQM critical success factors using the European foundation for quality management's <https://assignbuster.com/relationship-between-total-quality-management-and-information-systems-management-essay/>

members as a sample. They found more of TQM critical success factors, such as people and customer management, strategic quality management, quality improvement measurement system, teamwork structures for improvement and corporate quality culture.

Conclusion and discussion

At the beginning of this research, the researchers contended that both TQM and IS have been proposed as vehicles in order to improve managerial efficiency and productivity. Sensibly, when two approaches are used together, the result will be synergies. Nevertheless, being on TQM may not be sufficient and expected benefits will not appear and realized except in case the organization developed their qualitative use of TQM or their TQM maturity, which is affirmed in this study (Blackiston, 1996).

There are three dimensions to measure TQM maturity: TQM program use, perceived influence and TQM understanding. Finally, Because of many reasons like globalization, business needs and new technology, at different organizational levels more TQM programs will be used as well as individuals will report better levels of influence on quality issues and enhanced understanding of TQM concepts, when organizations become more TQM mature. In this case, in the future more practical research can be conducted to make TQM mature a crucial issue in every sector. Over the past few decades, Information Technology (IT) helps TQM organization with the purpose of achieve its goals. Study may be conducted to reveal the usefulness of IT application toward quality (Saha, 2009). TQM-supportive culture is one of the main elements which TQM mature organizations might need in order for the programs to achieve desirable and pleasing outcomes.

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One of the reasons for that is the development of the concept of TQM due to the global competition (Blackiston, 1996).

From my point of view this is a very important topic and there is no end point, because it is related to information system (IS) which means there is always ways to improve and innovate something on it. Also, future research should aim to enhance some points especially in the design phase, such as using interviews with the sample rather than the questionnaires. There are advantages of this is that in an interview atmosphere there is always a chance to probe on important point so you are able to obtain much more in-depth data. Also when using interviews it is possible to obtain more valid data as the interview can clarify questions in case a participant does not understand a specific question which can also allow participants to raise concerns. Moreover it is more likely to produce honest answers because there is a face to face interaction.

In addition, the entire sample from the same area which is Southern United States which makes it more difficult to apply the results to employees in different countries. To overcome this further research should aim to study people from a variety of ethnicities.

As a comprehensive system approach, TQM works horizontally across an organization, In order to involve all employees and departments. Also, the system tries to include both suppliers and customers through extending backward and forward.

There are a strong relationship between TQM and Information System. For example, almost in all types of businesses TQM plays a major role in many stages (Jablonski, 1992).

First, TQM program helps management at preparation stage in many ways, such as developing a specific vision and goals, corporate policy drafting, committing necessary resources as well as linking the goals throughout the firm.

Secondly, during the planning phase there is a detailed plan draft of implementation, which includes several elements like schedule and budget. In addition, the establishment of the infrastructure which supports the program. Also, all resources that are necessary for the plan to start have been chosen and secured.

Thirdly, assessment stage. This stage concentrates on self-assessment through inputting clients' details of both qualities and characteristics of individuals in the organization, in addition to the whole company.

Finally, the implementation phase. Now the TQM return on investment of the company can be determined. Also, support trained and personnel have been selected at this stage as well as qualified managers and trained workforce. In order to increase workers' awareness of the exact meaning of TQM, what it is involves and the way of helping them and the firm by this program. Last but not least, it has a clear description of all workers' role and expectations about their performance.