

Reviewing the Validation of the MBNQA Model

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Abstract

Quality awards have been widely implemented. Many countries either developed their own quality awards or adopted the US/European quality award models. However, quality award models were all taken for granted and there is little empirical research to validate them while most empirical research does not follow the quality award model. This paper reports the review of studies which are related to the validation of the US MBNQA model. A conceptual model for future academic research and modification of quality award models is proposed. Previous research suggests that the positions of people development (HRS focus) and customer focus should be switched in the model. The US MBNQA model was modified since 2004 both in the content of the criteria and the positions of the seven categories. This paper may hint another improvement of the model. The suggestion is provoking but may trigger more quantitative future research about quality award models. It may also encourage model systems research on quality management.

Keywords

Quality management, quality award model, model validation, systems research, literature review

1. Introduction

Quality awards have been widely accepted. Among others, the most popular ones are the US Malcolm Baldrige National Quality Award (US MBNQA) and the European Quality Award Model. The US MBNQA model has evolved from a means of recognizing and promoting exemplary quality management practices to a comprehensive framework for world class performance, widely used as a model for improvement not only in the USA but also in other parts of the world (Flynn and Saladin 2001). A study by Jacob, Madu and Tang (2004) showed that MBNQA awardees are superior financial performers and are valued higher by investors compared to similar sized firms and industry benchmarks. They further noted that award winners are examples of firms that stand out as performance leaders in their industries. However, there is little research to validate the quality award models per se. Does the quality award model enhance their performance or companies with higher performance tended to achieve the quality award? This paper reports the review of a few studies which are related to validation of the US MBNQA model and see if any improvement is needed for this model.

2. The US MBNQA Model

The US MBNQA model (NIST 2010) consists of seven key dimensions or categories that explain what processes, procedures, and outcomes are associated with a quality-centered organization. The latest model is illustrated in Fig. 1. The names of model dimensions include 1) Leadership, 2) Strategic Planning, 3) Customer and Market Focus, 4) Measurement, Analysis, and Knowledge Management, 5) Human Resource Focus (HRS), 6) Process Management and 7) Business Results. Although the main contents are similar, the model has changed from the first version in 1988 to the latest. This is especially obvious in the interrelationships between the seven categories.

According to published guidelines by NIST (2010), the criteria of the US MBNQA model provide a systems perspective for managing organizations to achieve performance excellence:

“Successful management of overall performance requires organization-specific synthesis, alignment, and integration. Synthesis means looking at your organization as a whole and builds upon key business requirements, including your strategic objectives and action plans. Alignment means using the key linkages among requirements given in the Baldrige Categories to ensure consistency of plans, processes, measures, and actions. Integration means the individual components of your performance management system operate in a fully interconnected manner” (NIST 2010, p.55).

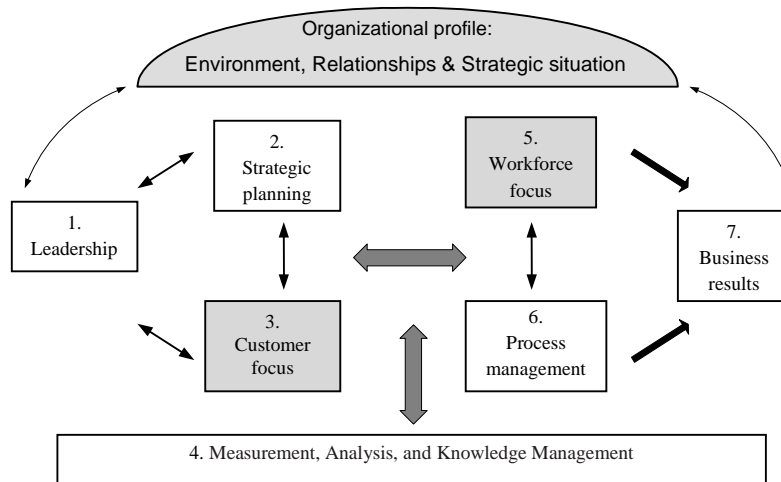


Figure 1: The US MBNQA model

The systems perspective is emphasized in four places in the MBNQA manual [NIST 2010, p., 27, p.49, p.54, p.55]. To reflect the systematic and synthetic nature of the model, the model also proposes two triads. Leadership, Strategic Planning, and Customer and Market Focus represent the leadership triad. The three categories are placed together to emphasize the importance of a leadership's focus on strategy and customers. Human Resource Focus or workforce, Process Management and Business Results represent the results triad. An organization's employees and its key processes accomplish the work of the organization that leads to business results. The US MBNQA model provides only bold-lines relationship between the two triads. It is a practical guide but not yet an academic conceptual model since the overall integration and linkages are not well described, not mentioning empirically tested. The model also changed several times throughout the course of its development. As a result, previous studies based on the model are different, a fact that we will review below in order to derive a reasonable conceptual model.

3. Review of Previous Research

Only seven studies related to the validation of US quality award model are available so far (Evans and Jack 2003, Flynn and Saladin 2001, Kaynak 2003, Meyer and Collier 2001, Pannirselvam and Ferguson 2001, Wilson and Collier 2000, Winn and Cameron 1998, Sun 2011a, Sun 2011a). A summary of previous research is in table 1. It listed all the paths that were proposed and tested in previous research. Previous research report different results about the interrelationship among the seven categories, ranging from a maximum of five to a minimum of one positive relationship. The differences in these models and in the test results may derive from the different versions of the framework as well as from different data. Any single piece of previous research in the appendix is not sufficient to cover all possible relationships. It has to rely on summarizing the results from all the seven previous studies. Those paths that were proposed and tested positive at least by two previous studies will be regarded as positive. By this standard, sixteen paths/hypotheses are identified and lead to a conceptual model elaborated in the next section.

4. The proposal of a New Model

A conceptual model will be proposed based on the review of previous research. When developing a conceptual model, it is necessary to identify the direction of each relationship since all relationships should be causal in a path-model. In all previous research, the identification of the direction is mainly based on the guidelines in the context of the US MBNQA model regarding quality management logic. The US MBNQA framework offers the following information about the relationships. First, the direction should follow the logic of quality management, namely starting from practice and ending in a business result, consistent with the approaches used in previous research (Meyer and Collier 2001, Pannirselvam and Ferguson 2001, Wilson and Collier 2000). This has been specified clearly in the model guidelines, "all actions point toward business results." Therefore, HRS development and process management are linked to business results with unidirectional arrow lines. Second, the arrow indicates the central relationship between Leadership and Business Results. This implies that the causal relationships start from leadership and end in business results. Third, the horizontal arrow in the center of the framework links the leadership

triad to the results triad. Based on the summary in appendix and the guidelines associated with the US MBNQA model, a model is proposed as shown in figure 2. The model covers the 14 direct paths that have been well discussed in previous research as listed in table 1. Based on the above discussion, a conceptual model is proposed as shown in figure 2.

Table 1: Summary of previous research on the validation of US quality award model

	Hypotheses/references		R0	R1	R2	R3	R4	R5	R6	R7	R8	R9	✓
1	Process	→ Business result	+	✓	✓	✓	×	✓	✓	✓	×	✓	7
2	HRS	→ Process	+	✓	✓	✓	-	✓	-	✓	×	✓	6
3	Information	→ HRS	+	×	✓	✓	✓	✓	✓	-	✓	✓	7
4	Information	→ Leadership	+	✓	✓	✓	✓	-	-	-	✓	✓	6
5	Information	→ Strategic plan	+	✓	✓	✓	✓	✓	-	-	✓	✓	7
6	Information	→ Process	+	×	✓	✓	✓	×	✓	-	×	✓	5
7	Leadership	→ Strategic plan	+	✓	✓	✓	✓	×	-	-	✓	✓	6
8	Information	→ Business result	+	×	✓	×	✓	-	-	-	×	×	2
9	Information	→ Customer focus	+	×	✓	✓	×	×	-	-	×	✓	3
10	Leadership	→ Business result	+	×	×	✓	✓	-	-	-	×	✓	3
11	Strategic plan	→ Customer focus	+	✓	×	×	-	✓	-	-	×	✓	3
12	HRS	→ Business result	+	✓	×	×	×	-	-	-	×	×	1
13	Leadership	→ Customer focus	+	×	×	✓	×	-	-	-	×	×	1
14	Leadership	→ HRS	-	✓	✓	-	✓	✓	✓	-	×	×	5
15	Customer focus	→ Business result	-	-	-	-	✓	✓	-	✓	✓	✓	5
16	Leadership	→ Process	-	✓	✓	-	✓	-	✓	-	✓	×	5
17	Customer focus	→ Process	-	✓	✓	✓	-	-	-	-	✓	✓	5
18	Strategic plan	→ HRS	-	✓	✓	✓	-	-	-	-	×	✓	4
19	Strategic plan	→ Process	-	✓	-	-	-	×	-	-	×	×	1
20	Strategic plan	→ Business result	-	-	×	-	✓	-	-	-	×	×	1
21	Customer focus	→ HRS	-	×	×	-	-	-	-	-	×	×	0

✓: The hypothesis was tested and accepted,

×: The hypothesis was tested but rejected,

-: The hypothesis was not touched at all.

R0: NIST (2010)

R1: Winn and Cameron (1998)

R2: Wilson and Collier (2000)

R3: Flynn and Salandi (2001)

R4: Meyer and Collier (2001)

R5: Pannirselvam and Ferguson (2001)

R6: Kaynak (2003)

R7: Evans and Jack (2003)

R8: Sun (2011a)

R9: Sun (2011b)

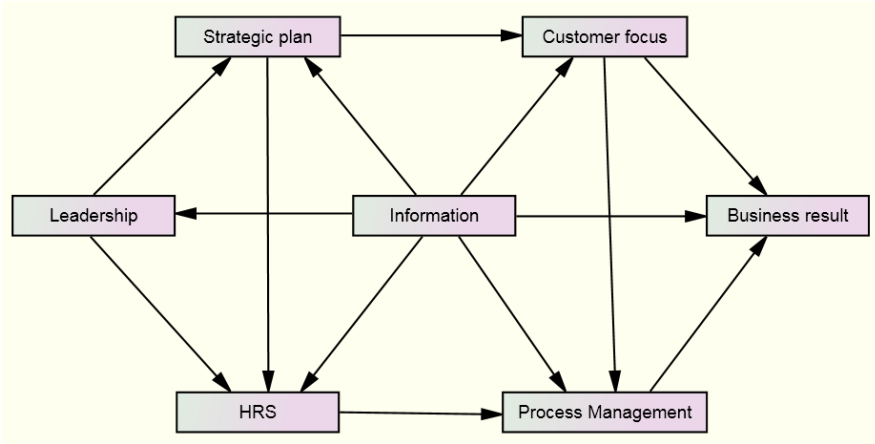


Figure 2: A new conceptual model based on previous research

5. Discussions and Implications

There are four different paths, i.e., no.12, 13, 14 and 15, between the US quality award model and academic research results. On the one hand, the linkage from HRS to business result, and the path from leadership to customer, are both clearly proposed in the current US MBNQA model. However, in six previous studies, only the research by Win and Cameron (1998) supports the path from HRS to business result, only the research by Flynn and Saladin (2001) support the path from leadership to customer focus, while five others do not. On the other hand, two paths that are not proposed in the conceptual framework of MBNQA framework turns out to be positive in research, i.e., the path from Customer to Business result and the path from Leadership to HRS. Recent research by Cai (2009) also supports the relationship between customer orientation and performance. If this is true, the MBNQA framework may be modified accordingly as shown in figure 3, where the positions of HRS focus and market and customer focus are switched. If so, the managerial and management implications will be very big. For example, the Leadership Triad will include leadership, strategy and HRS or workforce development. That means HRS issues will be an important part of the quality strategy. The scoring system of the award assessment (NIST 2010, p.60) may also be adjusted accordingly. Although very provoking, this suggestion is very preliminary and needs more future research to support.

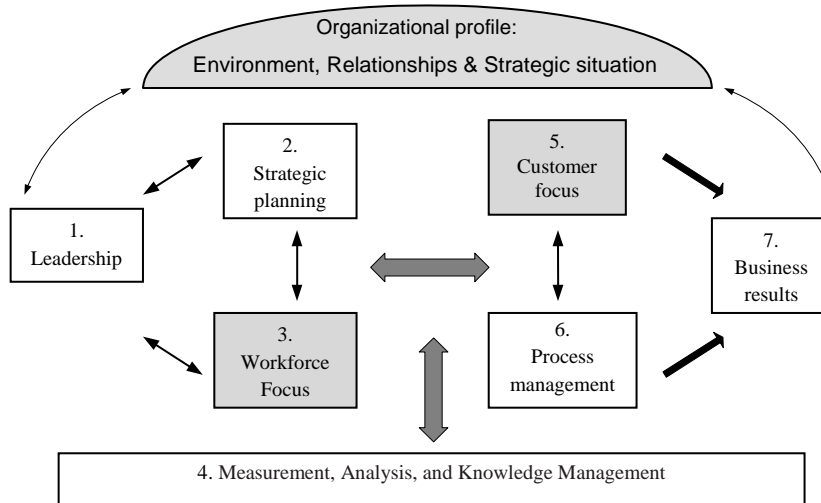


Figure 3: A new US MBNQA model

6. Conclusions and Future Research

This paper review previous research and proposed a conceptual model and a new version of quality award model. However, since the literature on the validation of quality award models are very limited, the result definitely needs more future research to support. There are quite a few future research issues that can be explored.

First of all, the research offers implications for future improvement of the quality award model. The conceptual model developed based on previous research suggests that customer focus is directly related to business results. However, this path is not proposed in the MBNQA framework. On the other hand, human resource management is obviously directly contributed to business results, although previous research does not support this linkage. Therefore, the positions of HRS and customer focus are switched in the conceptual model that we used in our research. McAdam and Henderson (2004) pointed out that the rapid rate of change in global and niche markets has increased pressure on organizations to become more competitive. Quality management *per se* is not immune from such pressures. This suggests that the quality award model may also change accordingly. Furthermore, the model may even vary from culture to culture as suggested by Flynn and Saladin (2006).

Second, there are many studies on quality management based on simple or multiple correlations. The conceptual model proposed in this paper may suggest a more systematic and structural method to quality management research. The research based on structural models may lead to different results and provides better understanding of the interrelationships among quality management components. Based on a review of more than 85 articles, Rahman and Sohal (2002) suggested that future research should identify the impact of each of the elements or components of TQM on organizational performance, especially in the context of analytical models. In other words, the important issue is whether the set of practices associated with quality management are valid as a whole (Sousa and Voss 2002).

There is also empirical research testing the relationship among categories among European Quality Award Model as well (Martensen et al 2007). However, since the structure of the two quality award models are different and the results cannot be comparable yet. It was noted that more empirical research based on European Quality Model are reported recently (Dahlgaard and Dahlgaard 2010, Dahlgaard et al 2011). Hopefully more systems oriented research will be conducted based on the two quality award models in the future.

Finally, for the validation of quality award models, company sample is critical. Samples in previous research are companies that did not win quality award. In the future, this could be addressed with a larger and more representative sample. However, companies winning quality award are limited and the sample size is a concern. It is hoped that similar research can be conducted in more countries and with more data so that the validity issues of the model behind the quality award framework can be more comprehensively tested. One way to gain further support for the proposed switch of the two constructs will be to understand the context of those nine previous studies, including sample size used, power of test, the measurement model validation, type I error, effect size, and local context.

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Biography

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