



A Systematic Literature Review of Malcolm Baldrige National Quality Award (MBNQA)

Thaleia Dima¹
Michael Glykas²

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Abstract: Many organizations measure and assess organizational performance as a business excellence strategy and make quality a key element of their overall business philosophy, as quality leads to improved business performance. In an increasingly turbulent and competitive business environment, numerous organizations have adopted business excellence frameworks to obtain and monitor progress toward business excellence. Developed in the USA, the Malcolm Baldrige Award is a prominent award concerning quality management. This paper reviews approximately 90 journals from different countries, and most of the researchers use the criteria of the Malcolm Baldrige National Quality Award (MBNQA) to gauge organizational performance. The paper aims to present the Malcolm Baldrige National Quality Award (MBNQA) and compare it with even two well-known business excellence models in the world: the Deming Prize and the European Foundation for Quality Management (EFQM) to show what criteria the authors can apply to enhance Business Excellence Models (BEMs).

1. INTRODUCTION

The common asset of the modern world in the face of global competition is quality management. Quality-related concepts and examples are developed by many scientists and professionals. The first worldwide quality model was the Deming Prize. The Malcolm Baldrige National Quality Award (MBNQA) is a prestigious prize in the field of quality management, and the EFQM was created in Europe since firms there frequently utilize it as a guideline for implementing Total Quality Management (TQM) (Haktanir & Kahraman, 2020). Aydin and Kahraman (2019) claim that in international business rivalry, Total Quality Management (TQM) is the most widely used strategy for enhancing customer satisfaction and process quality within enterprises. A key principle of the quality reward model's continuous improvement (CI) is TQM (Lazaros et al., 2017). Access to a large variety of goods and services encourages countries to implement quality management systems globally (Sawaluddin et al., 2013).

The MBNQA was instituted in 1987 by the U.S. Congress to increase awareness of quality management. The Baldrige framework aims to reward and encourage quality organizations. The Malcolm Baldrige Award is developed to identify organizations that establish and display high-quality standards. The assessment is based on seven critical areas: leadership, strategic planning, customer and market focus, information and analysis, human resource focus, operations, and the organization's results. The evaluation points for these seven sets of criteria are divided into eighteen, with a maximum score of 1.000 (Haktanir & Kahraman, 2020).

¹ Department of Financial and Management Engineering, University of the Aegean, Kountouriotou, 41, 82100, Chios, Greece

² Department of Financial and Management Engineering, University of the Aegean, Kountouriotou, 41, 82100, Chios, Greece

The Baldrige Award is not only designed to achieve goals but also to increase output and competitiveness. Focus on continuous improvement, innovation management, social responsibility, strategy development, and delivery of value to customers helps organizations increase organizational sustainability and competence (Lee, 2018).

The newest version of the Malcolm Baldrige Criteria for Performance Excellence (MBCfPE) published the Baldrige Excellence Framework, which includes fundamental principles and concepts for measuring high-performance organizations. MBNQA is also known as an “integrated management framework”, which is appropriate for identifying, understanding, and managing organizational performance.

Since its appearance in 1987, the MBNQA Award has had a crucial impact on US organizations for their achievements in quality and performance, regardless of organization, size, or sector, and their awareness about the significance of quality as a competitive advantage. The development of Business Excellence Models (BEM) and Quality Awards (QA) has played a crucial role in initiatives to enhance the organization’s performance standards for quality worldwide. The development of MBNQA in the USA gave a spur to other countries to develop, apply, and manage their business excellence models.

2. RESEARCH METHOD

The present paper demonstrates the significance of the MBNQA award in developing organizational performance, regardless of the organization’s type. This paper begins with a study framework, including business areas that measure quality performance the most and, consequently, different MBNQA application strategies from multiple geographic areas that are concerned about organizational effectiveness. There isn’t much information in the existing literature about the MBNQA award so far.

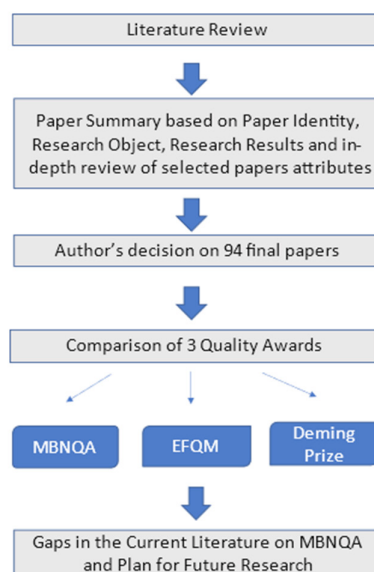


Figure 1. The framework of the study

Source: Own research

The authors selected 94 samples from journals out of 5.150 articles that cover the MBNQA Award for further analysis. Using the keywords MBNQA, award, application, and analysis, Google Scholar gave us 5.150 results related to these keywords. Then, we further analyzed the results, and we

selected the most relevant for this literature review. This paper assesses and offers an overview of the MBNQA Award procedures used by different types of organizations around the world. A comparison of the existing types of excellence awards that are widely used around the world is included in the paper, giving information on what criteria are assessed for each type of award, which is the practical application of the awards, and which award is commonly used by multiple scholars to ascertain the maximum level of success in organizational performance.

3. RESULTS AND DISCUSSION

3.1. Paper Summary

For the review, 94 articles demonstrating the MBNQA Award from different geographic areas were selected. The MBNQA methodology aspect and the MBNQA criteria for developing organizational performance are investigated. To evaluate the development of the MBNQA award in organizations, we selected a sample of various journals and publishers spanning 22 years, from 2000 to 2022.

The authors provide an overview of the implementation of the MBNQA Award in different organizations from multiple industries around the world. Furthermore, the connection between the MBNQA award and other quality organizational performance award practices may be recognized. By documenting the contents of the 94-article sample, we can identify what criteria are mostly and effectively applied to our company and determine the methods that will give results later. Different work culture environments may differ in the way employees perceive the need for the MBNQA assessment. This literature will offer an in-depth analysis of the factors that many countries utilize.

Below, we attempt to classify the studies based on journal, publisher, year of publication, geographic area, industry sector, and CiteScore to explain the profile of the MBNQA articles examined.

Journal Publisher. The articles studied come from respected journals and publishers from different universities around the world. From the selection of publishers discussing MBNQA, it was found that a total of 22 articles were published by Emerald Group Publishing Limited, which tops the list. Taylor & Francis is following with 17 articles. Wiley-Blackwell comes in third with 9 articles, followed by Springer with 4 articles and Elsevier with 4 articles. In IEEE, Wolters Kluwer Health, the American Society of Health-System Pharmacists, and the Multidisciplinary Digital Publishing Institute (MDPI), there were 2 articles published accordingly. In UiTM Press, BMJ Publishing Group, MCB University Press, and Cogent OA 1, an article was found. The list also includes 1 article from the publishers: Kerman University of Medical Sciences, WSEAS Press, International Network for Scientific Information Publication (INSI), and Inderscience Publishers. Two articles were found in conference proceedings, and one article was found in a book. All the information presented above is summarized in Figur 2.

Geographic area. If we take into consideration the countries in which the studies were conducted, we conclude that there have also been lots of multinational studies. More specifically, most of the research on the MBNQA was conducted in the U.S.A. (20 articles), where the quality assessment criteria were developed, and in Indonesia, with a total of 10 articles. Korea and Malaysia have four articles. China, Greece, and Palestine have a total of 3 articles, followed by the rest of the countries.

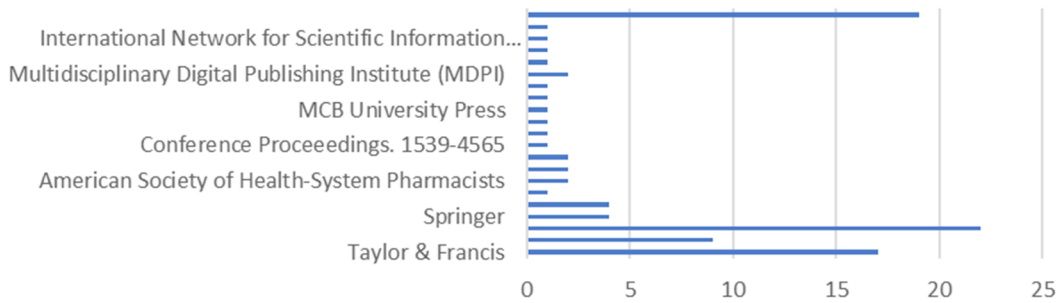


Figure 2. Journal Publisher

Source: Own research

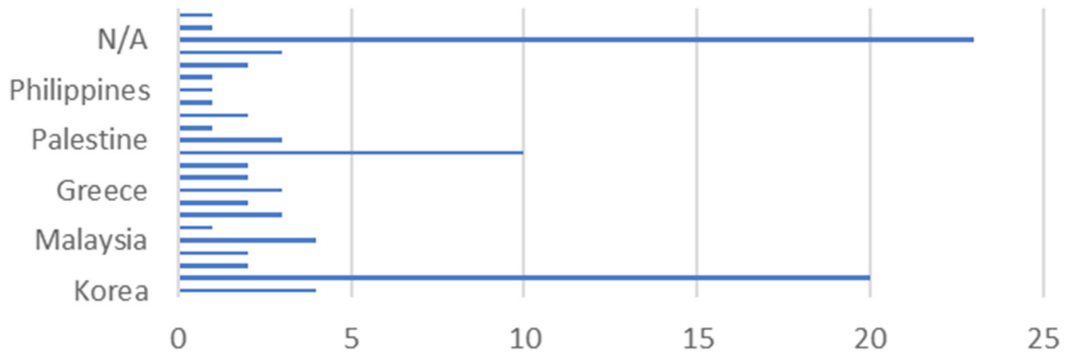


Figure 3. Geographic area

Source: Own research

Industry sector. The following figure presents the most widely used sectors of the selected articles. As seen in Figure 4, the most widely used sectors of this study are general studies, with a total of 24 articles, followed by healthcare with 20 articles and education with 19 articles. The manufacturing sector has 4 articles, the stock market has 3 articles, and the municipal government/government sector, Food and Manufacturing, and Services have 2 articles accordingly.

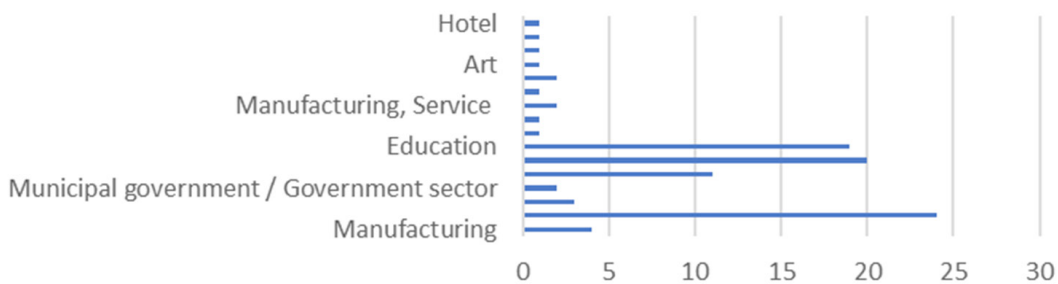


Figure 4. Industry Sector

Source: Own research

Cite Score. The CiteScore metric is used to measure the journal impact in Scopus. The number of citations a journal received in the four most recent years (including the calculation year) divided by the total number of papers published in the journal during that time is used to calculate the CiteScore for the current year. Specifically, Cite Score for 2021 measures the reports received in the last four years in reviews, articles, book chapters, conferences, and data papers published in 2018–2021 and divides it by the number of those reports published in the given period. The pie chart below shows the Cite Scores from the journals examined in this study, most of which show measurements taken in 2021.

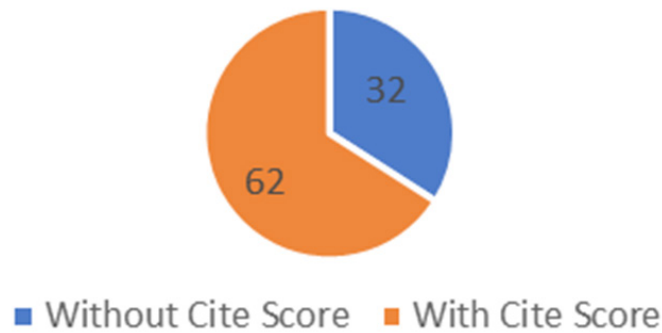


Figure 5. Cite Scores from the Journals examined in this literature study.

Source: Own research

Looking at the pie chart, it is easy to see that 32 articles were not found to have Cite Scores, while 62 were found to have Cite Scores. The Cite Score of most journals (5 journals) is 14.6. Only one journal was observed to have a high score, more specifically, a 15.2 citation score. 41 journals range between 0.7 and 7, followed by scores between 7 and 14.6 (10 journals).

3.2. Quality Award Comparison

In this paper, the research is not limited to assessing the organizational performance in different sectors. This study has also compared the criteria of MBNQA with those of other awards, including the European Foundation for Quality Management (EFQM) Award and the Deming Prize. The comparison of the three quality awards provides further information on quality performance and business excellence.

Table 1 presents the purpose, the establishment, the basic premises, the applicability, the quality principles, and the output of each quality model.

The two business excellence models, EFQM and MBNQA, share many similarities. Similar definitions and business excellence constructs are found in both. MBNQA and EFQM focus on continuous improvement, while the Deming Prize stresses the need for organizational quality management. The MBNQA award focuses on human resources and customer factors; the EFQM model concentrates on stakeholder satisfaction; and the Deming Prize focuses on effective operations and planning. Customer, employee, and society satisfaction is the focus of the criteria of the models. The customer has the greatest weight for the European Quality Award and Business Results for MBNQA. Instead, the Deming Prize includes 10 equally weighted points.

The three business excellence models, MBNQA, Deming Prize, and EFQM Award, have common areas of excellence, which are: leadership factor, customer and market focus, human resource focus, strategic planning, process management, and business results. The consensus view of the three Business Excellence models (MBNQA, EFQM, and Deming) is that the criteria are used as a guide for applying Total Quality Management (TQM) by worldwide organizations.

Table 1. Quality Award Comparison

	EFQM	MBNQA	Deming Prize
Purpose	To promote sustainable excellence in European organizations and to stimulate and support European manager's efforts to initiate Total Quality Management. To increase awareness of the importance of quality to achieve competitive advantage across the European community. To support European businesses in their efforts to enhance consumer and employee satisfaction as it relates to Business Results and Society.	To recognize US organizations for their achievements in quality. To improve and raise awareness about the importance of performance excellence and quality as a competitive advantage for US companies. To use it, in particular as a working tool for understanding and managing organization's performance, planning and assessment.	To evaluate and recognize methods of Company- Wide Quality Control (CWQC) for Japanese businesses based on Statistical Quality Control (SQC).
When established	In 1992 created by the EFQM.	In 1988 established by the US Congress. However, National Institute of Standards and Technology (NIST) is responsible for designing and managing the award program.	In 1951 established to commemorate W. Edwards Deming who contributed greatly to Japa's profiteration of statistical quality control after World War II.
Applicability	Any kind of organization regardless of size, sector or location within a European perspective in the public as well as the private sector. (European-based national accredited award)	Any organization located in the U.S. that is in the manufacturing, education, service or health care sector. (U.S.-based national accredited award)	All organizations, large or small, public or private, can apply for the Deming Prize within specific guidelines, regardless of the kind of business they operate. (Japanese-based national accredited award)
Basic Premise	Leadership, Partnerships and Resources, Processes, Policy and Strategy, and People are the keys to achieving excellent results in terms of Performance, Customers, People, and Society.	An organization can improve overall performance by focusing on the Baldrige performance excellence criteria.	Deming Prize focuses on the concept of TQM at the operation site and companies can be successful if they embrace TQM as the management philosophy.
Key Evaluation Criteria	Leadership Strategy Partnership and Resources Processes and Products Customer Results People Results Society Results Key Results	Leadership Customer Focus Analysis and Knowledge Management Strategic Planning Human Resource/Workforce focus Business Results Management	Organization Policies Information Standardization Human Resources Development and Exploitation Activities for Quality Assurance Activities for Maintenance and Control Impacts/Results Future plans
Quality Principles	1. Customer Focus	Companies should be customer-focused and have a clear direction.	Create a vision and demonstrate commitment.
	2. Supplier partnerships	Company's customers evaluate the performance and quality.	Recognize the inspection process.
	3. People Development and involvement	Both organizational and personal learning are necessary.	Learn the new philosophy.
	4. Processes and facts	Partners and employees are crucial to company's success.	Stop making decisions founded on costs.
	5. Continuous Impovement (C.I.) and Innovation	Flexibility and change management are necessary for success.	Enhance
	6. Leadership and consistency of purpose	Future orientation is necessary for market leadership.	Establish Training
	7. Public Responsibility	A meaningful change requires Innovation.	Institute Leadership
	8. Results Orientation	Management requires processes and facts. Public/ Social Responsibility is crucial to company success. Performance Measurement should focus on results. System Thinking is required (a systems perspective).	Drive out fear Optimize the efforts of teams. Eliminate call to action. Eliminate numerical quotas and maagement by objectives Remove barriers and take action Encourage educations and self-improvement
Output	The feedback report identifies strengths and opportunities for Improvement and presents scoring ranges in each criterion. In particular, results about objective achievement, stakeholder satisfaction, financial achievement and impact on society.	The feedback report makes out strengths and opportunities for Improvement and presents scoring ranges in each criterion. In particular, results about customer, financial, human resource, supplier, operational and competitive.	The feedback report includes the company's practices regarding TQM. In particular, the end results are about the quality, safety, delivery,profit and cost, and environmental effects of quality control.

Source: Own research

The models' criteria are listed in Table 2. The table demonstrates the comparison of three business excellence models based on their criteria.

Table 2. Quality Awards Comparison, based on its criteria

Criteria	MBNQA	EFQM	Deming Prize
Leadership	X	X	X
Policy and Strategy	X	X	
People Management	X	X	X
Resources		X	
Processes	X	X	X
Customer Satisfaction	X	X	
People Satisfaction		X	
Impact on Society		X	
Business Results	X	X	X
Standardization			X
Information and Analysis	X		X
Quality Assurance			X
Maintenance/Control			X
Improvement			X
Future Plans			X

Source: Garza-Reyes et al., 2015

3.3. Gaps in the Current Literature on MBNQA

Nowadays, most organizations endeavor to be more and more competitive to survive. The TQM philosophy is commonly recognized as a motivating idea that supports effort. Bou-Llusar et al. (2009) support the idea that TQM is a management strategy that incorporates both social and technical dimensions and is used to achieve adequate quality performance by participating employees. Business Excellence Models (BEMs) emerged as effective tools in the field of competitive edge more than 20 years ago.

According to the literature, countries strive to measure and assess the organizational performance of their organizations using the MBNQA criteria approach. MBNQA is widely used in the USA, especially in the industrial sector. In Europe, the EFQM Award is the most known and implemented Business Excellence Model (BEM) to measure the performance of organizations. However, some countries in Europe have developed their own standards for quality awards, such as the Australian Business Excellence Model (ABEM) and the UAE Government Excellence Model (GEM), which are used mainly internally in the country. The Deming Prize criteria are used by many Japanese manufacturing businesses. Organizations around the world use the criteria model from the Deming Prize, MBNQA, and EFQM awards as a guide for applying the TQM philosophy.

It is an undeniable fact that we are traversing the era of the fourth industrial revolution. Industry 4.0 is an era that we cannot avoid. It relies heavily on applying smart systems, the internet, and future-oriented technologies. Industry 4.0 connects the virtual and physical worlds, supported by the application of key technologies such as simulations, big data and analytics, cloud computing and the Internet of Things (IoT), augmented reality (AR), additive manufacturing (3D printing), vertical and horizontal system integration, and cybersecurity (CS). Companies must have an innovative and transformational strategy to face the fourth industrial revolution.

In the era of the Fourth Industrial Revolution, the application of criteria (from excellence models such as MBNQA, Deming Prize, and EFQM) to Total Quality Management (TQM) has a crucial

and influential influence on the company's competitive advantage. Though the business excellence models for Industry 4.0 are a field that is deemed important, researchers' interest is scarce. Industry 4.0 (I4.0) is increasing rapidly each year and, consequently, quality, and organizational excellence. Academics should get involved more in this research field and make innovative contributions to Industry 4.0 and its alignment with excellence models if they want to maximize organizational performance by combining the technology dimension. As highlighted by the academican [Asif \(2020\)](#), quality models are not in compliance with Industry 4.0. Moreover, the findings of the same research show that advances in Industry 4.0 have outpaced Models of Quality (QM). Quality models and Industry 4.0 should be operationally and strategically integrated to maximize a company's organizational performance. The improved digital-based processes, the installation of sensors on companies' equipment, and the automation of processes can prevent any aberrations in the production process, as companies will address them in real-time and fix them immediately. All these above-mentioned actions will create a better-quality management strategy.

4. CONCLUSION

This paper presents a literature review of 94 studies about MBNQA in different sectors. Based on the literature review results, it was found that most of the organizations guided their organizational assessment using the MBNQA criteria. The examined studies are either using exclusively the MBNQA model or in comparison with other awards.

The literature highlights that the Malcolm Baldrige National Quality Award (MBNQA) was developed as a tool for performance measurement and assessment, for determining what constitutes quality excellence, for disseminating knowledge about successful quality benefits and strategies, and finally for formulating an organization's approach to competing in the global market. The comparison of the Deming Prize (DP), MBNQA, and EFQM provides an overview of the range of criteria available for assessing an organization's quality performance.

The articles studied have been categorized based on the journal in which they were published. It was found that most studies were published in the International Journal of Production Research and the Quality Management Journal, followed by Total Quality Management & Business Excellence, the Journal of Operations Management, and the International Journal of Quality and Reliability. Also, attempting to classify the studies based on the year in which they were published, we found a gradual upward trend, which indicates the increasing number of publications over time. Regarding the geographic area in which the articles were published, it is evident that the U.S.A. is leading, followed by Indonesia. Lastly, we classified the articles examined by their respective Cite Score. These results can be found in the Paper Summary section.

This research has several consequences for academicians and practitioners. It displays the MBNQA criteria and provides support to organizations that want to measure and assess organizational performance using the MBNQA methodology. From a theoretical point of view, it contributes to the limited knowledge addressing the MBNQA model and its possible synergies with Industry 4.0 in future research. According to Gunasekaran et al., the Business Excellence Model paradigms need to consider digital transformation and Industry 4.0. Given the exploratory nature of this research, future studies, with the practical support of the MBNQA model implementation, are recommended to additionally expand on this area of study. Further investigation is required by Industry 4.0 to address the application of Business Excellence Models (BEMs) within the I4.0 paradigm.

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