



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

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### ABSTRACT

Many organizations measure and assess organizational performance as a strategy to improve competitiveness globally, the Malcolm Baldrige National Quality Award (MBNQA) is a prestigious award regarding quality management created in the USA. This paper reviews 50 journals on MBNQA from various countries and found that about 48% of researchers use the Malcolm Baldrige Criteria for Performance Excellence (MBCfPE) approach to measure organizational performance. We also compare MBNQA with other quality awards such as the European Foundation for Quality Management (EFQM) and the Deming Prize to illustrate what criteria we can use in improving Business Excellent Models (BEM). In the future, we will combine this TQM with the development of the Industrial 4.0 era to get a new model for assessing organizational.

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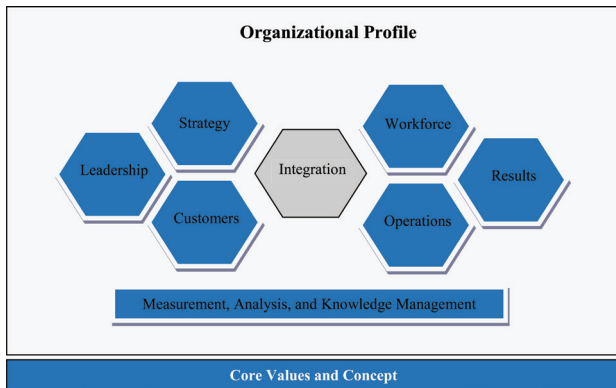
## 1. Introduction

Since the world crisis in 1930, quality management has become the world's prima donna in facing globalization competition. Many scientists and practitioners develop concepts and paradigms about quality. The first global quality model introduced was the Deming Prize. The United States presented the Malcolm Baldrige National Quality Award (MBNQA) as a prestigious award regarding quality management and in Europe issued the European Quality Award as organizations often use it as a guideline for implementing total quality management (Haktanir & Cengiz, 2020). Customers who are spoiled for products and services encourage countries to adopt quality management worldwide (Sawaluddin, Surachman, Djumahi, 2013). Total Quality Management (TQM) is a fundamental philosophy on the continuous improvement of the quality reward model (Lazaros et al., 2017). TQM is the most widely applied approach in organizations to obtain process efficiency, process quality, and customer satisfaction to get optimal global business competition (Aydın & Kahraman, 2019).

In 1987, the MBNQA was introduced by the U.S. Congress and presented six categories: manufacturing, services, SMEs, health care, education, and non-profits. The assessment is based on a group of criteria from the

point of view: customer, strategy, leadership, measurement, analysis and knowledge management, workforce, operations, and the organization's results. These seven groups of criteria are divided into 18 measures where the total score is 1000 (Haktanir & Cengiz, 2020). MBNQA is not only built to improve organizational performance to achieve goals, increase output and have competitiveness; There is a new emphasis on innovation management, smart risk management, prioritizing careful strategy development, engaging in social media activities, ensuring a practical work system, which helps build organizational competence and organizational sustainability (Lee & Ooi, 2015).

The latest revision of the Baldrige Criteria for Performance Excellence published an umbrella called the Baldrige Excellence Framework, which covers core values and concepts believed to be embedded behaviors in high-performing organizations. If we simplify it in simple terms, it becomes an "Integrated management framework", a tool to identify, understand, and manage organizational performance. It is a collection of questions that guide how to run an organization, regardless of organization and sector or size (Baldrige Framework Is Worldwide Standard for Excellence, 2016). The Baldrige Excellence Framework for Measuring and Improving Organizational Performance is shown in Figure 1.



**Figure 1:** Baldrige Excellence Framework for Measuring and Improving Organizational Performance (Source: Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standard and Technology. Baldrige Framework Is Worldwide Standard for Excellence).

Since its inception, the MBNQA Award has had a significant influence on various types of organizations in the U.S., especially for companies that care about quality, whether they are starting or continuing to improve quality (Przasnyski & Tai, 2002). During the last few decades, quality management practice through the creation and awarding of quality awards and business excellent models (BEMs) has developed rapidly. BEMs have played an essential role in efforts to improve the organization’s business. All of this is well documented by foundations engaged in quality worldwide, such as the European Foundation for Quality Management, the National Institute of Science and Technology, The Japanese Institute of Scientists and Engineers, the Canadian Quality Assurance Institute, and others. Countries concerned with quality manage BEMs in their way. This quality management framework is created based on organizational performance, derived from the evolution of the Total Quality Management principle (Garza-Reyes et al., 2015).

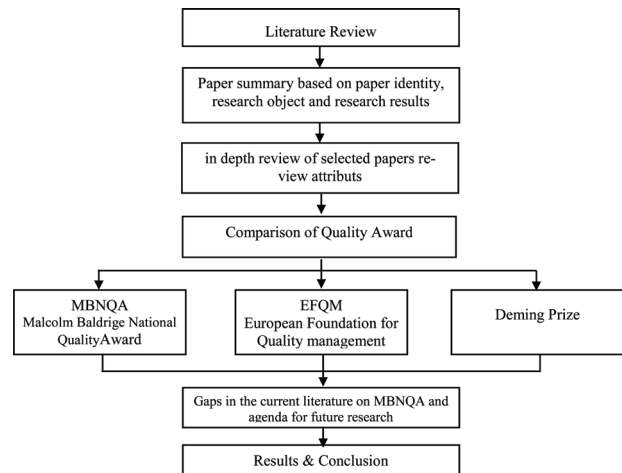
**2. Research Method**

This paper will show the importance of the MBNQA award in improving organizational performance, starting from the study framework, which business fields measure the most quality performance, and various MBNQA implementation practices from multiple countries that care about organizational performance. The relationship between criteria and their implementation is also highlighted here.

**Table 1:** Existing literature review of MBNQA.

No	Paper Identity	Research object	Result
1	(Elif Haktanir and Kahraman Cengiz, 2020)	a multi attribute decision making (MADM) method	We proposed a MADM approach use of IVPFWG operator for MBNQA evaluation wherein the choice matrix is built with the aid of using IVPFSs

The literature on the MBNQA classification is minimal so far. We took 50 random samples from journals discussing MBNQA for review. This paper reviews and provides an overview of the different types of MBNQA award practices globally from other types of eligible organizations. and comparing the types of awards that are popular in the world to get an idea of what criteria are assessed from the various types of award criteria being evaluated and the practical approach of the most dominant standards for each kind of award suggested by multiple researchers to determine the level of success maximum in organizational performance. Then compare from various points of view, then make a summary. For more details, it can be seen in Figure 2.



**Figure 2:** Study Framework.

**3. Results and Discussion**

*3.1. Paper Summary*

The 50 articles showing research on MBNQA from various countries were selected for review. Selected items were analyzed from the MBNQA methodology aspect, which consisted of the relationship between other quality approaches such as TQM and the relationship between MBNQA criteria for improving organizational performance, then analyzed based on the object of research and the results. We took a sample of 50 national (Indonesian) and international journals with a span of 21 years from 2000 to 2020 to determine the development of MBNQA in organizations. The following is a review of selected articles.

2	(Alanazi, 2020)	The mediating role of TQM factors and organization using the MBNQA model	This view exhibits that managers must view their commercial enterprises as a connected, holistic system. This suggests that there must be a clear progression from commitment and leadership direction through integrated methods towards the desired results. This can improve implementation methods and resource management.
3	(A. et al., 2019)	Measurement of quality performance at the hospital	The hypothesis is accepted. The performance of RSGM is proven positive and significant with the criteria, Malcolm, Baldrige is Leadership, Strategic Planning, Customer Focus, Focus on the Face of Work and Results.
4	(Rahayu et al., 2019)	The assessment criteria used in the performance appraisal at high school	The assessment score reached 662.75, meaning that SMK1 is at the level of an industry leader, which is included in the superior high school criteria.
5	(Aydin & Kahraman, 2019)	Develops a new analytic hierarchy process (AHP)-based fuzzy multi-criteria decision-making in a company	Our software shows that the AHP fuzzy technique is proposed to measure organizations' overall quality performance imposing MBNQA efficiently.
6	(Miller & Parast, 2019)	Heckman two-stage econometric modeling strategy	Analyses at the subcategory degree display a sample of findings that similarly corroborates our theory.
7	(Smith & Ulmer, 2019)	To see through the perspective of the enterprise, in preparative to propose for the Baldrige Award	A point of view of the Baldrige framework permits the organization to attain its mission through steady processes, activities, and measurements are cohesive and collaborating
8	(Jannah et al., 2019)	Manufacturing performance measurement	A total score of 552.39 with a percentage of achievement of 55%. Is withinside the useful overall performance classification
9	(N. T. Putri et al., 2019)	Designing Self-Assessment Tool at Central Library of Andalas University	The scheming of self-evaluation tools for library performance is finished by integrating the national standards from the National Library Accreditation Standards. The international standards from ISO 11620: 2008 utilize the Malcolm Baldrige framework. All indicators are contained within the excellent Malcolm Baldrige framework.
10	(Salah & Salah, 2019)	Comparison GES, MNBQA and EFQM in implications for excellence models	A few criteria inside GES was more unequivocally tended to than in MBNQA or EFQM, such as: resource administration, monetary assets administration, chance administration and provider connection administration
11	(Heryenzus & Suali, 2018)	Measurement of quality performance at the hospital	The highest performance obtained is 75.93% with leadership criteria. Meanwhile, the lowest performance was 64.42%, with the requirements of focusing on human resources
12	(Citra Wiguna, 2018)	Hospital Performance Measurement	The performance level value is 677.20 in the form of an industry leader
13	(Tetty et al., 2018)	Assessing scoring differences between awards and non-award	Shows a strong correlation (0.82) that the seven criteria have an essential role in winning the award.
14	(Lazaros et al., 2017)	Measurement of quality performance at University	These elements support the MBNQA version as an operational framework for Total Quality Management
15	(Kosasih et al., 2017)		Performance measurement in Global Companies
16	(Renita et al., 2016)	Performance Measurement at Universities	The study program is at the Industry Leader level with a total measurement score of the entire criteria amounting to 689.61 out of 1000
17	(Utomo & Murti, 2016)	Performance Measurement at Universities	The governance strategy results that have been implemented by the University are systematic, effective, and responsive. This is based on the acquisition value of 668.55.

18	(Giunta, 2015)	Evaluation for marketing curriculum	Students' future preparation can be improved using the MBNQA category
19	(Dioh et al., 2015)	The measurement system uses software vs. manual in BUMN	The validation test results in differences in outcomes between manual calculations and software results by 3% or about 2.70 points from 90 points for category four and about 2.82% from 100% for the entire class.
20	(V. H. Lee & Ooi, 2015)	a theoretical framework to investigate the relationships between TQM practices, (O.M.) and (P.I.)	The growth in P.I. will increase because of TQM implementation, which affects preferable organizational storage management.
21	(Peng & Prybutok, 2015)	the effectiveness of the MBNQA model within a government organization	The outcomes validate the Baldrige classes' effectiveness and quantitatively guide the theoretical foundations of the Baldrige model.
22	(Mellat-Parast, 2015)	To investigate the relationships among the MBNQA	Organizations get benefit from implementing the Baldrige model. Thus, it is best to apply other process improvement practices related to the Baldrige model to reach and defend a competitive advantage in quality.
23	(Dandage & Khandekar, 2015)	Development TQM in engineering education with the MBNQA approach	This analysis helps find out effective methods for the implementation of Total Quality Management in relation to continuous improvement to Total Quality Management, participation of the number of workers to meet customer orientation, thus fulfilling customer and stakeholder satisfaction.
24	(Garza-Reyes et al., 2015)	Comparative Analysis of the Russian Federation Government Quality Award and MBNQA	There are still many differences between the MBNQA and the Deming Prize models compared to the EFQM
25	(Duarte et al., 2014)	Managing Innovation in hospital	The effects imply that Baldrige winners have interaction in Innovation Leadership via way of means of incorporating Innovation into their vision, mission, and values statements and explicitly stating support from the senior leadership
26	(Beard & Humphrey, 2014)	Measurement of BSC using MBNQA criteria in University	The authors of the Performance Criteria's recommendations define the potential impact areas of T.I. on BSC measures at each level of the Baldrige outcome.
27	(U. Putri, 2014)	Measurement of leadership performance in manufacturing	The six criteria for MBCFPE (X) affect leadership (Y), which is equal to 0.358
28	(Sawaluddin, Surachman, Djumahi, 2013)	Explore the relationship of MBNQA at the University	Execution of leadership, strategic planning, group of workers focus, client focus, operations focus, measurement, evaluation and understanding transfer, and the excellent organization overall performance have a crucial function to assist quality management fulfillment via MBNQA version criteria.
29	(Duarte et al., 2013)	Framework in Health Care Criteria for Performance Excellence,	All beneficiaries base their execution administration frameworks on vital goals, results, or competencies that stream from the organizational level to the person based on the Baldrige acknowledgment comes about.
30	(Sampaio et al., 2012)	Comparative analysis of the most common business advantages with EFQM, MBNQA, DPM and IQA	Based on the investigate discoveries, a few issues will call for assist consideration within the future on the "per company" indicator.
31	(Ekowati, 2012)	Measurement of service quality performance in hospitals	Based on MBNQA criteria, the quality of emergency services in the IGD IbnuSina Regional Hospital, Gresik Regency, received a total of 753 points, including in the category of organizational leaders.
32	(Amalia et al., 2012)	MBNQA vs. EQA comparison	MBNQA looks like an "umbrella" focused on Market and consumer strategy and execution, while EQA assessments form a spider web

33	(Arifin, 2011)	Design and build MBNQA software in hospitals	Design and build software performance dashboard performance evaluation of employees using the method (MBNQA) with questionnaire source data based on predetermined criteria.
34	(Prybutok et al., 2011)	Assessing the effectiveness of MBNQA model with municipal government	Based on this study's findings, the proposed criteria-based MBNQA tool presents a set of possible actions for city authorities to examine and assess their business (organization) processes.
35	(Yong Xiang et al., 2010)	analyze the causal relationships use CQA based on the MBNQA in manufacturing and service industries of China	The comes about affirm that the fundamental Baldrige hypothesis "leadership drives the framework that makes results" is additionally pertinent in China.
36	(Bou-Llusar et al., 2009)	Evaluation as a TQM framework relative to the MBNQA Model	These findings help the EFQM Excellence Model as an operational framework for TQM and reinforce the effects received in previous research for MBNQA, concluding that a good reward model is a TQM framework.
37	(Singgih, 2008)	Measuring the performance of majors at the University	The results of the achievement of the department's performance score amounted to 653.56. This illustrates that department performance is an emerging education level
38	(Dror, 2008)	Structured methodology based on Quality Function Deployment (QFD) in individual organizations	The Balanced Scorecard has critical points of interest, such as successive goals, the capability to bolster long-term programs, potential to choose significant execution measures based on genuine information, and two criticism levels.
39	(Sohn et al., 2007)	National funding on R&D project of SMEs using SEM	The proposed version is carried out to the tangible case and is used to become aware of the optimal practices as well as to supply feedback information for the restoration of the government funding programs of the R&D projects of SMEs
40	(Flynn & Saladin, 2006)	examine whether the theoretical constructs underlying the Baldrige criteria are relevant across national cultures	National way of life performs a robust position withinside the effectiveness of the Baldrige constructs, excluding consumer and marketplace focus
41	(S. M. Lee et al., 2006)	The changing role of quality in the MBNQA criteria	Quality is no longer just a guarantee of product and treatment quality but the generally quality of an organization's competitive methodologies counting client relationship administration, corporate social duties, information administration, well-being of workers, and generally money related comes about.
42	(Badri et al., 2006)	Empirically test the causal relationships in Education Performance Excellence Criteria with MBNQA	The survey learn experimentally tried the Baldrige instruction system – that there's a critical relationship between the leadership, frameworks, and forms of higher instruction organizations and the ensuing results.
43	(Ayuningtyas et al., 2005)	Hospital performance measurement	The MBNQA RSTI rating achieved a score of 251.25. Is at the second level with a rating variety of 251-350 (relatively low)
44	(Davis et al., 2005)	Correlation of Company Performance to MBNQA Using Multi Attribute Utility Theory	The comes about appeared that whereas budgetary execution of the firm is the most grounded defense directors consider, which whereas their desires for made strides budgetary execution are a few what tall, the budgetary returns are certainly not out of the domain of typical desires for returns from other ventures.
45	(Prybutok & Cutshall, 2004)	MNBQA leadership model for the quality processes of several organizations in different industries.	The result was the improvement of an MBNQA-based model that illustrated the relationship between official LS and the MBNQA variables.



46	(Ghosh et al., 2003)	A structural model analysis of the Malcolm Baldrige National Quality Award framework on performance impact	Client and market focus is an important input for strategic quality planning, senior administrative commitment is fundamental in securing client and market focus, and operational level trading forms are driven by a major commitment to human resource management.
47	(S. M. Lee et al., 2003)	Impact of MBNQA on quality performance among Korean manufacturing firms.	The results presented that the quality of data and investigations includes a strong and positive influence on key quality planning and process management, and the quality that affected to be influenced by human resource management and management process.
48	(Przasnyski & Tai, 2002)	The impact the MBNQA has had on the stock performance of its recipients	The stock market has faced a vast and phenomenal bull market, so it has high margins.
49	(Meyer & Collier, 2001)	Causal relationships for the health care industry	The confirmatory structural equality modeling outcome displays that a number of the hypothesized causal relationships withinside the Baldrige version are statistically significant.
50	(Wilson & Collier, 2000)	Theory and causal performance linkages implied (MBNQA).	Leadership drives method performance. business outcomes and consumer pride because of those entities (direction and method)

Table 1 provides an overview of the application of MBNQA in various industries in the world globally. The table also suggests the researcher's variables and methods based on the problems faced related to the results achieved by each organization so that they can be used as a benchmark for the achievement of their application based on the type of similar business. Furthermore, it can also be seen that the relationship between MBNQA and other quality performance reward practices.

By understanding the contents of this sample of 50 journals, we can sort out what variables are best applied to our organization and figure out the methods and results to be achieved later. Because every country has a different work culture, this can affect each employee's work ethic in receiving the MBNQA assessment. This literature will provide detailed information on the variables that are widely used by countries. for detailed information, see the following discussion.

If seen in Figure 3, 50 sample journals discuss MBNQA, about 38% from USA as the country of origin the quality assessment criteria were made, 34% from Indonesia., 4% from Turkey and Saudi Arabia, and 2% from eachcountry. And the year of publication was chosen based on a span of 21 years from 2000 to 2020, and the distribution of the lead year in 2019 was around 16%, 2015 around 14%; 2018; 2014; 2012; 2006 around 6%, and the rest each year around 4% and 2%

When seen in Figure 5, the most widely used sectors of the sample of this study are are general studies that discuss the comparison of MBNQA with other quality performance awards by 18%, education by 22%, manufacturing by 18%, health care by 16%, service by 4%, nonprofit by 2%, and SME's by 2%. Most of the

methods used in measuring organizational performance use the Malcolm Baldrige Criteria for Performance Excellence (MBCfPE, Tabel 2) by 48%, the Structural Equation Model (SEM) approach by 16%, and the Analytical Hierarchy Process (AHP) and Multiple Regression method by 3%, and Partial Least Square (PLS) of 2% and the rest of each method is 1%.

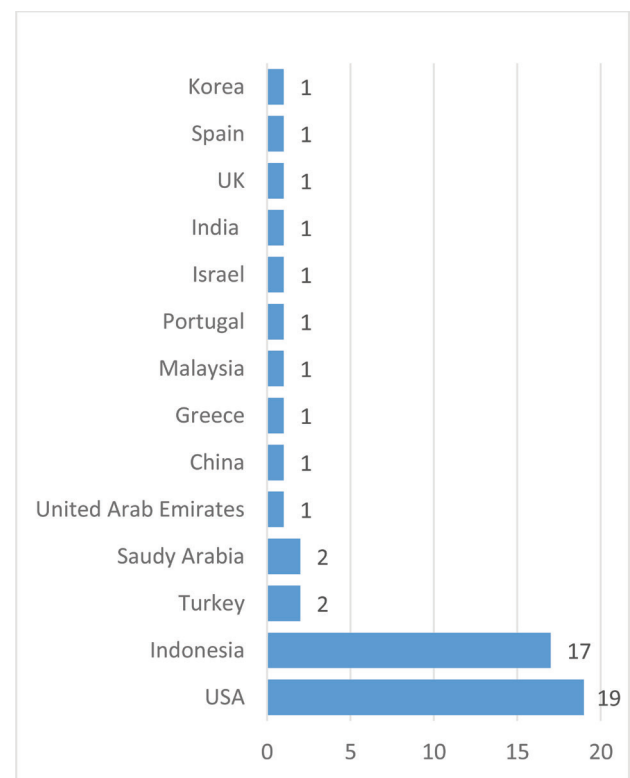


Figure 3: Countries of author.

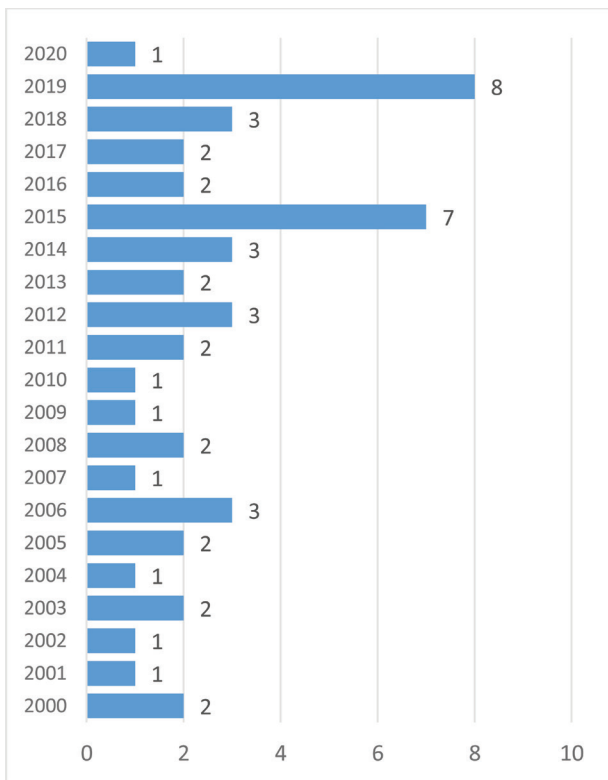


Figure 4: Years of publication.

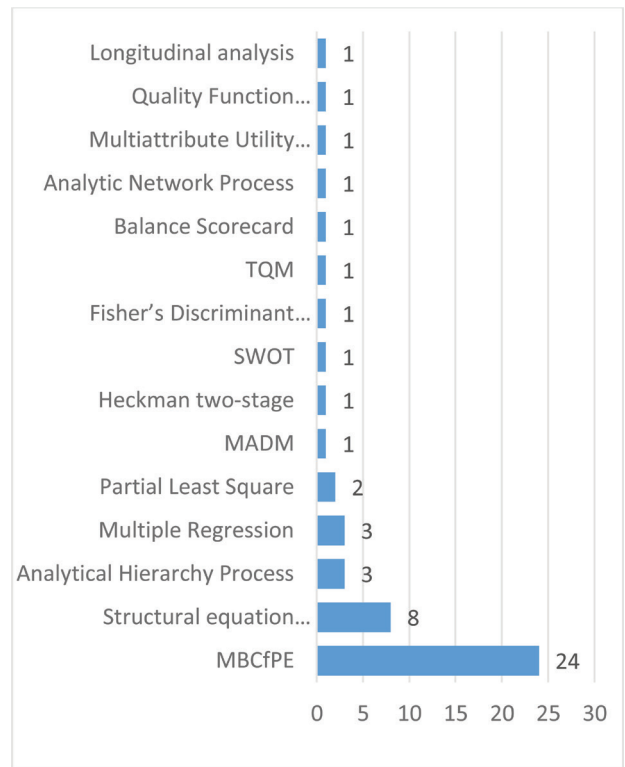


Figure 6: Research Method and Variable.

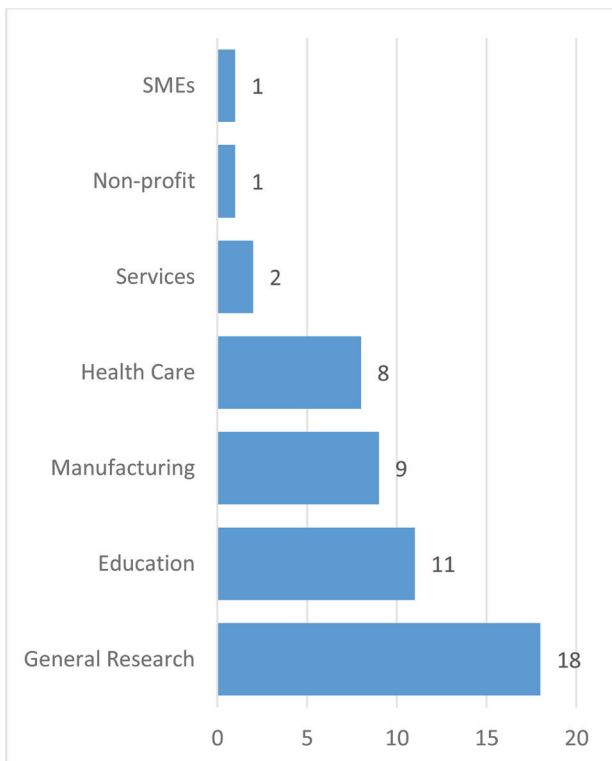


Figure 5: Sector of MBNQA.

Table 2: MBCfPE Categories and Evaluation Points.

Categories	Item	Point Value
1-Leadership	1.1-Organizational Leadership	80
	1.2-Public Responsibility and Citizenship	40
2-Strategic Planning	2.1-Strategy Development	40
	2.2-Strategy Deployment	45
3-Customer and Market Focus	3.1-Voice of the customer, Stakeholder, Market needs Expectations	40
	3.2-Customer engagement and Stakeholder Relationship	45
4-Information and Analysis	4.1-Measurement and Analysis of Organizational Performance	50
	4.2-Information Management	40
5-Faculty and Staff Focus	5.1-Work Systems	35
	5.2-Employee Education, Training and Development	25
	5.3-Employee Well-Being and Satisfaction	25
6-Process Management	6.1-Product and Services Processes and Delivery	55

	6.2-Support Services	15
	6.3-Supplier and Partnering Processes	15
7-Organizational Performance Results	7.1 Customer-Focused Results	200
	7.2-Stakeholder-Focused Results	70
	7.3-Budgetary, Financial, and Market Results	40
	7.4-Supplier and Partner Results	70
	7.5-Organizational Effectiveness Results	70
Total Point Possible		1000

(Source: Baldrige National Quality Program, 2016)

In selecting relevant articles to review this literature, the researcher prioritizes reputable publishers and journals

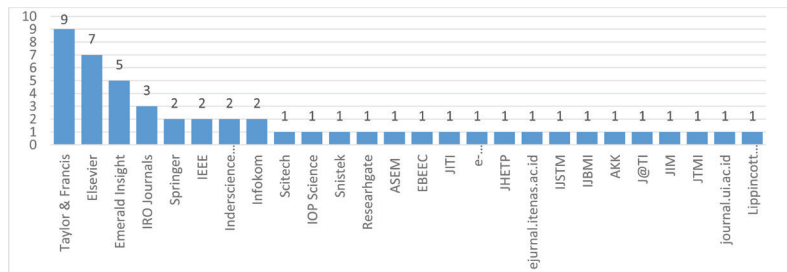


Figure 7: Journal Publisher.

Table 3: Models 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
Information and Analysis	X		X
Standardization			X
Quality Assurance			X
Maintenance			X
Improvement			X
Future Plans			X

(Source: Garza-Reyes et al., 2015).

from several leading universities in Indonesia that are considered worthy of consideration for review. From the random selection of publishers discussing MBNQA, it is found that Taylor & Francis publishers is around 18%, Elsevier is around 14%, Emerald Insight is around 10%, IRO is around 6% and the remaining is around 4% and 2%.

### 3.2. Quality Award Comparison

In this paper, research is not only conducted to assess organizational performance from various existing sectors. Several studies have compared the MBNQA criteria and other awards such as the European Foundation for Quality Management (EFQM) Award and Deming Prize models' criteria. The purpose of conducting these comparisons is to broaden knowledge in the area of quality performance and models for business excellence (Garza-Reyes et al., 2015).

Table 3 shows all the criteria emphasized in the three Business Excellence Models. EFQM has a lot in common with MBNQA. This similarity of excellence constructs and similar definitions is found in both. The MBNQA, EFQM, and Deming Prize models have common themes of excellence: strategy and planning, leadership, customer focus, people focus, suppliers and partnerships, process, and management results.

### 3.3. Gaps in the Current Literature on MBNQA and Plan for Future Research

The literature that we discuss evaluating organizational performance using the MBNQA criteria approach is mostly used as a reference by countries wishing to measure and assess their organizations. MBNQA is widely used for the industrial sector in the USA. Countries in Europe also make the performance measurement of this organization under the name EFQM, and even some countries in Europe also create their criteria such as the Russian Federation Government Quality Award (RFGQA) as the quality award criteria in their internal countries. Many Japanese manufacturing companies use Deming prize criteria. TQM



is a management approach that includes both technical and social dimensions used to achieve good quality performance by involving employees (Bou-Llugar et al., 2009). The criteria model from MBNQA, EFQM, and Deming are used as a guide for implementing TQM by organizations in the world.

The era of the industrial revolution 4.0 is an absolute phenomenon. This era cannot be avoided. Companies must have a strategy that can be used as transformation and Innovation to face this 4.0 industrial revolution so that its development hampers the company that was founded.

The application of criteria with Total Quality Management (TQM) is very influential in competitive advantage in the Industrial Revolution Era 4.0. In future research, we need to maximize organizational performance and by combining criteria with digital-based process improvements, equipment needs to be installed with sensors and build automation of processes that are connected via the internet network so that any abnormalities in the production process can be identified in real-time so we can quickly do it. Corrective action to build superior quality management. The future research framework is shown in Figure 8.

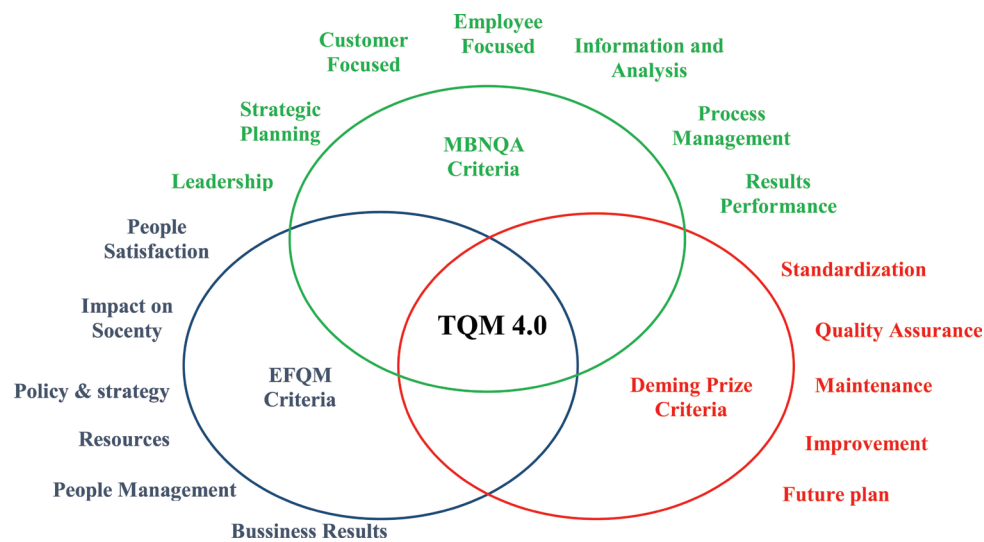


Figure 8: Future Research Framework.

## Conclusion

The literature highlights the MBNQA criteria as a tool to measure and assess an organization's performance and establish the organization's strategy in facing global competition. Based on the results of reviews from 50 journals about MBNQA in 6 sectors, it was found that about 48% used the MBNQA criteria as a guide for their organizational assessment. The existence of comparison between MBNQA, EFQM, and the Deming Prize provides an overview of the choice of criteria that we can use in measuring organizational quality performance.

The basis for determining the criteria is the TQM technique and philosophy. In this era of Industry 4.0, we can take advantage of digital technology to improve organizational quality and assist work processes in implementing TQM. The award criteria in each country have been made. In the future, we will combine these criteria with the development of the industrial era 4.0 so that a new model is created in organizational strategic planning to improve TQM performance.

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