

# The Relationship Between EFQM Recognition System and Management Maturity

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## Abstract

The EFQM recognition system is an acknowledged method of assessing business excellence understood as the degree of implementation of quality management in an organization. The paper aims to examine whether a high rating under the EFQM recognition system simultaneously means a high general management maturity level. The investigation covers the 35 organizations that won EFQM awards in Portugal. The study is based on points awarded to organizations under the EFQM recognition system and on questionnaires/interviews with managers responsible for quality management in the studied organizations.

The results indicate a positive and robust correlation between the quality management implementation (rating under the EFQM recognition system) and general management maturity. The study helps to close the gap in the literature regarding the relationship between quality management and management maturity in an organization.

## Keywords

Quality management, EFQM awards, EFQM recognition system, Business excellence, Management maturity.

## Introduction

Today, private and public organizations are directed to excellence to achieve high levels of performance (Araújo & Sampaio, 2014; Periañez-Cristobal et al.; 2021, Pesic & Dahlgard, 2013). Due to diversity demands from the changing environment, performance measures must comprise, beyond the financial perspective, non-financial indicators (encompassing customer, quality and innovation perspectives) (Johnson & Kaplan, 1991). Following this approach, innovative managerial systems emerged, being performance measurement financially and/or non-financially oriented. Consequently, quality indicators, clients/customers satisfaction, or employee satisfaction appeared as organisations' objectives and key performance indicators (Kanji, 1998). Management by objectives, activity-based costing, tableau de bord, balanced scorecard (BSC), or total qual-

ity management (TQM) are examples of management approaches and frameworks of these innovative managerial systems (Hopper et al., 2007). TQM is an approach to a managerial system that researchers have discussed for the last four decades. Studies have reported that TQM fosters business excellence, improvement of efficiency, and achieving favourable results and outcomes (financial and non-financial) in organizations (Duh et al., 2012; Erikson & Hansson, 2003). More recently, business excellence model(s) (BEM) and organizational change management have been displayed as complementary approaches to the "new managerial systems" (Dahlgard, et al., 2013; Murthy et al. 2021). One of the most well-known BEMs is a model developed by the EFQM – a not for profit membership foundation based in Brussels. This organization rewards the attainment and recognition of excellence in organizations (EFQM, 2022).

This paper concerns an investigation about the impact of EFQM recognition/awards on the efficiency and reliability of management systems in organizations (management maturity). Many studies have been conducted on quality management analyzing the impact of quality on the performance of organizations (financially and/or non-financially) (Boulter et al., 2013; Dahlgard et al., 2013; Din et al., 2021,

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Erikson & Hansson, 2003; Kaynak, 2003). Moreover, literature has presented studies on the reasons and motivations that underlie the application to EFQM awards – the input management/organizational perspective (Araújo & Sampaio, 2014; Gómez-López, et al., 2016; Gómez-López et al., 2019). But no studies have reported relationship between the EFQM recognition system and management maturity in an organization. Our paper intends to close this gap found in literature.

Concretely, the purpose of the paper is to examine how the recognition of EFQM awards (different levels/scores) and the underlying implementation of quality management processes/programs (variable 1), mainly contribute to the improvement in management in those organizations, henceforth management maturity (variable 2). Indeed, the study intends to discuss and analyze how management is reinforced when organizations implement the EFQM framework to achieve excellence and recognition, by testing the hypothesis of correlation between variables 1 and 2. A survey was used to support the investigation, covering the 35 organizations that won EFQM awards in Portugal. Complementarily, to analyse and explain more deeply how the management system evolved, interviews were carried out in all 35 organizations.

The paper is structured as follows. A literature review section on quality management and management maturity is presented following the introduction. The third section describes the methodology adopted in the investigation. In section four, the empirical study is developed. Finally, section five presents a discussion of the findings and the main conclusions.

## Literature review

### Quality management and business excellence

Being considered a management framework in a global management philosophy, the TQM concept followed, since 1988, the quality control approach (Dahlgaard & Dahlgaard-Park, 2006). The innovative approach became more frequently used for quality improvement/management activities and performance assessment. It is considered a useful and valuable framework in many organizations, despite some criticism based on failures to TQM implementation processes (Dahlgaard-Park, 1999; Mohammad et al., 2011; see also Flynn et al., 1994, who mention that management practices must also be emphasized regarding quality output).

TQM is a concept linked to organizational literature and is consistent with an approach that considers quality as a global “ultimate outcome” associated with the organisation’s overall functioning (Cameron & Sine, 1999). TQM can be defined “as the development of an organizational culture, which is defined by, and supports the constant attainment of customer satisfaction through an integrated system of techniques and tools, TQM is the culture of an organization committed to total customer satisfaction through continuous improvement” Rad, 2006, p. 607; see also Hafeez et al., 2006). Concluding, “it is impossible to attain business excellence without the right organizational culture” (Dahlgaard et al., 2013, p. 527).

TQM is intertwined with business excellence. The achievement of business excellence is crucial for companies to remain leaders and achieve high performance. The EFQM BEM has been widely used as a supporting framework towards achievement of objectives and attaining business excellence (Pesic & Dahlgaard, 2013; see also Dahlgaard-Park, 2008, who states that the EFQM model is a useful and alternative management approach). The EFQM model has been used, not only to achieve the goal of relevant recognition, but also to obtain “in first place, internal impact with the implementation of good and best quality management practices and continuous improvement in the whole organization” (Araújo & Sampaio, 2014, p.43; see also Mohammad et al., 2011, who mention that the EFQM model is effective for helping organizations to evaluate and enhance work practices and performance).

Being based on a self-assessment process requiring global structuration procedures in the organization, the EFQM model, beyond the recognition awards, has been used by organizations to highlight training and learning, creativity, and innovation, also implying a holistic view of organizations (EFQM, 2017). The process actively involves everybody in the organization which means that the self-assessment process is a “good practice” for impacting the management of companies. The framework<sup>1</sup> is based on nine criteria, divided into two separate groups. The enablers group includes: (i) leadership, (ii) people, (iii) strategy, (iv) partnership and resources, and (v) processes, products and services. Enablers are resources and correspond to what an organization does and how it does it. The second group corresponds to results and the criteria included are: (i) people results, (ii) cus-

<sup>1</sup> Currently, there is a newer version of this model and a modified recognition system.

tomer results, (iii) society results, and (iv) business results. Results criteria represent what an organization achieves – the outcomes. If the right enablers are effectively implemented, then organizations will achieve the expected results. Thus, it is possible to identify the cause and effect relationship between what the organization does and the results achieved (EFQM, 2017; see also Dahlgard-Park, 2008).

In the public sector, the common assessment framework (CAF) has been designed as a specific framework for public administration inspired on the EFQM model. Indeed, CAF is also based on TQM concept and adapted the EFQM BEM to the public sector. The changes are not relevant (EIPA, 2017). In public agencies, quality management has been particularly linked to efficiency (use of resources and/or cost reductions) and effectiveness (employee satisfaction, or customer service and satisfaction) (McAdam & Saulters, 2000). Synthetically, in the public sector, excellence must comprise stakeholder satisfaction and overall service quality (Wiśniewska & Szczepańska, 2014).

The EFQM model is a framework that intends to reward excellence in organizations. The framework is based on a self-assessment process, followed by external assessment that validates and assigns the scores and recognition/awards. The EFQM operates the external assessment with the support of local quality entities all over European countries. In Portugal, the external assessment and assignment are conducted by the “Associação Portuguesa para a Qualidade”<sup>2</sup>, a partner of (EFQM (APQ, 2017). The recognition of an organization follows the assessment based on the EFQM BEM. Organizations can obtain recognition/awards at three different levels: (i) Committed to excellence (C2E), where organizations receive as award one or two stars, (ii) Recognized to Excellence (R4E), where organizations receive as award three, four or five stars, translated into a numerical score, in practice over 300 points, and (iii) Excellence award. This latter award implies that organizations are assessed at higher European responsibility levels and can obtain one of the following top awards: a) Excellence award finalist, b) Excellence award prize winner, and c) Excellence award winner. The Excellence award is also translated into a numerical score, which in practice has not exceeded 750 points across Europe. The recognition is valid for two years (APQ, 2017; EFQM, 2017).

<sup>2</sup>In English “Portuguese Association for Quality”.

Quality management and culture are also intrinsically linked. Indeed, ‘quality management is a key factor to emphasize organizational and cultural change in organizations’ (Pimentel & Major, 2016, p. 773). Conversely, Green (2012) mentions that organizational culture influences and impacts on TQM initiatives. Concluding, Kujala & Lillrank (2004, p. 43) mention that “in practice, the implementation of a successful quality management program requires changes in organizational culture to be compatible with quality culture”.

As seen previously, TQM has several means, as well as management related terminology. The concept of “improvement in management” is unbundled into other concepts like management model, management control systems, management frameworks, PMS or organizational control management, among others, as referred in literature (Dahlgard & Dahlgard-Park, 2006; Duh et al., 2012; Mohammad et al., 2011; Pimentel & Major, 2014; Rad, 2006). This option is based on the need to quantify the benefits of EFQM implementation through evolution in specific stages of management approaches and, in this way, to identify correlations to the EFQM award scores. We argue that this solution allows to objective improvements in the same scale for all companies and to overcome the qualitative perceptions of the respondent managers.

### Management maturity

A management maturity model is a specific approach to evaluating an organization. The essential purpose of maturity models is to outline the stages of maturation paths. This includes the characteristics of each stage and the logical relationship between them (Röglinger et al., 2012). Various such models are described in the literature on the subject (see Table 1). Their authors are researchers, practitioners (e.g. consultants) or state agencies (de Bruin et al., 2005).

Based on the literature review, two leading approaches can be distinguished. The first is to define the areas (dimensions) that are subject to assessment (such as leadership and customer orientation) and evaluate how the organization operates within each dimension. This approach was adopted, for example, in the framework of the maturity of quality management systems (Wolniak, 2019). The second approach describes several stages of the organization’s development and assesses which of these descriptions best reflects the situation in the given organization. Such an approach was used, for example, in the models presented by (Calingo (1996) and (Xiaofen (2013).

Table 1  
Selected models of management maturity

Calingo (1996)	Strategic management model Levels: (1) Annual budgeting, (2) Long-range planning, (3) Strategic quality planning, (4) Management by policy, (5) Strategic quality management.
Xiaofen (2013)	Shanghai enterprise management maturity Dimensions: (1) Leadership, (2) Design and development process and supplier management, (3) Production process and marketing, (4) Knowledge management, (5) Quality performance. Levels: (1) Lower level, (2) Average level, (3) Domestically advanced level, (4) Internationally advanced level, (5) World-class level.
Wilson (2015)	Maturity Model Dimensions: (1) Management of the organization, (2) Environmental sensing, (3) Learning organisation attributes, (4) Attitude to change, (5) Attitude to quality, (6) Leadership, (7) Investment in staff, (8) Alignment. Levels: (1) Ad hoc, (2) Repeatable, (3) Defined, (4) Managed, (5) Continuous.
Cubo et al. (2018)	Supply chain management maturity model Dimension: (1) Organizational Performance, (2) Quality Management, (3) Information Management, (4) Supply Chain Integration, (5) Sustainability. Levels: (1) Ad-hoc, (2) Basic, (3) Intermediate, (4) Advanced, (5) Mature.
Wolniak (2019)	Maturity of management systems Dimension: (1) Customer orientation, (2) Leadership, (3) Commitment of people, (4) Process approach, (5) Continuous improvement, (6) Evidence-based decision-making, (7) Relationship management.

## Materials and methods

The research process included four main steps. The first was developing a performance measurement maturity model and a related research questionnaire. Then empirical research was carried out. The collected data were analyzed using appropriate statistical methods. Conclusions have been formulated based on the obtained results.

For the study, a model was developed to assess the management maturity in the organization. The study adopted an approach of describing several stages of the organization's development and assessing which of these descriptions best reflects the situation in the given organization. Models described in the literature have been divided into 4 or 5 stages. Such scales are not sensitive enough, i.e. it does not yield sufficient diversity of organizations (when a 5-level scale is used, organizations are usually assigned the 2nd, 3rd or 4th level of maturity and extreme levels are very rarely included). For this reason, based on the literature review covering the models presented in Table 1 and additional contributions (Dahlggaard-Park et al., 2018; Domingues et al., 2016; Sesar et al., 2019 for validation of the framework; Wilson, 2015), a 10-stages model was developed for this study (Figure 1). The model allows for a more accurate assessment of management maturity.

All stages comprise the existence of management issues showing an evolution, which emphasizes organizational change. Stage 1 is the lowest level of management maturity. Stage 10 translates very advanced management systems containing regular monitoring meetings comprising the whole organization and reward systems implemented at all hierarchical levels of the organization. Consequently, the questionnaire identifies properly the different stages of management maturity (variable 2).

This research covered all 35 organizations that won EFQM awards in Portugal between 2010 and 2015. Appendix 1 characterizes organizations and awards. These 35 organizations (16 private and 19 public) received a score which is visualized as a quantitative score (cases of R4E and Excellence award), or a qualitative score (one or two stars in case of C2E). These scores and the process underlying the external assessment were consulted in the EFQM partner organization that conducts the assessment process (APQ, 2017). All 35 organizations permitted consulting the process.

Firstly, and considering the practical top score of 750 points identified at the top Excellence award, a scale between 0 and 750 points was created regarding all the 35 organizations (the basis for variable 1). The score for C2E awards was built in each organization as follows. The C2E award implies, as a sequence of the self-assessment process, the identification of

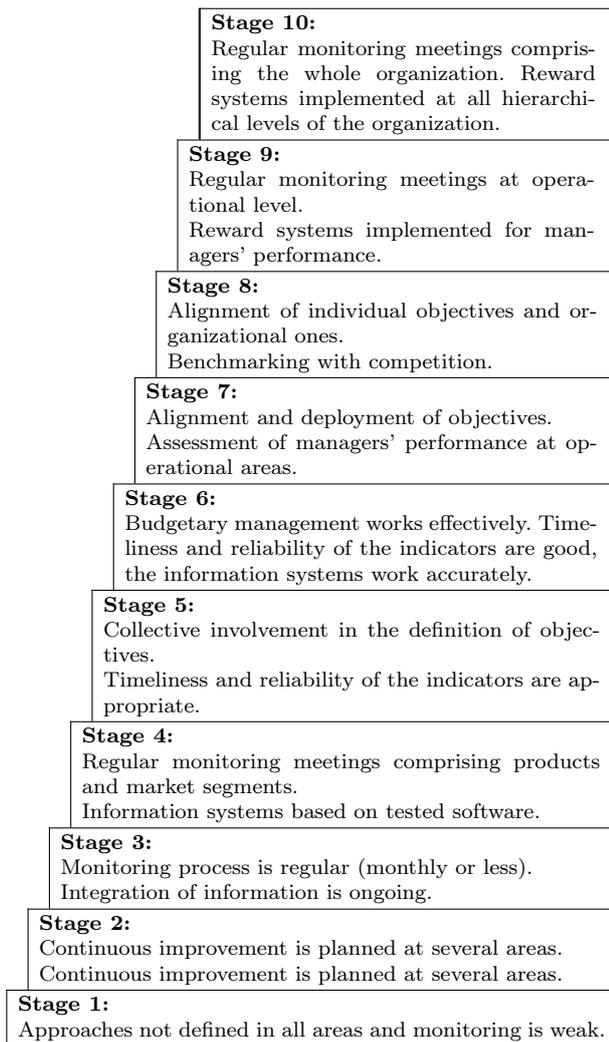


Fig. 1. Management maturity model

three specific actions to be implemented and monitored in each organization. These actions are assessed by the external assessment following different categories of initiatives/attributes, being each one measured on a Likert scale from 1 to 5. The assessment follows the RADAR logic of results and enablers (approach, deployment, and assessment and refinement). Consequently, each action computes a specific number of total attributes. The final score of attributes (the average of the sum of attributes in all three specific actions) is inserted in a scale between 13 and 65 points (13 points is the lower limit for an organization to be awarded and 65 points is the top limit when all attributes are scored 5) (APQ, 2017). Considering that, in practice, the next award level (R4E) has a minimum score above 300 points, then the C2E award can be measured in a scale from 0 to 300 points. The last step of this approach is to translate the total measure

of attributes from a scale between 13 and 65 points into a scale between 0 and 300 points. This methodology approach allows the identification of observations for all 35 organizations regarding different scores of EFQM awards (variable 1).

Secondly, a survey was carried out in all 35 organizations with the purpose of identifying the evolution stage of improvements in management. This survey was based on a questionnaire designed on the basis of a literature review. The questionnaire was presented to top managers or quality managers responsible for EFQM applications. Two questions were posed: (i) did your organization evolve favourably in the following years in terms of improvement in management?, and (ii) at which evolution stage of the management maturity does your organization fit in better? (Appendix 2). The survey was presented to the organizations at least two years after the recognition was received.

This selected respondents (mainly quality managers) method follows the theory-based sampling approach. This theoretical approach explicitly states that cases and respondents are selected to better inform the researcher's specific area of research through their perception. Data is collected from participants who are the only ones who can provide appropriate and relevant data in the scope of the research. Concretely, "the researcher samples incidents, slices of life, periods, or people based on their potential manifestation or representation of important theoretical constructs" (Patton, 2002, p.238; see also Janesick, 2000).

The primary purpose is to examine how the EFQM awards contribute to the improvement in management translated into different stages of maturity. Consequently, we tested the hypothesis of correlation between the different scores of EFQM awards and the different stages of "management maturity".

To answer the second research question, to compute and test the significance of the correlation between variable 1 and variable 2, we use Pearson and Spearman correlation coefficients. These coefficients will range theoretically between  $-1$  and  $+1$ . The Pearson correlation coefficient ( $r$ ) is the mostly used coefficient for preliminary diagnostic information suggesting those variables which are likely to be explanatory useful because they are highly correlated, and highlights potential multicollinearity problems (Hair (Jr) et al., 2010). The Spearman correlation coefficient ( $\rho$ ) is mostly used when the researcher is unsure of the quality of the data or the population, basically when there is suspicion of measurement errors (inadequate answers/perceptions to the questionnaire) – outliers. Moreover, due to the ordinal scale of the variables, particularly the restricted scale of variable 2,

correlation must be measured and tested using, additionally, the Spearman correlation coefficient (Smith, 2003). For a description of the statistical measure, particularly in the field of organizational management and performance, see Bowen et al., (2008).

With the aim of analyzing and explaining more deeply how the management maturity evolved, a qualitative method approach also took place. In practice, simple case studies were conducted, encompassing basically interviews to the respondents of the questionnaire and some written documentation and data analysis (Denzin & Lincoln, 2000; Janesick, 2000; Yin, 2018). Interviews were carried out in all 35 organizations, lasting about 30 hours. The interviews were conducted between November 2017 and June 2018, directed to the respondents after answering the questionnaire. The interviews were tape-recorded and transcribed. Interviews were semi-structured and an open-ended discussion was usually carried out (Yin, 2018). A previously prepared guide was based on two questions: (i) how did your organization arrange the process and implement the proceedings for the self-assessment requirement of EFQM recognition?, and (ii) how did your organization select the actions and initiatives to improve management, and how did the monitoring process take place? Since the interviews implied more accurate data collection, the findings and conclusions were consequently reinforced.

## Results and discussion

As mentioned before, the main purpose of the paper is to test the hypothesis of correlation between the different levels (and scores) of EFQM awards (variable 1), and the different stages of maturity management (variable 2). Supporting the computing of the correlation coefficients, observations were collected in all 35 organizations regarding those two variables. The organizations order is random and independent from the order shown in Appendix 1. Table 2 presents these observations.

Regarding the first research question, all 35 organizations answered “yes” in the questionnaire, which means that, after the EFQM awarding implementation process in organizations, there is a favourable impact on the performance measurement maturity.

To compute and test the significance of the correlation (Pearson and Spearman coefficients) between variable 1 and variable 2, SPSS was used. Table 3 presents the results of the computing.

In terms of dispersion, the standard deviation represents around 55% of the average (65% for variable 1 and 45% for variable 2), which means a certain homo-

Table 2  
Observations (variables 1 and 2)

No	EFQM award score (0-750) (variable 1)	Stages of evolution of the management model (questionnaire) (0-10) (variable 2)	No	EFQM award score (0-750) (variable 1)	Stages of evolution of the management model (questionnaire) (0-10) (variable 2)
1	565	8	19	131	3
2	330	4	20	137	4
3	116	3	21	167	4
4	146	3	22	192	5
5	145	4	23	248	7
6	625	9	24	133	3
7	181	4	25	625	9
8	525	9	26	158	4
9	360	8	27	195	3
10	475	6	28	472	9
11	116	3	29	158	6
12	137	4	30	471	8
13	375	8	31	122	4
14	122	5	32	475	7
15	127	4	33	126	2
16	214	7	34	139	4
17	123	4	35	256	1
18	89	3			

Table 3  
Correlations

		Statistics
Spearman's rho	Correlation coefficient	0.739*
	Sig. (2-tailed)	0.000
	N	35
Pearson's r	Correlation coefficient	0.827*
	Sig. (2-tailed)	0.000
	N	35

\* Correlation is significant at the 0.01 level (2-tailed)

geneity among respondents. The relative dispersion is smaller in the impact variable. The median is smaller than the average, pointing to a positive asymmetric distribution.

The average value of variable 2 indicates that the 35 organizations, after the EFQM awarding recognition, implemented, on average, a management maturity characterized by stage 5 (5.114 points) out of 10 (see Appendix 2).

Significant findings result from the research. First, and answering research question number one, all 35

organizations answered “yes” in the questionnaire, which means that, whenever organizations implement a EFQM awards process, there is a favourable impact on the proceedings associated with management maturity.

Second, the average regarding variable 2 (“management maturity”) aims at stage 5. Consequently, after implementing EFQM recognition processes, organisations develop management approaches characterized, on average, by collective involvement, appropriate budgetary management processes and monitoring frameworks directed to variance analysis. The supporting information systems work properly, allowing the attainment of reliable and timely indicators.

Finally, a positive and very strong correlation (Pearson and Spearman coefficients) was found between the two variables. Consequently, and answering the second research question, it is possible to conclude that, when the EFQM award score increases (variable 1), the “management maturity” after the EFQM awarded processes (variable 2) also tends to increase. Synthesizing, this positive and strong correlation implies that quality management is reinforced by highlighting (through EFQM awards) the impact on the effectiveness of management in organizations, confirming the statement that it is “too early to declare the death of TQM” (Dahlggaard-Park, 2011, p. 511).

Looking to the qualitative approach, interviews were deeply analyzed. Indeed, specific strategies were found regarding the way organizations trained and prepared the EFQM application. Concretely, some interviewees mentioned:

“CAF requirements, and training on CAF proceedings, were used to support self-assessment” (quality manager of a public organization, member of the board of a public organization, March 2018).

Similar statements were identified in other organizations. Globally, 13 organizations (11 public – 58%, and 2 private) used previously CAF to support, as a pilot study, the EFQM application. The two private organizations are private schools which followed the same procedures as public schools. These statements permit to conclude that, in public organizations, managers prefer to use the CAF proceedings and training firstly to prepare the EFQM application.

Regarding ISO 9001 certification process, an interesting citation was identified in a transcription:

“The certification of ISO 9001 process was a very important previous step to help and prepare the EFQM application one or two years later” (quality manager of a private organization, May 2018).

Similar statements were reported by 14 quality managers/CEOs in interviews conducted in other

organizations (7 private and 7 public). This finding allows the conclusion that, in line with (Claver et al. (2002), the previous implementation of ISO 9001 certification in many organizations facilitates the achievement of a mature quality management perspective, implying a strong motivation for a next step – EFQM implementation process.

## Conclusions

The investigation indicates a positive and robust correlation between the quality management implementation (rating under the EFQM recognition system) and general management maturity. The study helps to close the gap in the literature regarding the relationship between quality management and management maturity in an organization.

All findings represent essential contributions of the paper, both to academics and to practitioners. Importantly, the paper contributes to the development of a new body of knowledge, highlighting the role and impact of the EFQM awarding process in organizations – the output management/organizational perspective.

Considering that this paper helps to close a specific gap, similar research on the impact of EFQM awards processes on implementing accurate management frameworks and organizational culture is welcome, particularly in other countries and/or settings. Furthermore, the methodology supporting the scores of the variables must be tested and replicated by other studies.

Additionally, as seen before, the number of public entities was higher than private ones (19 out of 35). This finding can raise the question if public entities more appreciate the EFQM model. It would be interesting for further studies to analyze and clarify this question. Furthermore, looking at the dimension of private companies (16 in total), 3 large manufacturing companies, 5 large services companies, and 8 small and medium services companies were found, what allows the conclusion that EFQM models have not been used, in this universe, by manufacturing SME. So, data suggest that the EFQM model is more adequate for service companies, mainly large ones. In the manufacturing sector it was used only by large companies. These findings might explain the very low level of application to EFQM awards all over Europe and World (EFQM, 2022). It would also be very interesting further studies to analyze and clarify this question, what could imply suggestions directed to eventually redesign the model to clarify target organizations.

## Appendix 1. Recognition of EFQM awards in Portugal (2010–2015)

Organization	Sector/Dimension (private)	EFQM excellence award
Bosch Car Multimedia Portugal	Private – LM	Excellence Award
Bosch Security Systems	Private – LM	R4E
II – Institute of Information Technology	Public	R4E
Alliance Healthcare	Private – LS	R4E
ANA – Portuguese Airports	Private	R4E
Regional Directorate of Trade, Industry and Energy (Autonomous Region of Madeira – ARM)	Public	R4E
Refrige – Soft Drinks Industry	Private – LM	R4E
IGFSS – Social Security Financial Management Institute	Public	R4E
Groundforce Portugal	Private – LS	R4E
General Secretariat of the Ministry of Science, Technology and Higher Education	Public	R4E
Servilusa, Funeral Agency	Private – SME	R4E
Schools Grouping Figueira Mar	Public	C2E
ADRAL – Agency for Alentejo Local Development	Private – SME	C2E
Monstros e Companhia – Communication Solutions	Private – SME	C2E
Professional School of Amadora	Public	C2E
CTT – Post Office and Postal Distribution Centre	Private – LS	C2E
Iberogestão – Technological Management	Private – SME	C2E
ISS – Social Security Institute	Public	C2E
Regional Archives of Madeira	Public	C2E
Regional Directorate of Geographic Information – ARM	Public	C2E
Regional Directorate of Public Administration in Porto Santo – ARM	Public	C2E
Salesiana School of Manique	Private – SME	C2E
Vice President Office – Regional Government of Madeira	Public	C2E
College Education Office – ARM	Public	C2E
Regional Inspection of Labour – ARM	Public	C2E
Multisports – Sporting Club of Portugal	Private – SME	C2E
General Secretariat of the Ministry of Education	Public	C2E
Social Action Services of Madeira University	Public	C2E
Regional Services of Civil Defence – ARM	Public	C2E
Universidade Aberta – Distance Learning University	Public	C2E
ADRAVE – Agency for Ave Valley Local Development	Private – SME	C2E
ANAM – Madeira Airports and Air Navigation	Private – LS	C2E
Regional Directorate of Public Administration in the Autonomous Region of Azores	Public	C2E
EUL – University Stadium of Lisbon	Public	C2E
High School Cooperative of Benedita	Private – SME	C2E

Legend: LM – large manufacturing, LS – large services, SME – small and medium service enterprise

## Appendix 2. Questionnaire

1. Within the scope and after the recognition of the EFQM award, did your organization evolve favorably (at effective and efficient levels) on the following years in terms of management maturity improvement?
2. If it did, at which stage of management maturity do you think your organization better fits in?

**Stage 10:** The management model is based on frameworks allowing on time monitoring and improvement, and corrective measures linked to decision-making, at all levels of the organization, there is individual performance assessment at all hierarchical levels, linked to incentives and reward systems, adjusted/rolling budgets are prepared at a global level of the organization.

**Stage 9:** There are regular and timely monitoring meetings comprising variance and improvement, and corrective measures at a global level, the objectives are aligned with the top (corporate) objectives, there is a collective, strong and participating involvement of staff in the management process, the incentives system encompasses the whole organization.

**Stage 8:** There are regular monitoring meetings comprising variance analysis per segments and per managers, improvement and corrective measures are taken at a functional or partial level, the objectives for individual performance are aligned with the top (corporate) objectives, there is an incentives system partially linked to management performance, involving the managers, benchmarking is carried out regularly, related to competition.

**Stage 7:** There are several and convergent indicators at monitoring level linked to targets at a global level of the organization, there is assessment of managers' performance.

**Stage 6:** There is assessment of managers' performance, based on appropriate and individual frameworks, at a functional or partial level, budgetary management works effectively, the variance analysis is carried out per segments, there is collective involvement of staff in the management process, the information systems work effectively and "produce" reliable data,

**Stage 5:** There is a collective involvement in the definition of objectives and resources/means, in a decentralized way, convergent accountability is visualized in all managers activity, based

on accurate and specific frameworks per areas/segments, the monthly monitoring process comprises variance analysis, the timeliness and reliability of the indicators are appropriate, the information systems work as a whole and is accurate.

**Stage 4:** There is a collective involvement in the definition, alignment and convergence of objectives, which are clearly defined, the monitoring process is monthly, information systems are based on tested software,

**Stage 3:** Managers are responsible for objectives and resources/means, which are clearly defined, but still at a functional or partial level, budgets are appropriate, but partial, the monitoring process is monthly, the timeliness of the indicators is uniform, information systems are implemented in an evolutionary process of improvement.

**Stage 2:** Managers are responsible for objectives, which are clearly defined, but still at a local or partial level, the monitoring process is quarterly, and support information systems are not integrated.

**Stage 1:** Management frameworks comprise strategy definition (including mission, vision and values), budgets, and yearly monitoring only at some operational areas.

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### References

- APQ (Associação Portuguesa da Qualidade – Portuguese Association for Quality) (2017, May 19), from [www.apq.pt](http://www.apq.pt)
- Araújo M. and Sampaio P. (2014), The path to excellence of the Portuguese organizations recognized by the EFQM model, *Total Quality Management & Business Excellence*, Vol. 25, No. 5–6, pp. 427–438.
- Boulter L., Bendell T., and Dahlgard J. (2013), Total quality beyond North America – A comparative analysis of the performance of European Excellence Award winners, *International Journal of Operations & Production Management*, Vol. 33, No. 2, pp. 197–215.

- Bowen R.M., Rajgopal S., and Venkatachalam M. (2008), Accounting discretion, corporate governance, and firm performance, *Contemporary Accounting Research*, Vol. 25, No. 2, pp. 351–405.
- Calingo L.M.R. (1996), The evolution of strategic quality management, *International Journal of Quality & Reliability Management*, Vol. 13, No. 9, pp. 19–37.
- Cameron K. and Sine W. (1999), A framework for organizational quality culture, *Quality Management Journal*, Vol. 6, No. 4, pp. 7–25.
- Claver E., Tarí J., and Molina J.F. (2002), Areas of improvement in certified firms advancing towards TQM, *The International Journal of Quality and Reliability Management*, Vol. 19, No. 8–9, pp. 1014–1036.
- Cubo C., Oliveira R., Estrada R., Fernandes A.C., Carvalho M.S., Afonso P., Roque J., and Sampaio P. (2018), A maturity model to assess Supply Chain Quality Management integration, in Berbegal-Mirabent J., Marimon F., Casadesús M., Sampaio P. (Eds.), *Proceedings of the 3rd ICQEM Conference*, pp. 115–125. International Conference on Quality Engineering and Management, Barcelona.
- Dahlgaard J.J. and Dahlgaard-Park S.M. (2006), Lean production, six sigma quality, TQM and company culture, *The TQM Magazine*, Vol. 18, No. 3, pp. 263–281.
- Dahlgaard J.J., Chen C-K., Jang J-Y., Banegas L.A., and Dahlgaard-Park S.M. (2013), Business excellence models: limitations, reflections and further development, *Total Quality Management & Business Excellence*, Vol. 24, No. 5–6, pp. 519–538.
- Dahlgaard-Park S.M. (1999), The evolution patterns of quality management: Some reflections on the quality movement, *Total Quality Management*, Vol. 10, No. 4–5, pp. 473–480.
- Dahlgaard-Park S.M. (2008), Reviewing the European Excellence model from a management control view, *The TQM Journal*, Vol. 20, No. 2, pp. 98–119.
- Dahlgaard-Park S.M. (2011), The quality movement: Where are you going? *Total Quality Management & Business Excellence*, Vol. 22, No. 5, pp. 493–516.
- Dahlgaard-Park S.-M., Reyes L., and Chen C-K. (2018), The evolution and convergence of total quality management and management theories, *Total Quality Management & Business Excellence*, Vol. 29, No. 10, pp. 1108–1128. DOI: [10.1080/14783363.2018.1486556](https://doi.org/10.1080/14783363.2018.1486556)
- de Bruin T., Rosemann M., Freeze R., and Kaulkarni U. (2005), Understanding the main phases of developing a maturity assessment model, in Bunker D., Campbell B., & Underwood J. (Eds.), *Australasian Conference on Information Systems (ACIS)*, Vol. Australasian Chapter of the Association for Information Systems, CD Rom, pp. 8–19.
- Denzin K. and Lincoln Y.S. (2000), Introduction: The discipline and practice of qualitative research. In Denzin, K. & Lincoln, Y.S. (Eds.), *Handbook of Qualitative Research* (2nd ed.) (pp. 1–28). Thousand Oaks, California: Sage Publications.
- Din M.A., Asif M., Awan M.U., and Thomas G. (2021), What makes excellence models excellent: a comparison of the American, European and Japanese models, *The TQM Journal*, Vol. 33, No. 6, pp. 1143–1162. DOI: [10.1108/TQM-06-2020-0124](https://doi.org/10.1108/TQM-06-2020-0124)
- Domingues P., Sampaio P. & Arezes P.M. (2016), Integrated management systems assessment: a maturity model proposal, *Journal of Cleaner Production*, Vol. 124, No. 164, p. 174. DOI: [10.1016/j.jclepro.2016.02.103](https://doi.org/10.1016/j.jclepro.2016.02.103)
- Duh R.-R., Hsu A.W.-H., and Huang P.-W. (2012), Determinants and performance effect of TQM practices: An integrated model approach, *Total Quality Management & Business Excellence*, Vol. 23, No. 5–6, pp. 689–701.
- EFQM (European Foundation for Quality Management) (2017, March 24), *EFQM model*. Retrieved from <https://efqm.org/efqm-model/>
- EFQM (European Foundation for Quality Management) (2022, January 24), *EFQM model*. Retrieved from <https://efqm.org/efqm-model/>
- EIPA (European Institute of Public Administration) (2017, March 18), *EIPA – Topics/CAF – Common assessment framework*. Retrieved from <https://www.eipa.eu/CAF>
- Erikson H. and Hansson J. (2003), The impact of TQM on financial performance, *Measuring Business Excellence*, Vol. 7, No. 1, pp. 36–50.
- Flynn B.B., Schroeder R.G., and Sakakibara S. (1994), A framework for quality management research and an associated measurement instrument, *Journal of Operations Management*, Vol. 11, No. 4, pp. 339–366.
- Gómez-López R., Serrano-Bedia A.M., and López-Fernández M. C. (2016), Motivations for implementing TQM through the EFQM model in Spain: an empirical investigation, *Total Quality Management and Business Excellence*, Vol. 27, No. 11–12, pp. 1224–1245.
- Gómez-López R., Serrano-Bedia A.M., and López-Fernández M.C. (2019), An exploratory study of the results of the implementation of EFQM in private Spanish firms, *International Journal of Quality & Reliability Management*, Vol. 36, No. 3, pp. 331–346. DOI: [10.1108/IJQRM-01-2018-0023](https://doi.org/10.1108/IJQRM-01-2018-0023)
- Green T.J. (2012), TQM & organizational culture: How do they link? *Total Quality Management & Business Excellence*, Vol. 23, No. 2, pp. 141–157.

- Hafeez K., Malak N., and Abdelmeguid H. (2006), A framework for TQM to achieve business excellence, *Total Quality Management & Business Excellence*, Vol. 17, No. 9, pp. 1213–1229.
- Hair (Jr) J.F., Black W.C., Babin B.J., and Anderson R.E. (2010), *Multivariate Data Analysis – A global perspective* (7th ed.). Upper Saddle River NJ: Pearson.
- Hopper T., Northcott D., and Scapens R. (Eds.) (2007), *Issues in management accounting* (3rd ed.). Edinburg Gate: Pearson Education.
- Janesick V.J. (2000), The choreography of qualitative research design: Minuets, improvisations, and crystallization, in Denzin, K., & Lincoln, Y.S. (Eds.), *Handbook of Qualitative Research* (2nd ed.) (pp. 379–399). Thousand Oaks, California: Sage Publications.
- Johnson H.T. and Kaplan R.S. (1991), *Relevance lost: The rise and fall of management accounting* (2nd ed.). Harvard Business School Press, Boston, MA.
- Kanji G.K. (1998), Measurement of business excellence, *Total Quality Management*, Vol. 9, No. 7, pp. 633–643.
- Kaynak H. (2003), The relationship between total quality management practices and their effects on firm performance, *Journal of Operations Management*, Vol. 21, pp. 405–435.
- Kujala J. and Lillrank P. (2004), Total quality management as a cultural phenomenon, *Quality Management Journal*, Vol. 11, No. 4, pp. 43–55.
- McAdam R. and Saulters R. (2000), Quality measurement frameworks in the public sector, *Total Quality Management*, Vol. 11, No. 4, 5 & 6, pp. S652–S656.
- Mohammad M., Mann R., Grigg N., and Wagner J.P. (2011), Business excellence model: An overarching framework for managing and aligning multiple organizational improvement initiatives, *Total Quality Management & Business Excellence*, Vol. 22, No. 11, pp. 1213–1236.
- Murthy M.A.N. Sangwan K.S., and Narahari N.S. (2021), Tracing evolution of EFQM and its relationship with Industry 4.0, *Total Quality Management & Business Excellence*. DOI: [10.1080/14783363.2021.199980](https://doi.org/10.1080/14783363.2021.199980)
- Patton M.Q. (2002), *Qualitative research and evaluation methods* (3rd edition). Thousand Oaks, California: Sage Publications.
- Periañez-Cristobal R., Calvo-Mora A., Rey-Moreno M., and Suárez E. (2021), Organisational profiles: key factors and results from the EFQM model perspective, *Total Quality Management & Business Excellence*, Vol. 32, No. 15–16, pp. 1850–1873. DOI: [10.1080/14783363.2020.1787144](https://doi.org/10.1080/14783363.2020.1787144)
- Pesic M.A. and Dahlgaard J.J. (2013), Using the Balanced Scorecard and the European Foundation for Quality Management Excellence model as a combined roadmap for diagnosing and attaining excellence. *Total Quality Management & Business Excellence*, Vol. 24, No. 5–6, pp. 652–663. DOI: [10.1080/14783363.2013.791109](https://doi.org/10.1080/14783363.2013.791109)
- Pimentel L. and Major M.J. (2014), Quality management and a balanced scorecard as supporting frameworks for a new management model and organizational change, *Total Quality and Management and Business Excellence*, Vol. 25, No. 7–8, pp. 763–775. DOI: [10.1080/14783363.2014.904568](https://doi.org/10.1080/14783363.2014.904568)
- Pimentel L. and Major M. (2016), Key success factors for quality management implementation: evidence from the public sector, *Total Quality and Management and Business Excellence*, Vol. 27, No. 9–10, pp. 997–1012. DOI: [10.1080/14783363.2015.1055239](https://doi.org/10.1080/14783363.2015.1055239)
- Rad A.M.M. (2006), The impact of organizational culture on the successful implementation of total quality management, *The TQM Magazine*, Vol. 18, No. 6, pp. 606–625.
- Röglinger M., Pöppelbuß J., and Becker J. (2012), Maturity models in business process management, *Business Process Management Journal*, Vol. 18, No. 2, pp. 328–346. DOI: [10.1108/14637151211225225](https://doi.org/10.1108/14637151211225225)
- Sesar V.K., Buntak K., and Martinčević I. (2019), Measuring the level of quality maturity in organizations, *Advances in Business-Related Scientific Research Journal*, Vol. 10, No. 1, pp. 22–28.
- Smith M. (2003), *Research methods in accounting*, London: Sage Publications.
- Wilson F. (2015), The Quality Maturity Model: your roadmap to a culture of quality, *Library Management*, Vol. 36, No. 3, pp. 258–267. DOI: [10.1108/LM-09-2014-0102](https://doi.org/10.1108/LM-09-2014-0102)
- Wisniewska M. and Szczpanska K.A. (2014), Quality management frameworks implementation in Polish local governments, *Total Quality Management & Business Excellence*, Vol. 25, No. 3–4, pp. 352–366. DOI: [10.1080/14783363.2013.791107](https://doi.org/10.1080/14783363.2013.791107)
- Wolniak R. (2019), The Level of Maturity of Quality Management Systems in Poland – Results of Empirical Research, *Sustainability*, Vol. 11, No. 15, pp. 1–17. DOI: [10.3390/su11154239](https://doi.org/10.3390/su11154239)
- Xiaofen T. (2013), Investigation on quality management maturity of Shanghai enterprises, *The TQM Journal*, Vol. 25, No. 4, pp. 417–430.
- Yin R.K. (2018), *Case study research: Design and methods* (6th edition). Thousand Oaks, CA: Sage Publications.