

## Leading Quality in the 21<sup>st</sup> Century: Profiles of Quality and Organizational Excellence Managers

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### Abstract

*To ensure ISO 9001 remains up to date, ISO has revised the International Standard, issuing the ISO 9001:2015 edition. Research suggests that, on one hand, it promotes, facilitates, and emphasizes an improved alignment between quality and business best practices, thereby adding value to certified organizations and, on the other hand, it will require new approaches and competencies for Quality and Organizational Excellence Managers. To ascertain the competencies demanded for today Quality and Organizational Excellence Managers, a survey was held amidst ISO 9001 certified organizations, from different sizes, and across all activity sectors, in Portugal. The results highlight that “the knowledge of culture and the organizational process” is the most highly required competency and skill for today’s Quality and Organizational Excellence Managers. The master of the quality systems (Quality management soft factors: e.g. ISO 9001) and the quality tools & techniques (Quality engineering hard factors: basic and advance quality tools, improvement methodologies such as Lean, Six Sigma and Kaizen) are also of critical importance. The statistical tests performed to ascertain the statistical significance of the differences between the two groups of respondents (Quality and Organizational Excellence Managers and CEOs) shows no evidence of statistical differences between the perceptions of the two groups concerning the most desirable skills and competencies that a Quality and Organizational Excellence Manager should reveal. This research should be replicated in other countries and cultures contributing, hopefully, to better Quality and Organizational Managers that can successfully lead the 21st-century organizations.*

**Keywords:** ISO 9001:2015, quality and organizational excellence managers, competencies and skills, management systems.

### 1. Introduction

The concept of Quality started with a narrow and mechanic perspective based on inspection and Statistical Process Control, moving then to a more broader system view with Quality Assurance, Quality Management, and the Total Quality Management (TQM)/ Business Excellence Models. This perspective looks at Quality Management as a management philosophy, that has evolved from a narrow and mechanic perspective known as Statistical Quality Control to a broader and holistic one, known as TQM and Business Excellence.

The foundations of the modern quality movement can be traced back to the works of Juran (1979), Crosby (1979), Feigenbaum (1983), Deming (1986), and then moved to Japan encompassing the work of Ishikawa (1986) and Taguchi (1986), coming back to the US strengthened as a Total Quality Management (TQM). These quality gurus focused on top management and the steps that should be taken aiming at the organization success.

Although most academicians agree on the lack of consensus on the definition of TQM, according to Dahlgaard-Park *et al.* (2001) there are common principles and concepts that apply to TQM, such as a strong strategically based management leadership, the search for customer focus and continual improvement, the use of process approach and scientific

decision based, the involvement of employees and key organizational stakeholders, within a framework of learning and innovation systematically supporting the TQM culture. Research supports the view that Quality Management Systems (QMS) can add significant benefits for organizations competitiveness and success e.g., improving the relationships with suppliers and the cooperation in the supply chain, thereby improving logistics performance and the customer service, highlighting the awareness of quality and giving a common focus for both employees and executives, and delivering better quality products and services that reinforce the firm competitive position (Zimon, 2016). Most scholars agree that these benefits arise particularly when the motivation for its implementation are mainly internal (to change and improve), rather than solely external (compliance with customer demands, marketing visibility).

With the aim to address customer and key stakeholder requirements and to improve their performance and business results, more than 1 million organizations have adopted ISO 9001 Quality Management Systems, on a worldwide basis, across all activity sectors. To ensure ISO 9001 is simultaneously reliable, and flexible, in the present interconnected and dynamic business environment, ISO revised the International Standard, issuing ISO 9001:2015 edition September 2015 (ISO, 2015), bringing it closer and more aligned with the TQM models.

By effectively implementing ISO 9001:2015 requirements

organization should consistently provide products and services that satisfy their customers' needs and expectations and meet the relevant statutory and regulatory requirement. Amongst the most relevant new ISO 9001:2015 themes, the following can be highlighted (Fonseca, 2015):

- A strengthened emphasis on managers leadership throughout all levels of the organization and the integration of the quality management systems in the organization's business strategy;
- The consideration of the organization internal and external context and the expectations and needs of its relevant stakeholders;
- The adoption of risk-based-thinking and the concepts of organizational knowledge and change management;
- The consideration of both continual and disruptive types of improvement;
- The adoption of more pragmatic and non-prescriptive requirements with greater emphasis on process approach and achieving results and less on documentation.

As of 15<sup>th</sup> September 2018, all the ISO 9001:2008 certificates will be no longer valid and organizations will have to proceed with the transition of their existing ISO 9001:2008 Quality Management Systems to the new edition, or, in case they are not yet ISO 9001:2008 certified, to be audited and certified accordingly ISO 9001:2015 International Standard. Although still a novel theme, research has found that ISO 9001:2015 align modern business and quality management concepts and will be a useful tool for the companies (Fonseca & Domingues, 2017).

This research aims to understand the skills and techniques that Quality Managers need to master and apply with ISO 9001:2015 to support and lead the quest for organizational enduring success. Some authors, such as Sandholm (2005), pointed out that quality professionals focus more on advocating some quality methods rather than improving business results and solving quality problems. Preliminary studies highlighted that ISO 9001:2015 will require new approaches and competencies for Quality and Organizational Excellence Managers (Fonseca & Domingues, 2017) and for Auditors (Gluck *et al.*, 2015). This research was designed aiming at shedding some light on the following questions:

- What are the profiles of Quality and Organizational Excellence Managers within ISO 9001 organizations?
- What are the quality approaches and techniques most widely adopted?
- What are the skills required for today Quality and Organizational Excellence Managers developing their activities in an ISO 9001:2015 environment?

An online survey was designed yielding 312 responses from Portuguese ISO 9001 certified organizations (18% response rate). The results suggest that organizations are mostly focused on ISO 9001, and adopt basic quality tools such as control charts, check sheets, histograms, and Pareto diagrams. Additionally, results point out an increasing adoption of improvement methodologies such as Lean, Kaizen and Six Sigma, when compared to previous studies. It is also possible to acknowledge variation in the organization responses suggesting there are several possible sets of quality initiatives and quality manager roles in today's organizations.

## 2. Literature Review

Sousa & Voss (2001) stressed that one of the paramount questions concerning quality management concerns with its proper implementation and organization. However, the mainstream literature addressing quality managers roles is relatively

scarce (Elg, Gremyr, Hellstrom and Witell, 2011). Some authors consider that quality managers should have broader responsibilities (Larson, 1998; Silverman & Propst, 1996) whereas, conversely, other scholars point out that quality managers should focus on specialized roles such as Six Sigma (Lindeman, Schroeder, Zaheer & Choo, 2003).

A professional association such as ASQ - American Society for Quality ([www.asq.org](http://www.asq.org)) has also been nurturing the debate on the future of Quality and Quality Managers roles (Quality Progress, July 1999. 6 special issues). Some authors argued that if quality becomes everyone job, there will be no need for quality managers, whereas for others quality managers should have an enlarged job responsibility with more focus on business, culture, and soft skills.

Wadel and Mallen (2001) proposed four scenarios forecasting the future for quality managers: work as usual with the existing quality principles, techniques, and tools; to outsource the quality function to outside specialists; to integrate quality management in business management and last fade away and possible reborn under a new name.

Elg *et al.* (2011) concluded that there is a lack of empirical studies identifying the necessary skills of a quality manager. By investigating 212 quality managers in Sweden, these authors conclude that potential roles may encompass the operation of quality at a strategic level or to specialize in Six Sigma or Lean to manage quality improvement projects. However, they stress that most of the times the quality manager's operational roles are mainly focused on quality standards such as ISO 9001 and to a much lesser extent in Six Sigma and Lean. According to Sandholm (2005), this led to quality management been "a half profession" with a poorly defined body of knowledge and required competencies.

More recently, Cudney and Keim (2017) summarized several research studies conducted by the American Society for Quality (ASQ), the American Productivity & Quality Center (APQC) and the International Academy for Quality (IAQ) on the changing role of quality in the future. Although no consensus is reached there is an overall agreement that the Quality Professional should master management, leadership, technical and People skills.

The main purpose of this research is to fill this gap taking into consideration the new realities that emerged from the ISO 9001:2015.

## 3. Research Method

In order to address the issues raised by these research questions, an online survey was carried out throughout three weeks (April and May 2017) among organizations ISO 9001 certified or in certification process by the leading Portuguese certification body ([www.apcergroup.pt](http://www.apcergroup.pt)). Previous studies have shown that the online survey is a suitable technique to reach a restricted population, used to online activity with limited resources and when fast response times are demanded. The participants could access the survey via an individual link sent per mail. The survey itself encompassed three major group of questions addressing the following main themes: organization and respondents' characterization; Quality methodologies and techniques applied and promoted by the organization (Likert scale: 1- Never to 5- Always, plus an option for No response); most relevant competencies for the role of Quality Manager (Likert 1- No importance at all, to 5- Most important).

Approximately 3800 ISO 9001 certified (or certification process) Portuguese organizations were contacted by email, with the collaboration of the Portuguese leading certification body ([www.apcergroup.pt](http://www.apcergroup.pt)). The statistical analysis of the data was carried out using the IBM Statistical Package for Social Sciences 23 (SPSS).

## 4. Results

The total number of respondents' accounts for 17% of the population and the sample profile matched the population suggesting the sample is representative of the population. With almost 100% valid responses and electronic data treatment, data collection and processing errors were minimized. Concerning the respondents' profiles, organizations were balanced between industry (34%), services (29.2%), commerce (10.9%), and health and social sector (9.9%) as shown in *Figure 1*.

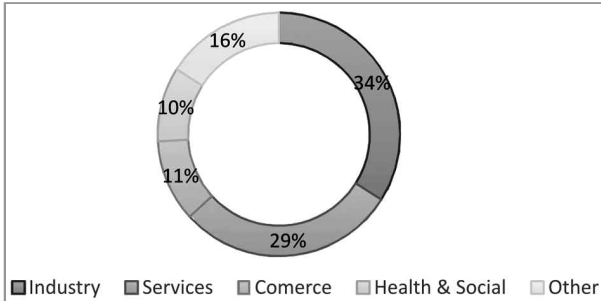


Figure 1. Respondents distribution by sector of activity

In terms of size (number of total employees), most organizations were small and medium enterprises, as shown in *Figure 2*.

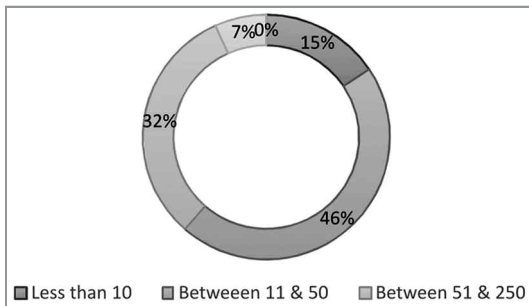
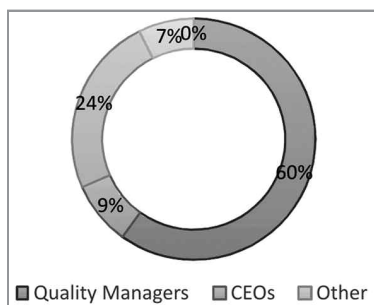


Figure 2. Respondents distribution by number of employees

The respondents, were mainly Quality (and Organizational Excellence) Managers, followed by CEOs and other functional roles (see *Figure 3*).

Figure 3. Respondents distribution by role in the organization



There is a balanced distribution of the number of years the respondents have been working in their organization (see *Figure 4*).

As expected, all the respondent organizations apply and promote ISO 9001. However, the use of improvement methodologies is rather limited, with Kaizen and Lean showing some moderate application within these organizations (see *Table 1* and *Figure 5*).

Another dimension that was investigate concerned the use of quality tools in the organizations. The top 5 are presented in *Table 2* and *Figure 6*. As expected, all the respondent organizations apply and promote ISO 9001. However, the use of improvement methodologies is rather limited, with Kaizen and Lean showing some moderate application within these orga-

nizations (see *Table 1* and *Figure 5*).

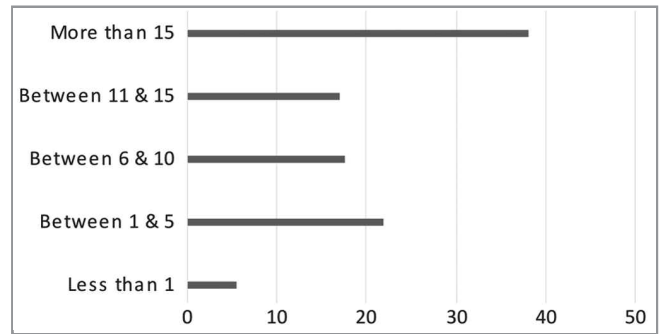


Figure 4. Number of years the respondents have been working in their organization

Table 1. Quality Methodologies that your organization applies and promotes

What are the Quality Methodologies that your organization applies and promotes	Mean	No. of respondents (%)
ISO 9001	5	312 (100%)
EFQM Excellence Model	1.21	77 (25%)
Lean	1.62	
Kaizen	1.69	
Six Sigma	1.08	

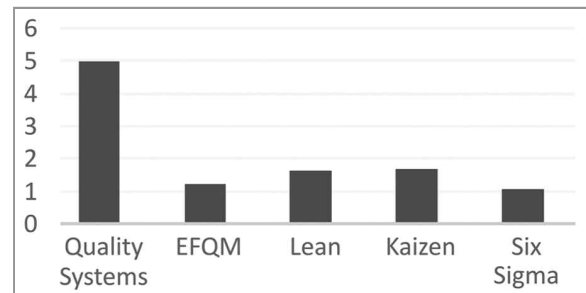


Figure 5. Quality Methodologies that your organization applies and promotes

Table 2. Quality Tools that your organization applies and promotes

What are the Quality Tools that your organization promotes and applies	Mean	No. of respondents (%)
Check List	3.58	306 (98%)
Process Diagram	3.39	297 (95%)
PDCA Cycle	3.04	291 (93%)
Cause & Effect Diagram	2.04	298 (96%)
Pareto Diagram	1.86	287 (92%)

The ISO 9001 requirements and the underlying quality principles justify the higher application of checklists (to record objective evidence of the standard application) the use of process diagrams (to map the process model) and the application of PDCA cycle as prescribed by ISO 9001, as shown in *Figure 6*. However, the intensity of these tools application is still not as high as it could be expected, which might be a source of thought for future investigations on ISO 9001 implementation and certification. The use of basic quality tools such as Cause

and effect diagram and Pareto Charts, although still only moderate, shown signs of improvement compared to other similar studies (Fonseca, Lima, & Silva, 2015).

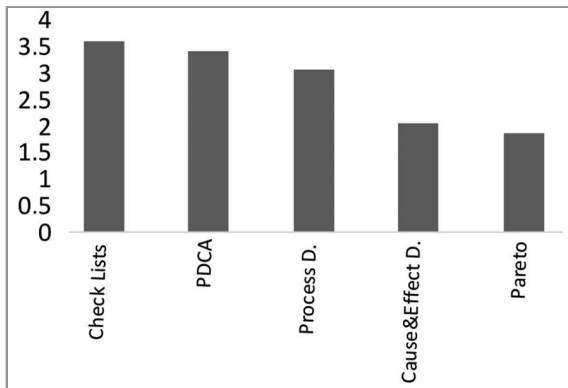


Figure 6. Quality Tools that your organization applies and promotes

Concerning the required competencies and skills for Quality and Organizational Excellence Managers working in ISO 9001 certified organizations, it is clear that the knowledge of culture and the organizational process is the most highly required one. The master of the quality systems (Quality management soft factors: e.g. ISO 9001) and the quality tools & techniques (Quality engineering hard factors: basic and advance quality tools, improvement methodologies such as Lean, Six Sigma and Kaizen) is also of critical importance. Considering that quality managers have to work with many different stakeholders and colleagues it is not surprising that soft skills are also valuable. However, in the present digital era, the requirement for technical skills is somewhat lower than it could be expected. The summarized results are shown in Table 3 (for all 312 respondents) and Figure 7.

To gather more knowledge concerning the required skills and competencies for Quality and Organizational Excellence Managers, the following hypothesis were tested, as summarized

in Table 4.

The Wilcoxon signed ranks test was adopted to ascertain the statistical significance of the differences between the two groups of respondents (Quality and Organizational Excellence Managers and CEOs). The test statistics and the p-value (Asymp. Sig. (2-tailed)) shows no evidence of statistical differences between the perceptions of the two groups concerning the most desirable skills and competencies that a quality manager should reveal. However, it should be stressed that concerning the "Culture and Organizational Process knowledge for Quality and Organizational Excellence Managers" item (p-value = 0.101) a definitive conclusion cannot be drawn.

Table 3. Required competencies and skills for Quality and Organizational Excellence Managers

Competency	Mean	Std Dev
Quality Systems (ISO 9001)	4.36	0.5917
Quality Techniques and Tools	4.31	0.6666
Knowledge of Culture and Organizational Processes	4.61	0.5266
Technical Skills	3.93	0.6557
Soft Skills	4.21	0.7255

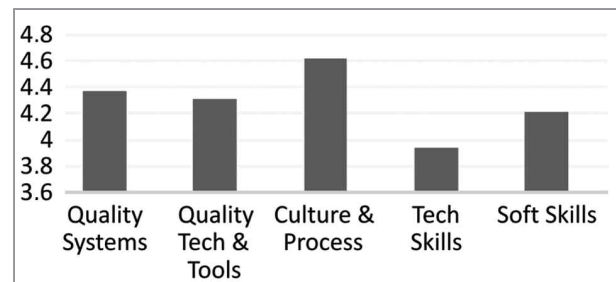


Figure 7. Importance of the required Skills for Quality and Organizational Excellence Managers

Table 4. Most relevant Quality and Organizational Excellence Managers skills and competencies

Hypothesis	Total (n = 310)	Quality and Organizational Excellence Managers (n = 245)	CEOs (n = 35)	Hypothesis Testing- H2.1: QM and CEOs perceptions differ (sig) (Wilcoxon Signed Ranks Test)
Importance of Quality Systems Competencies for Quality and Organizational Excellence Managers	4.36	4.38	4.29	Z = -0.485; p-value = 0.628
Importance of Quality Techniques and Tools Competencies for Quality and Organizational Excellence Managers	4.31	4.30	4.24	Z = -0.235; p-value = 0.814
Importance of Culture and Organizational Process knowledge for Quality and Organizational Excellence Managers	4.61	4.64	4.46	Z = -1.641; p-value = 0.101
Importance of Technical Skills Competencies for Quality and Organizational Excellence Managers	3.93	3.94	4.03	Z = -0.524; p-value = 0.600
Importance of Soft Skills Competencies for Quality and Organizational Excellence Managers	4.21	4.23	4.31	Z = -0.863; p-value = 0.388

## 5. Conclusions

Research suggest that ISO 9001:2015 will require new approaches and competencies for Quality and Organizational Excellence Managers (Fonseca & Domingues, 2017) and for Auditors (Gluck et al., 2015). Is the Quality Manager really an organizational function or is it everyone job? And what is its supposed role, broader manager, or technical specialist?

Concerning the required competencies and skills for Quality and Organizational Excellence Managers working in ISO 9001:2015 certified organizations, the knowledge of culture and the organizational process is the most highly required one. The master of the quality systems (Quality management soft factors: e.g. ISO 9001) and the quality tools & techniques (Quality engineering hard factors: basic and advance quality tools, improvement methodologies such as Lean, Six Sigma and Kaizen) is also of critical importance. These conclusions are in line with preliminary studies which highlighted that ISO 9001:2015 will require new approaches and competencies for Quality and Organizational Excellence Managers, with enlarged

job responsibilities and more focus on business result and culture and soft skills. These conclusions seem to point out that “output matters” contradicting the authors that advocate that quality professionals should focus more on some quality methods rather than improving business results and solving quality problems. However, in the present digital era, the requirement for technical skills was not reported to be as critical as it would be expected. It should also be remarked that the statistical tests performed show no evidence of statistical differences between the perceptions of the two groups (Quality and Organizational Excellence Managers and CEOs) concerning the most desirable skills and competencies that a quality manager should reveal. These are good news for the future of Quality Profession and its alignment with the “C suit”.

This research aims to tighten the gap between practitioners and academics, by applying a solid research methodology to a relevant subject, and contributing, hopefully, to better Quality and Organizational Excellence Managers that can successfully lead the 21<sup>st</sup>-century organizations.

**Q-as**

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