

# **ISO 9001 and Organizational Excellence Models in Small and Medium Sized Enterprises: Current State and Comparative Analysis**

**Correia, Fábio<sup>1)</sup>, Carvalho, André<sup>1)</sup>, Sampaio, Paulo<sup>1)</sup>**

<sup>1)</sup> Department of Production and Systems, Braga, Portugal; ALGORITMI Research Centre, School of Engineering - University of Minho, Guimarães, Portugal

## **STRUCTURED ABSTRACT**

**Purpose** - The purpose of this paper is to understand the current state of quality management practices in Small and Medium Enterprises. The main concepts of Quality Management and its practices in Small and Medium Enterprises were reviewed from the literature in order to understand the key practices in these organizations, and a data analysis on their use was performed.

**Design/methodology/approach** - Analysis was performed by consulting and understanding the evolution of Organizational Excellence Models and Quality Management Systems. This research incorporates data since the beginning of the 90's from the last century and allows us to comprehend how these models and management systems have evolved and if there is any correlation between the adoption of each one of them- evaluation of interdependencies.

**Findings** - The findings suggest that while the number of ISO 9001 certified companies has increased over the years, the number of organizations accessing Business Excellence frameworks have been decreasing. The available data suggests that Small and Medium Enterprises seem to follow these trends. It is particularly noticed that there is a considerable gap between Small and Medium Enterprises and Large Enterprises in the usage of Business Excellence frameworks.

**Originality/value** – This article offers a global perspective of the current state in the use of ISO 9001 and Organizational Excellence Models by Small and Medium Sized Enterprises (SME's).

**Keywords:** Quality Management, Small and Medium Enterprises, ISO 9001, Business Excellence Frameworks.

**Paper type:** Research paper

## **INTRODUCTION**

Implementing a quality program is no longer a privilege directed towards large enterprises (LE) (Kratochvíla & Friedecký, 2010). The market in which SMEs operate is extremely competitive (Man, Lau, & Chan, 2002). On the one hand, modern consumers are more conscious and demanding (Braskamp, Brandenburg, & Ory, 1987), and these companies need to secure their success in their markets while exploring new ones. On the other, and faced with fierce competition, SMEs find it is fundamental to reduce costs associated with management and production, through quality management. This can only be consistently achieved with well-structured quality programs that solve problems throughout the entire company (Kratochvíla & Friedecký, 2010). Throughout the years, it has been noted that SMEs use ISO 9001 and Business Excellence (BE) frameworks to achieve higher performance levels (Astrini, 2018). Some authors argue that ISO 9001 is the right choice for SMEs, offering the same benefits to these companies as to LE. It is also reported that BE frameworks play a big role on maintaining SMEs competitive in the different markets they operate (Bauer, Falshaw, & Oakland, 2005). Thus, with this study the research team intends to analyze the tendency among SMEs to access ISO 9001 certification or the implementation of a BE framework. In order to this, an initial extensive literature review was undertaken focusing on the topics of Quality Management, SMEs, Quality Management in SMEs, ISO 9001 and Business Excellence frameworks. Furthermore, and in order to complement this review, a data analysis is presented on the dissemination of ISO 9001 and BE frameworks across the world. The data available for ISO 9001 includes both SMEs and LE, as it is not possible to analyze SMEs individually provided on ISO official database. Regarding BE frameworks, data was collected from the databases of all three models studied in this paper (EFQM Model, Malcolm Baldrige Framework and Shingo Model), and the research team analyzed which reported companies are SMEs or LEs. Before advancing with this work, it is important to acknowledge that there are several definitions for what characterizes an SMEs. Therefore, a definition must be adopted. In the context of this study, SMEs will be those organizations which employ less than 250 employees, in line with the numbers that the European Commission establishes.

## **LITERATURE REVIEW**

### ***Current State of Quality Management in SMEs***

Quality has been a part of LEs for more than 30 years. However, only recently this concept became widely used in SMEs (Rocha Kachba, Souza Plath, Gomes Gitirana Ferreira, & Forcellini, 2012; Assarlind, 2014). In fact, LEs already used quality management because of their extensive amount of resources. In contrast, with more limited resources, SMEs cannot invest as much as LE in-quality

management (Wierzbinski, 2015). However, SMEs have a clear understanding of the impact that quality has in the pursuit of their in organizational objectives. Quality can bring costs down and promotes processes efficiency, which culminates in an increase in competitiveness (Assarlind, 2014). Quality has come a long way to get to the point it is today. This long journey was made up of complex steps, which led to quality of processes, products and organizations (Toma & Marinescu, 2018). From its debut in 1984, ISO 9001 quickly became a world-class management system (Natarajan, 2017). This resulted in companies, including SMEs, looking for this certification to ensure competitiveness. Since the late 1980's, also Business Excellence frameworks established as world class models to achieve organizational excellence, drawing the interests of both LEs and SMEs (Baporikar, 2017). This had much to do with the evolution and increased competitiveness of the marketplace: while ISO 9001 provides the standards and specifies requirements for a quality management system, BE integrates the different dimensions of quality in an organization and provides the criteria to help deploy quality through performance. Nevertheless, ISO 9001 is still used by companies worldwide to ensure stable and reliable quality management systems and is often seen as the first step in a path towards quality and excellence (West, 2008).

Over the years, new quality tools and philosophies have been developed. Thus, both the implementation of BE frameworks and ISO 9001 certification have suffered changes. These changes have led some authors to become increasingly skeptical about these methodologies. Some quality experts argue that managers have lost focus of ISO 9001 as a management system, starting to see it as a marketing tool to enter new markets (West, 2008). Additionally, several reports and scientific papers report that BE frameworks were specifically designed for LE, making it hard for SMEs to successfully implement and efficiently use these models in their full potential (Dahlgaard, Chen, Jang, Banegas, & Dahlgaard-Park, 2013). Although shorter, adapted versions of these models have been developed later with a focus on SMEs, this does not seem to be enough to fully align with their needs (Olaru, Dinu, Stoleriu, Sandru, & Dinca, 2010). SMEs comprise more than 80% of worldwide companies but LE are still seen as priorities when looking for answers when they report problems (McAdam, 2000). In face of this reality, quality professionals must look at ISO 9001 and BE frameworks and analyze their implementation in SMEs. With this study, we intend to partially do that, uncovering gaps and opportunities for Quality Management in SMEs, and laying the ground for further understanding in this field.

### ***ISO 9001 and Quality Excellence***

There are many reasons for a company to decide to implement a Quality Management System (QMS), such as those established by the ISO 9001 standard. However, all those reasons usually share one main objective, which consists in costumers' satisfaction (Oliveira, Corrêa, Balestrassi, Martins, & Turrioni, 2019). Managers need to have a vision that their customers do not change supplier if they are satisfied with the service or product consumed (Vermeeren et al., 2014). With a QMS implementation, production will increase by eliminating waste (Psomas, Fotopoulos, & Kafetzopoulos, 2010).

Studies have revealed the following results for the factors that costumers consider most important when buying a product: (1) Performance, (2) Durability, (3) Ease of use and reliability of after-sales service, (4) Price, (5) Design and, finally, (6) Brand (Douglas & Davies, 2005; Psomas et al., 2010). The objective of implementing a QMS in SMEs -besides costumers' satisfaction - has thus to do with the numerous process-related advantages that these companies could obtain if the implementation process is successful (Ahmudi, Purwanggono, & Utami Handayani, 2018). Companies that adequately meet the principles of quality management can implement a well-structured QMS allied to continuous improvement, guaranteeing the success of the organization in the search for the best service to the external and internal costumers (Ahmudi et al., 2018). In fact, over the last decades SMEs have been searching for programs or methodologies that allow them to meet continuous improvement and become the best version of themselves. In this sense, they also have been trying to access excellence programs. These programs are commonly taken in the form of the implementation of BE frameworks. In what concerns to this study, we will address three models that are frequently used worldwide, consisting in the European Foundation for Quality Management (EFQM) Model, the Malcolm Baldrige Framework and the Shingo Model (Yusuff, Ismail, Ismail, Zadeh, & Jassbi, 2012; Baker, 2016; Prize, 2018; R. Edgeman, 2018). A BE framework is a set of good practices that allow the implementation of a results-oriented organizational culture (R. Edgeman, 2018). There are three main models that are used in different regions in the world. First, we have the EFQM Model, mostly used by companies based in Europe (Young Kim, Kumar, & Murphy, 2010). In addition, there is the Malcolm Baldrige Framework, being this one mostly used by companies based in North America (Kumar, 2007). Lastly, there is the Shingo Model, being this one used by companies based in several countries, all over the world (Prize, 2018). In this study, we will focus on the phenomena of the dissemination of these three main models and the QMS ISO 9001 among SMEs.

### ***SMEs' Perception on ISO 9001 and Business Excellence Frameworks***

Organizational excellence is the standard that all organizations aspire to achieve (Yarrow, Robson, & Owen, 2004). Usually, these organizations already have mature QMS and the motivations for moving to a total quality management approach are expressed proactively, even when customers had a significant influence on the adoption of ISO 9001 (West, 2008). On the other hand, organizations' social responsibility is increasingly more important, with the emergence of issues related to ethics, and environmental and social aspects, which promote a global perspective inside organizations and increase the integration of various aspects of quality through BE frameworks (R. L. Edgeman, 2000; Ruiz-Carrillo & Fernández-Ortiz, 2005; Latham, 2013). Many organizations consider the competitive advantages of ISO 9001 exhausted. However, they do not advance to different approaches regarding quality management, due to constraints of different orders (West, 2008; Sfakianaki & Kakouris, 2018). The most common constrains are economic or related to organizational culture. Besides that, many organizations consider that QMS and BE frameworks compete for the same space inside an organization (Russell, 2000). This a limited view, since ISO 9001 and BE frameworks can be adopted as complementary methodologies (Gotzamani, Tsiotras, Nicolaou, Nicolaidis, & Hadjiadamou, 2007; Araújo & Sampaio, 2014), rather than as an option or choice that the organization must perform. Nevertheless, regardless of its many advantages, both ISO 9001 and BE frameworks have been criticized by different authors. In fact, some researchers look at ISO9001 as a marketing tool and not a management system that promotes organizational success (Psomas et al., 2010; Nikpour, 2017; Sfakianaki & Kakouris, 2018). It is reported that many companies use ISO 9001 certification as a marketing tool to get more costumers and partnerships, instead of taking advantage of all its potentialities. Regarding BE frameworks, many companies report that they are too complex and decontextualized from SMEs' reality and market (Ghobadian & Gallear, 1996; Armitage, 2002). Thus, SMEs feel very reluctant to implement a BE framework since they feel they have been developed for LE's purposes and not theirs.

### **RESEARCH METODOLOGY**

This analysis was performed by consulting the data on the use of different Organizational Excellence Models and ISO 9001 certification. However, it must be recognized that the type of data available for public assessment brings some limitations to the analysis, such as: not all ISO 9001 certified companies are registered in the database to which we had access; Several companies implement Organizational Excellence models, however don't formally register this implementation. This research incorporates data since the beginning of the 90's from the last century and allows us to

comprehend how these models and management systems have evolved and if there are any clear trends on the adoption of each one of them. Data was collected from the ISO Survey database concerning ISO 9001 diffusion (ISO Committee, 2020), and from each Business Excellence Framework official website (Baldrige Award Recipients Listing | NIST, 2020; EFQM, 2020; Utah State University, 2020).

Data was aggregated and systematically analyzed in such a way that it was possible to evaluate patterns in the cumulative number of companies that are ISO 9001 certified or that implement organizational excellence models. The comparison between ISO 9001 certification and the implementation of organizational excellence models enables the possibility of exploring whether there is a connection between ISO 9001 certification and the implementation of OE models, or whether the introduction of such a model corresponds with a decrease in the introduction of others.

## **RESULTS**

### ***Diffusion of ISO 9001 Certification***

As it becomes patent from the literature review, it is of the utmost importance to understand what has been happening in companies in terms of quality practices- more specifically in what concerns the adoption of Business Excellence frameworks and the pursuit of ISO 9001 certification. Figure 1 shows the data for the diffusion of ISO 9001, between 1993 and 2017, in Europe, North America and worldwide. It is notorious that this QMS has been consistently used by companies, regardless of the geographical place. However, as reported in the literature review, we must recognize that many companies adopt ISO 9001 as a requirement from clients and not as a strategic tool for organizational performance, which will not translate into the achievement of the very best results allowed by the deployment of QMS. Even though the data collected encompasses all types of companies (SMEs and LEs), since SMEs comprise more than 80% of worldwide companies (Wang and Wang, 2011), the evolution shown in Figure 1 is expected to, to a large extent, represent also the behavior of SMEs. Furthermore, the growing use of ISO 9001 by SMEs has been consistently reported (Brown, van der Wiele, & Loughton, 1998; Ilkay & Aslan, 2012; Astrini, 2018).

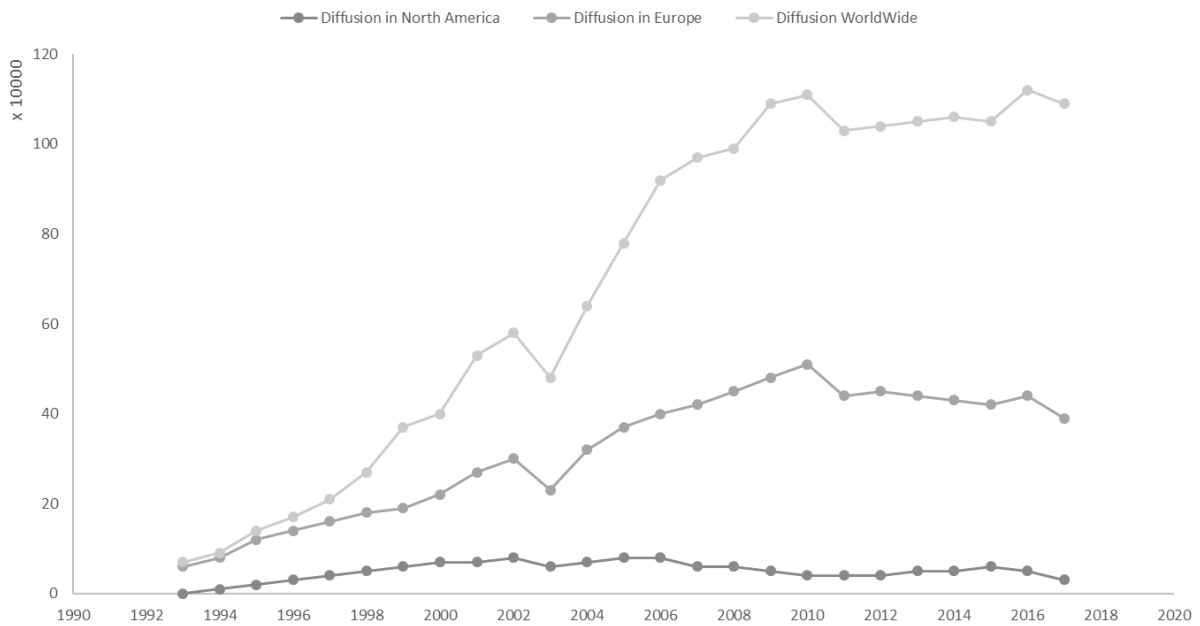


Fig. 1. ISO 9001 diffusion (ISO Committee, 2020).

### *Diffusion of Business Excellence Frameworks*

Regarding BE frameworks, the database format for each framework made it possible for the research team to verify which companies implementing the models are SMEs or LEs. Starting with the EFQM Model, shown in Figure 2, the scenario is very different from the one we saw regarding ISO 9001. In fact, throughout the years the use of the EFQM Model has been fluctuating both for SMEs and LEs. However, what stands out the most is that, since the beginning, there were always more LEs using the EFQM model when compared to SMEs. This may be a result of what was previously reported in the literature review- SMEs find BE frameworks too complex and decontextualized from their reality.

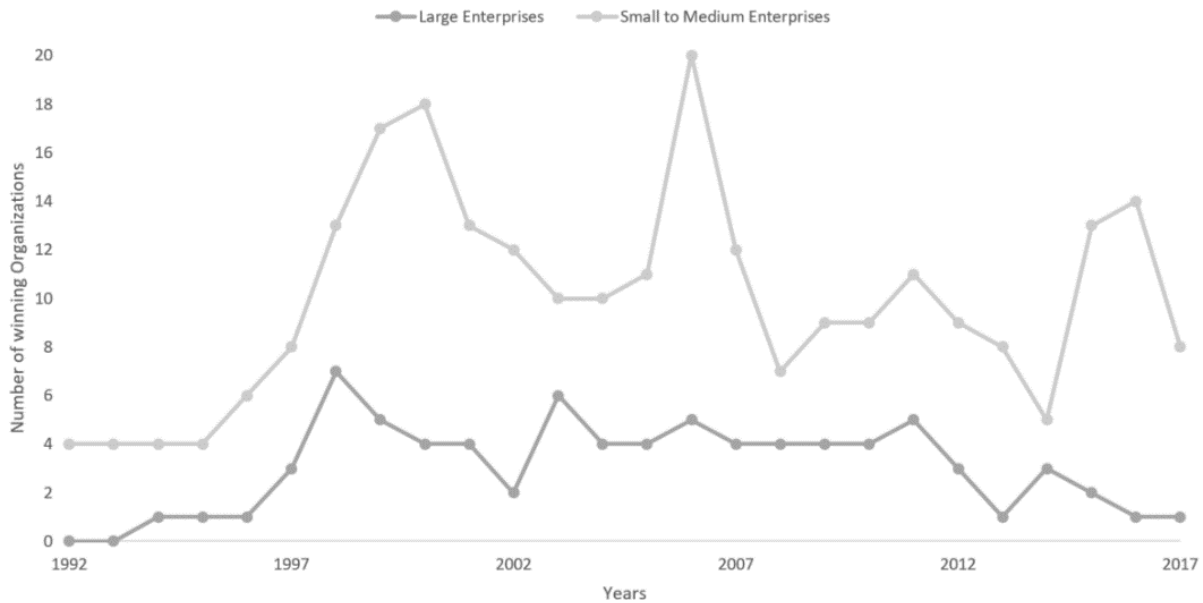


Fig. 2. EFQM Model diffusion (EFQM, 2020).

If we outline the data in a pie diagram (Figure 3) is easy to notice the astonishing difference between SMEs and LE when it comes to the EFQM Model implementation. In fact, only 19% out of more than 350 companies that use/have used the EFQM Model are SMEs.

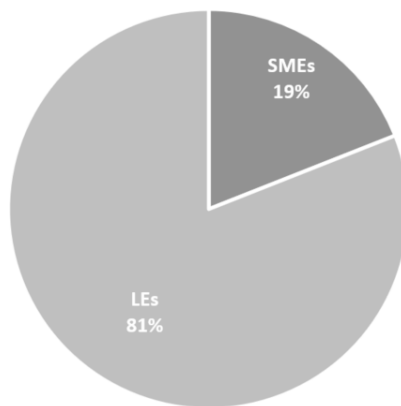


Fig. 3. Percentage of large enterprises and small and medium enterprises using the EFQM Model (EFQM, 2020).

When we access the data for the Malcolm Baldrige Framework the scenario is not very different from what was determined for EFQM (Figure 4). In this case, since 1998, the difference between LEs and SMEs accessing this model is even bigger and, for more than 20 years, there has been multiple LE implementing the model and few to none (depending on the year) SMEs accessing it.



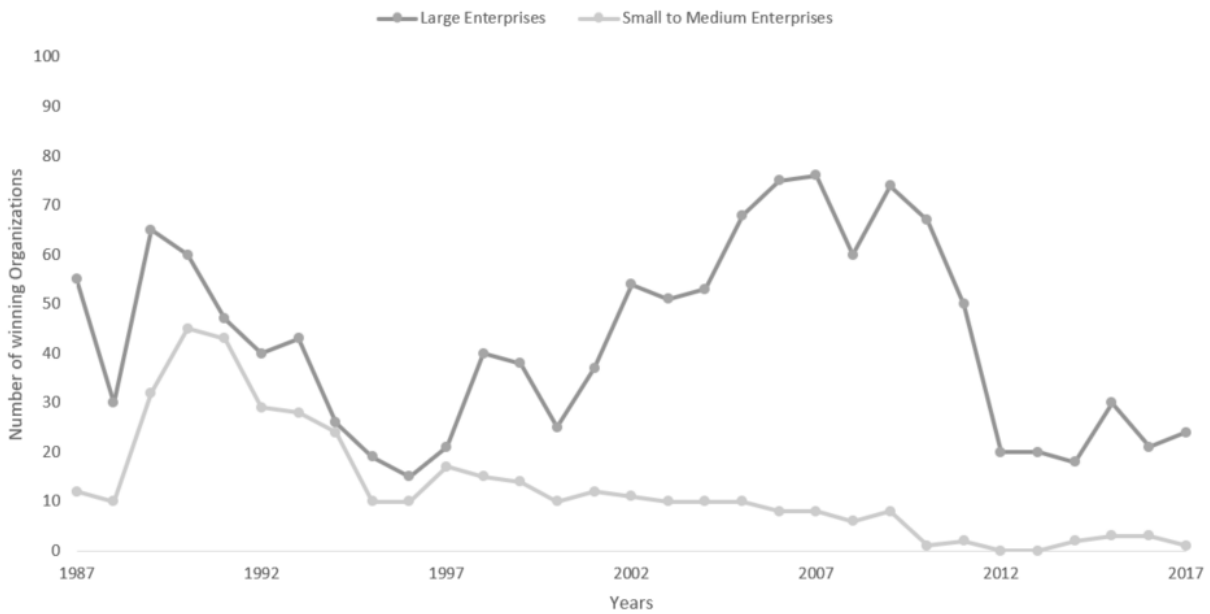


Fig. 4. Malcolm Baldrige Framework diffusion (Baldrige Award Recipients Listing | NIST, 2020).

By compressing the data in a pie diagram (Figure 5) is notable that out of more than 2000 companies accessing the Malcolm Baldrige Framework since 1987, only 7% correspond to SMEs, being this even a more worrying scenario than the one showed previously.

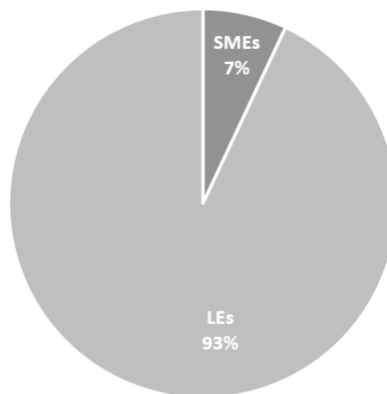


Fig. 5. Percentage of large enterprises and small and medium enterprises using the Malcolm Baldrige Framework (Baldrige Award Recipients Listing | NIST, 2020).

To complement this analysis, it is important to access data from a model that is used by companies across the world (as the Malcolm Baldrige Framework is mostly used by North American companies and the EFQM Model is mostly used by European companies). This brings us to the deployment of the data regarding the Shingo Model implementation, by both SMEs and LEs, since 1989. Figure 6 shows that in a model used by companies from all over the world, the difference between LEs and SMEs implementing the model remains. It is, once again, verified that there are less SMEs implementing the model when compared to the numbers of LEs accessing it.

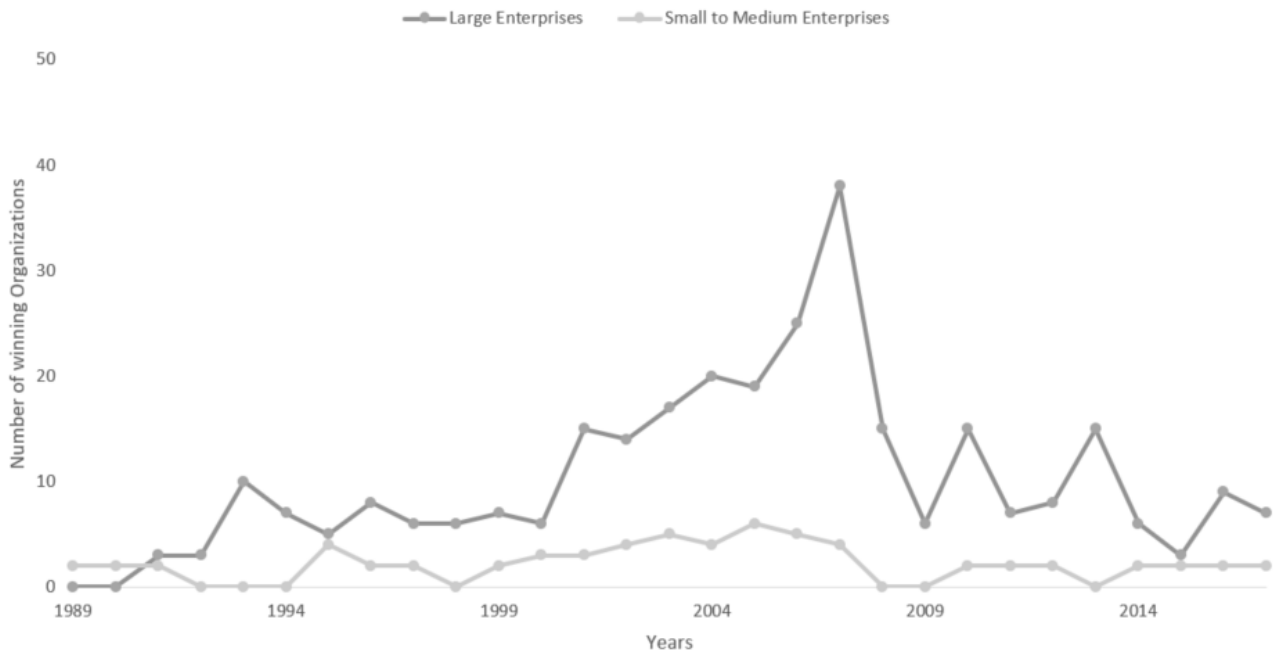


Fig. 6. Shingo Model diffusion (Utah State University, 2020).

Similarly, when deploying the data in a pie diagram (Figure 7), the research team concludes that only 13% out of more than 300 companies are SMEs.

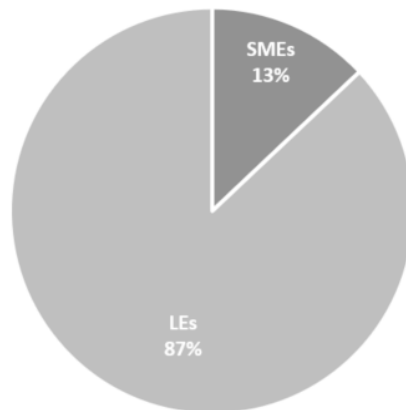


Fig. 7. Percentage of large enterprises and small and medium enterprises using the Shingo Model (Utah State University, 2020).

## CONCLUSIONS

Over the years, the use of ISO 9001 as a quality management system by SMEs has been consistently reported (Brown et al., 1998; Ilkay & Aslan, 2012; Astrini, 2018), and this growth is notorious in a North American, European and worldwide approach. However, SMEs’ motivations to pursue the certification remain unclear. It might be pursued by external pressure to get a certification (to gain or maintain market share, or even to stay in business) rather than by the will to improve the management

systems available in companies (Brown et al., 1998; Astrini, 2018). At the same time, and when analyzing Business Excellence frameworks, it is explicit that these models have been through ups and downs throughout the years - a trend that is visible both in SME's and LE's (Carvalho & Sampaio, 2020).

There is scientific evidence that while some companies look at ISO 9001 and Business Excellence frameworks as complementary (Gotzamani et al., 2007), others see them as competing alternatives (Bandyopadhyay & Leonard, 2016) - which may suggest that the numbers observed in the last decades in the use of ISO 9001 may be one of the many variables that contribute to the decrease of Business Excellence models' adoption. However, with the analysis that was performed, the research team cannot point out a direct relationship between the increase in ISO 9001 use and Business Excellence frameworks' use decrease, being this a topic to be explored in the future.

Further on this topic, and having in mind the increase in ISO 9001 certification and the decrease in the use of Business Excellence models, it is important to point out that this phenomenon has been affecting all types of organizations (Carvalho & Sampaio, 2020) - small, medium and large sized. A decline in the adoption of organizational excellence models results in companies lacking the ability to use effective resources on their way to outstanding management practices. Simultaneously, institutions and practitioners that promote organizational excellence and which, directly or indirectly, rely on the use of these models will be affected by this decrease that seems to tend to continue in the next years if measures to counteract this effect are not developed.

Throughout this study, a considerable difference was noted in the engagement that SMEs and large enterprises have with the Excellence frameworks analyzed (EFQM Model, Malcolm Baldrige Framework and Shingo Model). In fact, this study shows that Business Excellence frameworks are mainly used by large enterprises, with small and medium enterprises representing a very small part of these numbers, regardless of the geographical area.

Based on these findings, and considering SMEs make up the larger part of the world economy, important conclusions can be drawn. There are undoubtedly different levels of engagement with Quality and Excellence frameworks depending on the size of organizations. As such, it is important that the scientific community better understands the needs of SMEs in regard to Quality management. In fact, most small and medium enterprises have been showing, proportionally, much less engagement with Business Excellence frameworks – even when these frameworks are highly promoted and also targeted at them. This demonstrates that small and medium enterprises have a specific perception of Business Excellence, and this represents a research opportunity that should be addressed in the future.

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