A New Conceptual Model for Excellence in Business Towards Sustainable Development

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ABSTRACT

Purpose: The purpose of this paper is to understand whether or not the European Foundation for Quality Management (EFQM) Model and the Shingo Model promote and are embedded into the three pillars of sustainability, as well as to propose a conceptual model for excellence in business towards sustainability.

Methodology/Approach: Following the PRISMA methodology, 102 articles were included in the review. A bibliometric co-citation network was created based on those publications to understand the link between the topics, using the VOSViewer software. This paper presents a literature review on the topics of the EFQM and Shingo Model, Corporate sustainability (CS), and the relationship between the excellence models and CS.

Findings: Findings from the literature review indicate that effectively the new version of the EFQM Model and the Shingo Model guide organisations towards achieving sustainable economic, social, and environmental results.

Research Limitation/Implication: There are still a restricted number of articles on the Shingo Model and on the relationship between the Shingo Model and CS, as well as, on the latest version of the EFQM Model and therefore on the relationship between this model version and CS, which presents a limitation to this paper.

Originality/Value of paper: This paper contributes to filling the literature gap regarding the lack of studies evolving the EFQM 2020 model version and the Shingo Model, as well as its relationship with CS.

Category: Conceptual paper

Keywords: European foundation for quality management model; Shingo model; corporate sustainability; environmental policy; stakeholder engagement

1 INTRODUCTION

To cope with the daily challenges in organisations and with permanent and rapid transformation, organisations have been implementing excellence models as they seek to achieve levels of excellence that not only allow for an increase in quality and performance but also provide long-term sustainable results. This search for excellence resulted in many excellence models worldwide (Muhammad Din et al., 2021), such as the European Foundation for Quality Management (EFQM), the Malcolm Baldrige National Quality Award (MBNQA), the Deming Prize (DP), and the Shingo Model. These models inspired the creation of many others and essentially differ in the weights given to criteria or in the application framework, as each model is adapted to the sociocultural and economic perspectives where it was created (Periañez-Cristobal et al., 2020).

Business Excellence Models (BEMs) should be considered as a management philosophy, a set of guiding principles, criteria, and approaches that produce the best results in the medium and long term, promoting sustainable future development. To achieve excellent performance, the best practices in terms of leadership, strategy, human resources, customer management, operations, and social responsibility should be embraced. Therefore, business excellence allows for the development and strengthening of management systems and processes in order to enhance organisational performance and create great value for its stakeholders (Zapletalová, 2022).

The EFQM Model provides guidance to implementing a TQM (Total Quality Management) culture and attaining excellent results. Organisations can permanently seek improvement, building their way towards excellence through the self-assessment tool (Sá and Oliveira, 2013). Another important model, but yet not very widespread, mainly in Europe, is the Shingo Model that comprises a set of principles and behaviours and shape organisational culture fostering organisational and operational excellence (Shingo, 2023).

Many organisations still measure their performance based on financial results. However, in order to sustain excellence, social and environmental performance must also be considered. Excellence models have been promoting cultural, social, and environmental factors as one of the keys to success. However, it is important to understand how these models inspire organisations to promote the best sustainable practices and how they perceive them. Concerning the shortcomings previously stated, this paper aims to answer the following research question (RQ):

RQ: How do BEMs inspire the sustainability of organisations?

The remainder of this paper is organised as follows: section 2 comprises the research methodology adopted to carry out the research, and Section 3 provides the results of the literature review, followed by the discussion of the evidence found previously. The paper ends with its main conclusions, contributions, limitations, and future research avenues.

2 METHODOLOGY

In order to understand the evolution of scientific knowledge and its production regarding the EFQM model, the Shingo model, and its relationship with CS, this literature review was accomplished following the PRISMA Methodology 2020 (Page et al., 2021) (Fig. 1), to select the final number of publications (n).

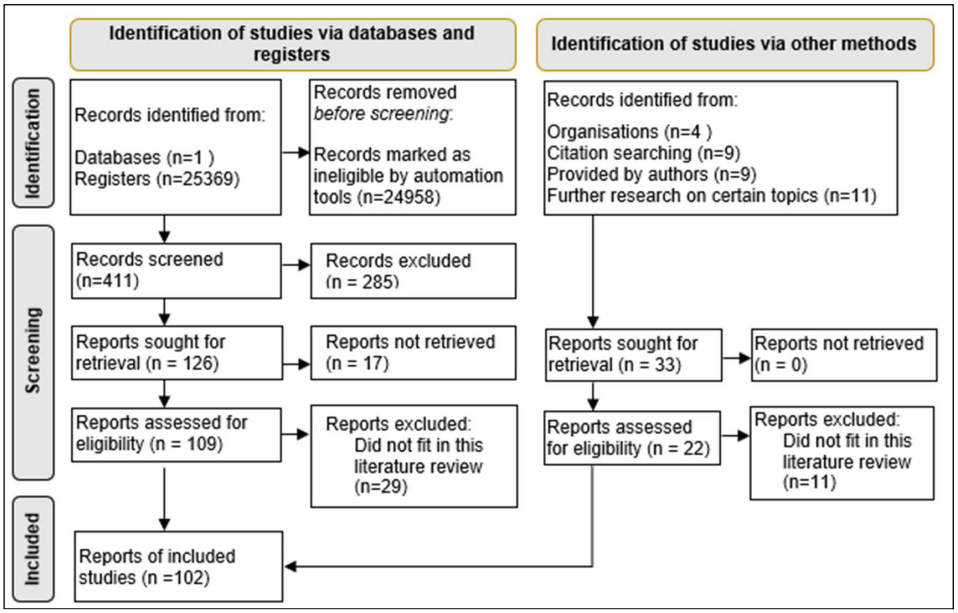

Figure 1 – PRISMA Methodology

The research was conducted from 27th November 2022 to 30th December 2022. The main database used for the purpose was the Web of Science. The searched words were only "EFQM*" or "Shingo*", due to the lack of publications regarding EFQM and Shingo's latest model versions, as well as the lack of publications regarding studies evaluating the relationship of these models with CS. After applying the automatic filters all the abstracts of articles were read for the publications to be selected. The following table (Tab. 1) summarises what criteria are applied.

Table 1 – Inclusion Criteria to Select the Publications

EFQM Model and Shingo Model	**Corporate Sustainability**
i. Searched by topic (title, abstract, author keywords, and keywords plus): "EFQM*" or "Shingo *" ii. From 2013-2022 iii. Articles and proceedings iv. English Language	i. Searched only by keywords: "Corporate sustainability" or "Corporate social responsibility" or "CSR" ii. From 2018-2022 iii. Articles iv. English Language v. Only Highly Cited Papers

Notes: EFQM – European Foundation for Quality Management; CSR – Corporate social responsibility.

After applying automatic tools in the database, according to the inclusion criteria, it was reached a total of 411 publications. Consequently, after reading its abstract only 126 were selected. 17 publications were disregarded as access to them was unable and 29 publications were not considered relevant after reading the whole paper. Due to the lack of publications as already mentioned, grey literature (conference proceedings) was also considered, as well as some documents accessed through the webpage of organisations, and through citation research. Some were provided by the authors and some of them were searched on the Web of Science and in Google Scholar additionally, to complement specific topics, whenever it was necessary throughout the literature review. The literature was selected from the last 10 years (2013-2022).

Using the software VOSviewer it was possible to construct and visualise bibliometric networks of author's keywords co-occurrence (Fig. 2), using the publications selected to study only from Web of Science. Seven keyword clusters were obtained from this analysis, as shown in Tab. 2.

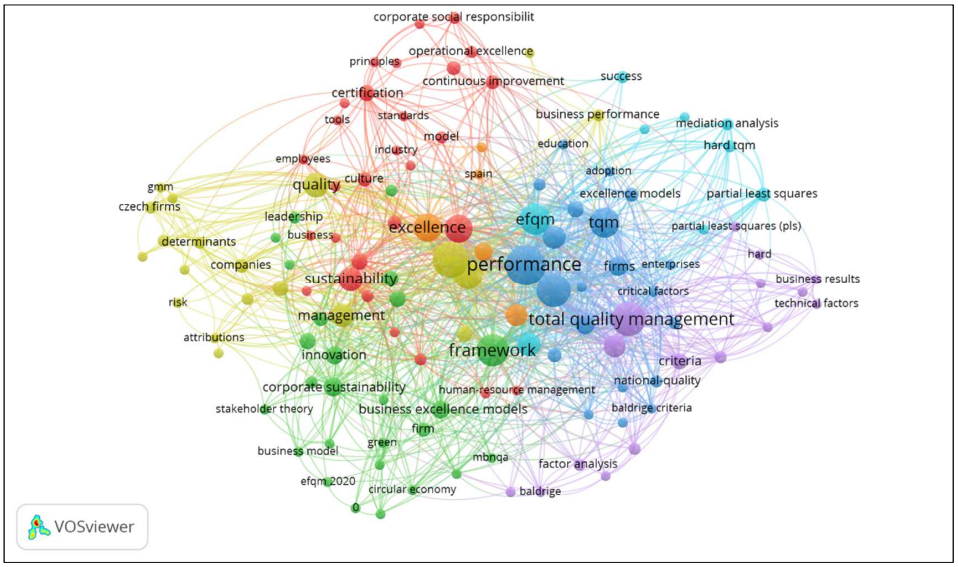

Figure 2 – Bibliometric Network

Table 2 – Clusters Obtained from Bibliometric Networks

Clusters	Keywords
1	Business, certification, commitment, continuous improvement, corporate social responsibility, CSR, culture, employees, engagement, environmental performance, human resource management, industry, ISO 9001, lean, maturity, model, operational excellence, principles, process, quality management, safety, Shingo model, standards, sustainability, systems, tools, values
2	Business excellence models, business model, challenges, circular economy, corporate social responsibility, Deming prize, EFQM 2020, EFQM 2020 model, environmental protection, firm, framework, green, health, innovation, leadership,

Clusters	Keywords
	MBNQA, organizations, stakeholder theory, sustainable development, strategy, supply chain, transformation
3	Adoption, Baldrige criteria, BEMs, competitive advantage, contextual factors, education, enablers, excellence models, firms, human-resource, implementation, mediating role, national quality, organizational performance, results, self-assessment, TQM, TQM implementation
4	Attributions, business performance, companies, Czech firms, determinants, dummy variable, EFQM model, financial performance, governance, impact, management, profitability, quality, reputation, research and development, risk, social responsibility, working capital
5	Awards, Baldridge, criteria, critical success factors, EFQM excellence model, factor analysis, hard, innovation performance, PLS, performance measurement, satisfaction, social factors, technical factors, TQM, validation
6	Business excellence, EFQM, hard TQM, mediation analysis, PLS-SEM, quality management practices, strategic planning, sucess
7	Excellence, excellence model, integration, ISO-9000, Spain

Notes: CSR – Corporate social responsibility; BEMs – Business Excellence Models; EFQM – European Foundation for Quality Management; MBNQA – Malcolm Baldrige National Quality Award; TQM – Total Quality Management; PLS-SEM – Partial Least Squares -Structural Equation Modeling.

Two words may seem outliers "Czech firms" and "Spain". Rotta and Rave (2017) found the same conclusions in their literature review. In fact, Spain and the Czech Republic are the countries that produce more studies on EFQM Model. The following figure (Fig. 3) shows precisely the distribution of the selected publication (from Web of Science) by its country of origin, where the previous premise can be corroborated.

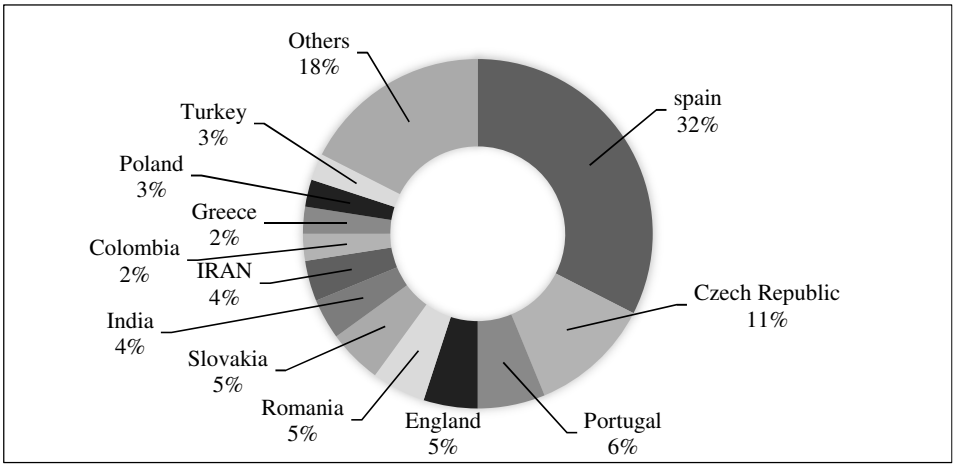

Figure 3 – Distribution of Publications by Country of Origin

Also, Spain is the European country with more applications and recognitions of the EFQM Model (de Menezes, Escrig-Tena and Bou-Llusar, 2021; Yousaf and

Bris, 2020). Shingo Model occurs with not as much relevance as EFQM Model as only nine publications on the Shingo Model were considered to be analysed. Within the selected publications, Portugal and USA are the countries that have published more on Shingo Model (tree articles each).

A scarcity of articles in what concerns the relationship of EFQM Model with CS was also witnessed by Fonseca, Amaral and Oliveira (2021). However, the articles addressing the Shingo Model and CS were substantially even more marginal. The minimum number of articles existing on Operation Excellence is also referred by Carvalho et al. (2019). To contextualize the topic on CS and to analyse its scientific evolution, a section regarding CS was also considered. The number of publications on this subject is substantially higher, thus the inclusion criteria were different. Fig. 4 shows the evolution (exponential growth) of articles concerning CS on the Web of Science, highlighting sustainability as a subject gaining more and more prominence.

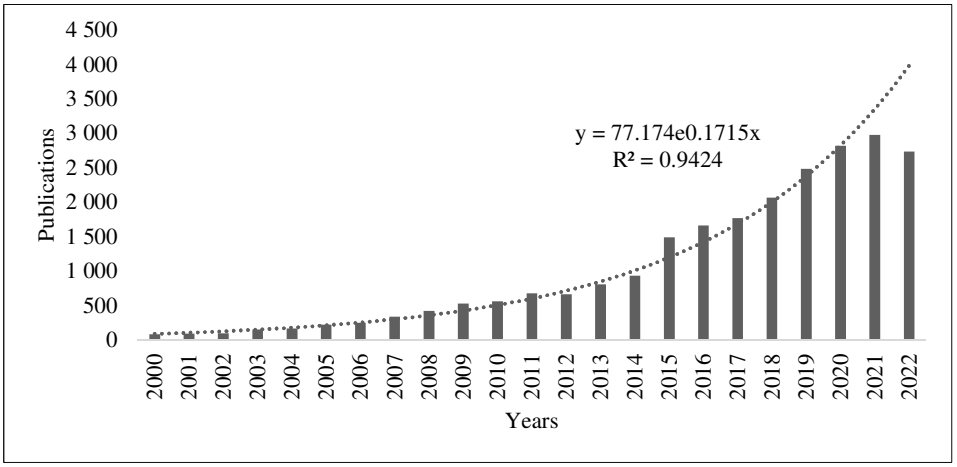

Figure 4 – Evolution of Studies on Corporate Sustainability

3 RESULTS

3.1 EFQM Model

The EFQM model is a comprehensive tool that aims to "support leaders as they manage cultural change and transformation to deliver performance improvements and benefits for their key stakeholders" (EFQM, 2019). EFQM model is dynamic, and constantly subject to revision as it must be improved to accompany the progress and transformations in organisations (Fonseca, Amaral and Oliveira, 2021). Over the years, the EFQM model has shaped the quality of organisations and has identified areas of improvement, as this model constitutes a self-assessment tool that can be used to detect the strengths and weaknesses of an organisation (Zapletalová, 2022). Improvement of the image, client satisfaction, commitment and satisfaction of employees, more profits, innovation, and

optimisation of the use of the information systems are some of the benefits that can be achieved when implementing this model (Suárez et al., 2017).

However, there are still some barriers to the implementation of the Model, such as a lack of knowledge about it, lack of leadership, lack of physical or financial resources, the complexity of the model, etc. These barriers can be characterised mainly in three groups – cultural and behavioural barriers, organisational barriers, and resource barriers (Gómez-López, López-Fernández and Serrano-Bedia, 2017; Suárez et al., 2017). Conversely, the results of EFQM model implementation can be divided into three groups: Internal results, Economic results, and Human resource results. Highly results-oriented organisations usually increase the efficiency of internal processes, which leads to an improvement of image and improvement of administrative procedures. Moderately results-oriented organisations tend to increase the involvement of employees, whereas lowly results-oriented organisations present better internal and human resource results than economic ones (Gómez-López, Serrano-Bedia and López-Fernández, 2019).

This Model can be implemented independently of the type of activity (Calvo-Mora et al., 2015; Suárez et al., 2017), such as in manufacturing, banking, finance, education, management, consultancy, etc. (Wierzbic and Martusewicz, 2022), whether it is a public, private or third sector industry (EFQM, 2019) or regardless of its dimensions (Fonseca, 2022). However, it is important to emphasise that private organisations are more prone to achieve excellence through the implementation of the EFQM model (Zapletalová, 2022) and that results depend on the size of organisations, benefiting the larger ones (Calvo-Mora et al., 2015; Veselova, 2018). Escrig and de Menezes (2016) also reinforce that for large organisations to achieve the best results, efforts should be placed mainly on Leadership and systems.

SMEs (Small and Medium-sized Enterprises) face a huge challenge in the implementation of the EFQM model, mainly, due to four reasons: the definition of the model is abstract (raising the need to create and adapt a model concerning SMEs); lack of transparency in the cause-effect relationships between enablers and results; lack of specification on how to implement the model in certain types of organisations. In addition, absence of subsequent guidelines on what changes or practices should be implemented after an organisation self-assessment (Jaeger and Matyas, 2016), even though they show more flexibility (Veselova, 2018).

EFQM Model is gaining great prominence in the health sector and higher education (Yousaf and Bris, 2020). Portuguese higher education institutions also use the EFQM model as a quality management system (Zgodavová, Urbančíková and Kisela, 2015). Being a comprehensive model, comprises a disadvantage according to authors, as some of them consider that criteria and/or self-assessment weightage do not fit well in all sectors of activities, as a consequence some authors, like Vukomanovic, Radujkovic and Nahod (2014), proposed

adaptations of the EFQM model, regarding some types of specific industries, in this case specifically the construction industry.

Certified firms generally perform better than non-certified ones, as pointed out by Yousaf (2022a) despite most certified companies not being yet sufficiently efficient (Yousaf, 2022b). However, Yousaf, Bris and Haider (2021) did not confirm the results attained by some other authors that certification on this model increases firms' profitability, as contrary results were experienced. Many organisations have already started their journey towards certification previously with ISO 9001, ISO 14001, B Corp, etc. Fonseca et al. (2022) concluded that these certifications also address CSR and lead organisations towards sustainable development. The same conclusions were taken by Bravi et al. (2020) regarding ISO 14001. Furthermore, Fonseca (2015) compared ISO 9001 with EFQM Model enabling to reach the conclusion that ISO 9001 incorporates many EFQM principles. Also, it was concluded that companies with higher years of ISO 9001 certification tend to have better results in the assessment and recognition of the EFQM Model.

Over the years, researchers have agreed that TQM philosophy inspired and is incorporated in the formulation of this Model, despite having subsequently, evolved by integrating other aspects such as social responsibility, which was not part of the TQM principles initially (Gómez, Martínez Costa and Martínez Lorente, 2017). Implementing TQM is an utterly complex process as it involves changing the working cultures and has an impact on people (Yusof and Aspinwall, 2000). Hence, measuring the critical factors is extremely relevant to control the success of TQM implementation (Hietschold, Reinhardt and Gurtner, 2014). Many authors divide these critical factors into two groups – soft and hard factors (Calvo-Mora, Picón, et al., 2014). In EFQM Model there is no distinction between both TQM factors. However, Calvo-Mora et al. (2020) concluded that soft EFQM factors have a strong direct relationship with customer and people results. It also has an indirect relation with society and key results, whereas these two variables (society and key results) show a strong direct relation with strategic-hard EFQM factors; also, soft factors (leadership and people) have high importance in the management systems and must be disseminated as a mean to develop strategic-hard factors in organisations. Magd, Negi and Ansari (2021) emphasises the importance of implementing TQM practices in order to enhance organisational performance and business sustainability, i.e. to achieve overall success. "TQM Models" were the first models introduced in businesses that briskly evolved to the term "Models of Excellence", with the appearance of MBNQA and EFQM models, raising the question about whether TQM and Excellence Models were similar or not. However, notwithstanding there is a high correlation between the TQM dimensions and the EFQM enablers, some TQM elements are omitted from the EFQM enablers' content, in other words, implementing the EFQM Excellence Model is means to achieve TQM, but not sufficient (Gómez, Martínez Costa and Martínez Lorente, 2017).

EFQM Model consists of a holistic approach (Pop and Pelau, 2017), i.e., to attain excellent results, an integrated and comprehensive perspective of the model criteria must be considered (Suárez, Roldán and Calvo-Mora, 2014). Innovation plays a crucial role in sustainable success, as a consequence, organisations must constantly seek opportunities and be prepared for the change in order to enhance their performance (Spaček and Vacík, 2016). The newest version of the EFQM Model gives great emphasis to innovation. Actually, as concluded by Para-González, Jiménez-Jiménez and Martínez-Lorente (2022) EFQM Model is directly related to developing radical changes within an organisation.

The Radar chart is a graphical method of displaying multivariate data in the form of a two-dimensional chart of three or more quantitative variables represented on axes starting from the same point. This tool consists of an evolution of the PDCA (Plan-Do-Check-Act) cycle and is extremely important as it can be used as a self-assessment tool to find strengths and opportunities; to have external recognition and to compare the performance with other organisations that implemented the EFQM model and the Radar logic. It provides the possibility to measure the progress of an organisation (EFQM, 2019). Özmen et al. (2017) warn of the importance of the self-assessment process.

To spread the implementation of its Model, EFQM created a recognition mechanism. The purpose of the awards is to promote and recognise innovation and success, inspire the business community, and allow debate (Ghicajanu et al., 2015) to assure the continuous improvement of organisations. However, a few remarks must be noticed. Firstly, gaining a quality award is not directly linked to an increase in performance in a certain organisation. Gómez-López, Serrano-Bedia and López-Fernández (2016) explain that the credibility of some prizes has been compromised, as some companies face bankruptcy after gaining the award, leading to the conclusion that winning a certain prize is not the solution to fix the issues of an organisation. The same authors also state that sometimes the model tends to highlight more the scoring process, while alternatively, the model should provide the right means to attain a specific result. Besides, some criticism lies in the lack of transparency in the prizes awarded. Gómez-Gómez, Martínez-Costa and Martínez-Lorente (2016) report that all BEMs have self-evaluation tools by weighting the different criteria, to show the "degree of excellence" of the organisation, but none of them reports what is the logic behind the weight given to each criterion. Escrig-Tena, Garcia-Juan and Segarra-Ciprés (2019) also emphasise the importance of internalising the EFQM model, since a frequent cause of failure lies in the lack of incorporation of good management practices on the people directly connected to the organisation, as sometimes an organisation can be more focused on obtaining recognition rather than embedding the best practices. Moreover, the authors concluded that to have a proper internalisation of the model, internal reasons are more significant than external ones.

In what concerns organisational culture, hierarchical or market type are the ones that have a positive relationship with the EFQM enablers (Giménez Espín, Costa and Jiménez, 2022). Process management, quality policy and planning are the

criteria with a bigger influence on employee satisfaction (Álvarez-García et al., 2016), since higher levels of employee satisfaction led to the successful implementation of the EFQM Model concluded. Results also show that worse results are obtained from organisations with low results in People Results. In turn, better organisations have higher scores in Business Results and People Results. Also, it was concluded that ownership, size, the criteria Process, Products and Services, and Leadership do not determine if an organisation is successful or not, but rather its strategic vision, proactively fulfilling the stakeholders' expectations and understanding of the importance of human resources – these results are coherent with the orientations of the new EFQM Model (Periañez-Cristobal et al., 2020).

3.2 Shingo Model

Operational Excellence focuses on making improvements at the operational level to achieve a competitive advantage. It can be considered a philosophy of leadership, teamwork, and problem-solving regarding meeting customer expectations, employee empowerment, and optimisation of processes and comprises four dimensions: Cultural Enablers, Continuous Process Improvement, Enterprise Alignment, and Results. Many authors dedicated themselves to developing a model for Operational Excellence. Conversely, it is not possible to specify a certain model as being the most propitious as the diversity of models available ensures sustainable competition and stimulates enhancements (Carvalho et al., 2019; Sony, 2019). However, the most recognised model for Operational Excellence is the Shingo Model, which has been evolving over the years and becoming a more holistic model, namely by exchanging the words "operational excellence" for "enterprise excellence". Shingo Model is not simply a lean program, as highlighted by Kelly and Hines (2019) who affirm that lean organisations centralise attention on achieving certain results, whether Shingo Model comprises wider systems, culture, and guiding principles (holistic perspective).

The Shingo Institute awarded the Shingo Prize to more than 350 organisations worldwide (Shingo Institute, 2022). The awards assigned are based on the assessment of the organisation's results and behaviour, by external examiners from Shingo Institute (Bhullar et al., 2014). Those results must indicate outstanding (world-class) outcomes regarding the manufacturing and service processes, productivity, quality, and service to the customer (Chakravorty, Atwater and Herbert, 2008). The winners of the Prize belong to the most diverse areas, such as medical, healthcare manufacturing, nutrition, pharmaceutical, consumer goods, electronic, logistics, automotive, food and beverages, military, defense, financial, chemical, aviation, and aerospace, etc. (Shingo Institute, 2022). Hines, Taylor and Walsh (2020) report the case of a nickel refinery organisation, in Wales, which won a Shingo Prize, in 2014, due to performing characteristics of advanced Lean.

It must be emphasised that Shingo Model should not be seen as a short-term approach, but instead a set of principles and behaviours that shape organisational culture and, in its turn, lead to organisational and operational excellence i.e., the best long-term results, promoting a continuous and sustainable improvement (Carvalho et al., 2019; Snyder and Edgeman (2021) warn of the importance of permanently "improving the process of improvement".

Another aspect that must be taken into consideration is that the model does not constitute a solution to all the company's problems. Sony (2019) and Carvalho et al. (2019) warn of the difficulties in maintaining outstanding long-term results. Furthermore, the authors report that some companies that won awards, including the Shingo Prize, declared bankruptcy shortly after receiving it. The lack of sustainable results can be justified by the huge and exclusive focus given to the economic dimension by organisations, disregarding the other dimensions of sustainability. According to the Shingo Model (Shingo, 2023) for an organisation to have durable success, it must search for continuous improvement, and improvements can only be possible if there is a culture to which everyone in the organisation is committed.

There are ten guiding principles divided into three dimensions: Enterprise Alignment, Continuous Improvement, and Cultural Enablers. Guiding principles are considered to be the foundation of a culture that lasts and allows to achieve Organisational Excellence (Shingo, 2023). In the previous version of the Shingo Model, there was a fourth dimension named "Results" at the top of the pyramid, whose Guiding Principle was "Create Value for the Customer" (Shingo, 2023). Later, this guiding principle was incorporated into the dimension of "Continuous improvement". The model possesses a cyclical nature. Guiding principles are "universal and timeless", even though they can be manifested differently according to the culture and era (Edgeman, 2018). Due to a cultural transformation, people will coordinate efforts and work in a collective and collaborative environment, aligned with the vision and objectives of the organisation, which leads to continuous improvement and, consequently, excellent results, reinforcing the cyclicality and interrelationships inherent to the model (Edgeman, 2018). Moreover, Edgeman (2017) concluded that people "routinely and voluntarily" cooperate when the culture of the organisation is embedded in people and their practices.

Paper of Kelly and Hines (2019) report successful cases on the implementation of the Shingo Model, under the alliance with the Lean practices. This alliance allows design, develop and maintain effective systems to foster a cultural transformation (Carvalho et al., 2022).

3.3 Corporate Sustainability

Nowadays, balancing financial results with non-financial practices, such as management, innovativeness, the satisfaction of customers, employees, suppliers, and broader society, quality of life and work and even shorting the working

process is imperative (Škafar, 2019). Hence, terms such as CS and Corporate Social Responsibility (CSR) are gaining prominence over time. Most times, the social dimension is considered the most vulnerable pillar, as stated by Meseguer-Sánchez et al. (2021). Usually, it is the constant pressure by organisations' stakeholders that leads organisations to rise concerns regarding social, economic, and ecological aspects, emphasising the role of stakeholders' engagement in the quest for sustainable practices (Meseguer-Sánchez et al., 2021). Stakeholders' engagement is generally more emphasised when the dimension of firms is bigger and when its legal form is a corporation (Carvalho, Santos and Gonçalves, 2020). Bigger firms usually tend to disclose sustainable practices more frequently, as a strategy to enhance their reputation towards stakeholders (Santos, Murmura and Bravi, 2018). Regarding the social pillar, Teixeira et al. (2022) concluded that operational and social performance has a positive impact on competitive advantage, thus, this pillar must be seen as an investment rather than a cost.

About the environmental pillar, CSR also aims to reduce the environmental impact, giving rise to the concept of Circular Economy (CE) – a way to extend the lifetime of products and reduce the waste of natural resources, which is considered a key to achieving corporate sustainability (Khan, Daddi and Iraldo, 2020). Stewart and Niero (2018) states that CE is becoming to gain more attention, consequently, companies have begun the journey towards its implementation, mainly concerning the recyclability of their products and packaging. As a consequence, EFQM new model version highly promotes CE. Sadegh Amalnick and Zarrin (2017) warn of the importance of evaluating integrated health, safety, and environmental systems.

Concerning the economic pillar, although studies are confirming that positive financial results allow the implementation of CSR, leading to social and environmental improvements within the organisation, it was also proven the contrary i.e., CSR induces a better financial performance (Meseguer-Sánchez et al., 2021). Kim, Kim and Qian (2018) present case studies, whose findings report positive relationships between these two constructs. Concerning an organisation's employees – motivated, satisfied, committed, and comfortable ones, help improve economic results (Manresa and Escobar Rivera, 2021).

3.4 Excellence Models and Corporate Sustainability

Sustainability has not yet been considered a relevant topic in many excellence models. The referred models were not created focusing on sustainability, but rather on economic issues by improving organisational performance through TQM principles and concepts (Rocha et al., 2015). However, over the years, as models are constantly being adapted and improved "to maintain its timeliness and relevance" this dimension has been incorporated (Fonseca, 2022). Nowadays, the concept of being an excellent organisation is not only related to having business success but also to the concept of CSR (Wierzbic and Martusewicz, 2022).

According to some authors, the previous EFQM model already showed a positive direct and indirect orientation towards sustainability (de Menezes, Escrig-Tena and Bou-Llusar, 2021). Jankal and Jankalova (2016) affirmed that the EFQM model was already embedded into CSR practices. However, those opinions are divergent among authors, as some emphasise the model barely referred to this topic, creating themselves a different model version to fulfil the requirements of the EFQM model, but in a modified more sustainable-oriented way (Pelantová and Šlaichová, 2017).

In turn, the newest EFQM model version is highly oriented towards promoting sustainability (Muhammad Din et al., 2021; Val, Regaliza and Maraña, 2020). Martusewicz, Szewczyk and Wierzbic (2022) concluded that the model in analysis is a great tool to "create, implement and monitor strategies" regarding environmental practices. Politis and Grigoroudis (2022) affirms that EFQM model specifically addresses the subject of CS. However, due to being a comprehensive model, it does not suggest what would be the better indicators to measure these results, thus, further modifications would be necessary for this model to be considered a sustainability framework. Also, the EFQM model incorporates the United Nations' 17 Sustainable Development Goals and the United Nations Global Compact (UN, 2000) – ten principles for sustainable and socially responsible business (EFQM, 2019). Sustainability is emphasised throughout this Model version, specifically in criteria 1.1, 1.2, 1.3, 1.5, 2.1, 3.1, 3.4, 3.5, 4.3, 5.1, 5.2, 5.3, 5.4, 5.5, 6, and 7, reaffirming the urge to innovate, promote creativity, develop a "disruptive thinking", and promote the use of technology (Fonseca, 2022; Martusewicz, Szewczyk and Wierzbic, 2022; Politis and Grigoroudis, 2022).

Digital transformation enhances sustainability, as it allows, for example, to reduce costs, and improve efficiency, and labour productivity (Zhang, Chen and Hao, 2022), also there is a positive relationship between digital transformation and the achievement of SDGs, within the UN 2030 Agenda (Camodeca and Almici, 2021). Consequently, studies addressing Industry 4.0 (I4.0) and Quality 4.0 (Q4.0) related EFQM 2020 Model version have been accomplished. Yu, Khan and Umar (2022) concluded that I4.0 has a positive impact on the implementation of a circular economy (CE), and, in its turn, a CE has a positive impact on operational and economic performance. Also, as reported by Martusewicz, Szewczyk and Wierzbic (2022), the concept of CE is mentioned in the EFQM model in criteria 5.5 and 6. Turisová et al. (2020) used this model version to analyse the readiness of companies for I4.0 in a specified area. However, according to Fonseca, Amaral and Oliveira (2021) there is a link between I4.0 and the model criteria and guidance points, despite specific references to I4.0 pillars are not clear, as a result of the non-prescriptive nature of the model. Q4.0 allows processes to be controlled and decisions to be taken in real-time (Zgodavova et al., 2020), being positively related to economic, social, and environmental performance (Antony et al., 2022). Despite the current model does not mention how to achieve long-term Q4.0, it is implicitly included in the

model, as it is referred the necessity to transform the organisation for the future and it is also referred that the organisation must have a wide range of perceptions (feedbacks) from its stakeholders (Nenadál, 2020).

Střihavková, Svobodová and Vysloužilová (2021) findings show evidence that successful organisations in the matter of CSR have certifications in environment and quality. Also, it was proved that there is a synergy between the management systems regarding quality, environment, security, and occupational health and the EFQM model. Thus, if they are already implemented in a company, it will be easier to meet the requirements of the EFQM model, in terms of CSR (Quintero-Garzón et al., 2015).

In what concerns the Shingo Model, it gives great emphasis on the organisational culture, on well-being and empowerment of its employees, on people's development and safety, thus it can be concluded that this model promotes enthusiastically the social pillar. The Shingo Model incorporates the Lean philosophy (Sá et al., 2022) in its principles. These lean practices and tools (for instance 5S, Jidoka, JIT, and SMED) help organisations to attain better environmental and economic performance (Teixeira et al., 2022), thus it can be concluded that the environmental and economic pillars of sustainability are also promoted in the model. Moreover, these two pillars (the economic and environmental) are interrelated as, for example, "Identify and Eliminate Waste" (one of the Shingo principles) is not only related to the environmental pillar, as evident, but as it also improves the flow process, it also has a positive influence on the economic pillar and so on. According to this model, sustainability is achieved due to a cultural shift, where principles and behaviours allow the excellent results to endure.

3.5 A New Conceptual Model

Because of the results obtained from the literature review, a new conceptual model is presented (Fig. 5) in order to understand the major relationships between the concepts abovementioned.

Whether the reasons for the implementation of the EFQM Model or Shingo Model are internal or external, it all comes from the ultimate decision of top management. The models will promote adopting the best management practices to attain the desired sustainable results. In order to attain them, the objectives, mission, and vision of the organisation must be aligned with the business strategy. Thus, it is important to have a synergy between processes, resources, and people inside the organisation. As we live in a dynamic world and organisations pursue excellence, it is natural that the strategy changes over time, however, it is essential that the organisation is always fully aligned with the designed strategy, in order to achieve the desired outcomes (Ghonim et al., 2022).

A cultural transformation will be required to have long-term durable results, whose focus must be directed to the most important assets of organisations –

their employees. Thus, empowering them will be crucial to make employees committed to their tasks and the organisation as a whole, as they feel more valued. It will also make employees less resistant to changes, allowing them to promote innovation inside an organisation, as concluded by Santos-Jaén, Madrid-Guijarro and García-Pérez-de-Lema (2021). Satisfied employees are a crucial key to promoting sustainable economic and environmental results. The more embedded employees are in the organisational culture and the more empowered they feel, the best possible results can be achieved, as well as higher levels of commitment and satisfaction, and so on. One of the key aspects of the model is precisely commitment. Top management commitment is crucial to promote employee commitment, as highlighted by Pellegrini, Rizzi and Frey (2018), when an organisation shows great commitment towards sustainability, its employees are more prone to promote sustainable behaviours. A cultural transformation along with implementing the best corporate policies, which encompasses, for example, the quality policy, the environmental policy, the occupational health and safety policy, and the integrated management system policy will lead to the sustainable development of an organisation.

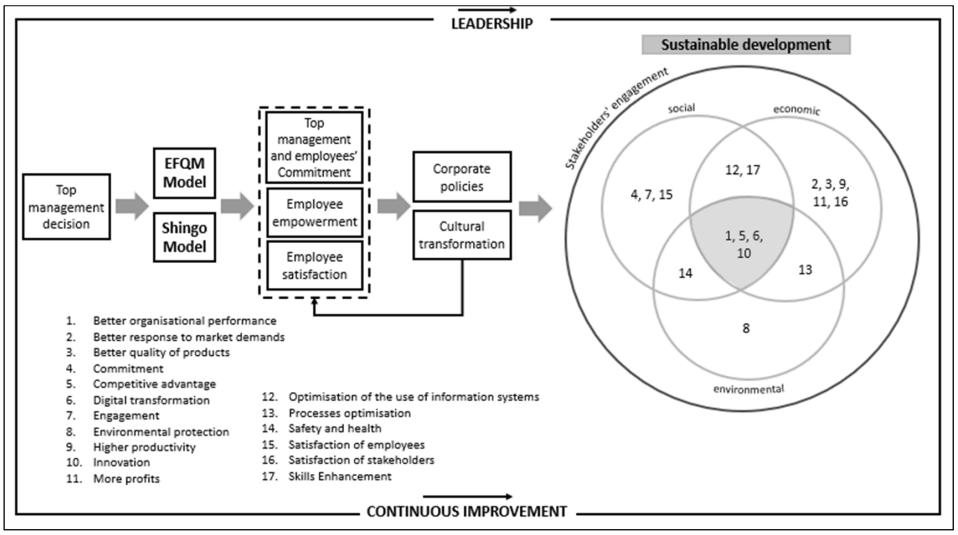

Figure 5 – A New Conceptual Model for Excellence in Business Towards Sustainable Development

Engaging in CS practices comes from a strategic choice as a means to achieve prominent results in each sustainability pillar (Santos, Murmura and Bravi, 2018). From the literature review, 17 results can be achieved with the implementation of the models. Those results were divided into social, economic, environmental, social-environmental, economic-environmental, and socio-economic results, as shown in Fig. 5. The ultimate challenge to all organisations is to ensure that stakeholders' expectations and needs are fully met, thus identify, prioritise and engage them is paramount (Vieira Nunhes et al., 2022). Finally, it is important to highlight that both EFQM and Shingo Model focus on seeking

continuous improvement and promoting the best leadership practices, so that sustainable results may endure (EFQM, 2019; Shingo, 2023).

4 DISCUSSION OF RESULTS

Excellence Models consist of crucial tools that help organisations to achieve excellent performance and to be permanently prepared to cope with change, as well as to be more prepared for future uncertainties. EFQM Model and Shingo Model are constantly evolving and adapting to current needs (EFQM, 2019; Shingo, 2023), which is certainly a positive remark. However, being extremely inclusive can be a negative point. The models can be implemented in larger organisations or SMEs and in many different sectors of activity. Thus, many authors claim attention to the problem of SMEs in implementing these models, as small companies face huge challenges/barriers to the implementation of EFQM or Shingo models (Bhullar et al., 2014). Moreover, authors have been developing adaptations of these models, in order to specify them to a certain type of organisation size or activity (Liu et al., 2021).

Despite being designed from different constructs, with this literature review, it was possible to find some convergence points between the EFQM and Shingo models towards their relationship with CS. Both models consist of a holistic approach and hence, to achieve outstanding results an integrated perspective of the model must be taken (Pop and Pelau, 2017), also as pointed out by Özmen et al. (2017), both the EFQM and Shingo model assessment allows identifying strengths, weaknesses, and opportunities for improvement, helping to assess the maturity of an organisation.

In what concerns the top management, findings from the literature indicate that models warn of the importance of high commitment by top management in all domains and effective leadership, in order to attain the best possible results (Escrig and de Menezes, 2016). Thus, the best management practices, principles, and behaviours must be implemented and embedded into the organisation's culture (Escrig-Tena, Garcia-Juan and Segarra-Ciprés, 2019), to achieve the desired results. Moreover, Su et al. (2022) concluded that CEOs and leaders of the best-performing organisations in terms of corporate responsibility show a specific profile that must be taken into account by managers, as top management positions and decisions inside an organisation are crucial to promoting sustainable practices and attaining excellent results.

Some studies (Carvalho et al., 2019; Gómez-López, Serrano-Bedia and López-Fernández, 2016; Sony, 2019) indicate that certified companies from EFQM Model or Shingo Model perform better, but certification does not promise long-term sustainable results. Outstanding results will only persist if an organisation is committed to the social and environmental aspects, rather than the economic one exclusively, and by permanently seeking continuous improvement, i.e. successful

organisations worry about and promote practices under the three pillars of sustainability, which must coexist "harmonically" (Teixeira et al., 2022).

As employees that perceive the organisation is proactively involved in environmental protection are more willing to cooperate in environmental protection activities (Ahmad et al., 2021). Employees cooperate when the culture of the organisation is embedded in them and their practices (Edgeman, 2017), it is crucial to understand the importance of human resources and empower them as they constitute a critical key to organisational success. Models show the utter importance of promoting high levels of satisfied employees, by empowering and developing them, in whom values of responsibility and commitment will be developed, leading the organisation to achieve durable and sustained results (Kelly, 2016). EFQM Model requires "building a winning culture" (EFQM, 2019) whereas Shingo Model requires beginning a progressive "cultural transformation" (Shingo, 2023).

Having into consideration the aspects abovementioned, the conceptual model presented in the previous section aims to highlight the major constructs found in the literature and their relationships, in what concerns the EFQM and the Shingo Models, in order to achieve excellence in business towards sustainable development.

5 CONCLUSION

The purpose of this paper was to broaden the knowledge of the latest versions of EFQM and the Shingo model towards CS. Over the years, organisations have tried to improve their processes, to obtain better results, whether nowadays, they seem to be increasingly more aware of the urge to incorporate social and environmental practices, if they aim to attain long-term sustainable results. This literature review allowed to conclude that sustainability is emphasised in the models.

Top managers have seen many advantages in the implementation of EFQM and the Shingo model. The 17 reasons identified in the literature review are abovementioned in the conceptual model. However, some managers, especially the ones running SMEs still face some barriers to their implementation, generally due to the complexity of models and the lack of workforce and financial resources. It is important to highlight that both models have a comprehensive nature and that they were designed under the assumption of continuous improvement, to permanently seek to make the best efforts towards achieving the best results. Furthermore, this paper stresses the importance of employee empowerment and satisfaction, as only committed and satisfied employees will help to achieve sustainable results, along with the best organisational culture and environmental policies. It is also focused on the importance of stakeholders' engagement in this process.

5.1 Contributions, Limitations and Future Research Avenues

This paper helps to understand how the EFQM Model and the Shingo Model inspire organisations to promote the best sustainable practices and how they perceive them, having allowed answering the research question initially stated: How do BEMs inspire the sustainability of organisations? Literature suggests that both models promote Sustainability, under its three pillars.

Moreover, this paper provides summarised knowledge on the newest EFQM Model version and the Shingo Model, along with information regarding the relationship between these models and CS. A new conceptual model for excellence in business towards sustainable development is proposed. This model helps organisations to understand the key aspects that must be taken into consideration to achieve sustainable development and their relationships, based on the principles of EFQM and the Shingo Model. Also, the model highlights the outcomes of such implementation divided by the pillars of sustainability and emphasises the need of implementing the policies under the designed constructs of the conceptual model with effective leadership, prioritising continuous improvement, and adequately engaging stakeholders in order to attain sustainable results. Also, as mentioned in the first section, the number of papers available regarding these models, especially the Shingo Model is yet very limited, thus, this paper aims to contribute to fulfil the shortcomings associated with them.

In the process of choosing articles to be as transparent as possible, the PRISMA methodology was implemented. The main limitation is provided by the underlying subjectivity of this paper's authors when choosing the publications by their title and abstract in the records screening phase. Also, there are limitations regarding the only database used – Web of Science, the inaccessibility to some articles, and all the exclusion criteria, namely regarding to the period considered in each search and the single language of the papers considered (English). Furthermore, the difficulty in obtaining publications on the Shingo Model and on the relationship between the Shingo Model and CS, as already mentioned, as well as the existence of a limited number of studies on the latest version of the EFQM Model and therefore on the relationship between this model version and CS, represented adversities in the literature review.

Future research should fill gaps regarding the lack of practical studies on the new version of the EFQM Model and the Shingo model with CS. Moreover, readers are encouraged to study the practical implications of the purposed conceptual model, in order to provide stronger evidence of it, as well as, to enhance the model.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.