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The effects of soft total quality management on the sustainable development of SMEs

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Abstract

This study investigates the soft total quality management (soft TQM) dimensions that affect the environmental and social sustainability of Finnish small and medium-sized enterprises (SMEs), considering the company's business, size, and possible certificates as control variables. Sustainable business has been found to be key to the success of companies, so investing in it is essential for companies. With the help of extensive literature research, the TQM dimensions covering the entire business activity were determined, from which detailed issues were identified. To ascertain the level of implementation of detailed issues, the survey was constructed and sent to 6889 randomly selected CEOs in autumn 2020. A total of 271 responses were received. Based on prior literature and studies, 10 hypotheses were proposed. The collected data were analyzed using regression analysis. The results reveal that two practices—business management systems and human resources (HR) practices—were related to environmental sustainability, while only business management system was related to social sustainability. None of the control variables affected environmental sustainability; however, the industrial sector influenced social sustainability. The study presents recommendations for company managers and the government to support sustainable development, especially in Finnish SMEs. As a practical contribution, the study demonstrates the importance of designing and implementing business management systems for enhanced sustainability. Management should also appreciate that sustainability will not automatically be set at a high level upon certification; thus, the performance of operations and processes should be monitored.

KEYWORDS
environmental sustainability, SME, social sustainability, soft TQM, sustainable business, sustainable development, total quality management, TQM

1 | INTRODUCTION

One of the most difficult issues in business management is achieving sustainable competitiveness and long-term profitability (Corredor & Goñi, 2011; Nasiri et al., 2022). Stakeholders increasingly set demands on small and medium-sized enterprises (SMEs). Companies must ensure the transparency and responsibility of their businesses. SMEs are also required to take measures to increase their environmental sustainability (Font et al., 2016). Despite cost pressures, it is important for companies to implement sustainable solutions in their operations (Bakos et al., 2020). Tasleem et al. (2017) state that total quality management (TQM) is the most common strategic operating model for

companies seeking comprehensive development. Through TQM, all functions of the organization can be developed with continuous improvement, which takes into account the needs of customers and stakeholders (Mehralian et al., 2016). TQM is therefore presented as a significant determinant of sustainability. For example, Ooi (2014) and Abbas (2020) stated that TQM is an important procedure in the achievement of goals and sustainable development. Because TQM positively impacts firms' sustainable competitive advantage (Chen et al., 2020), it has proven to be a good strategy for pursuing excellence and strengthening sustainable development (Tasleem et al., 2017). However, in the past, companies focused more on economic sustainability, while broader sustainability goals are now being adopted (Bateh et al., 2013). Environmental and social sustainability issues are likely to be affected by the appropriate implementation of TQM practices (García-Alcaraz et al., 2019; Khalil & Muneenam, 2021; Nazar et al., 2019), but existing research has mainly focused on economic aspects, whereas environmental and social impacts have fallen into the background. To fill this research gap, this study focuses on the effects of soft TQM on the sustainability of SMEs, especially on environmental and social factors.

In the current business environment, sustainable development has become significant, and with effective sustainable development methods, companies can ensure future success and gain a competitive advantage (Magd & Karyamsetty, 2021). A well-recognized approach to sustainability is the triple bottom line, which considers the economic, social, and environmental components of sustainability (Elkington, 1998), all of which must be in place for economic success. Sustainable operations are thus built on the three principles: environmental integrity, economic prosperity, and social justice (Bansal, 2005). Environmental sustainability considers emissions, waste, and pollution prevention (Cancino et al., 2018; Gupta et al., 2013); social sustainability includes equality, diversity, livelihoods, cooperation, and health; and financial issues include profit, return on investment, and business viability, including long-term viability (Cancino et al., 2018). As described above, sustainable development is a complex system that includes different interpretations (Carew & Mitchell, 2008) and perspectives. Perspectives can include, for example, things that are considered important by different stakeholders (Petrini & Pozzebon, 2009), as well as perspectives related to environmental and social aspects. Stakeholders, in particular, are in a position where they can pressure companies to consider environment and social issues (Koç & Durmaz, 2015). Sustainable development includes the idea of progress toward a fair and prosperous world and the preservation of nature and culture for future generations. For this reason, long-term sustainability requires the management of natural resources and social capital (Dyllick & Hockerts, 2002; Hussain et al., 2018; Petrini & Pozzebon, 2009; Shahzad et al., 2020). On the other hand, to produce more goods with fewer inputs (Vieira & Amaral, 2016), informal pressure on companies is required (Ashton et al., 2017). The above notions show that performance is not only financial but also environmental and social (Zink, 2007). Although the concept of sustainable development has become more common, there remains no clear understanding of the procedures needed to achieve it (Alharbi et al., 2016).

Thinking about sustainable environmental activities globally, Sáez-Martínez et al. (2016) stated that work to improve the environmental sustainability of SMEs is important because they are significant consumers of material and energy and produce around 64% of Europe's pollution. According to their research, only about 20% of companies in Europe are able to fall below the required environmental standards and thus demonstrate excellent performance in environmental matters. Despite this, SMEs think that their impact on environmental issues is limited, but they do not think about the large number of companies that raise the environmental impact of SMEs (Cassells & Lewis, 2011). Also, Caldera et al. (2019) state that the share of SMEs in the pollution produced by the world's industry is formed in SMEs; thus, SMEs must also bear a significant responsibility in reducing pollution and organizing their businesses to a sustainable level. For this reason, it is essential to focus on supporting SMEs in achieving sustainable development because SMEs' resources for developing sustainable business are substantially less than those of large companies (Bakos et al., 2020; Ukko et al., 2022). Madsen and Ulhøi (2016) found that small companies are successful in implementing reductions in environmental emissions, but in the longer term, SMEs have difficulties seeing financial benefits after they have completed easily implemented measures. This lack of perspective makes it difficult to implement investments in environmental innovations because the payback period for these investments may be relatively long. This is one reason why Taiwo et al. (2022) recommended that governments design favorable financing forms for SMEs. Large polluters who can improve their processes through small investments receive the most significant benefits from environmental measures.

Previous studies have emphasized the need for all companies—especially manufacturers—to pay attention to economic issues and environmental and social sustainability needs (Zaid et al., 2018). Achieving a balance between these priorities is difficult and requires effective management systems that improve environmental, social, and economic performance. TQM can be a solution that strives for a balance between these priorities. Bansal (2002) argued that social sustainability requires the integration of sustainable development into management activities, and Elhuni and Ahmad (2014) claimed that organizations should invest in sustainable development as part of strategic quality development. Previous studies related to TQM, such as Sadikoglu and Zehir (2010) and Al-Dujaili (2013), have shown that TQM has a positive effect on company performance. Despite confidence in the effectiveness of TQM, its details have not been determined in detail; however, the quality award criteria have clarified the situation (Modgil & Sharma, 2017). A clear consensus on the structure of TQM focuses on the fact that TQM contains both soft and hard elements (Gadenne & Sharma, 2009). For this reason, this study was initiated with a broad mapping of previous studies to define issues related to TQM. The mapping also considered the priorities highlighted by the European Foundation of Quality Management (EFQM), which is a common reference framework in Europe when discussing issues related to TQM. EFQM provides companies ideas about factors that should be considered when striving toward excellence. The issues dealt with by EFQM are divided into procedures and results. The procedures are divided into: (1) defining the basic mission, vision, and

strategy; (2) organizational culture, pioneering, and leadership; (3) stakeholder engagement; (4) creating sustainable value; and (5) directing and renewing performance. The results are used to measure the organization's performance in matters relevant to the organization. Companies utilizing TQM can develop sustainability-supporting solutions, considering their own processes, for example, in the selection of used energy, the use of waste materials, the development of management processes and the implementation of personnel-related matters, if economic competitiveness allows it. Isensee et al. (2020) highlighted the following opportunities within companies to support the improvement of sustainability in companies: awareness of digitalization, leadership for sustainability, organizational culture and mental states, culture for sustainability, digitalization for sustainability, and digitalization integrated into culture. It is worth noting that many of the problems presented above do not require an unreasonable amount of investment.

By utilizing soft TQM elements, especially in SMEs, significant progress in environmental and social sustainability can be achieved. To explore this research gap, this study proposed ten hypotheses to investigate the soft TQM elements that significantly contribute to environmental and social sustainability. An extensive literature review around the soft TQM studies, EFQM criteria, and related sustainability studies was conducted in order to operationalize the items for studied variables. The information was collected through a survey of Finnish SMEs. This survey was sent to 6889 randomly selected CEOs in autumn 2020. A total of 271 responses were received. In this study, the term "SME" refers to an enterprise that employs fewer than 250 people and whose turnover does not exceed 50 million euros per year. The balance sheet total is no more than 40 million euros, and no more than 25 percent of their shares or voting rights are held by a large company (Statistics Finland, 2020). Regression analysis was used to analyze the collected data, and the reliability of the analysis was verified. The results showed that two practices—business management and human resources (HR) practices—were related to environmental sustainability, while only business management was related to social sustainability. None of the control variables affected environmental sustainability; however, industry/service influenced social sustainability. The structure of the rest of this paper is as follows. First, a theoretical framework is presented, including theoretical foundations, key concepts, and hypotheses. Then, the research methodology is described, followed by the results and discussion. Finally, the conclusions of the study are presented.

2 | THEORETICAL FRAMEWORK AND HYPOTHESES

2.1 | Key literature

2.1.1 | Sustainable business

In the current business environment, sustainable development has become significant, and with effective sustainability procedures, companies can ensure their future success and gain a competitive advantage (Magd & Karyamsetty, 2021). The consideration of sustainable development in business operations has received increasing attention, and its weight has been recognized (Albloushi et al., 2023). A well-recognized approach to sustainability is the triple bottom line, which considers the economic, social, and environmental elements of sustainability (Elkington, 1998), all of which must be in place for economic success; sustainable activities are thus built on the three principles of environmental integrity, economic prosperity, and social equity (Bansal, 2005). The concept of sustainable development has become widespread, but there remains no clear understanding of the procedures needed to achieve it (Alharbi et al., 2016). Previous studies have, however, highlighted the need for all companies—especially manufacturers—to pay attention to economic, environmental, and social sustainability needs (Zaid et al., 2018). In addition, achieving a balance between priorities is difficult and requires effective management systems that improve environmental, social, and economic performance. Bansal (2002) argued that social sustainability requires the integration of sustainable development into management functions, and Elhuni and Ahmad (2014) stated that organizations must invest in sustainable development as part of strategic quality development.

Referring to environmental sustainability, Bozkaya et al. (2022) found that in this century, the importance of renewable and clean energy and environmentally friendly economies will be emphasized. Although the economy is constantly growing, it should be implemented to the highest extent of sustainability and environmental friendliness possible. For this reason, investments related to renewable energy should be a viable option everywhere, as in the exemplary case in Nordic countries are exemplary, which can serve as an example for the rest of the world. Nordic countries should invest more in R&D projects related to renewable energy; this would influence the use of foreign energy and the environmental friendliness of the overall energy use. Due to economic growth, attention must be paid to energy consumption, and efforts must be made to reduce the use of fossil energy. Almeida et al. (2015) highlighted a less often emphasized detail about the possibilities of clean production (CP), that is, the benefits it brings to people's health. The positive health-related effects grow larger as more and more widely generated pollution can be affected. In pursuit of financial benefits and sustainable environmental activities, many companies have evaluated the environmental effects of their own operations. Based on the evaluations, they succeeded in developing cleaner production methods for themselves. Due to the limited resources of SMEs, large companies are clearly ahead of SMEs in adopting clean production operating models. (Nunes et al., 2019) In Finland, the assessment and identification of the environmental impacts of business operations are regulated by law 2014/527. It is also worth noting that when companies apply for certification according to standard ISO 14001, they are required to identify their own environmental aspects and initiate measures to reduce the effects of the most significant aspects and risks. Thus, external guidance also aims to reduce the environmental impact of companies' operations and guides companies toward the introduction of cleaner production. Furthermore, Bakos et al. (2020) showed that pressure exerted by management and stakeholders is essential in improving the environmental sustainability of SMEs. The pursuit of a competitive advantage

is also essential. Competitive advantage is obtained by reducing consumption and waste accumulation and by and by adopting environmental policies that affect the company's image. It should also be noted that it is possible for companies that violate the requirements to receive fines for damages caused by their activities. In addition, knowledge and awareness of sustainable solutions are key to the sustainable operation of SMEs, as SMEs often have very few resources for providing training on these topics.

Additionally, to respond to the ever-increasing number of environmental issues, companies define appropriate strategies to develop their environmentally responsible operations (Xu et al., 2021). The level of this corporate environmental responsibility (CER) often exceeds the legal minimum. Indeed, CER has been recognized as one of the most significant producers of long-term value and sustainability in companies, and company managers have stated that it has a positive meaning for the company's long-term success and value development (Kim et al., 2017). Gyamfi et al. (2022) determined that achieving sustainable environmental activities requires investments by both governments and business stakeholders in, among other things, green information, communication infrastructure, and high-quality education. Furthermore, the need to achieve carbon neutrality is constantly growing. The Intergovernmental Panel on Climate Change (IPCC) has established that reaching global goals requires a reduction of gigatons in the use of coal (IPCC, 2022). Improving the environmental situation and achieving carbon neutrality requires changing the global energy policy, as fossil fuels such as oil, gas, and coal make up the largest part of the total global energy consumption. This problem has been publicly raised, and several countries have drawn up plans to adapt their energy policies toward carbon neutrality. Ambitious goals, however, require innovation in energy use and subsidies to implement environmental investments. (Alola & Onifade, 2022) Finland is among these countries and aims to achieve carbon neutrality by 2035 (Ministry of the Environment, n.d.). In addition, the United Nations (2021), in its medium-term strategy, highlights the three most significant risks for the planet, which are climate change, loss of biological diversity, and pollution. All these risks endanger our relationship with nature. Responding to these risks requires movement toward more sustainable and fairer operating models, reducing pollution and living in harmony with nature. The strategy maps the necessary measures to reorganize consumption and production models toward sustainable development and defines the role of the United Nations Environment Program in the Agenda for Sustainable Development 2030.

Regarding social sustainability, the concept of corporate social responsibility (CSR) has emerged (Kim et al., 2017) to supplement the concept of corporate environmental responsibility. In several studies, CSR has been found to have a positive effect on the company's performance and value (Deng et al., 2013), and it is said to reduce companies' risks; thus, it also influences the financing companies receive (Albuquerque et al., 2019). Lopez-Perez et al. (2017) studied SMEs and found that CSR affects a company's reputation, brand, and company value. Their research shows that as the size of the company increases, so does the relationship between CSR and business results. CSR should therefore be seen as an investment in the future that improves the company's chances of surviving in the intensifying competition. In terms of resources, it can be imagined that larger companies can hire managers from smaller companies in a more targeted manner, which gives larger companies a certain advantage over smaller companies. The advantage in question can be seen in the organization's training and the quality of communication, which can support the progress of sustainable business. According to Zbuchea and Pinzaru (2017), the involvement of top management and owners in the development of operations plays a central role in the realization of social responsibility in SMEs, and the strategic weight of CSR will further increase. Sarvaiya et al. (2018), in turn, reported that the involvement of human resources management (HRM) in the implementation of CSR is desirable because employees must be involved and involved in the change of organizational culture and new ways of working. Due to the significant role of HRM, its tasks should be defined when implementing CSR.

Despite the benefits of sustainable business, its implementation can involve many problems. Bakos et al. (2020) found that barriers to the implementation of sustainable development can be either external or internal. Internal barriers can be, for example, a lack of resources or management support, while external barriers can be weak government support or the fact that there is no consumer demand for sustainable products. It is clear that awareness of sustainable development and its training are at the center of the implementation of sustainable solutions. Often, SMEs do not have the time or resources to train their organizations in these matters. Altinay et al. (2016) emphasized that organizational learning capability is an important factor in the proactive entrepreneurship and sustainable growth of SMEs. Similarly, Álvarez Jaramillo et al. (2019) investigated the barriers faced by SMEs when developing their operations on an even more sustainable basis. They identified 175 barriers to the sustainable development of SMEs and showed that costs and the lack of resources and expertise are the most important barriers. Ghadge et al. (2017) highlight poor market structure, lack of appropriate logistics, and possible weaknesses in environmental legislation as barriers to the implementation of sustainable practices. Lopez-Perez et al. (2017) claimed that small companies face more problems than large companies in the availability of trained personnel and in training the organization; thus, there is a risk that the CSR effectiveness of small companies will not reach the level of large companies. According to Aboelmaged (2018), technology drivers, which in their study were, for example, information, communication, and networking technology; devices and appliances that can be used to save waste and energy; new manufacturing innovations; skills to manage new technology and smart devices; trained employees in using new technology and sustainable manufacturing, do not affect sustainable manufacturing practices. On the other hand, pressure from customers and competitors has a greater impact than, for example, legislation. The support of top management and the commitment of the staff to sustainable development are significant in his research. Aboelmaged (2018) stated that, especially in developed countries, these have a significant impact because management in those countries is based more on dialog than on control. According to Font et al. (2016), in SMEs, the owner-manager's personality often shapes the company's culture, and decision-making also includes elements other

than just the pursuit of profit. Their advantage is the ability to react quickly, but they are often limited by a lack of resources and knowledge. In addition to economic factors, SME owners' attitudes toward sustainable business are influenced by their values and lifestyles.

2.1.2 | Total quality management

TQM is a management philosophy that has helped companies succeed amid intensifying competition (Chen et al., 2020; Sureshchandar et al., 2001). The operational benefits of TQM are usually reflected in reduced failures and losses, which improve finances and increase the sustainability of operations (Iqbal & Asrar-ul-Haq, 2018; Klassen & Whybark, 1999). According to Iqbal and Asrar-ul-Haq (2018), TQM improves performance by enabling functional, economic, social, and sustainable benefits. Its goal is to empower employees, provide understanding of customer needs, measure core processes, and minimize business variability. It is used in the development an organization's functions, with the aim of continuously meeting customer requirements and improving operating systems to increase profitability and productivity (Mehralian et al., 2016). Tasleem et al. (2017) suggested that TQM is the most common strategic operating model for companies to strive for excellence. Furthermore, successful TQM reduces repetition and waste, producing significant cost savings (Abu-Alain, 2018), and social sustainability reflects the functions of an organization that supports people's well-being (Ajmal et al., 2017). Activities should therefore be designed to maintain competitiveness, care for environmental issues, and observe principles of social responsibility (Koç & Durmaz, 2015). According to Isaksson (2005), economic success is a basic precondition of sustainability, and TQM enables the integration of management processes with environmental and social sustainability goals. TQM contains both hard and soft elements (Gadenne & Sharma, 2009)—various quality-related tools or techniques are usually associated with the hard elements, while the soft elements are related to operational management procedures. Both types of element play an important role in quality management systems, but soft TQM has been shown to have a greater impact on performance than hard TQM (Fotopoulos & Psomas, 2009). For this reason, this study focuses on soft elements.

2.1.3 | Justifications for selected TQM dimensions

The soft TQM dimensions used in seven previous studies are presented in Table 1. Table 1 shows that each researcher has a slightly different view of TQM, and no common content has been established. Focusing the research on the right dimensions and issues, the EFQM model and previous studies were used in the planning phase. The dimensions and issues used are categorized in Table 1. This ensured that the study was in line with the European view of TQM. In addition to the information presented above, statements on the structure of soft TQM can be found in the literature, showing that soft TQM relies on strategic planning, goals, feedback, management commitment, and employee involvement in the development of TQM operations (Abu-Alain, 2018; Ali & Johl, 2021; Cancino et al., 2018; Elhuni & Ahmad, 2014; Khalil & Muneenam, 2021). Based on the above, the first TQM dimension of this study was identified as the business management system. In addition to the dimensions of previous studies presented in Table 1, the literature suggests that soft TQM includes empowerment, collaboration, organizational culture, motivation, commitment, and equality (Chams & García-Blandón, 2019; Lagrosen & Lagrosen, 2019; Vihari et al., 2021). Based on this, HR practices were chosen as the second TQM dimension in this study, and the detailed issues are shown in Table 1. Process management, which encompasses the continuous and systematic monitoring of process productivity and materials use, is also an essential aspect of soft TQM (Cetindere et al., 2015; Khalil & Muneenam, 2021; Nazar et al., 2019) This, combined with the data in Table 1, formed the dimension of the research aimed at the processes called constantly evolving processes, whose detailed information is documented in Table 1. Procurement management is an essential aspect of soft TQM, encompassing the management of raw materials, suppliers' processes, and supplier selection (Gonzalez-Benito & Gonzalez-Benito, 2005; Singh et al., 2018). For this reason, and referring to the data in Table 1, in this study, the fourth dimension of TQM was titled advanced procurement procedures. The last aspect of soft TQM examined in this study incorporates stakeholder identification, customer satisfaction, customer expectations, product characteristics, and product image (Álvarez-Santos et al., 2018; Vesal et al., 2020) and was named stakeholder identification and competitive products. EFQM also emphasizes the importance of stakeholders and their satisfaction in several of its titles in implementing effective TQM, so the choice of dimension is justified. In sum, this study aims to examine whether the different dimensions of soft TQM impact sustainability. These dimensions, their details, and their formulations in previous studies are presented above and in Table 1.

2.2 | Hypothesis development

All five dimensions of soft TQM in this study are connected to sustainability and sustainable development (Antolín-López et al., 2016; Khalil & Muneenam, 2021; Lagrosen & Lagrosen, 2019; Nazar et al., 2019; Singh et al., 2018), so it can be assumed that the selected dimensions describe the effectiveness of TQM in matters related to the sustainable business of companies. In this section, we examine the results reported in previous studies on the impact of the selected dimensions on the overall sustainability of operations and set up hypotheses related to the environmental sustainability and social sustainability of companies' operations. Successful operations require minimal bureaucracy, efficient resource planning, effective management systems, better products, better service, and effective responses to changing needs. Failure to develop such operations may be due to a lack of clear development models, which is why organizations invest in sustainable development that accounts for strategies to improve their operations. (Elhuni & Ahmad, 2014) TQM and sustainability

TABLE 1 Summary of soft TQM practices in the current study compared to previous studies.

Soft TQM dimensions	Including…	EFQM criteria	Fotopoulos and Psomas (2009)	Abdullah and Tari (2012)	Singh and Dubey (2013)	Mosadeghrad (2014)	Arunachalam and Palanichamy (2017)	Ong and Tan (2018)	Vihari et al. (2021)
Business management system	• Goals • Feedback • Responsibilities • Management support • Strategy • Risks • Information • Stakeholder expectations	2.3; 1.4 2.1; 2.4; 4.4 1.5; 5.2 1.5 1.3; 1.4 5.1 5.4 1.2	Top management commitment Strategic quality planning Facts-based decision making	Management commitment	Leadership People results management Communication	Top management support Organizational support	Top management commitment Appraisal system	Strategic quality planning	Top management commitment
HR practices	• collaboration • Equality • Initiative • Staff competence	2.3 2.1 2.2; 2.3; 3.2 1.3; 1.4; 2.2; 2.3; 3.2	Human resource development Employee involvement	Training and education Employee involvement	Empowerment Training HR focus	Training Employee participation	Training Teamwork Organizational trust	Employee empowerment	Empowerment Training Involvement Teamwork
Constantly evolving processes	• process efficiency • Efficiency of operations • Continuous improvement	5.1; 5.2; 5.3 5.2; 5.3 5.2; 5.3	Process orientation Continuous improvement		Quality culture	Managed processes Continuous process improvement	Continuous improvement		
Advanced procurement procedures	• Materials and inventory management • Reliability of suppliers	3.5 3.5	Supplier management	Supplier relationship	Partnership and resources			Supplier quality management	
Stakeholder identification and competitive products	• Competitive products • Price–quality ratio = products as expected • Stakeholder identification	4.1 4.4 3.1; 3.3	Customer focus	Customer focus	Customer needs	Customer orientation	Customer focus	Customer focus	

are therefore connected (García-Alcaraz et al., 2019; Khalil & Muneenam, 2021; Nazar et al., 2019).

Management is an important means of achieving sustainability (Cancino et al., 2018; Elhuni & Ahmad, 2014; Khalil & Muneenam, 2021; Khizar et al., 2021). Khalil and Muneenam (2021) found that TQM practices, specifically strategic planning and human resource management, positively affect green performance in health care settings. Using a similar classification of TQM, Nazar et al. (2019) found that strategic planning and human resource management also positively contribute to corporate social responsibility in hotels. Elhuni and Ahmad (2014) recommended paying attention to management engagement and employee involvement when implementing TQM, as these are important factors that companies must adopt when seeking both environmental and social sustainability (see also Ali & Johl, 2021); therefore, they emphasize employees' involvement in the development of TQM operations. Organizational management is crucial to sustainable operations, and comprehensive training and proper supervision help increase the responsibility of personnel (Abu-Alain, 2018). One of the guiding principles of TQM is employee involvement, and it is essential that the staff be empowered, provided with good working conditions, and have common goals to act upon. A business management system would therefore seem essential for achieving environmental and social sustainability. Thus, we hypothesize the following:

H1. Business management systems positively affect environmental sustainability.

H2. Business management systems positively affect social sustainability.

Organizational factors also appear to contribute to sustainability (Ozaki, 2011), and their role in the implementation of TQM was emphasized by Chams and García-Blandón (2019), who claimed that, at the firm level, sustainability can be supported by integrating environmental issues into human resource management functions, supporting a holistic organizational identity and striving to create a transparent organizational culture. To maximize results, employees must be committed to the company's quality programs, as this provides the necessary feedback on process problems (García-Alcaraz et al., 2019). Similarly, Lagrosen and Lagrosen (2019) reported that, with the help of TQM, companies can continuously improve their processes and the quality of their operations, suggesting that commitment, equality, innovative dynamics, sustainable thinking, and openness to learning are crucial mechanisms of sustainable quality management. Ozaki (2011) also found that raising awareness of sustainable development is the best way to promote the adoption of procedures that lead to it and that, without awareness, it is unnecessary to wait for results. Therefore, we argue that making the organization of a company as seamless as possible will motivate the organization's actors to further sustainability initiatives. Therefore, we hypothesize the following:

H3. HR practices positively affect environmental sustainability.

H4. HR practices positively affect social sustainability.

Process management is also an important determinant of sustainability (Khalil & Muneenam, 2021; Nazar et al., 2019) and exerts positive and significant effects on green performance (Khalil & Muneenam, 2021) and corporate social responsibility (Nazar et al., 2019). Klassen and Whybark (1999) determined that preventive process improvement measures can reduce both pollution and losses and that such activity is directly linked to TQM and positively impacts both production and environmental issues; therefore, it is important for management to monitor productivity and material use to ensure the success of TQM (Cetindere et al., 2015). The results of such monitoring can provide management with insights into TQM implementation and the ability of staff to act in accordance with its principles; the sustainable competitiveness of products is also increasingly important, and maintaining such competitiveness can contribute to social and environmental sustainability (Rajesh, 2019). Thus, we believe that process facilitation has an important effect on environmental and social sustainability, and we hypothesize the following:

H5. Constantly evolving processes positively affect environmental sustainability.

H6. Constantly evolving processes positively affect social sustainability.

Procurement is essential for any company's operations, as the timely availability of goods and materials must be ensured and must account for the efficiency of the company and the purchasing process. Sustainability in procurement includes issues related to strategy, the environment, and social issues, so procurement should be understood as part of a company's sustainable operations (Gonzalez-Benito & Gonzalez-Benito, 2005; Singh et al., 2018; Vörösmarty et al., 2011). In addition to efficiency and performance, companies' procurement processes increasingly consider environmental and social responsibility issues (Vörösmarty et al., 2011). When developing sustainable procurement and selecting suppliers, special attention should be paid to waste, production chain losses, and suppliers' operating processes (Gonzalez-Benito & Gonzalez-Benito, 2005), and the management of raw materials is one of the most important criteria for TQM success (Singh et al., 2018). We therefore propose that advanced procurement, as a dimension of TQM, contributes to environmental and social sustainability and hypothesize the following:

H7. Advanced procurement procedures positively affect environmental sustainability.

H8. Advanced procurement procedures positively affect social sustainability.

Satisfied stakeholders play a key role in business performance reviews (Dyllick & Hockerts, 2002; Jorge et al., 2015), including sustainability. Greater stakeholder requirements have increasingly forced

companies to consider the social dimension in sustainable operations (Antolín-López et al., 2016), and the growing interest of stakeholders and customers in corporate social issues means that companies cannot ignore their social responsibilities if they wish to remain competitive (Herremans et al., 2016). Stakeholders also significantly impact social sustainability in supply chains (Mani & Gunasekaran, 2018), and TQM can provide a company with social benefits in the form of better customer satisfaction, broad social acceptance, and motivated employees who are well integrated into the company's operations (Álvarez-Santos et al., 2018). Vesal et al. (2020) also found that a product's characteristics, image, and ability to meet customer expectations significantly impact the market; thus, a company's products impact its sustainability. We therefore suggest that stakeholder identification and competitive products contribute to both environmental and social sustainability, and we hypothesize the following:

H9. Stakeholder identification and competitive products positively affect environmental sustainability.

H10. Stakeholder identification and competitive products positively affect social sustainability.

2.3 | Research framework

A framework was designed (Figure 1) based on the above outline and considering the view of Fotopoulos and Psomas (2009) that the focus of soft TQM is on operational management procedures. As described in detail above, TQM is expected to affect environmental and social sustainability (Abu-Alain, 2018; Elhuni & Ahmad, 2014; Iqbal & Asrar-ul-Haq, 2018; Khalil & Muneenam, 2021; Nazar et al., 2019), and the research model therefore proposes that the five dimensions of soft TQM— business management systems, HR practices, constantly evolving processes, advanced procurement procedures, and stakeholder identification and competitive products—contribute to firms' environmental and social sustainability. The framework also incorporates a company's industry, size, and system certification as control variables. The Methodology section justifies why these control variables have been chosen for this study.

3 | METHODOLOGY

3.1 | Sample and data collection

This study focused on Finnish SMEs, with the criteria for inclusion being a turnover below EUR 50 million and having fewer than 250 employees. The respondents were managing directors of the participating companies, although companies with five or fewer employees were excluded to ensure that the participating companies had genuine TQM practices. The survey was conducted through Webropol. A brief introduction to the study, its focus, and its objectives was sent to 6889 randomly selected CEOs representing both industrial and service businesses, together with the survey, followed by

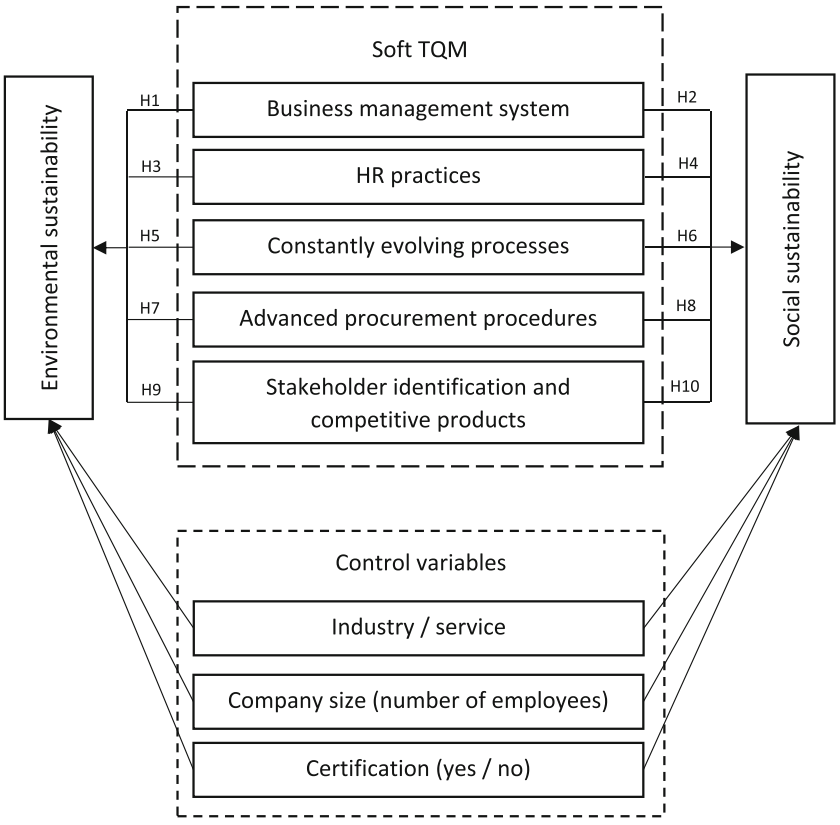

FIGURE 1 Research model and hypotheses.

two reminder messages, which resulted in 271 companies participating (a 3.9% response rate). The survey was carried out during autumn 2020.

3.2 | Measures

The survey assessed the views of the individual respondents on the functioning of soft TQM in their organizations and on the success of the organization in implementing environmental and social sustainability. The design of the detailed questionnaire was based on EFQM requirements, which were taken from EFQM sections mentioned in Table 1. Soft TQM was evaluated according to the five dimensions stated above using 28 statements to which the participants were asked to respond—on a Likert scale from 1 to 5, where 1 = "strongly disagree" and 5 = "strongly agree"—at the company level to ensure that they evaluated the operations of the entire company. The reliabilities of the TQM variables were assessed using Cronbach's α; all values exceeded 0.7, and the constructs were therefore considered reliable (Table 2).

The respondents were then asked to rate their organization's environmental and social sustainability. As Venkatraman and Ramanujan (1987) found both a high correlation and concurrent validity between objective and subjective measures, the use of subjective measures was considered appropriate. Because it was assumed that the terms environmental and social sustainability do not necessarily have an unequivocal interpretation among Finnish business managers, to harmonize the answers, both terms were briefly explained in connection with the question. In the evaluation of social sustainability, the respondent was asked to consider, among other things, equality, treatment of personnel, and compliance with labor legislation. In the evaluation of environmental sustainability, the respondent was asked to consider, among other things, limiting emissions, complying with environmental legislation, and minimizing waste. The evaluation of the level of the company's operations in terms of social sustainability and environmental sustainability was determined on the above-

TABLE 2 Survey items and reliability.

TQM practices	Items	Loadings	α
Business management system	In our organization, we know the goals we strive for	0.570	0.892
	Management provides feedback to staff upon their success	0.527	
	I think responsibilities and powers are clearly defined	0.499	
	Management supports the organization in achieving its goals	0.568	
	I think our strategy is clear	0.476	
	We know the risks of our operations/products	0.476	
	We have significantly developed our operations	0.458	
	Staff are informed of future changes due to remedial/developmental measures	0.603	
	Staff are rewarded for success in continuous improvement projects	0.538	
	We know what our stakeholders expect of us	0.561	
	Employees have been informed of the importance of following agreed-upon procedures	0.622	
HR practices	I think the collaboration within our organization is seamless	0.664	0.859
	In our organization, problems are effectively solved through cooperation	0.743	
	The members of our organization are equal partners	0.559	
	I think that our approach supports initiative	0.599	
	Our staff is motivated	0.583	
	I think our staff competence is excellent	0.416	
Constantly evolving processes	I think our operational processes are effective	0.645	0.807
	Our processes are efficient compared to our competitors	0.700	
	We systematically look for opportunities to improve our processes	0.466	
	Our agreed-upon practices are effective	0.508	
Advanced procurement procedures	Material deficiencies are very rare (and do not interfere with operations)	0.504	0.733
	Materials are not unreasonably in stock	0.519	
	I think our suppliers are reliable	0.743	
	Materials are easily identifiable	0.613	
Stakeholder identification and competitive products	I think our products/services are competitive	0.609	0.789
	I think the price/quality ratio of our products is good	0.559	
	We have identified our key stakeholders	0.544	

mentioned Likert scale, where 1 = "bad", 3 = "neither good nor bad" and 5 = "good".

Finally, the respondents were asked about the organizations they represented, including certification, the number of employees, and whether the company was industrial or a service provider (industry/service) (Table 3). According to Statistics Finland (2021), there are 379,653 companies in Finland, of which there are 343,590 companies with less than five employees; thus, there are 36,063 companies composed of 5–249 people. Taking into account the aforementioned distribution of Finnish companies, it is clear that only a few SMEs have the resources to develop their own products, and these companies mostly act as an additional resource for large companies. According to the International Organization for Standardization (2021), 1,077,884 quality management systems have been certified according to ISO 9001 worldwide. In Finland, 2916 companies have certified their quality systems. For this reason, it is important to study the impact of certification on business sustainability. It has also been assumed that industry and service businesses are different from each other. In addition, it is assumed that large companies have more resources to invest in sustainable business (Lopez-Perez et al., 2017; Nunes et al., 2019); thus, company size is important in the realization of sustainable business. For these reasons, certification, nature of business (industry/service) and company size were selected as control variables for the study.

3.3 | Common method bias and non-response bias

Podsakoff et al. (2003) claimed that common method bias, which could distort the results of the current study, may be a problem in studies with only one informant per company; however, the anonymity of the answers and the logical order of the questions helped to reduce the likelihood of this occurring. An attempt was made to minimize the problem by examining the literature at the design stage and ensuring that the hypotheses were properly focused on the topic under study. The responses were anonymous, although the respondents were limited to CEOs, and the timing of the responses and the time spent on the prompts were not controlled. The statements were designed individually so that, for example, strategy, risks, and staff communication were related to management, whereas continuous improvement was linked to processes. The order of the statements created a logical progression. It can therefore be assumed that common method bias did not affect this study.

Whitehead et al. (1993) found that non-response bias can be determined by comparing the responses of groups of respondents. The first group was comprised of CEOs who responded to all the prompts, while the second group was made up of respondents who failed to respond to some of the prompts. The responses of the groups were compared using one-way ANOVA; no significant difference was found; therefore, non-response bias was not considered an issue in this study.

4 | RESULTS

The study examined the relationships between soft TQM and SME environmental and social sustainability. Table 4 presents a correlation matrix with the means and standard deviations of the variables. The linear regression method was used to test the hypotheses. Prior to hypothesis testing, the pre-assumptions of linear regression were checked as follows. Normality and heteroscedasticity were investigated with a normal P–P plot and a scatterplot of the residuals. Multicollinearity was checked by analyzing the correlation coefficients and variance inflation factor values. As presented in Table 4, all

TABLE 3 Description of the respondent companies.

	Industrial	%	Service	%	Total	%
Type of company	163	60.1	108	39.9	271	100
Certified	83	50.9	23	21.2	106	39.1
Uncertified	80	49.1	85	78.8	165	60.9

TABLE 4 Correlation matrix with means and standard deviations.

	Mean	SD	1	2	3	4	5	6	7
1 Business management system	3.90	0.585	1.000						
2 HR practices	3.88	0.630	0.627***	1.000					
3 Constantly evolving processes	3.66	0.695	0.636***	0.565***	1.000				
4 Advanced procurement procedures	3.92	0.681	0.415***	0.391***	0.376***	1.000			
5 Stakeholder identification and competitive products	4.21	0.583	0.576***	0.486***	0.534***	0.481***	1.000		
6 Environmental sustainability	3.16	0.553	0.269***	0.241***	0.115	0.164**	0.134*	1.000	
7 Social sustainability	3.45	0.547	0.271***	0.222***	0.222***	0.145*	0.238***	0.463***	1.000

Note: ***$p \leq 0.001$, **$0.001 < p \leq 0.01$, *$0.01 < p \leq 0.05$.

TABLE 5 Regression analysis results.

	Std. β	t	R^2	Adj. R^2	F
Dependent: Environmental sustainability					
(Constant)		8.007	0.111	0.083	4.003***
No. of employees	0.043	0.708			
Industry	−0.034	−0.549			
Certification	−0.073	−1.135			
Business management system	0.249	2.617**			
HR practices	0.193	2.172*			
Constantly evolving processes	−0.081	−0.943			
Advanced procurement procedures	0.072	1.034			
Stakeholder identification and competitive products	−0.148	−1.837			
Dependent: Social sustainability					
(Constant)		7.054	0.129	0.102	4.767***
No. of employees	0.050	0.828			
Industry	0.142	2.325*			
Certification	−0.077	−1.219			
Business management system	0.200	2.124*			
HR practices	0.069	0.788			
Constantly evolving processes	0.076	0.890			
Advanced procurement procedures	−0.010	−0.151			
Stakeholder identification and competitive products	0.031	0.384			

Note: ***$p \leq 0.001$, **$0.001 < p \leq 0.01$, *$0.01 < p \leq 0.05$.

TABLE 6 Summary of hypotheses.

No.	Hypothesis	Result
H1	Business management systems positively affect environmental sustainability	Supported
H2	Business management systems positively affect social sustainability	Supported
H3	HR practices positively affect environmental sustainability	Supported
H4	HR practices positively affect social sustainability	Not Supported
H5	Constantly evolving processes positively affect environmental sustainability	Not Supported
H6	Constantly evolving processes positively affect social sustainability	Not Supported
H7	Advanced procurement procedures positively affect environmental sustainability	Not Supported
H8	Advanced procurement procedures positively affect social sustainability	Not Supported
H9	Stakeholder identification and competitive products positively affect environmental sustainability	Not Supported
H10	Stakeholder identification and competitive products positively affect social sustainability	Not Supported

coefficients were lower than the threshold of 0.80. The VIF values ranged between 1.082 and 2.618, which were below the threshold of 5.00.

The results of a regression analysis of the relationships are presented in Table 5. Both research models were significant ($p \leq 0.001$). In the environmental sustainability model, business management systems and HR practices are the positive and significant factors supporting hypotheses H1 and H3, while the remaining TQM practices are non-significant, as are the control variables. In the social sustainability model, the business management system is positive and significant, supporting hypothesis H2, as is the control variable industry; all others are non-significant. Table 6 presents the results for each hypothesis.

5 | DISCUSSION

This study examined the impact of soft TQM practices on the environmental and social sustainability of Finnish SMEs. The research shows that limited TQM dimensions directly improve business sustainability. Only two dimensions—business management system and HR practices—were related to environmental sustainability, while only business management systems were related to social sustainability. The main results are discussed below.

5.1 | The role of TQM in sustainable business

First, regarding the positive implications of business management systems, this study supports previous research, which identified business management system as an important means for achieving sustainability (Cancino et al., 2018; Elhuni & Ahmad, 2014; Khalil & Muneenam, 2021; Khizar et al., 2021). More specifically, Aboelmaged (2018) and Bakos et al. (2020) found that business management has a significant impact on both environmental and social sustainability. In the field of business management, achieving sustainable long-term competitiveness has been a longstanding problem (Corredor & Goñi, 2011). Tasleem et al. (2017) addressed this by stating that TQM is the most common operating model when aiming for comprehensive development. With the help of TQM, it is possible for companies to develop their operations through continuous improvement, considering the requirements of customers and other stakeholders (Mehralian et al., 2016). Ooi (2014) and Chen et al. (2020) also reported on the effectiveness of TQM in achieving goals and developing sustainable business. The results of this study are in line with previous works.

Second, regarding the role of HR practices in sustainable business, the results of the study support the notion of their positive influence on environmental sustainability. The results are in line with Chams and García-Blandón (2019), who found that at the firm level, sustainability can be supported by integrating environmental issues into human resource management functions, supporting a holistic organizational identity, and striving to create a transparent organizational culture. Contrary to this study's initial expectations, HR practices did not have a statistically significant effect on social sustainability, even though the issues to be considered related to that dimension were collaboration, equality, initiative, and staff competence. The reasons for this result may include the fact that Finnish SMEs have not yet understood the comprehensive nature of TQM and the observation that companies should invest in developing sustainability as part of strategic operational development, as stated by Elhuni and Ahmad (2014).

Third, constantly evolving processes did not have an effect on either environmental or social sustainability. This result conflicts with prior research on the management of processes (Khalil & Muneenam, 2021; Nazar et al., 2019). Mehralian et al. (2016) stated that through continuous improvement, operations can be developed considering the requirements of customers and other stakeholders. In this study, which examined how continuous improvement, especially the efficiency of processes and operations, affects the environmental sustainability and social sustainability of business, such an implication was not found. The reason for this may be the possible lack of pressure from large customer companies described above, especially if they were not ready to participate in the sustainability-improving investments made by manufacturing companies in the form of increased prices, for example. Companies are driven by financial drivers and, according to Madsen and Ulhøi (2016), it can be difficult for SMEs to see financial benefits in improving sustainable business, after they have undertaken the so-called easy solutions and the development of TQM or sustainability is no longer a focus.

Fourth, advanced procurement procedures did not directly contribute to the sustainability of business. Previous research has highlighted sustainability in procurement that includes issues related to strategy, the environment, and social issues (Gonzalez-Benito & Gonzalez-Benito, 2005; Singh et al., 2018; Vörösmarty et al., 2011). However, this study shows that advanced procurement procedures do not directly contribute to a company's sustainable operations. The things to aim for are undeniably excellent in companies that manufacture their own products, but in a situation where the vast majority of Finnish SMEs operate (i.e., produce products and services according to the specifications given by customer companies), advanced procurement procedures are not a statistically significant criterion in terms of sustainability. This can be due to the fact that, in some cases, SMEs buy raw materials specified by the customer company with contracts negotiated by the customer company. This leads to a situation in which the manufacturing company has no decision-making power at all in the selection of suppliers and raw materials. In these scenarios, the manufacturing company must settle for the customer company's decisions, even if the company sees that the decisions are not reasonable in terms of sustainability. This is something that large companies should take into account, for example, so that they utilize the experiences of manufacturing companies with material suppliers when performing, for example, supplier evaluations required by their quality system.

Fifth, regarding the dimension stakeholder identification and competitive products, no direct effect on sustainability was found. In previous studies, such as a paper by Koç and Durmaz (2015), it has been reported that stakeholders have the opportunity to pressure companies into more sustainable operating models. As previously stated in this study, the vast majority of Finnish SMEs act as additional productive resources for larger companies. The extent to which large companies require their suppliers to continuously improve their environmental sustainability and social sustainability is an interesting question—are they only interested in product quality and product price? One could imagine that the increasing interest of large companies in environmental and social sustainability would be reflected in the entire field of Finnish SMEs. If such pressure does not come from large companies, the situation results in smaller companies having to justify ignorance of these issues by claiming that their influence in improving the sustainability of the entire industry is negligible, as Cassells and Lewis (2011) found. Another explanation of the nonexistence of the direct relationship is that the manufacturers do not have the opportunity to influence the final product because they deliver products specified by the customer companies. In this case, the only competitive factor remains reliable deliveries and a competitive process. This study raises the issue but does not allow for more detailed analyses of the results, but more precise results require carefully targeted and planned additional research.

Although Ooi (2014) and Chen et al. (2020) reported that TQM is an effective operating method in the development of sustainable business, Magd and Karyamsetty (2021) found that sustainable development has emerged as a significant opportunity to ensure future success and competitive advantage, based on the results of this study,

TQM does not have a wider impact than described above in improving business sustainability. This study did not focus on determining the barriers to sustainability; however, previous studies have shown that achieving positive effects from TQM requires proper implementation of TQM (García-Alcaraz et al., 2019; Khalil & Muneenam, 2021; Nazar et al., 2019). As has already been stated, certified systems are quite common in Finnish companies. Certification may lead to the illusion that the company's system is good and that its procedures are excellently implemented simply because an external certifier has granted the system a certificate. This conclusion is also supported by Kiefer et al.'s (2018) observation that the certification of systems has a very small effect on business sustainability.

5.2 | The role of contextual factors

When looking at the effects of contextual factors on SMEs' environmental sustainability and social sustainability, it can be stated that certification has no effect on them. As stated above, Kiefer et al. (2018) also reached the same conclusion. This is unfortunate because current standards require companies to identify the internal and external requirements affecting their operations, stakeholders, business risks, the level of training required for the operations, and business goals. If implemented correctly, the issues in question should also affect the sustainability of the business; thus, the questions of whether the procedures of SMEs are too superficial and therefore have weaknesses and whether certifiers have the skills to demand sustainability-related procedures must be addressed. Whatever the reason, SME managers must understand that a certified system does not automatically mean sustainable business; as Elhuni and Ahmad (2014) stated, sustainability must be included in strategic planning.

The results of the study also showed that company size has no effect on SMEs' environmental and social sustainability. The result was surprising because several previous studies, such as work by Bakos et al. (2020), Nunes et al. (2019), and Lopez-Perez et al. (2017), found that the larger the company, the more resources it has for development work. This would suggest that larger companies are also ahead of small companies in sustainability matters. It should be noted that this research is aimed at SMEs whose number of employees varied between 10–250 people. In this size distribution, the study did not show that the size of the company has any significance in matters related to sustainability. This study does not take a position on whether the situation would have changed if large companies, which often act as customers of SMEs, had participated in the study.

The last contextual factor examined the impact of the company's industry on sustainability. The companies were divided into industrial companies and service companies. The results showed that when looking at social sustainability, service companies were statistically significantly ahead of industrial companies. In terms of environmental sustainability, the study did not show any differences between industrial companies and service companies. This result is surprising in the sense that industrial companies could have possibilities to influence environmental matters than service companies. However, this finding is in line with the previously mentioned findings of Cassells and Lewis (2011) in that small companies perceive their influence opportunities to be limited due to their size. The reason that service companies are ahead of industrial companies in terms of social sustainability may be due to the fact that industrial companies are often additional resources for the production of large companies, while service producers can supply different services to the processes of larger companies. Such projects are usually managed in close cooperation with the client as different teams; therefore, social sustainability models are automatically included in working in service companies.

6 | CONCLUSIONS

6.1 | Theoretical implications

The research promotes TQM research by demonstrating the effectiveness of TQM practices for the sustainability of the operating conditions of Finnish SMEs. First, the results show that a business management system has a statistically significant impact on both environmental and social sustainability, which is consistent with previous studies, as shown earlier. Business management system appears particularly critical for achieving sustainability as it was the only TQM practice found to be significant for both environmental and social sustainability.

Second, HR practices have a positive impact on environmental sustainability, but not social sustainability, which is consistent with previous research suggesting that organizational factors are key to achieving environmental sustainability (Chams & García-Blandón, 2019; García-Alcaraz et al., 2019). Ozaki (2011) stated that raising awareness of sustainable development is the best way to promote the adoption of procedures that lead to it, and this also seems to be true for SMEs. However, HR practices had no statistical effect on social sustainability, which differs from previous studies, such as that of Nazar et al. (2019) and Ali and Johl (2021). This result is unexpected, especially as the issues under consideration include organizational equality, cooperation, initiative, and motivation.

Third, the remaining TQM practices—constantly evolving processes, advanced procurement procedures, and stakeholder identification and competitive products—had no impact on the environmental or social sustainability of companies. These results are also inconsistent with previous research that examined TQM practices such as process improvement (Khalil & Muneenam, 2021; Nazar et al., 2019), procurement (Singh et al., 2018; Vörösmarty et al., 2011), and stakeholder acknowledgment (Mani & Gunasekaran, 2018); for example, Vesal et al. (2020) and Álvarez-Santos et al. (2018) highlight the importance of product quality for customer satisfaction and thus sustainable business. However, based on the current study, these factors may not be significant for Finnish SMEs, as companies in Finland are different and operate with varying criteria regarding their customers, as described earlier. The issues related to the sustainable business of a company that manufactures its own products differ significantly from a company that manufactures to its customers' specifications.

Finally, the study shows that neither certification nor company size directly contributes to a company's sustainability, even though certifications have the potential to enhance management performance, process performance, continuous improvement, staff competencies and training, and sourcing and supplier evaluations. Nevertheless, the results show that service companies are likelier to be socially sustainable than manufacturing companies.

6.2 | Managerial implications

The study clearly demonstrates the importance of designing and implementing business management system practices, which is underlined by the fact that there is no single way to implement TQM or sustainable business models, as each company must design its own systems. Management should also consider the fact that TQM functionality and sustainability are not automatically placed a high level upon certification; therefore, the performance of operations and processes should be monitored (including the process of management) to ensure continuous improvement of operations.

The study also makes a recommendation to the government to ensure the willingness of companies (especially SMEs) to make environmental investments because it is difficult for SMEs to determine the benefits of the necessary investments. As has already been stated before, the majority of Finnish companies are SMEs; therefore, as a whole, these companies have a significant responsibility for sustainable business operations. The Finnish government has set an ambitious goal of achieving carbon neutrality in 2035. Recent studies have shown that Finland's carbon sink has collapsed due to large-scale deforestation. Replacing felled forests is not simple, so Finland must strive to reduce the generation of emissions in industrial processes in which SMEs play a significant role. The government must support SMEs and think of ways to get companies to invest in better technology and support companies in developing their internal processes, as Alola and Onifade (2022) and Taiwo et al. (2022) state.

6.3 | Limitations and further research directions

This study examined only Finnish SMEs; therefore, it may not be generalizable to companies operating in different geographical areas. The study also used cross-sectional data; a longitudinal analysis would provide additional insights into the interplay between TQM and sustainability. For example, management views on sustainability may vary depending on how long a company has been considering its own sustainability, and longer investigation periods would assist in investigating the actions through which SME sustainability is built.

The study also raised other possible research topics, including why HR practices and constantly evolving processes do not affect sustainability. In-depth case studies are also needed to determine the mechanisms through which TQM practices contribute to both environmental and social sustainability. Furthermore, practical procedures for SMEs to identify stakeholders, their requirements, and the actions needed to meet their needs should be developed—there remains the danger that stakeholders will be discussed by senior management only for this not to be followed with the implementation of operational programs.

The industry would also do well to determine the elements that are essential for companies that have their own products and for those that operate according to customer specifications. In this way, companies can obtain targeted tools for developing their sustainability.

In order to ensure that the real effects of TQM emerge, companies should be grouped into different categories according to how comprehensively TQM is being used in the company at the time of the investigation. Future researchers should conduct this initial study. The situation may be such that companies at the beginning of development imagine that they have already come a long way, while those who have been working with TQM for a longer time find that the work is just beginning and that there is still much to do with both TQM and sustainability.

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