Embedding Sustainability in Small and Medium-Size Enterprises: Experiences From Sweden

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***Abstract*—*Most research on corporate sustainability has focused on large companies' sustainability efforts; however, research on a holistic approach on small- and medium-size enterprises (SMEs) addressing the sustainability dimensions and the system elements is still limited. The aim of this article is to assess how SMEs embed sustainability into their systems. A survey was developed and sent to 261 SMEs, from which 72 complete responses were obtained from SMEs in Sweden. The results show that there could be a better operationalization of the priorities and aligning them with the company's impacts, particularly by focusing more on environmental issues. The results show that 1) SMEs have been embedding sustainability through technocentric and managerial approaches; 2) the focus has been on systems elements that tend to be less connected to others (e.g., products, and operations and production) and not on those with highest influence (e.g., governance and change management); and 3) employees tend to be informed about sustainability issues, but they could receive better training and be better engaged in sustainability efforts. SMEs should take a more holistic perspective when embedding sustainability into their system, and better address governance and change management issues to complement their technocentric and managerial approaches.*

Key words: Centrality analysis, corporate sustainability, organizational systems, small- and medium-size enterprises (SMEs), sustainability management.

Managerial Relevance Statement

Research on a holistic approach on small and medium size enterprises (SMEs) addressing the sustainability dimensions and the system elements, is still limited. The aim of this article is to assess how SMEs embed sustainability into their systems. A survey was developed and sent to 261 SMEs, from which 72 complete responses were obtained from SMEs in Sweden. The results show that there could be a better operationalisation of the priorities and align them with the company's impacts, particularly focusing more on environmental issues. The results show that: 1) SMEs have been embedding sustainability through technocentric and managerial approaches; 2) the focus has been on systems elements that tend to be less connected to others and not on those with highest influence; and 3) employees tend to be informed about sustainability issues, but they could receive better training and be better engaged in sustainability efforts. SMEs should take a more holistic perspective when embedding sustainability into their system, and better address governance and change management issues to complement their technocentric and managerial approaches. This can be done through better employee

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education and engagement, using for example systems thinking, sustainability governance principles, and organisational change management for sustainability theories and practice.

Introduction

Corporations have been engaged in embedding sustainability into their systems (European Commission, 1998; Dunphy *et al.*, 2003; Fergus & Rowney, 2005; Lozano, 2020) and contributing to sustainability (Curtó-Pagès *et al.*, 2021). Corporate sustainability (CS) has been proposed as a precondition for doing business, as a "business case" (Dyllick & Hockerts, 2002), the desirable path for organizations (Dunphy *et al.*, 2003; Weymes, 2004), and a framework to address the full array of sustainability challenges and issues (Bartelmus, 1999; Dyllick & Hockerts, 2002; Lozano, 2012b). CS has to encompass a holistic perspective (Linnenluecke *et al.*, 2009; Lozano, 2013), and include the four dimensions of sustainability (economic, environmental, social, and time), as well as their interactions (Lozano, 2008, 2018b). Research has shown that corporations tend to prioritize economic issues over environmental and social ones (Barreiro-Gen *et al.*, 2020), while their impacts have a similar pattern with a slightly higher effect on social issues (Lozano, 2018a).

Sustainability efforts in a corporation should include the introduction of resource-efficient technologies, sustainability-reporting schemes, and providing sustainable products, services, and product-service combinations (Siebenhüner & Arnold, 2007), as well as employees (e.g., through communication, training, and engagement) (Lozano &Barreiro-Gen, 2021). Many sustainability approaches have been based on technocentric solutions and managerial ploys (Lozano, 2012c, 2015).

CS was first defined as "meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well" (Dyllick & Hockerts, 2002); however, a more complete definition is "Corporate activities that proactively seek to contribute to sustainability equilibria, including the economic, environmental, and social dimensions of today, as well as their inter-relations within and throughout the time dimension while also addressing the company's system (including operations and production, management and strategy, organizational systems, procurement and marketing, governance and assessment, and communication); and its stakeholders" (Lozano, 2012a, 2018b). It should be noted that most efforts to embed sustainability in corporations have tended to neglect the interactions between the corporation system's elements (Lozano, 2020).

Most research on CS has focused on large companies' sustainability efforts (see Eweje, 2011; Hörisch *et al.*, 2015; Ehnert *et al.*, 2016) with more than 13 000 companies in 160 countries that have signed the UN Global Compact (UNGC, 2019), and embedding sustainability into their business models (Stubbs & Cocklin, 2008; Schaltegger *et al.*, 2016; Lozano, 2018b). In spite of these, companies still prioritize economic issues over environmental and social ones (Lozano & Barreiro-Gen, 2021).

There is limited yet increasing research on SMEs, which are key in contributing to sustainability (Klewitz & Hansen, 2014). SMEs represent 99% of all businesses in the OECD, generating about 60% of employment (OECD, 2019). According to the European Commission (2020), a company is considered SME if employs fewer than 250 persons; and has either an annual turnover not exceeding EUR 50 million or an annual balance sheet total not exceeding EUR 43 million.

Most of the SMEs still focus almost exclusively on the economic dimension of sustainability, not considering social and environmental aspects (Trianni *et al.*, 2019). The main barriers that they face to address sustainability are insufficient external incentives (Johnson & Schaltegger, 2016), the lack of financial and human resources (Simpson *et al.*, 2004; Garcőa-Quevedo *et al.*, 2020), the lack of awareness in sustainability issues (Windolph *et al.*, 2014), and the lack of employee engagement (Jenkins, 2009).

Some SMEs have been implementing green business practices, such as environmental management systems (Ammenberg & Hjelm, 2003; Singh & Rustagi, 2012), sustainability management tools (Johnson & Schaltegger, 2016), and sustainability frameworks (Klewitz & Hansen, 2014; Burlea-Schiopoiu & Mihai, 2019); however, research on a holistic approach on SMEs' sustainability efforts including the sustainability dimensions (Klewitz & Hansen, 2014) and the system elements (see Lozano, 2020) is still limited. The aim of this article is to assess how SMEs embed sustainability into their systems.

Methods

An online survey was developed to assess the embeddedness of sustainability in SMEs.[1] The survey had four sections:

1. SME characteristics;
2. sustainability priorities and impacts;
3. sustainability maturity in the company system elements;
4. employee engagement with sustainability.

[1]This research is part of the "Vi ställer om" Project funded by the Swedish Agency for Economic and Regional Growth (20266884).

Section 1 (SME characteristics) provides the background of the company, so that it can be later compared statistically with other companies, and provide explicit advise according to such characteristics. This section has the following questions of the respondent on gender; age group; role of the respondent in the company; sector of the company; size of the company (in number of employees); focus of the company [business to business, business to consumer, or service (e.g., maintenance)]; and product/service systems mix offering.

Section 2 (Sustainability priorities and impacts) focuses on sustainability issues in the company with the following questions: proactive engagement with sustainability; sustainability priorities; and, sustainability impact.

Section 3 (Sustainability maturity in the company system elements) asks about the engagement of the company with sustainability efforts in the following elements (with the scale: not engaged, slightly engaged, moderately engaged, and very engaged) on the following elements: products, operations and production, management and strategy, and governance (institutional framework, board of directors, policies, etc.); organizational systems (human resources, human development, culture, and leadership style); assessment and reporting; services (service provision, maintenance, training, etc.); procurement; marketing; supply chain; stakeholder collaboration and engagement; research and development (including innovation); change management; and, digitalization.

Section 4 (Employee engagement with sustainability) focuses on employees with the following questions (using a five-point Likert scale) on regular training on sustainability issues; information about sustainability efforts in the company; and engagement in sustainability-related processes/ practices.

The survey was sent to 261 SMEs, from which 72 complete responses were obtained from SMEs in North Middle Sweden comprising of three regions (Dalarna, Gävleborg, and Värmland). The companies' contacts were obtained from a national database and contacted via email and telephone. The survey was opened between November 2020 and January 2021. The survey was made available in English and Swedish (the translations were double-checked from one language to the other).

The SMEs were targeted from a list of regional ones and followed up with phone calls to remind them to fill in the survey. Access was challenging in the data collection.

The responses were analyzed using descriptive analysis, Friedman test (for ranking the system elements' engagement), Spearman correlations, and centrality analysis. The analyses were done using SPSS 24 (IBM, 2016) for the statistical part and yEd (yWorks, 2017) for the centrality analysis.

Methods' Limitations The methods have the following limitations. The number of respondents (72) may not allow for complete generalization. The SMEs are from a specific area in Sweden, due to the funding of the project, which may limit the results generalization to other regions or countries. The responding SMEs have a particular sector profile that may also limit the generalization to all industrial sectors. A nonresponse bias may be caused by companies from sectors that were contacted but refused to complete the survey. The generalizability of results to all organizations may be limited to the application of a nonrandom sampling procedure. The survey was designed to be concise for the potential respondents to answer it in less than 20 min, which may not have allowed for more in-depth exploration of some topics.

RESULTS

Of the respondents, 55 were males and 17 females. Most of them were between 45 and 54 years old (33 respondents), followed by 18 between 55 and 64 years old, 11 between 35 and 44, four between 24 and 34, three 75 years or older, and one between 18 and 24.

The distribution of the industrial sectors of the respondent's SMEs showed that most were from the manufacturing sector (32), followed by commercial services (seven), computers and technology hardware (five), construction (four), energy (three), transport (three), food and beverages (one), chemicals (one), and other (16).

From the respondents, 44 indicated that they have been proactively engaged with sustainability issues, of which most of them more than 5 years (23% between 5 and 10 years, 25% between 10 and 15 years, and 23% more than 15 years), as shown in Figure 1.

Figure 2 shows that the main priority of the responding companies has been on economic issues, followed by social ones and the environmental ones, which are in line with large companies (see Lozano & Barreiro-Gen, 2021). The impacts that the respondents recognized were quite similar between the three sustainability dimensions with a slightly less important impact on environmental issues. The comparison between the priorities and impacts indicates that there could be a better operationalization of the

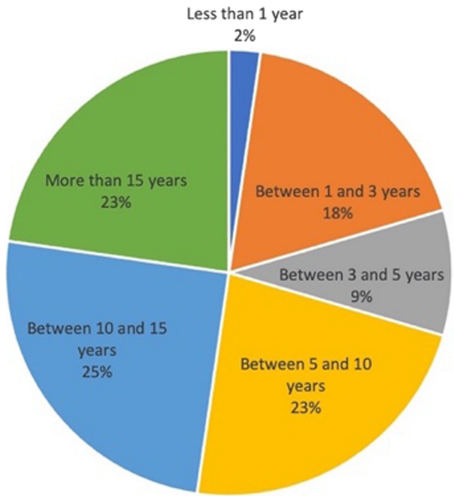

Figure 1. Years that the respondents have been actively engaged with sustainability (44 out of 72 that responded they have).

priorities and aligning them with the company's impacts.

Figure 3 shows the company system elements engagement with sustainability ranking. The highest four are 1) management and strategy, 2) operations and production, 3) stakeholder collaboration and engagement, and 4) Organizational systems. These are followed by marketing, products, services, governance, digitalization, and assessment and reporting. The least engaged are procurement, research, and development, supply chain, and, change management.

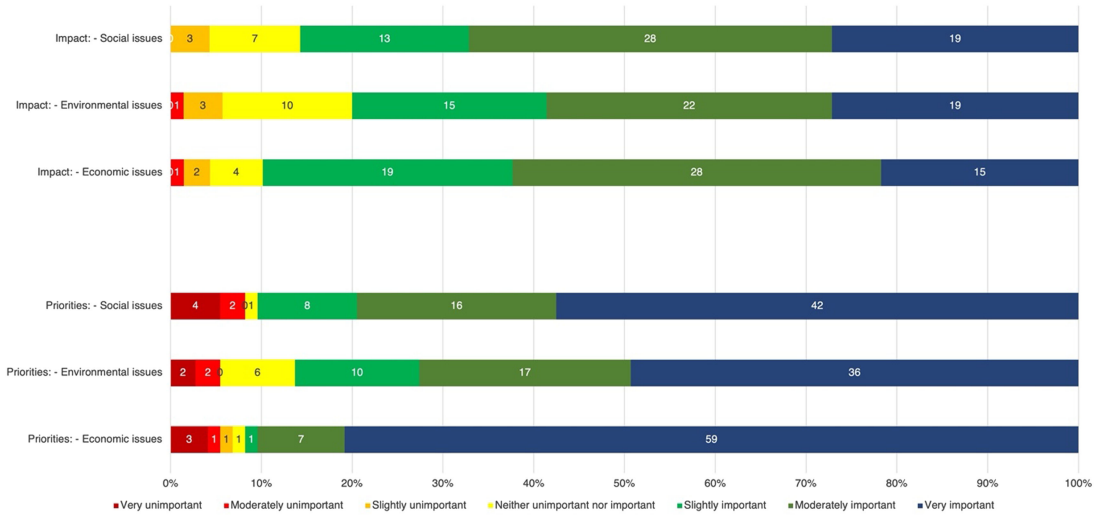

Figure 2. Sustainability priorities and impacts.

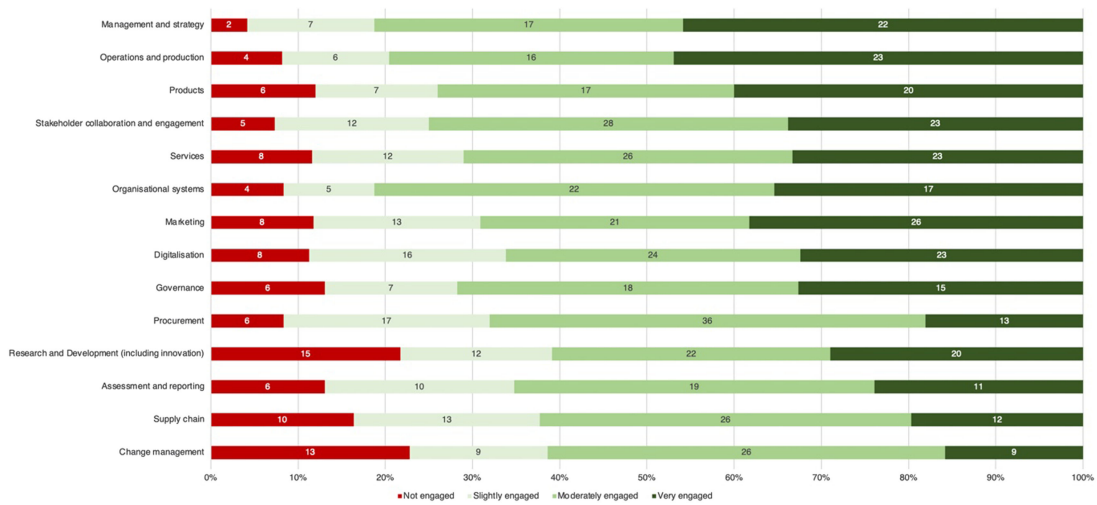

Figure 3. Ranking of the company system elements' engagement with sustainability.

Figure 4 shows the importance of the company system elements' engagement with sustainability ranking divided into quartiles:

- *Top quartile*: Management and strategy, operations and production, products, stakeholder collaboration and engagement, services, organizational systems, and marketing.
- *Middle top quartile*: Digitalization, governance, and procurement.
- *Middle low quartile*: Research and development, and assessment and reporting.
- *Low quartile*: Supply chain, and change management.

Table 1 shows the correlations between the system elements' engagement with sustainability. The green cells show a high relative correlation (0.4–0.7), such as governance with management and strategy (0.695). The yellow cells show a low relative correlation (0.2–0.4), such as marketing and governance (0.258). The red cells show no correlations (0–0.2), such as research and development and products (0.069).

Figure 5 shows the centrality analysis of the company system elements, i.e., how the responses of the sustainability engagement in each system element connect to the other system elements. As it can be observed, the connections can be divided as follows.

- *High relative centrality (between 0.90 and 1):* Marketing (1.00), governance (0.94), and stakeholder collaboration and engagement (0.90).
- *Medium relative centrality (between 0.80 and 0.90):* Change management (0.87), procurement (0.87), management (0.87), services (0.86), organizational systems (0.85), assessment and reporting (0.83), and supply chain (0.82);
- *Low relative centrality (between 0.70 and 0.80):* Digitalization (0.77), research and development (0.74), and operations and production (0.71).
- *Very low relative centrality (less than 0.70):* Products (0.61).

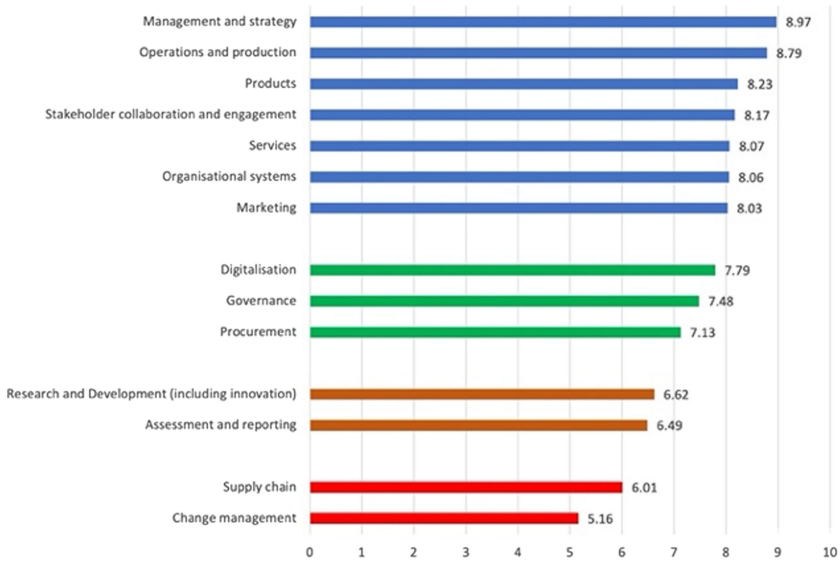

Figure 4. Importance of the company system elements' engagement with sustainability.

Table 2 shows the comparison between the individual rank and the centrality rank. The table shows the biggest changes from the rank of each company system element when considered independently against their rank when considering how they connect to other system elements. The system elements that had the major differences were products, and operations and production that dropped 11 places in the ranking; change management that went up ten places, governance (up seven places), and marketing and

Table 1. Correlations Between the Systems Elements' Engagement With Sustainability.

	Products	Operations and production	Management and strategy	Governance	Organisational systems	Assessment and reporting	Services	Procurement	Marketing	Supply chain	Stakeholder collaboration and engagement	Research and Development	Change management	Digitalisation
Products	1													
Operations and production	0.559	1												
Management and strategy	0.267	0.312	1											
Governance	0.296	0.227	0.695	1										
Organisational systems	0.365	0.29	0.625	0.633	1									
Assessment and reporting	0.054	0.321	0.404	0.489	0.383	1								
Services	0.063	0.285	0.138	0.181	0.221	0.435	1							
Procurement	0.48	0.46	0.188	0.268	0.193	0.138	0.344	1						
Marketing	0.172	0.183	0.253	0.258	0.241	0.407	0.417	0.507	1					
Supply chain	0.281	0.203	0.241	0.369	0.133	0.102	0.252	0.372	0.388	1				
Stakeholder collaboration and	0.142	0.256	0.179	0.081	0.305	0.382	0.557	0.321	0.457	0.247	1			
Research and Development	0.069	0.034	0.212	0.187	0.214	0.257	0.275	0.186	0.494	0.37	0.327	1		
Change management	0.068	0.016	0.23	0.431	0.163	0.143	0.4	0.337	0.433	0.482	0.493	0.323	1	
Digitalisation	-0.039	0.105	0.225	0.202	0.145	0.279	0.392	0.208	0.37	0.331	0.355	0.452	0.479	1

procurement (up six places each). The rest remained somehow in the same rank in both.

Figure 6 shows the responses regarding employee engagement with sustainability. As it can be observed, employees tend to be well informed about sustainability efforts, and they are engaged with sustainability-related processes and practices. Employees could receive more and better training about sustainability issues.

Discussion and Conclusion

Corporations have been engaging in embedding sustainability into their systems. CS has to encompass a holistic perspective, and include the four dimensions of sustainability (economic, environmental, social, and time), as well as embedding sustainability into the company system. Most research on CS has focused on large companies' sustainability efforts, where the priorities have been on economic issues. Research on sustainability in SMEs is still limited. This article provides insights into SMEs priorities and impacts, embedding sustainability into the company system, and employee engagement.

A survey was developed to assess the embeddedness of sustainability in SMEs. The survey had four sections (SME characteristics, sustainability priorities and impacts, sustainability maturity in the company system elements, and employee engagement with sustainability). The survey was sent to 261 SMEs, from which 72 complete responses were obtained from SMEs in North Middle Sweden. The responses were analyzed using descriptive analysis, Friedman test (for ranking the system elements' engagement), Spearman correlations, and centrality analysis.

The results show the following.

1) SMEs have been embedding sustainability through technocentric and managerial approaches, where products and operations and production are of high importance and governance and change management of low importance.
2) The focus has been on systems elements that tend to be less connected to others (e.g., products, and operations and production) and not on those with highest influence (e.g., governance and change management).
3) Employees tend to be informed about sustainability issues, but they could receive better training and be better engaged in sustainability efforts.

These results complement the literature on SMEs and sustainability, such as research on environmental management systems (see Ammenberg & Hjelm, 2003; Singh & Rustagi, 2012), sustainability management tools (Johnson & Schaltegger, 2016), and

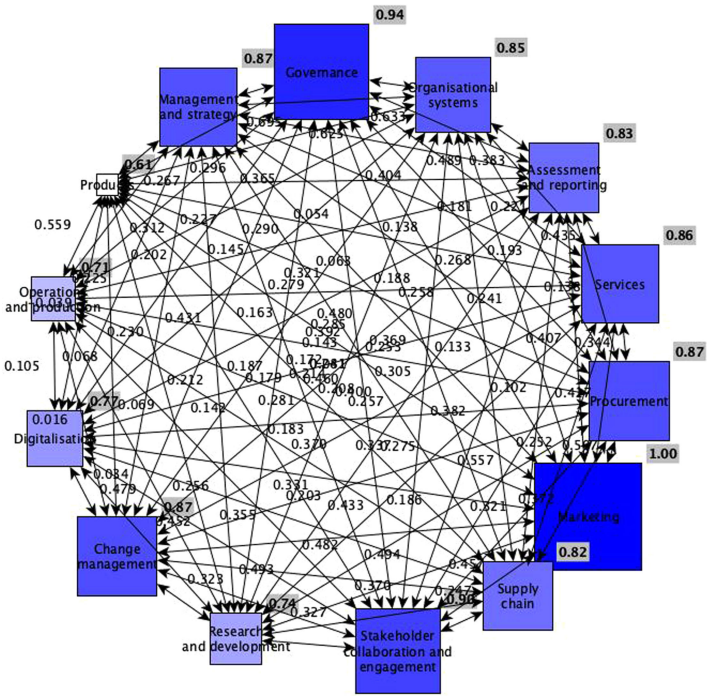

Figure 5. Centrality analysis of the company system elements' connections.

Table 2. Difference in Ranking of the Company System Elements' Engagement With Sustainability Between the Individual Elements and Their Centrality.

	Individual rank	Centrality	Difference
Products	3	14	-11
Operations and production	2	13	-11
Digitalisation	8	11	-3
Management and strategy	1	4	-3
Organisational systems	6	8	-2
Services	5	7	-2
Research and Development (including innova	11	12	-1
Stakeholder collaboration and engagement	4	3	1
Supply chain	13	10	3
Assessment and reporting	12	9	3
Procurement	10	4	6
Marketing	7	1	6
Governance	9	2	7
Change management	14	4	10

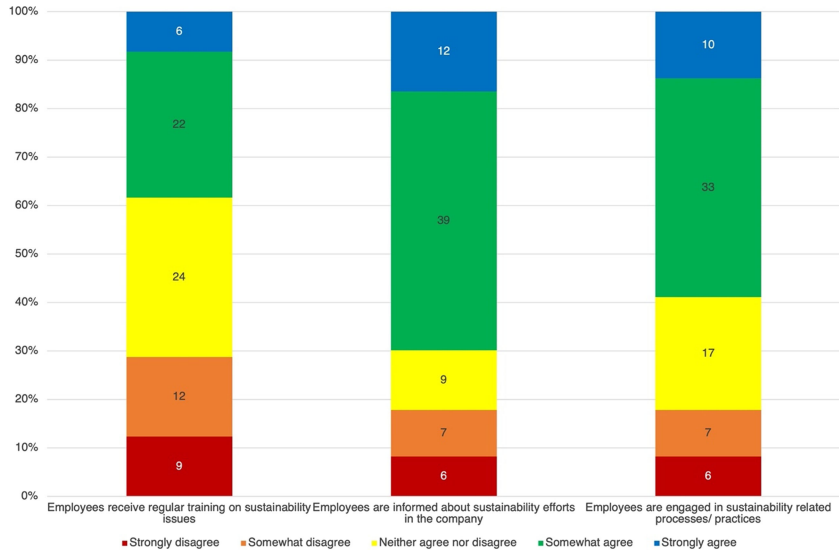

Figure 6. Employee engagement with sustainability.

sustainability frameworks (Klewitz & Hansen, 2014; Burlea-Schiopoiu & Mihai, 2019).

SMEs should take a more holistic perspective when embedding sustainability into their systems, and better address governance and change management issues to complement their technocentric and managerial approaches. This can be done through better employee education and engagement, using, for example, systems thinking, sustainability governance principles, and organizational change management for sustainability theories and practice. SMEs, though they be but little, they can be fierce in contributing to sustainability.

Further research should be carried out in other parts of the world and in different industrial sectors in order to compare and contrast differences. The connections between the system elements should be further investigated to detect if there might be any cause effects. Employee engagement factors in SMEs should also be researched, particularly focusing on different hierarchical levels.

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