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A Novel Sustainability Management Tool for Small and Medium-Sized Food Manufacturers – Advantages and Improvement Opportunities**

Abstract

Small and medium-sized enterprises (SMEs) struggle with sustainable development. Their characteristics require different sustainability management approaches to those employed by larger enterprises. However, supportive tools for sustainability management, including sustainability assessment, reporting, and certification, are scarce. Therefore, a novel sustainability management tool for SMEs – the so-called sustainability compass – has been developed in the specific context of food manufacturing. Its content and rationales are described, and its potential effects on sustainability management for SMEs are discussed in this paper. Qualitative interviews with experts from different backgrounds were conducted for a critical reflection on the novel tool. According to the findings, the tool meets some of the requirements of SMEs regarding sustainability management, but it neglects certain aspects. However, some of those aspects were revealed to be vicious circles between SMEs' unique characteristics and the nature of sustainability management. Although the tool has been developed for food manufacturing SMEs, the findings are important for sustainability management in SMEs overall and for ongoing research in that field in general.

Keywords: Sustainability management; SMEs; food manufacturers; sustainability tool development; sustainability compass
JEL-codes: Q01, Q56

Introduction

Whether it is used as a buzzword or viewed as an aspect of intrinsic motivation, sustainability has become an integral part of entrepreneurship. While many big players and multinational enterprises have already established whole sustainability

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departments and engaged in sustainability assessment and reporting (Rajic et al., 2022), small and medium-sized enterprises (SMEs) have struggled to follow suit (Corazza et al., 2021). However, SMEs need to develop sustainably, especially considering the large share of businesses belonging to this group, which includes the food sector (FoodDrink Europe, 2020). This sector secures survival on the one hand but causes many negative impacts on the environment and society on the other hand (Crippa et al., 2021; Poore & Nemecek, 2018). The food supply chain consists of many actors, each with different needs concerning sustainability. While tools for agricultural businesses are evolving (Olde et al., 2016), specific tools for SME-actors lower down the food supply chain and corresponding research are scarce (Adams et al., 2021; Sloan et al., 2013).

Aside from a lack of tools, the characteristics of SMEs are a barrier to implementing sustainability management (Lepoutre & Heene, 2006). A special role is assumed by the decision maker of an SME, largely determining the motivation behind and the expected gains of sustainability management. In that context, a gap exists between what executives deem as necessary and what is implemented (Cassells & Lewis, 2011).

To support food manufacturing SMEs in their sustainable development, a tool has been developed that has been attentive to SMEs' characteristics and requirements, i.e., their sustainability compass. For the analysis of the compass, first, the rationales for its development and then the tool itself are described. Expert interviews were conducted to facilitate critical discussion around the tool. The methodology and then the qualitative analysis thereof are presented and discussed before drawing a conclusion. The presented findings and their discussion include the tool's content and output, as well as the tool's estimated effect on the sustainability management of SMEs. Both the novel approach itself and its rating by experts can be of great value to ongoing research in the field of sustainability management in SMEs and sustainability management in food production.

Background

SMEs and Sustainability

SMEs differ from bigger companies in terms of organisational structure (Grothe & Marke, 2012), management structures (Jansson et al., 2017; Revell et al., 2009), the number of available resources for sustainability management (Hillary, 2004; Meredith, 2000; Perez-Sanchez et al., 2003), and more (Table 1). These differences need to be kept in mind when developing a tool for SMEs. In terms of environmental management, Gerstenfeld and Roberts (2000, p. 118) state that "a support programme for SMEs must be inexpensive, co-operative, locally based, flexible, unique and accessible. Furthermore, an effective programme must provide training, legislative compliance support, and provide clear, concise, dependable sector-specific information and support." Both literature research (Table 1) and the

conduction of a Delphi study (below) confirmed the aforementioned aspects for SMEs in the context of this research. The importance of SMEs contributing to a sustainable transformation and the need for suitable tools is stressed by the work of DiBella et al. (2022). As a result, the sustainability compass was developed with special attention paid to the characteristics and requirements of an SME.

Characteristics of SMEs	Literature	Barriers/chances for SM	Requirements for SM
Lack of resources (human, financial, time)	Grothe and Marke (2012), Hillary (2004)	High costs (of certification), lack of sustainability managers	Quick, inexpensive, cost-efficient, low complexity, high accessibility
Lack of knowledge and skills regarding SM	Grothe and Marke (2012), Meredith (2000), Perez-Sanchez et al. (2003)	Many possibilities and information are available	Help, guidance, support, building networks and clusters
Owner-managed	Hillary (2000), Jansson (2017), Revell et al. (2009)	Value-action gap between prioritising sustainability theoretically and implementing sustainable measures	External support, legal requirements
Flat and less formalised organisational structure	Grothe and Marke (2012), Hillary (2000), Jansson (2017)	Problems with data provision and implementation of management system, quick ways to collect data	Suitable framework fitting organisational structure
Locally bound	Cohen et al. (2017), Tödtling and Kaufmann (2001)	Generic assessments	Local contextualisation
Flexible and agile	Hillary (2000), Stubblefield Loucks (2010)	Quick changes	Recommended actions

SM: Sustainability management, SME: Small and medium-sized enterprise

Table 1. Characteristics of Small and Medium-Sized Enterprises Derived From Literature

Underlying Assumptions and Preliminary Studies

Sustainability management is a relevant field in theory and practice with well-known frameworks and concepts that can already be applied. However, they often lack possibilities and guidance for specific applications. Moreover, definitions of sustainability vary, and so do the concepts and methods used to measure, evaluate, and communicate it. Therefore, before developing a sustainability management tool, the scope and approach must be defined. In the following, preliminary studies, rationales, and concepts on which the sustainability compass was based are presented.

Comparison of Existing Frameworks

Two studies contributed to the development of the compass. First, a comparison of eight sustainability assessment and reporting frameworks applicable to food manufacturing revealed that the more generic frameworks do not suit food manufacturers well in terms of content. However, frameworks being thematically tailored to the food sector tend to lack connectivity to the up- and downstream supply chain

by neglecting reporting possibilities, for example (Küchler & Herzig, 2021). The Sustainability Assessment for Food and Agriculture systems (SAFA), a framework developed by the Food and Agricultural Organization (FAO), and the derived Sustainability Monitoring and Assessment RouTine (SMART) tool (Schader et al., 2016) were identified as the most comprehensive and suitable frameworks in regards to sector-specific content. SMART, however, exists only as a tool for farmers and as a self-assessment questionnaire tool for food manufacturers. The latter was taken over and adapted for the compass.

Expert Opinion

A Delphi study generated qualitative insights for the development of a sustainability tool for (food manufacturing) SMEs. The study strengthened the need to develop a tool with a holistic perspective, taking into account all sustainability dimensions to support sustainability management in SMEs in the food sector. Moreover, it showed that integrative management tools are advantageous when dealing with sustainability management, including various components such as sustainability assessment and reporting. Also, when employing a tool, credibility through high transparency is key to successful communication outward (Küchler et al., 2022).

A Holistic Approach to Integrating Supply Chain Matters

Integration of all sustainability dimensions (environmental, social, economic) into a sustainability management tool is supported by numerous researchers (Moldavska & Welo, 2019; Morrison-Saunders & Pope, 2013; Talukder et al., 2020), also for sustainable supply chains (Narimissa et al., 2020). Additionally, it is important to factor in dimensions of governance and management to facilitate and work on the 'traditional' sustainability dimensions (Fritz et al., 2017). Food manufacturing is often embedded in complex supply chains with multiple interactions that also offer the opportunity to influence the upstream supply chain by engaging in buyer-supplier relationships (Küchler & Herzig, 2021). By managing these relationships, the sustainability of a supply chain and, thus, the sustainability of a company and its products can be increased (Kumar & Rahman, 2015). Although SMEs might be limited in their power towards suppliers/buyers, it is important to consider supply chain aspects when developing a sustainability tool for food manufacturing SMEs.

Company-based Approach and Sustainability Management

Sustainability management can include sustainability assessment of certain products; however, it should not consist of merely a product perspective because it ignores non-product-related aspects at the corporate level (Fritz et al., 2017; Moldavska & Welo, 2015). This approach neglects the assessment of corporate responsibilities beyond its products, such as working conditions, trade relationships, or management approaches. Although extended versions of product-based approaches

have been developed, such as the life cycle sustainability assessment (Guinée, 2016), a product-based approach still runs the risk of omitting entrepreneurial aspects and responsibilities. This can have the negative effect of overlooking unsustainable practices rooted in the enterprise's structure. As Baumgartner & Rauter (2017, p. 89) put it: "Developing a sustainable organisation requires the integration of issues of sustainability into the operational management level and the consideration of their relevance for all activities, routines and processes." Baumgartner and Ebner (2010) identify different strategies towards corporate sustainability (introverted, conservative, extroverted, and visionary). However, they also remark upon a rather coincidental activity rather than a strategic approach regarding organisational sustainability management. Shields & Shelleman (2015) and Revell et al. (2009) mention this lack of sustainability strategy in SMEs. This is challenged by Hauser et al. (2020), who distinguish between effectuation, causation, and the absence of strategy. Causation is connected to classical planning that includes the setting of a goal that is then pursued, whereas effectuation refers to pragmatism according to the effects of resources, capabilities, entrepreneurial orientation, and learning about company performance without pursuing a goal. The authors discovered them to act effectual rather than without a strategy at all, while causation including planning and goal setting is only seldom seen. Consequently, SMEs need support with the setting of goals to benefit from the advantages described in the paragraph below.

Goal Setting

Miner (2015) summarises the goal theory developed by Locke and Latham. Goals can be beneficial: they motivate to exert effort, they cause persistent behaviour, and they drive attention towards important aspects. In that context, challenging goals are particularly stimulating. Goals can thus be regarded as stimuli in the SME context, partly as a substitute for a comprehensive strategy, which SMEs tend to lack (Revell et al., 2009). Giving direction and motivation are important parts of the novel sustainability management approach for SMEs. Moreover, in comparison with comprehensive reporting, goals offer the possibility to display sustainability efforts and performance in a reduced and compact way.

Elements From Existing Sustainability Management and Quality Management Frameworks

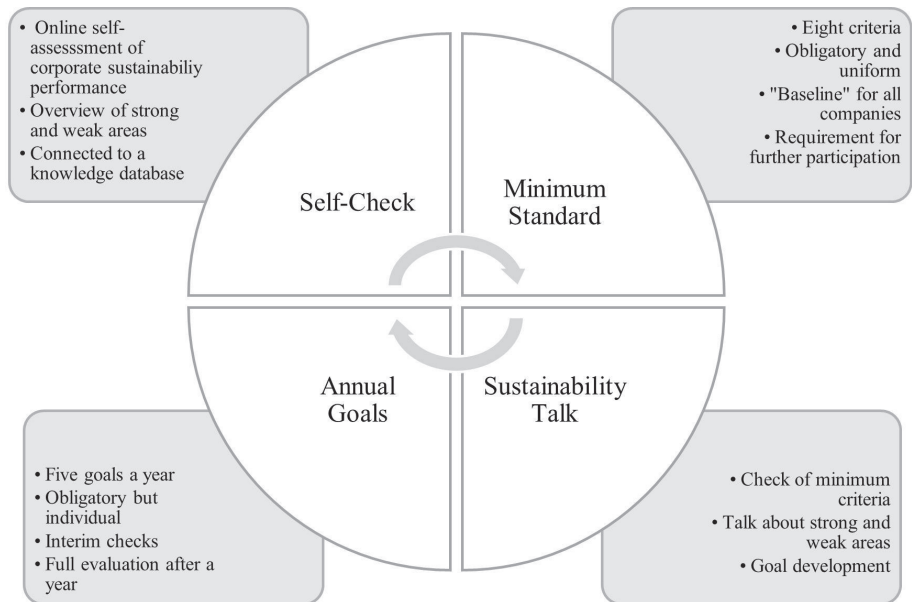
In quality management systems described by ISO 9001 (quality management norm) or ISO 14001 (environmental management norm), respectively, the concept of continuous improvement is included. This process is supposed to structure the management of measures and is implemented by the four steps: plan, do, check, and act (PDCA) (Caldera et al., 2019). In this cycle, goal setting is included in order to structure improvement and to make it verifiable. The International

Featured Standard (IFS) food works with knock-out criteria to assure the fulfilment of specific requirements (International Featured Standard, 2022).

Description of the Tool

To develop a sustainability management tool for food manufacturing SMEs, different aspects were derived from already existing frameworks or concepts and combined in a novel way (Figure 1) while considering SMEs' requirements. The so-called sustainability compass consists of a self-check, a minimum standard, a sustainability talk, and annual goals. Content-wise, the tool has been based upon a holistic approach, suggested by previous research findings (reference taken out for anonymisation (Moldavska & Welo, 2019; Talukder et al., 2020; Küchler & Herzig, 2021) and the existing concept of the SAFA guidelines and SMART tool. This approach requires that special attention is paid to the upstream supply chain regarding the content. Structure-wise, the process of continuous improvement (PDCA-cycle) was derived from ISOs 9001 and 14001, as well as the IFS food standard. The tool requires that a minimum standard with specific criteria be fulfilled while the goal setting reflects the aspects mentioned in the existing standards. The sustainability management tool is aimed at all food manufacturing SMEs, regardless of their experience with sustainability management. However, the knowledge database primarily supports companies that have not yet engaged in sustainability management.

Figure 1: Compass Process



Self-Check

To begin the compass process, every company begins with the self-check, which is a measure-based online questionnaire. Companies estimate their corporate sustainability performance and the connection towards their supply chain regarding all dimensions of sustainability (governance, environment, economy, social well-being, s. Table 2). In the beginning, a relevance filter tailors the self-check to the company size and its products. Two types of questions exist: binary questions (yes and no) and multiple-choice questions (0, 25, 50, 75, 100 %). A knowledge database is connected to the self-check and the compass in general, so for every subtopic, information about the content or aim of a specific topic, the necessity for food production, the possibilities for companies to engage, application examples and links to further information is given. In the self-check, the answers are aggregated on subtopic and topic level, and a fulfilment percentage is presented to the company, which is visualised in a polygon. In summary, through the self-check, strong and weak areas are highlighted based on self-assessment.

Good Governance	Economy	Ecology	Social Wellbeing
Corporate Ethics	Investment	Atmosphere	Decent Livelihood
Mission Statement	Internal Investment	Greenhouse Gases	Quality of Life
Due Diligence	Community Investment	Air Quality	Capacity Development
Accountability	Long Ranging Investment	Water	Fair Access to Means of
Holistic Audits	Profitability	Water Withdrawal	Production
Responsibility	Vulnerability	Water Quality	Fair Trading Practices
Transparency	Stability of Production	Land	Responsible Buyers
Participation	Stability of Supply	Soil Quality & Land Degradation	Rights of Suppliers
Stakeholder Dialogue	Stability of Market	Biodiversity	Labour Rights
Grievance Procedures & Conflict Resolution	Liquidity	Diversity of Ecosystems,	Employment Relations
	Risk Management	Species and Genetic	Forced Labour
Rule of Law	Product Quality and Information	Diversity	Child Labour
Legitimacy	Food Safety	Materials and Energy	Freedom of Association and
Remedy, Restoration and	Food Quality	Material Use	Right to Bargaining
Prevention	Product Information	Energy Use	Equity
Civic Responsibility	Local Economy	Waste Reduction and	Non-Discrimination
Resource Appropriation	Local Value Creation	Disposal	Gender Equality
Management	Local Procurement	Animal Welfare	Support to Vulnerable People
Sustainability Management		Animal Welfare	Human Safety and Health
Plan			Workplace Safety and
			Health Provisions
			Public Health
			Cultural Diversity
			Indigenous Knowledge
			Food Sovereignty

Table 2. Sustainability Dimension, Topics, and Subtopics Present in the Self-Check (Adapted From SAFA Guidelines)

Minimum Standard

The next step in the compass process is the accomplishment of the minimum standard: each company must fulfil eight minimum criteria as a requirement to take part. The minimum criteria help companies to start and to structure, as well as to reflect, on their sustainable development, e.g., a risk analysis to systematically reflect on potential risks for sustainability in and around the company or a data sheet to collect data for energy, water, and material (packaging) consumption (Table 3). Additionally, the minimum standard sets an equal starting point for all companies and creates balanced conditions for participation.

No	Company Area	Criterion	Definition	Impact
1	MANAGEMENT	Mission statement	Written mission statement	Self-reflection by defining and summarising the company's core values, activities and mission/vision.
2		Risk and stakeholder analysis	Completed PP-risk and stakeholder analysis	Raising awareness of critical potentially threatening aspects and stakeholder
3	RESOURCES	Water consumption	Completed resource sheet with water, energy, and material consumption of the last years	Starting to accumulate and get an overview of environmental data
4		Material (packaging) consumption		
5		Energy consumption		
6	STAFF	Capacity development	Evidence of training/education measures in the form of lists of participants, invoices or similar.	Enhancing staff identification and knowledge for sustainable development
7	INVESTMENT	Long-term and sustainable investments	Short description of the last two investments with an explanation of the long-term effect.	Self-reflection on investment behaviour
8	PROCUREMENT	Sustainable procurement	List of the five raw materials with the largest volume with an indication of origin and environmental and social standards.	Self-reflection on procurement

Table 3. Minimum Criteria for a Minimum Standard

Sustainability Talk

Following the self-check conduction and the fulfilment of the minimum standard, companies should ideally have developed ideas for improvement. The next step is a sustainability talk with a consultant. This involves initially checking that requirements for the minimum standard have been met. After that, strong and weak areas highlighted by the self-check are discussed with the consultant. It is important to note areas of strength for a company because this can reveal best practices and possibilities for peer coaching or inclusion in the knowledge database. The weak areas are reflected upon to find possible goals for improvement.

Goals

Finally, using the improvement ideas for a company, five goals are developed spanning one year. The company can discuss the goals internally before they are fixed. Once fixed, a participation diploma is handed to the company, and then the company will try to fulfil the goals within the next twelve months. Interim check-ups by the consultant accompany this work, and after a year, their level of fulfilment is evaluated. The whole process, including the goals and their achievement, can

be communicated to stakeholders. Then, the process (Figure 1) is repeated. In the diploma for a new cycle, the fulfilment of the old goals is documented.

Research Question

With regard to antecedent observations and research conducted, a novel format was developed to guide and support food manufacturing SMEs in their sustainable development. This format was put to the test by six pilot companies and was evaluated by conducting 11 expert interviews. One pilot company went through the whole process, and its owner was included in the expert interviews to consider the company's experience in this study. Despite considering the special characteristics of SMEs, trade-offs are to be expected concerning the tool's application. Therefore, the following research question is investigated in this paper:

- Does the tool respond to SMEs' requirements? And, in this regard, what are the conceivable advantages and disadvantages of the tool?

Additionally, to elaborate on the output of the tool, the following sub-question is asked:

- What does the aspect of setting goals need, and what is the potential effect of it?

The interviews also yielded practical comments on the single components of the compass. Although those were registered for future improvement, they are not part of the research at hand which is supposed to concentrate on the potential effects of the novel tool rather than its content and practicality.

Methodology

For the critical reflection on the novel sustainability management tool, 11 expert interviews were conducted. Experts were chosen from different stakeholder groups to gain insights from different perspectives and to prevent missing out on arguments (Table 4). The goal was to include interviewees with a background in research, tool development, enterprise management, food business, counselling, and economic development since these areas are possible contact areas for the novel tool. Experts were chosen and contacted from the community in German-speaking countries who could cover the mentioned areas with their expertise and are familiar with sustainability management/sustainability tools. A few experts recommended others who could contribute to the research, and, in some cases, if a complementary perspective was assumed, interviews were conducted with the additional interviewees. Interviews were conducted based on guidelines and in a semi-structured way, according to Bogner & Menz (2009) and Helfferich et al. (2014). All interviews were conducted online via video call. Interviews were in German, and all were recorded. The final number of interviews was derived from the point in time when a wide variety of areas (Table 4) had been covered, and no new aspects could

be derived from the interviews. Transcription was conducted manually, adapting transcription guidelines by Kuckartz et al. (2008).

Expert job description		
	Job description	Institution
1	Sustainable supply chain researcher	University of Applied Sciences
2	Sustainability accounting researcher	Institute for Organic Agriculture (LUX)
3	Sustainability accounting researcher and tool developer	Institute for Organic Agriculture (SUI)
4	Sustainability label co-ordinator and sustainability accounting consultant	Institute for Organic Agriculture (GER)
5	Sustainability tool assistance and accounting researcher	Citizens' shareholding company
6	Sustainability consultant and standard developer	University
7	Consultant for sustainability in food manufacturing	Organic food association
8	Consultant sustainability and climate protection	Organic food association
9	Project coordination and sustainability consultant	State educational and counselling institution
10	Company-owner and manager	SME (Pilot SME for testing the compass)
11	Sustainability management consultant and project co-ordinator	Economic development agency

Table 4. Overview of Experts

Initially, the coding process was conducted deductively according to the semi-structured interview guideline as presented in examples in an anthology edited by Gizzi & Rädiker (2021). Consequently, the content was organised using overarching categories, as follows: SMEs and sustainability, difficulties of the tool and need for improvement, benefits of the tool and general remarks (with deductive subcodes, e.g., goals, holistic approach, core topics food, and sustainability, s. Appendix 1). This condensed the expert's answers. Coding was executed both deductively and inductively to explore the aspects that belong to each category. Deductive coding was used to refine the overarching category of SMEs and sustainability. Here, categories for requirements were derived from literature reviews (Table 1) that were complemented with inductively formed new categories derived from aspects mentioned by experts that had not been covered by literature research. For the benefits and difficulties of the tool, codes were created inductively from the data itself based on the method described by Kuckartz and Rädiker (2019). Inductive coding was chosen to explore all the advantages and disadvantages of the novel tool mentioned by the experts. Codes and memos were written in English, and anchor examples were also translated into English (Appendix 1). For analysis, the requirements of SMEs regarding a sustainability management tool discovered through the interviews were listed and contrasted with the mentioned advantages and disadvantages of the tool.

Findings and Discussion

First, the findings from the experts’ reflections on the tool’s content are shown. Then, the tool’s response to SMEs’ requirements in sustainability management derived from the experts’ opinions and assessments is presented, including the beneficial and problematic aspects of the tool. Subsequently, the output of the tool (the goals and their development) is analysed and discussed, before coming to a discussion of trade-offs in SMEs’ sustainability management.

Tool Content

Despite the contextualisation regarding the food sector, the findings are mostly generic. Only the content and the holistic concept, which were approved by the experts, were commented on with direct relation to the food sector. All experts approved of a holistic approach because sustainability is an overarching concept that includes aspects from all dimensions. This was seen to broaden the understanding of sustainability and interactions between all dimensions that exist. No critical comments were made regarding the topics (Table 2). Despite being very comprehensive, a holistic approach has been favoured by previous research also (Kanter et al., 2016; K  chler & Herzig, 2021; Moldavska & Welo, 2019; Ness et al., 2007; Pint  r et al., 2012; Talukder et al., 2020). The novel tool gives an overview and mitigates comprehensiveness by filtering the content according to firm size and products.

Tool Response to SMEs’ Requirements

The findings of this part are organised according to the SMEs’ requirements concerning a sustainability management tool such as ‘attitude and motivation’, ‘incentives’, ‘permeation and identification’, ‘resources’, ‘management and documentation’, ‘support’, and ‘communication’. Each requirement is contrasted with the related characteristics of the tool mentioned by the experts, and the potential effects are discussed below. An overview can be found in Table 5. The tool does not impact the requirement for a suitable attitude, mindset, and motivation for sustainability management. The existent incentives are the beneficial aspects mentioned for the other requirements. For the requirements ‘management/documentation’ and ‘support’, no problematic aspects were mentioned.

Requirements of SME	Related aspects of the tool	
	Beneficial	Problematic
Attitude and motivation	<i>no impact</i>	<i>no impact</i>
Incentives	<i>s. beneficial aspects below</i>	Lacks information about the process and visible benefits
Permeation and identification	Commitment-check	Self-assessment
Resources	A low threshold delivers insights and knowledge on an easy-access level	Efforts for conduction, Self-assessment
Management and documentation	Provides structure, continuous improvement, and encourages reflection	<i>no mention</i>

Requirements of SME	Related aspects of the tool	
	Beneficial	Problematic
Support	Provides support structures	<i>no mention</i>
Communication	Provides possibilities for communication	Possibilities for communication are not sufficient

Table 5: Overview of the Tool's Response to SMEs' Requirements

Attitude and Motivation

According to most experts, the conduction of the compass and its outcome depends on the attitude and motivation of the person involved. A negative attitude or at least a hesitant attitude, paired with personal incapability (incapability for self-assessment) of some people in the management or in the company on the whole, were described as problematic for the application of the tool. One reason for a negative attitude was described by one expert as:

This feeling I am doing it for someone else. That is very strong with many people, I have to do it, and I am doing it for someone else. (Company owner and manager (10))

Furthermore, intrinsic motivation and interest, as well as some basic, previous sustainability knowledge of the management, were mentioned to be key for successful conduction. Although the tool set-up is not able to influence that aspect, it is important to note that the attitude of the person in charge of the tool or the attitude of an executive person (owner, director) has an impact on the tool use. The owner-manager often decides whether to engage in certain activities or not. Therefore, their attitude is important for a company wishing to utilise a sustainability management tool (Handrito et al., 2021; Herzig et al., 2003; Kutzschbach et al., 2021; Lee et al., 2016). Schaltegger & Burritt (2018) have elaborated on four categories of different interlinkages between ethical motivations and business cases that affect sustainability management: the sceptic and conservative attitude perceives sustainability solely as a cost (1), the narcissist motivation primarily seeks company reputation for short-term profits (2), performance excellence motivation recognises sustainability as an improvement for long-term profit (3) and the collaborative and holistic approach is motivated by improving conditions in nature and society (4). Taking the findings of this study into account, it shows that attitude type 3 or 4 is needed for appropriate tool use. For practitioners, this can be an indication of whether the tool is suitable in conjunction with the type of attitude. The categorisation by Schaltegger and Burritt (2018) leads to the next category of SME requirements in terms of incentives.

Incentives

The tool must provide added value to engage in it. Otherwise, its broad application is unlikely. One incentive can be the “must-have” character of a sustainability tool. However, the most frequently mentioned incentive was added value in terms of

communicating the use of the tool outwards, partly using it for marketing. This can lead to higher prices and increased sales, i.e., other incentives. Additionally, a competitive advantage, saving money, and resilience were mentioned as possible incentives. Most of these aspects belong to the economic stability and prosperity of the company. If those incentives are lacking, tool use is threatened, or at least the tool is not used in a serious way because

[...] often the problem is that it is still running on the side somehow, it is often a nice-to-have, too, and it is not seen as important for the company. (Sustainability accounting researcher and tool developer (3))

The developed tool, although evaluated as beneficial on at least one level by every expert (described below in the other sections), lacks clear and visible benefits concerning the economic perspective and the information regarding benefits, respectively. Suitable information was missed by a few experts, especially by the expert from the economic development agency. According to one expert, this should include:

How much time resources and other human resources he [a company owner] may have to set aside. (Sustainability management consultant and project co-ordinator (11))

As depicted above, motivation to engage in corporate sustainability differs. Therefore, different tool incentives appeal to different people. Incentives of the tool described here are – at least directly – of non-monetary character: low-threshold, structure, reflection, insights/knowledge, and support can be incentives if the focus of a company/owner-manager is not on short-term profits but more on long-term improvement. However, to make the tool more attractive, the current benefits should be marketed in a more obvious way. This could entail a report about a company's participation or (social) media presence of the compass that participating companies can refer to. Furthermore, experts mention monetary incentives to attract companies. This could be created by political actors who offer subsidies for the use of the tool or the institution supervising it. This way, the tool could be supplied at low costs or even free of charge. Another facilitator could be (retail) customers paying higher prices if the tool is used (Blackman & Rivera, 2011). Financial advantages gained from sustainability measures were observed by Cassells and Lewis (2011) to be more interesting to SME owners than motives for environmental protection. This supports the positive impact of financial incentives; however, it also leaves room for doubt that the tool is used in a proper manner. Moreover, Brockhaus et al. (2017) point out the limited possibility for price premiums because of a lack of customer appreciation and appeal to managers to interpret sustainability as an investment rather than a short-term profit. Another type of incentive is described by Revell et al. (2009), who recommend that policymakers back up voluntary sustainability initiatives with pressure from policies and regulations.

Permeation and Identification

For the successful conduction of the novel tool, several experts noted the permeation of the tool use and the identification with associated activities throughout the whole company as being important for SMEs. Sustainability concerns all departments. Therefore, its management and identification have to be connected to all employees:

If it is only the managing director saying: "We have to become a bit more sustainable, now", it will not work. Then they [the employees] throw away plastic and other waste together [...]. (Sustainability management consultant and project co-ordinator (11))

Regarding this, the self-assessment approach of the self-check is one problematic aspect of the compass. This is because, until now, it was possible for only one person to work with the self-check at a time.

Almost all experts mentioned difficulties with self-assessment, i.e., wrong assessments taking place due to incapability or a lack of knowledge or motivation. Also, according to the experts, it can be hard to know what the requirements for measurements are, such as 100 per cent.

The other components (e.g., the minimum standard) can be worked on by several employees in the company. Similarly, goal setting can and should be pursued by different actors in the company:

Where there is a common idea of sustainability goals, it is also going very well, and you can see that the people in the background are on board and you can also see from the communication that the people there, for example, are also involved. (Consultant sustainability and climate protection (8))

The compass does not actively contribute to that need for permeation and identification, which has been found to contribute to best sustainability practices in SMEs (Oelze & Habisch, 2018). Those aspects need to be brought in by the company itself, for example, by including more employees in the self-assessment or following activities. Further improvements to the tool could include more accounts for one company. This could also facilitate the self-assessment and could make results more realistic. Ankele & Grothe (2019) describe self-assessment as a method with high uncertainties and low relevance but state that a representative consortium of staff members can improve the outcome and that a self-assessment can show a company its status. Furthermore, if approaching the topic of permeation/identification the other way round, the use of the tool could initiate more identification because once engaged in sustainability activities, it can influence and inspire the company culture in a positive way (Carvalho et al., 2021). However, in terms of real change management, in order to reach the identification of staff with the topic of sustainability, management must steer the process (van den Heuvel et al., 2016).

Resource Shortage

Every expert mentioned at least one aspect of resource shortage. One aspect of this is related to lacking time. The estimated time of 15 hours for conduction was seen as too much by some experts, especially for micro-enterprises with only a handful of employees. Some experts evaluated 15 hours as realisable but not realistic for the compass conduction. In general, the noted difficulty of effort for the compass is not helped by resource shortages. Gathering data and documentation could be off-putting. On the contrary, one expert noted that sustainability, once integrated into everyday life, should not be seen as extra work but that some effort and resources must be invested into the area prior to that condition being achieved:

But if they understand, for example, I emigrate to a country where I don't know the language, then I either have to learn the language, or I go and see what happens. Here, it's the same: input-output. I have to invest at some point. (Sustainability consultant and standard developer (6))

Additionally, lack of knowledge and specialised staff was mentioned to hinder sustainability management and the application of the tool. Taking that last aspect into account, self-assessment can be difficult because competencies for conduction are necessary.

On the other hand, the experts mentioned the low threshold of the tool and the benefit of gaining insights/knowledge through its application. It was stated that it does not need a lot to start working with the tool due to its comprehensive scope, which favours SMEs with tight resources, for example. Moreover, the experts commented on the possibility of gaining information through, for example, the knowledge database or by participating in the sustainability talk in which the self-check is put into perspective by externals.

Lacking resources is a distinct characteristic of SMEs, as mentioned in the theoretical background previously, and is counterproductive with regard to sustainability management (Arena & Azzone, 2012; Caldera et al., 2019; Grothe & Marke, 2012). The effort of applying a sustainability management tool can thus be a problem. On the other hand, this effort, if seen more from a long-term perspective, can be viewed as an investment. First, as sustainability becomes more and more important, it is likely that customers will demand disclosure of SMEs' sustainability performance (Fritz et al., 2017; Kolev & Neligan, 2021), so by already engaging in sustainability management, SMEs can adapt slowly. Second, it can pave the way for a strategy that is an enabler of business sustainability (Caldera et al., 2019) and helps the company survive (if interpreted as a contribution to resilience) (Miceli et al., 2021) and thrive (Revell et al., 2009). As the expert statement above demonstrates, if sustainability is integrated into the management of the daily business, it will not be perceived as an additional effort in the long term. Brockhaus et al. (2017) describe the need for simultaneous commitment and capability in order for sustainability to become mainstream in managerial management. By offering an introduction to sustainability management, including the option to gain knowledge

while being adapted to tight resources, the novel tool increases the capability of an SME to wholly integrate sustainability management.

Management and Documentation

Experts mentioned aspects that sustainability needs to be anchored in management and to be supported by documentation. Often, sustainability goals or topics are worked on. However, their management and implementation are conducted in an unstructured way. For example:

They [...] have some thoughts or goals that they want to improve, which are then discussed with the family at the evening table, which develops and is then implemented. (Sustainability accounting researcher (2))

Moreover, because it is not integrated into a management strategy as part of business as usual routine but new daily challenges, goals can be forgotten or not pursued in a stringent way:

Because they do that [think about sustainability] in the evening and at night when they are lying in bed, but then they come the next morning, and then they say: "Oh, my machine is leaking, I have to look at that first" [...]. (Sustainability label co-ordinator and sustainability accounting consultant (4))

Concerning the need for management and documentation, the tool was perceived as beneficial by the experts. First, the experts mentioned the initiation of reflection: the tool helps to reflect on a company's sustainability performance. The realisation of where the company is and where it wants to be, where strengths and weaknesses are, the discovery of neglected topics, and the identification of risks were mentioned to be potential side effects of the reflection process that all eventually can lead to structured goal development. Reflection is an important component of learning, often lacking in management education (Closs & Antonello, 2011). By offering the possibility of reflection through self-assessment, connecting it to a knowledge database and a supportive talk, the present tool comes close to the demand of Moldavska and Welo (2015), that "[i]deally, a sustainability assessment should serve to indicate specific problem areas in the company, while enabling identification of appropriate sustainability practices [...]". Despite self-assessment only, becoming aware of the company's performance can be the first step towards successful improvement.

Secondly, many experts mentioned aspects of structure which are created by using the tool.

Just the check is nice, but there should also be a development. [...] if you want to call yourself sustainable, then you have to do at least that [the minimum standard]. [...] I also find it, let's say, feasible at first glance. Not excessively high demands. But it actually helps to get into the process, to deal with it and then the talk, which I also find very good. (Sustainability consultant and standard developer (6))

In SMEs, the structure is often less formal than in larger enterprises (Jansson et al., 2017). This can lead to less strategic decision-making, with decisions made more by

effectuation than causation (Hauser et al., 2020). With concrete steps to follow, the tool aims at structuring sustainable development.

Thirdly, numerous experts described the possibility of improving through the application of the tool. Continuous improvement should be one outcome of sustainability management. The SME owner described it as a domino effect:

You start working on one thing, and all of a sudden, you realise, okay, the other thing, there's something else too, that's not so difficult to implement, yeah, let's do it. (Company owner and manager (10))

Continuous improvement has been identified as an enabler of sustainable business practices (Caldera et al., 2019) and as a motivation for sustainable development (Windolph et al., 2014). What is needed for strategic improvement is data for decision-making. The tool partly encourages and initiates data gathering by including the first steps into the minimum standard. However, for thorough and comprehensive assessments (e.g., environmental impact), additional tools and methods have to be applied, such as life cycle analysis. Methods to measure certain indicators can be suggested and explained in the sustainability talk. Moreover, the component of goal setting is a step towards continuous improvement and is discussed further below.

Support

The reflection by the company itself and the sustainability talk were also perceived as beneficial by the experts as a means to scrutinise and strengthen the reflection. That aspect contributes to the need for SMEs to receive support for their sustainable development. According to the experts, SMEs sometimes feel abandoned and helpless. Eight experts mentioned the supportive character of the tool, especially through the sustainability talk, in which personal assistance is provided, and the self-assessment is discussed. As an SME owner put it:

Hearing again from the outside [...], these possibilities could be done and if you do this and this action, then you could make this area of the company more sustainable or strengthen it. That helped me a lot. (Company owner and manager (10))

Taking the characteristic lack of knowledge and resource shortage into account, the support provided by the tool is vital for successful conduction. In the literature, there is a lack of support in the context of sustainability tools (Coteur et al., 2020). The support included in the present tool partly substitutes the role of employees with specific sustainability knowledge employees in SMEs (often) lacking (Journault et al., 2021). This helps to put the self-assessment into perspective. Many experts mentioned that this aspect is worth strengthening further by, for example, lengthening the duration of the talk. Journault et al. (2021) describe how external stakeholders can take over roles that an SME is not able to pay employees for. Their findings indicate that external support is very important for SMEs and that further support for the tool could be achieved by connecting the tool to more activities with external stakeholders. This is strengthened by Corazza et al. (2021), who points out the importance of networks for the sustainable development of

SMEs. Thus, a peer process, for example, with groups of similar businesses (bakeries, dairies...), could bring in more specific expertise and knowledge exchange into the compass process.

Communication

Communication towards external stakeholders remains a problem for many SMEs, as mentioned by some experts e.g.:

Where I see that our partners often encounter difficulties in communication. Sometimes, this has something to do with the anchoring of the topic in the company as a whole, but it is probably also related to resources. (Consultant sustainability and climate protection (8))

The tool was perceived as in need of improvement by these experts since the process relating to the use of the tool is not tailored for facilitating communication. B2B communication was seen as more reasonable than towards consumers. However, the experts also mentioned possible aspects of the tool that can be communicated outwards, such as the goals and the fact that companies are using the tool, i.e., the “we are on the way” aspect and the fulfilment of the minimum criteria. One expert described this as a contribution to transparency. Previous research stressed the need for high transparency regarding sustainability management (Küchler et al., 2022). The tool does not provide possibilities for certified disclosure of indicators. However, it offers the possibility to show a sustainability journey with continuous improvement in a transparent way and to transfer the message that the company deals with business sustainability. The latter, although already happening, is often not communicated (Kutzschbach et al., 2021; Revell et al., 2009). This could be due to missing frameworks that are suitable for SMEs (Kutzschbach et al., 2021) or due to the lack of sufficient knowledge about sustainability (Journeault et al., 2021).

The Potential Effect of Setting Goals

The last compass component is the development of five individual goals per company. These are evaluated after one year. As this can be interpreted as a concrete output of the tool, it is elaborated on separately.

The interviewed experts suggested flexible handling of the goals to adapt them to the different requirements of different SMEs. For example, some goals are not feasible within one year. Therefore, the duration of a goal should be amendable to short (one year), medium (three years), and long-term (five years) goals, and big goals should be divided into subordinated goals. Or, if other goals are derived in the process or fewer goals are achieved, this should also be handled flexibly.

a benefit of the tool. However, the characteristics of the goals are important. Le & Nguyen (2020) have explored goal characteristics of budgetary goals: firm performance can be enhanced by setting clear and ambitious goals that are attainable. These findings are in line with goal theory and should be considered when setting goals.

Goals have not been reported to have a positive effect on knowledge-oriented leadership and knowledge management in the context of SMEs (Zia, 2020). This finding implies that although the process of setting goals can function as stimuli for performance, it does not necessarily contribute to accessible and applied knowledge. Consequently, the knowledge data bank is an important part of supporting the process in the introduced tool. Summarising the antecedent, the use of a sustainability tool can lead to sustainable development (Moldavska & Welo, 2015), but it needs to be adapted thoroughly to the needs of SMEs.

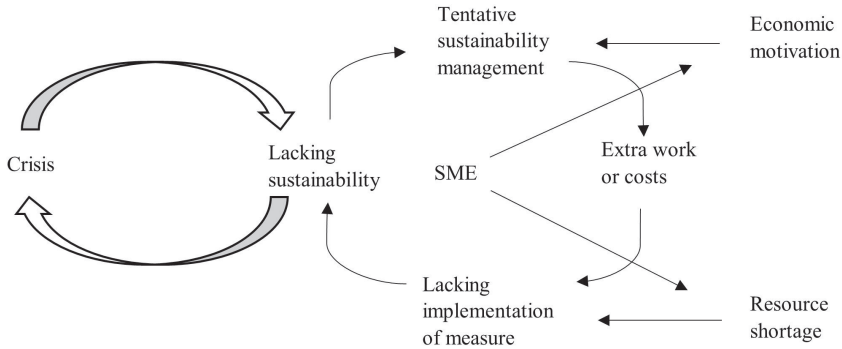
Observed Areas of Conflict in SMEs' Sustainability Management

Derived from the findings and discussion above, two general areas of conflict in SMEs' sustainability management are discussed briefly in the following. One critique of the compass is the lack of communication possibilities. To gather data and to obtain reliable results usable for communication, an SME has to invest much more resources than for the conduction of the present tool, which is often perceived as extra work (Walker et al., 2008) beyond capacity (Steger et al., 2007). Here, a typical contradiction in the behaviour of SMEs becomes obvious: if sustainability is considered as extra work, chances are small that it will be integrated sufficiently into SME business practice because extra work is in conflict with resource shortage. Moreover, dealing with current matters and crises is always prioritised over this perceived extra work due to the higher importance of daily business (Lepoutre & Heene, 2006; Steger et al., 2007). This is a vicious circle because the next crisis might be just around the corner and is likely caused by lacking sustainability, which in turn is not paid enough attention to because of the short-term focus on tackling the symptoms of the crisis (Figure 3).

Furthermore, incentives are lacking to use the tool, at least in terms of a direct (financial) gain. This alludes to another typical conflict regarding business sustainability: the motivation of the company (or the persons in charge) is a crucial determinant for the conduction of sustainability management and the perceived values behind it (Bos-Brouwers, 2009; Handrito et al., 2021). Whether the application of a certain tool is beneficial or not is thus subjectively evaluated by an SME's owner or manager looking at the tool's contribution to the expected gains of sustainability management. If those expected gains are prompt paybacks rather than the long-term return of investment, SMEs with restricted resources are likely disappointed (Figure 3). As they are (often) not able to apply comprehensive tools that produce data-driven evidence for substantial sustainability assessment and reporting because of lacking resources (Bos-Brouwers, 2009; Caldera et al., 2019),

the beginning of structured sustainability management remains a first step towards internal improvement and investment into the company's future. On top of that, the findings of Cassells and Lewis (2011) indicate that if quick paybacks such as cost savings are gained, they are often not perceived as such. Therefore, the motivation for sustainability management as a tool for short-term profits can be considered as, especially for SMEs, a barrier towards sustainable development.

Figure 3. Vicious Circles Between Sustainability (Management) and SMEs



Conclusion

As discussed by a range of experts with different backgrounds, the sustainability compass meets several SME requirements. It provides an introduction to sustainability management for small and medium-sized food manufacturers. A novel format integrates components of sustainability assessment (self-check), the possibility for continuous improvement, and the reporting thereof (goals) and adds a component like certification (minimum standard). This combination has been demanded by researchers (Maas et al., 2016) and can help an SME get accustomed to components of sustainability management. By offering a structured, relatively quick process, including external support, the tool meets the requirements of an SME (Tables 1 and 5) without compromising on the concept of holistic sustainability (Table 2). Indeed, the self-check can seem very comprehensive at first; however, it serves to provide an overview and educate oneself before concentrating on the most important aspects. Furthermore, the relevance filter adapts the check to the company size and its products, paying attention to the local context. However, some of the requirements for sustainable development for SMEs have not yet been covered. Although the message of engaging in sustainability management and improving continuously, as well as the goals themselves, can be communicated, this approach does not deliver a comprehensive assessment or sustainability report a company can use for its communication outwards and marketing. Moreover, incentives for the tool's application are lacking or are not demonstrated sufficiently.

Further improvement of the compass should entail the increased integration of employees and other stakeholders and the development of connected incentives to increase the number of applications.

At present, the compass can be used by SMEs as a stepping stone for further activities in sustainability assessment, reporting and certification. However, it is only attractive for companies with a minimum level of interest and intrinsic motivation for sustainability who are willing to put in at least a minimum of resources and consider this input more as an investment rather than extra costs. To ask solely 'What's in it for us?', meaning quick earnings, is too short-sighted when dealing with sustainable development.

Some implications can be drawn from this research: Policymakers are recommended to develop more incentives and support programmes for (food manufacturing) SMEs in order to increase sustainable development in the food sector. This could entail financial incentives by subsidising tool application for a tool presented here. Professionals working in consulting can use the findings regarding the requirements for goals and should encourage SMEs to engage in sustainability management, not only for financial but also for long-term reasons. For instance, they could encourage a materiality analysis before setting goals. Further research should investigate the actual effects of tool application amongst a high number of companies. Moreover, researchers could transfer the novel format of the presented sustainability management tool to other sectors and investigate its application and effects there. Consequently, improvements to the novel format can be developed by taking this reflection into account, and an efficient connection to up- and downstream supply chain actors can be investigated and established.

The limitation of this work is the qualitative approach that was conducted by interviewing experts. This approach provides insights into sustainability management tool development for SMEs without allowing for statistical generalisations of the findings. Moreover, although being familiar with the matter of investigation and explaining an outside perspective, experts do not replace actual users of a tool. To strengthen the findings from this qualitative analysis, a quantitative research design among user companies of the compass could yield complementary information for the improvement of the tool regarding usability, practicability, and possible incentives. Due to too few pilot companies testing the compass, this has not been possible (yet). Finally, regarding the sampling of the experts, a more even distribution amongst the different professions/expert areas would have been advantageous. This was the original aim, but many cancellations led to the current distribution. However, different perspectives are included that can be tested using a quantitative approach.

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Appendix 1. Coding Definitions, Frequency of a Code, and Number of Experts Having Mentioned an Aspect Related to a Code

Requirements of SME	Text anchor	Memo	Frequency	No. of experts out of 11
Attitude and motivation	<i>That would also be a question for the people who fill in the compass, what kind of previous education in sustainability do they have and also what kind of motivation is behind it.</i>	The conduction of the compass and its outcome depend on the attitudes and motivations of the persons involved	27	10
Incentives	<i>And then, precisely, this question of added value. So to speak, what can I generate with it?</i>	Incentives to engage (in the sustainability compass)	24	9
Permeation and identification	<i>[...] because in my opinion, the entire company has to be involved, because the goals that are set do not only affect the sustainability department, if there is one, or the person who takes care of sustainability, but it affects the person in purchasing, the person in processing, I don't know, actually at all levels of the company, so they have to be on board in some way.</i>	Sustainability concerns all departments. Therefore, its management and identification need to be connected to all employees	15	6
Resources	<i>I think that is always the question of whether they have the resources to implement it[...]</i>	Time, finances, and knowledge are restricting resources for SMEs	33	11
Management and documentation	<i>Many things are done automatically in everyday life but are not actually documented and, therefore, not verifiable. This is exactly where you have the source of error: I still do this, that, etc., and my employees know about it, but if I have a real management system [...] I must have defined the work steps clearly beforehand in order to simply see if I am doing this and if I am really doing it the way it is prescribed. Not: "Yes, you don't have to be so precise" or something like that. That happens again and again in everyday life especially when I have the topic of sustainability.</i>	Sustainability needs to be anchored in management and to be supported by documentation	10	6
Support	<i>And if you offer them something again and again through workshops or talks, that they deal with it, especially with how they can implement their own ideas that they have, how they can support them so that they also try to implement them in the company.</i>	SMEs need support in their sustainable development	16	6
Communication	<i>Where I see that our partners often encounter difficulties is in communication. Sometimes this has something to do with the anchoring of the topic in the company as a whole, but probably also with resources.</i>	Problems with communication	12	5
Difficulties with the tool	Text anchor	Memo	Frequency	No. of expert out of 11
Information	<i>And maybe it would be good to show people briefly what possibilities there are and how this can help them.</i>	Information about the compass and how it works	14	4
Specificity of business	<i>[...] to start where the greatest leverage is, presupposes that you have a group that is as homogeneous as possible. And that is rarely the case [related to the minimum standard].</i>	Different areas of the food sector need different treatment	4	3

Benefit	<i>And what is a bit of a problem is that [there is], as I said, often intrinsic interest, but that the added value is not seen in making this scientific or written down, so to speak, and therefore the resources are not made available, and this then prevents SMEs from actually benefiting from their own commitment as corporate citizens [...].</i>	Benefits of the compass need to be visible	11	5
External communication	<i>It is not a process now to also carry this outwards in the sense of simply a supervised self-development for the companies.</i>	Process is not made for external communication/too little communication possibilities	7	5
Effort	<i>Not having the data and then still shying away from the time and thinking: as I said, that's extra work.</i>	For some companies it could be too much effort	14	9
Self-assessment	<i>What is the 100 % requirement? Sometimes it's not so clear, quantitatively. That is an assessment, and some have said that it should be possible to make a clearer quantitative statement, then they would feel more comfortable than clicking on something where they are not sure.</i>	Difficulties with self-assessment	17	10

Advantages of the tool	Text anchor	Memo	Frequency	No. of expert out of 11
Commitment	<i>And I can imagine if there is such a coaching process and someone participates voluntarily and wants to and also consciously says: "yes, I would like to work towards setting myself goals [...]."</i>	The compass creates commitment for sustainable development	7	5
Improvement	<i>You start working on one thing and all of a sudden you realise, ok, the other thing, there's something else too, that's not so difficult to implement, let's do it. That's how it happens, that's the domino effect a bit.</i>	Using the compass leads to improvement and action	11	7
Low threshold	<i>[...] if you start from scratch, you feel you are in good hands and cared for, and it is comprehensible and not such a huge wall where you think: Oh my God, I'll never manage this, who is going to do it here? You can also do it in bits and pieces; save it, go out again and then at some point say: okay, and now the full programme with the support, with the target agreement, with the check after one year. So, I think so. A low threshold value, because it's very manual and if the time you have at the end is [correct].</i>	Starting the sustainability compass does not require a lot	7	4
Support	<i>[...] but it is this support that makes the difference, I think, whether something is implemented or not. Because when you know that someone from the outside is coming, on the one hand it's a help, but on the other hand it's also a way of having to justify yourself if you haven't implemented something. It is a kind of control, although it is not supposed to be one. That's why I think the support is the main added value for me.</i>	The compass provides support, especially through the exchange with external members and common reflection	12	8
External communication	<i>The goals that are set are transparent. The minimum stories, the minimum standard that you have to fulfil, anyway. And of course, you can show that you have used this compass and this SC to make the goals, the measures that you then set and make on the basis of the result.</i>	Communicating aspects of the compass outwards to stakeholders is possible	8	6

Structure	<i>Because that is exactly what is often lacking. There is somehow a vision and also an intrinsic motivation, but when it comes to implementation and realisation, there is a lack of actually doing this, this structuring, and I think that is really a very good structure [...]</i>	The compass helps to find structure, including continuous improvement, documentation, and goal setting	15	8
Insights/knowledge	<i>And that background information combined with the conversation afterwards, that's so valuable for a company.</i>	By conducting the compass, knowledge, insights, and understanding are gained	16	6
Reflection	<i>[...] that you simply have this self-reflection, that you also become aware of where your strengths and weaknesses are.</i>	The compass helps a company to reflect on its sustainability performance	23	7