MEASUREMENT OF SUSTAINABLE ENTREPRENEURSHIP – BENEFITS IN A *BREEZE*: A REVIEW

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Abstract
When it comes to moving towards sustainable entrepreneurship, a knowledge-based economy is starting to affect companies and how they are managed. It is relevant for researchers and entrepreneurs to evaluate different sustainability aspects and look for ways how to achieve entrepreneurship sustainability. In the past couple of decades, many indicators have been developed which measure the performance of sustainable entrepreneurship. Not all cover a sufficient basis to provide a thorough evaluation, though. The goal of the study was to evaluate the expertise in sustainable entrepreneurship among large companies with metrics identified in the latest scientific literature review. In the process of the literature review, authors identified key metrics to measure the performance of sustainable entrepreneurship and split them into six groups. They mostly focus on social, environmental, and economic performance measurement. Relatively few research results mention the importance of corporate management indicators. Thus, the key metrics are distinctive by including corporate management as a separate aspect in the performance measurement. The conceptual framework is represented by the acronym *BREEZE*, including 6 groups of key metrics: *brand awareness and consumer behaviour*, *responsibility for society and employees*, *environmentally friendly materials*, *ease of use and reuse* (disposal), *zero waste*, *economic performance* (approbated on focus group discussion and expert interviews). The results revealed that the expertise levels in sustainable entrepreneurship among the large companies are fair. Complementary data analyses were carried out; as a result, authors developed a self-evaluation matrix in sustainable entrepreneurship.
Key words: circular economy, corporate social responsibility, metrics, measurement, sustainable entrepreneurship, performance indicators.

Introduction

Entrepreneurship, a knowledge-based economy is starting to affect companies, and how they are managed. It is relevant for researchers and entrepreneurs to evaluate different sustainability aspects and look for ways how to achieve entrepreneurship sustainability and how to measure performance.

The Strategy of Latvia for the Achievement of Climate Neutrality by 2050 sets the main goals – reduction of GHG emissions in all economic sectors and increase of CO2 removal. The most actual questions among researchers and entrepreneurs are related to how to build business more sustainable. Also, whether companies by introducing unprecedented elements of sustainability into different business processes and engaging in the circular economy will have better financial performance, for example, profits will increase. In this context sustainable business has various advantages, for example, access to new markets, cost reduction, improving business efficiency and building brand image, excellent reputation, and loyalty (Chungyalpa, 2019).

Sustainable entrepreneurship envisages adhering to the principles of circular economy: recycling, upcycling with a particular focus on sharing economy – reuse, cooperation platforms; corporate social responsibility (CSR) – fair trade, sweatshop-free and use of indigenous materials and production; technological innovation (digital technology, physical technology and biological technology – sustainable raw materials); consumer awareness (proactive engagement, participation in value creation etc.). Sustainable entrepreneurship is essentially the participation of stakeholders in sustainable value creation and decision-making (Liu, 2011; Freudenreich, Lüdeke-Freund, & Schaltegger, 2020). Circular supply chain management means that circular thinking is integrated into supply chain management, involving all stakeholders, namely, product manufacturers, service providers, consumers, and users in a product or service life cycle. Basically, in this management materials are being restored and reused to build a zero-waste vision including business innovations from different interested parties (Farooque *et al.*, 2019; 2022; Gallardo-Vázquez, Herrador-Alcaide, & de la Cruz Sánchez-Domínguez, 2023). The former research results of scientists appear that environmental regulation and waste management policies are very important factors that can influence the driving green business promoters of the circular economy, because they define guidelines that can help their businesses develop sustainable concepts (Mondal, Singh, & Gupta, 2023). However, a complex approach, or the integration of a company's environmental, social, economic, and corporate governance activities, is also essential. A circular economy is based on principles aimed to 1) reduce waste and pollution to a minimum, 2) reuse and recycle products and materials, and 3) restore natural resources. It can be said that circular economy aims to keep products and materials at their highest usefulness and value (Saidani *et al.*, 2019; Benachio, Freitas, & Tavares, 2020). For this reason, companies for a long time have searched for different ways how to measure elements of sustainability, including the various uses of resources that create economic costs and definite emissions and wastes as required by regulation. Nevertheless, this needs analysis and reappraisal of business processes - to identify process every step and how many recourses it uses, how much waste it makes, how many people it includes, and which steps attach

(and which don't) value in the context of customer and interested parties' perceptions (Székely & Knirsch, 2005).

In addition to that, most of the literature covers only environmental, social, and/or economic aspects of sustainable entrepreneurship. Though in the context of the UN SDG's, no less of an importance is given to corporate management and its role in running a sustainable business. The significance of the corporate management aspect lies in, first, the strategic decision-making process; second, the relation to outcomes in the operational level; third, the access to resource and cooperative abilities. Corporate management may present as a critical driver of sustainable entrepreneurship through deliberate leadership activities (Saeed *et al*., 2018; *Dhir et al.*, 2023). Meaning, if business activity is a result of coordinated actions, such as implementation of goals, allocation of resources, setting of organizational norms and others, then the performance in sustainability largely depends on the decision-making of the top management (Ali *et al.*, 2022). As a result, any policy will have an impact on the outcomes within the operational level functioning. For example, use of false pretenses in order to gain societal support, recognition, or reputation will severely compromise the overall performance in long term due to the failure in making an impact on the operational level (de Freitas Netto, Sobral, Ribeiro, & da Luz Soares, 2020; Coffay & Bocken, 2023). Lastly, carrying out sustainable entrepreneurship will be coupled with additional administrative burden and obligation to respond to governmental demands and stakeholder needs (Aliabadi, Ataei, & Gholemrezai, 2022; Huang *at al*., 2023). There is no other functional level of a company that would have the resources to do so; as a result, top management can be considered as highly important factor in carrying out sustainable business activities (Bocken, Boons, & Baldassarre, 2019).

The authors provide the argument that corporate management has advantages to generating most of the potential for success in sustainable entrepreneurship. For example, there is evidence that sustainability values within management may positively regulate the sustainability-related performance of an enterprise (Coffay & Bocken, 2023). For example, employee behavior has been highly associated with the intentions and policy of the upper echelon of a company. In other words, sustainability-orientation within the top management has shown to produce more pronounced awareness and commitment towards environmental and social issues at an operational level (Saeed *et al*., 2018; Ali *et al.*, 2022). That in turn boosts the overall performance in sustainability of a company.

Sustainable entrepreneurship has also shown to benefit local economies by aiding the economic growth and facilitating the transition to circular economy (Calderon, Carillo, & Contreras, 2020). Whereas the engagement with stakeholders can help to produce targeted strategies that can be applied through various business processes to make meaningful changes in the wellbeing of different societal groups (Mondal, Singh, & Gupta, 2023).

Despite the findings on the numerous benefits of sustainable entrepreneurship, the practical expertise levels among entrepreneurs tend to be low which accounts for the low engagement rates and slow transition towards more sustainable business practices (Huang *et al*., 2023). As a result, the issue presents a need for a comprehensive measurement system for the performance of sustainable entrepreneurship that can be easily used not only to collect data on the performance but in addition can serve as a great tool to evaluate the expertise levels. Such ability would provide a detailed insight into the specific aspects that a company may be lacking and should be improving or, on the other hand, point out the aspects that the company is performing well in, in which case the focus can be diverted to other no less than important processes of sustainable entrepreneurship.

The main focus of the article is on sustainable entrepreneurship measurement metrics and their implementation in the evaluation of the expertise levels of companies. In the process of literature review, the authors identified the key metrics to measure the performance of sustainable entrepreneurship and split them into six groups - *brand awareness and consumer behaviour, responsibility for society and employees, environmentally friendly materials, ease of use and reuse (disposal), zero waste, economic performance*. The conceptual framework is represented by the acronym *BREEZE*. The metrics were further applied to test the expertise levels in sustainable entrepreneurship large companies and to develop a self-evaluation matrix.

Materials and Methods

A monographic research method was used in this research in order to identify metrics for measuring sustainable entrepreneurship. In the process of literature review, articles published in 2004-2024 were used. As a result, 6 groups of key metrics were identified. After summarising the results of the literature review and identifying the key metrics, a focus group discussion (n-9) was conducted to find out the opinions of focus group participants (experts) on the use of metrics (a better understanding of the causes of problems - what challenges and possibilities prevent the implementation of the metrics). The experts selected were industry professionals – retail companies that work on the principle of store chains. The focus group discussion was on 16.11.2023. The focus group topics were selected based on the key indicators for measuring sustainable business performance, identified previously in the process of literature review. The discussion expanded into reflections on the impact on the environment, society, perception of the standard of living, expectations and concerns about the future and the economy. The conversation took place in three stages: the purpose of the metrics, economic and

environmental potential, cooperation and implementation challenges and possibilities.

To further validate the metrics, a pilot study was run to observe the expertise levels in sustainable entrepreneurship among large companies. To carry out a qualitative analysis, the authors, accordingly to the *BREEZE* concept, initially, developed a 50-item questionnaire in Likert scale measuring responses from 1 to 5 (*1* – completely disagree, *2* – disagree, *3* – neutral, *4* – agree, *5* – completely agree). Then, following a Delphi method (26.02.2024.-15.03.2024.), a group of experts (n-10) – individuals that are holding a leadership position within the middle or top management level of companies that met the size criteria (Company must fill one of two criteria – it either employs at least 249 workers, or annual turnover exceeds 50 mil. *eur* and the total balance exceeds 43 mil. *eur*) – were selected to participate the study. The main task was to evaluate the expertise levels in sustainable entrepreneurship through conducting a questionnaire. After obtaining their consent, 10 expert interviews were completed. The participation was confidential and personal data was not collected. After finishing the interviews, the results were collected and analysed.

Results and Discussion

Measuring sustainability is related to the inclusion of economic, environmental, social and governance factors in business activities - it is measured to what extent the aforementioned factors are included in business activities, as well as measuring the impact of business activities on the environment. Many researchers have emphasized that corporate sustainability performance cannot be measured only by economic results. Measurement and evaluation should also include non-financial indicators – intangible assets, relations with employees and customers, as well as other involved parties or stakeholders (Dočekalová & Kocmanová, 2016).

In the past couple of decades, many indicators have been developed which measure the performance of sustainable entrepreneurship (Székely & Knirsch, 2005; Saidani *et al.*, 2019). They mostly focus on social (charity, respect for human rights, health, well-being, etc.), environmental (waste volume, energy, consumption of materials and raw materials, etc.) and economic (profit, turnover, costs, investments, etc.) performance measurement (Caeiro *et al.*, 2012; do Paço *et al.*, 2013; Veloutsou *et al.*, 2013; Pislaru, Herghiligiu, & Robu, 2019; Martinez *et al.*, 2020). However, relatively few research results mention corporate management indicators and their connection with customers and stakeholders.

The main factors that developed green innovation initiatives were:

1) environmental regulations;
2) market demand;
3) government pressure;
4) competitor pressure;
5) corporate social responsibility;
6) employee conduct. In this context the implementation of green innovation initiatives positively influences competitiveness and financial indicators (German *et al.*, 2023).

The company's activities include a focus on the social benefit of stakeholders, which stems from the earlier assumption that these entrepreneurs engage in CSR as an expression of their entrepreneurial spirit. At a theoretical level, their characteristics can be measured along the following dimensions (i.e., constructs): *employee care*, *inclusive work practices*, *product and service quality*, *business relationships*, *energy savings*, and *reduced corporate environmental impact* (i.e., factors), etc. These characteristics can transfer from organizational behavior to broader initiatives in society and stakeholder environment (Veleva, Bodkin, & Todorova, 2017; Gallardo *et al.*, 2023) as well as implement more effective and productive management in context of digitalization (Sergejeva, Mangale, & Vergins, 2022). Investing resources in the development of environmental issues, management, digitalization, socially responsible products and services can help achieve CSR and company profits (Alonso & Austin, 2018). For example, measuring the impact of reusable packaging, both from the point of use and recycling and utilization – performance targets, including reduction of waste, inventory and materials, water and energy use; and maximizing product availability, number of recovery streams and efficient use of supply chain assets (Mesa, Esparragoza, & Maury, 2018; Betts *et al.*, 2022).

Consumers are minded paying more for eco-friendly products and services. Especially Generation Z, because they are very concerned about climate change and environmental sustainability and their values include care for the environment (Yang *et al.*, 2023; Gomes, Lopes, & Nogueira, 2023). Therefore, to reach green objectives businesses need human resources that are motivated for the very same reasons. This can happen, if businesses integrate their green policies into their green shared vision and begin to use socially responsible activities to gain society and stakeholders' attention. Companies can raise awareness through their activities. Enterprises must implement a measurement system in their operations. Waste management is related to such areas as management, marketing, production, sales, etc. (Lanqing, 2011). Measurement indicators can be used at the micro and macro level. Micro-level indicators measure the performance of a product or enterprise, while macro-level indicators refer to the performance of a set of enterprises or a sector in a region or country. Indicators that can measure a company's performance are classified below (Bilan *et al.*, 2017; Syu *et al.*, 2022; Casno & Sloka, 2023).

Focus group discussion

The result of the focus group discussion – reflections on the impact on the environment and society. It was found that not only the organizational processes of the company but also the production and promotion of the products

have a significant impact on the result. Primarily, companies should focus on the offered product and the consumer – raw materials, composition, packaging, use, promotion. On the other hand, the perception of the standard of living, the conditions of an inclusive work environment must be considered. Thus, action steps in carrying out activities in the conduct of sustainable entrepreneurship include revision of the company's internal operation, optimizing production - surplus, waste, loss reduction, as well as monitoring the origin and processing of raw materials, improving the working environment, engage in community health improvement, product life cycle analysis and improvement, product certification, as well as informing consumers, browsing recycling options, repeat use, product design and development resulting in more efficient and sustainable product solutions. Finally, regarding the expectations and concerns about the future and the economy, the customer segment (building relationships with customers through marketing and sales activities, engaging in the product life cycle); the capital segment (ensuring transparency, accessibility and cooperation with funding parties); the partner segment (selection of suppliers and partners that comply with the principles of sustainability, ensuring safe cooperation); the employee segment (management of favorable working conditions and remuneration); and the public stakeholders segment (environmental, social and regulatory activities) were identified as the most important areas of influence on the company's operation. Based on the literature review and the results (reflections) of the focus group discussion, the key metrics for measuring sustainable entrepreneurship were identified. They are grouped into 6 groups, represented by the acronym *BREEZE* (see Table 1).

Table 1

Groups of sustainable entrepreneurship performance metrics

Groups of metrics		Explanation
B	Brand awareness and consumer behaviour	Measurement of sustainable marketing for consumer behaviour change – brand identification, consumers' response towards the brand, brand equity, brand awareness, proportion of responsible consumers after purchase, etc.
R	Responsibility for society and employees	Measurement of entrepreneurship corporate responsibility – proportion of women (total and top management), proportion of disabled, training expenditure, health, accident and sickness rates, personnel cost (total and per person), average fluctuation and net change in employment, donations and sponsoring, total spending for culture and society, etc.
E	Environmentally friendly product packaging materials	Measurement of recycled packaging and biodegradable materials (*%* of total packaging), etc.
E	Ease of use and reuse (disposal)	Measurement of product use – number of reuses, unpacking and separation options, etc.
Z	Zero waste (lifestyle)	Measurement of entrepreneurship management (incl. process) – paper, water, energy, waste consumption, business travel, etc. (*tons, m^3, GWh, kg, CO2 emissions, km*). In addition, can be measured percentage of waste recycled, *%* of employees in environmental management, etc.
E	Economic performance	Measurement of entrepreneurship economic forces – cash flow, earning before tax, taxes paid to all tax-levying authorities, total spending for culture and society, net profit, sales, profit after tax, subscribed capital, personnel costs (wages, salaries, social welfare contributions, pension plan expenses, employee benefits), revenue, etc.

To measure the benefits of sustainable business, companies can measure immediately, regularly monthly, quarterly per employee or total annually. The results need to be presented in the annual report (balance) for attracting investors' attention.

Pilot study

The results of the pilot study revealed that the expertise levels in sustainable entrepreneurship among large companies are fair, on average estimated at 72% of completion of the total criteria. The lowest scores were detected in social and corporate management aspects of sustainable entrepreneurship with an average estimated at 70% of completion of the respective criteria. The results indicate limits in the general knowledge about various business processes that are associated with social issues and the impact that the corporate management can have on the sustainability performance of the company (Coffay & Bocken, 2023). The authors concluded that there is an overall good potential for integration of sustainable entrepreneurship model into the current business practices. However, to test the data and the strength of relationships between the variables, the questionnaire should be reviewed and refined, and a large scale study should be carried out to test for the statistical significance of the observed interactions.

The additional analysis revealed interesting trends between expertise in sustainability criteria related to the corporate management compared to expertise in sustainability criteria related to environmental, social, and economic aspects that served as a basis to

developing a theoretical self-evaluation matrix in sustainable entrepreneurship. In other words, the authors observed a strong positive relationship that was distinctive from other observed relationships between the other aspects of sustainable entrepreneurship. Due to the small sample size, it was not possible to determine the statistical significance, thus the study should be replicated with larger sample sizes.

The matrix consists of four sections where each describes a specific position in expertise levels and points to the potential in carrying out a sustainable entrepreneurship model, see 'Figure 1'.

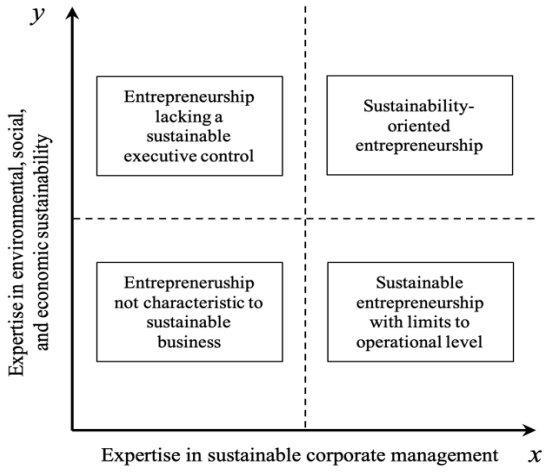

Figure 1. Self-evaluation matrix in sustainable entrepreneurship.

The bottom left section entails low performance in corporate management and low performance in environmental, social, and economic aspects which indicates an entrepreneurship that is not characteristic to sustainable business. The bottom right section entails high performance in corporate management and low performance in environmental, social, and economic aspects which indicates sustainable entrepreneurship with limits to the operational level. The top left section entails low performance in corporate management and high performance in environmental, social, and economic aspects which indicates an entrepreneurship lacking sustainable executive control. Lastly the top right section entails high performance in corporate management and high performance in environmental, social, and economic aspects which indicates to sustainability-oriented entrepreneurship. Authors also point out that based on the location of the matrix, the potential in transformation to sustainable entrepreneurship varies, increasing in strength in upward diagonal direction across the matrix, see 'Figure 2'.

The present study provides numerous insights into the current understanding of the sustainable entrepreneurship concept and the performance measurement indicators. In addition to that, the results reveal direction for future research.

Other sustainable entrepreneurship measurement indicators need to be studied deeper in future.

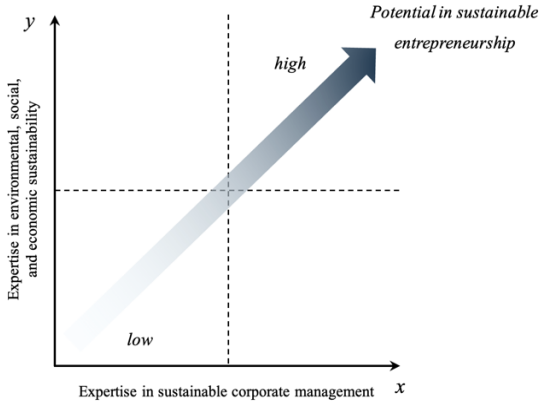

Figure 2. Indicator for potential in sustainable entrepreneurship.

Highlighting the issues of social responsibility for health (well-being), the authors continue research in the field of sustainable business measurement. Additionally, it is necessary to validate the matrix in further research by running a large scale quantitative analysis in order to develop practical solutions to facilitate the integration of the measurement system into the present business practices of large companies. Future direction for the present study also includes the metric system's application opportunities to the small and medium enterprises (SMEs) since they account for the majority of all companies. Authors predict that the SMEs will be a subject to sustainability regulations in a near future. Thus, to decrease the administrative burden and raise awareness of sustainable business practices, the discovered *BREEZE* metrics and self-evaluation matrix should be exclusively adapted to SME performance measurement as well.

As a result of the present research, the theoretical framework was used for a survey of large enterprises in the food industry with the aim of determining the quantitative measuring instruments of business performance and developing a measurement scale. Based on the scientific literature review, the *BREEZE* framework was developed, including six groups of sustainable entrepreneurship performance metrics. *(brand awareness and consumer behaviour*, *responsibility for society and employees*, *environmentally friendly materials*, *ease of use and reuse* (disposal), *zero waste*, *economic performance).* The metrics were further applied to run a pilot study to evaluate the expertise levels in sustainable entrepreneurship among large companies. As a result, authors identified tendencies, which further served as a basis to the development of a self-evaluation matrix in sustainable entrepreneurship. The matrix allows to determine the potential for the transformation to sustainable entrepreneurship model and to identify the key aspects following the *BREEZE* conceptual framework that may have to be advanced to reach a higher potential.

Conclusions

1. Sustainable entrepreneurship envisages adhering to the principles of circular economy, including the

participation of stakeholders in sustainable value creation and decision-making.
2. Measurement indicators (social, economic, environmental, and corporate management) can be used at the micro and macro level of enterprise. Less waste is an economic benefit because waste management is related to all business management functions - marketing, production, sales, services, etc.
3. The key metrics for measuring the performance of sustainable entrepreneurship are brand awareness and consumer behaviour, responsibility for society and employees, environmentally friendly materials, ease of use and reuse (disposal), zero waste, economic performance.
4. Based on the expert evaluations, the expertise level in sustainable entrepreneurship among large Latvian companies is fair with a potential to integrate the sustainable entrepreneurship model into current business practices.
5. The general knowledge among large companies is limited to business processes that are associated with the mediation of social issues and the understanding of impact that the corporate management can have on the sustainability performance of the company.
6. The self-evaluation matrix in sustainable entrepreneurship serves as a comprehensive tool in the assessment of sustainability-oriented business performance and specific key aspects that may or may not be lacking.

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