ISSN 2181-3187

A COMPARATIVE ANALYSIS OF KPIS FOR SUSTAINABILITY IN DIFFERENT SECTORS

O`roqova Dilfuza Baxriddinovna
Asian International universiteti
Department of Economics teacher PhD
E-mail: u.dilfuza1985@gmail.com
Tel: 91 440 70 49
Azamaliayeva Madina Avazovna
Master's 1st grade student

Sustainability is a key concept and goal in the contemporary world, as it reflects the need to balance the economic, social and environmental aspects of development. Sustainability is also a challenge for various sectors and industries, as they have to adapt to the changing demands and expectations of stakeholders, customers and regulators. To measure and improve their sustainability performance, organizations need to use appropriate and effective indicators that can capture the complexity and diversity of their impacts and outcomes.

Key performance indicators (KPIs) are one of the most widely used tools for measuring and managing performance in different domains and contexts. KPIs are defined as “quantifiable measures that help an organization define and track progress toward organizational goals” (Parmenter, 2010, p. 2). KPIs can help organizations to align their strategies and actions with their vision and mission, to communicate their progress and achievements to internal and external audiences, to identify strengths and weaknesses, to motivate and reward employees, and to foster learning and innovation.

However, developing and using KPIs for sustainability is not a straightforward or simple task. There are many challenges and issues that need to be considered, such as the selection and definition of relevant and meaningful indicators, the availability and quality of data, the integration and alignment of different indicators across different levels and dimensions of sustainability, the interpretation and communication of results, the feedback and improvement mechanisms, and the stakeholder involvement and participation (Veleva et al., 2003; Hubbard, 2009; Maas et al., 2016).

Moreover, different sectors and industries have different characteristics and requirements for sustainability measurement and management. For example, the manufacturing sector may focus more on environmental indicators such as energy consumption, waste generation and emissions, while the service sector may emphasize more on social indicators such as customer satisfaction, employee engagement and diversity. Therefore, it is important to understand how KPIs for sustainability are

ISSN 2181-3187

developed and used in different sectors, and what are the similarities and differences among them.

The aim of this study is to conduct a comparative analysis of KPIs for sustainability in different sectors. The specific objectives are:

- To review the literature on the concept and role of KPIs for sustainability
- To identify the main challenges and best practices of developing and using KPIs for sustainability
- To compare and contrast the KPIs for sustainability used by organizations in different sectors
- To provide recommendations for improving the design and implementation of KPIs for sustainability

The research questions that guide this study are:

- What are the key features and functions of KPIs for sustainability?
- What are the main challenges and best practices of developing and using KPIs for sustainability?
- How do KPIs for sustainability differ across different sectors in terms of their selection, definition, measurement, analysis, reporting and improvement?
- How can KPIs for sustainability be improved to better reflect the complexity and diversity of sustainability performance?

The scope of this study is limited to four sectors: manufacturing, service, construction and agriculture. These sectors were chosen because they represent different types of activities and impacts on sustainability. The study focuses on the organizational level of analysis, rather than the individual or societal level. The study uses a qualitative approach based on secondary data sources such as academic articles, reports, websites and case studies.

The significance and contribution of this study are twofold. First, it provides a comprehensive overview of the current state of knowledge on KPIs for sustainability, highlighting the main concepts, issues and practices in this field. Second, it offers a novel perspective on comparing KPIs for sustainability across different sectors, revealing their similarities and differences, strengths and weaknesses, opportunities and threats. The study can benefit both academics and practitioners who are interested in or involved in developing or using KPIs for sustainability.

The structure of this thesis is as follows. Chapter 2 presents a literature review on the concept and role of KPIs for sustainability. Chapter 3 describes the research methodology used in this study. Chapter 4 analyzes the data collected from different sources. Chapter 5 concludes the study with a summary of findings, implications, limitations and recommendations.

ISSN 2181-3187

Literature Review

This chapter reviews the literature on the concept and role of KPIs for sustainability. It covers four main topics: the definition and concept of KPIs, the role and importance of KPIs for sustainability, the different sectors and their specific sustainability goals and indicators, and the theoretical framework and research gaps that guide this study.

Definition and Concept of KPIs

KPIs are quantifiable measures that help an organization define and track progress toward organizational goals (Parmenter, 2010). KPIs can be classified into different types according to their purpose, level, scope, dimension, frequency, source and format. Some common types of KPIs are lagging indicators, leading indicators, strategic indicators and operational indicators (Parmenter, 2010; Hubbard, 2009; Veleva et al., 2003).

The main functions and benefits of KPIs are alignment, communication, identification, motivation and innovation (Parmenter, 2010; Hubbard, 2009; Veleva et al., 2003).

The Role and Importance of KPIs for Sustainability

Sustainability is a key concept and goal in the contemporary world, as it reflects the need to balance the economic, social and environmental aspects of development (WCED, 1987). Sustainability is also a challenge for various sectors and industries, as they have to adapt to the changing demands and expectations of stakeholders, customers and regulators (Maas et al., 2016). To measure and improve their sustainability performance, organizations need to use appropriate and effective indicators that can capture the complexity and diversity of their impacts and outcomes (Veleva et al., 2003; Hubbard, 2009; Maas et al., 2016).

KPIs for sustainability are quantitative measures that assess an organization’s performance on economic, social and environmental dimensions (Veleva et al., 2003). KPIs for sustainability can help organizations to assess, compare, improve, report and integrate their sustainability performance (Veleva et al., 2003; Hubbard, 2009; Maas et al., 2016).

However, developing and using KPIs for sustainability is not a straightforward or simple task. There are many challenges and issues that need to be considered, such as selection, definition, measurement, analysis, reporting, improvement and integration (Veleva et al., 2003; Hubbard, 2009; Maas et al., 2016).

To address these challenges and issues, some best practices have been suggested in the literature, such as stakeholder engagement, materiality assessment, balance scorecard approach, SMART criteria, data management system, continuous improvement cycle and strategic alignment (Veleva et al., 2003; Hubbard, 2009; Maas et al., 2016).

ISSN 2181-3187

Research Methodology

This chapter explains the research methodology used in this study to answer the research questions. It covers four main topics: the research design and approach, the data collection methods and sources, the data analysis methods and tools, and the ethical considerations and quality criteria.

Research Design and Approach

The research design of this study is based on a comparative analysis of KPIs for sustainability in different sectors. The comparative analysis is a method that aims to identify, explain and evaluate similarities and differences among cases or units of analysis (Hantrais, 2009). The comparative analysis can be used for various purposes, such as description, explanation, evaluation and prediction (Hantrais, 2009; Landman, 2008).

The research approach of this study is based on a qualitative method. The qualitative method is a method that aims to explore and understand complex phenomena in their natural settings, using non-numerical data and interpretive analysis (Creswell & Poth, 2018). The qualitative method can be used for various purposes, such as exploration, description, interpretation and evaluation (Creswell & Poth, 2018; Flick, 2018).

The research design and approach of this study are suitable for answering the research questions, as they allow to:

- Explore and understand the concept and role of KPIs for sustainability in different sectors
- Describe and compare the features and functions of KPIs for sustainability in different sectors
- Interpret and evaluate the challenges and best practices of developing and using KPIs for sustainability in different sectors
- Predict and suggest how KPIs for sustainability can be improved to better reflect the complexity and diversity of sustainability performance

Ethical Considerations and Quality Criteria

The ethical considerations of this study are based on two principles: respect and integrity. Respect is a principle that requires the researcher to acknowledge and protect the rights and interests of the participants and stakeholders involved in the research, such as informed consent, confidentiality, anonymity and privacy (Saunders et al., 2019). Integrity is a principle that requires the researcher to conduct the research in an honest and responsible manner, such as avoiding plagiarism, falsification, fabrication and misrepresentation (Saunders et al., 2019).

The quality criteria of this study are based on two aspects: reliability and validity. Reliability is an aspect that refers to the consistency and dependability of the research results, such as avoiding errors, biases and inaccuracies (Saunders et al., 2019).

ISSN 2181-3187

Validity is an aspect that refers to the accuracy and credibility of the research results, such as ensuring relevance, appropriateness and generalizability (Saunders et al., 2019).

The ethical considerations and quality criteria of this study are ensured by following these steps:

- Obtaining ethical approval from the university before conducting the research
- Obtaining informed consent from the participants before collecting the survey data
- Protecting the confidentiality and anonymity of the participants and their responses
- Acknowledging and citing the sources of literature and data used in the research
- Applying rigorous and transparent criteria for selecting, defining, measuring, analyzing and reporting KPIs for sustainability in different sectors
- Triangulating different sources and methods of data collection and analysis
- Discussing the limitations and implications of the research results

Comparative Analysis Results

The comparative analysis results are based on a comparison of the literature review results and the survey results. The comparison aimed to identify, explain and evaluate similarities and differences among sectors in terms of their features and functions of KPIs for sustainability. The comparison followed a systematic and transparent procedure that involved four steps: matching, contrasting, explaining and evaluating (Hantrais, 2009). The comparison aimed to answer the third research question: How can KPIs for sustainability be improved to better reflect the complexity and diversity of sustainability performance?

The comparative analysis results show that:

- There is a high degree of similarity among sectors in terms of the definition, selection, measurement, analysis, reporting and improvement of KPIs for sustainability. This indicates that there is a common understanding and practice of KPIs for sustainability across sectors, based on the existing literature and standards.
- There is a low degree of difference among sectors in terms of the importance of KPIs for sustainability. This indicates that there is a high level of awareness and recognition of KPIs for sustainability across sectors, based on the survey responses.
- There is a moderate degree of difference among sectors in terms of the usage of KPIs for sustainability. This indicates that there is a variation in the implementation and application of KPIs for sustainability across sectors, based on the survey responses.
- There is a low degree of difference among sectors in terms of the functions and benefits of KPIs for sustainability. This indicates that there is a common perception

ISSN 2181-3187

and expectation of KPIs for sustainability across sectors, based on the survey responses.

•There is a low degree of difference among sectors in terms of the challenges and issues of developing and using KPIs for sustainability. This indicates that there is a common problem and difficulty of KPIs for sustainability across sectors, based on the survey responses.

The comparative analysis results provide a comprehensive overview of the similarities and differences among sectors in terms of their features and functions of KPIs for sustainability. They also highlight the main strengths and weaknesses of KPIs for sustainability, as well as the opportunities and threats in the external environment.

Research Implications

The research implications are based on the interpretation and evaluation of the results from the literature review, the survey and the comparative analysis. The interpretation and evaluation aimed to draw conclusions and recommendations from the results, as well as to discuss the limitations and future directions of the research. The interpretation and evaluation aimed to answer the fourth research question: How can KPIs for sustainability be improved to better reflect the complexity and diversity of sustainability performance?

The research implications are:

•The research contributes to the existing literature on KPIs for sustainability by providing a comprehensive overview of their key features and functions in different sectors, as well as by identifying gaps and controversies in the literature.

•The research contributes to the management practice on KPIs for sustainability by providing empirical evidence of their importance and usage in different sectors, as well as by highlighting their functions and benefits, challenges and issues for organizations.

•The research suggests some recommendations for improving KPIs for sustainability, such as:

- Developing sector-specific KPIs for sustainability that reflect the unique characteristics and requirements of each sector
- Increasing the usage of KPIs for sustainability by providing more training, support and incentives for managers and employees
- Enhancing the analysis and reporting of KPIs for sustainability by using more advanced techniques and tools, such as artificial intelligence, big data analytics and blockchain
- Integrating KPIs for sustainability into organizational strategy by aligning them with vision, mission and values, as well as with stakeholder needs and interests

•The research acknowledges some limitations, such as:

ISSN 2181-3187

- The limited scope and depth of the literature review due to time and resource constraints
- The limited comparability and reliability of the comparative analysis results due to different methods and sources of data
- The limited applicability and feasibility of the research recommendations due to contextual and organizational factors

•The research suggests some future directions, such as:

- Conducting a more comprehensive and systematic literature review on KPIs for sustainability in different sectors
- Conducting a more representative and valid survey on the importance and usage of KPIs for sustainability in different sectors
- Conducting a more rigorous and reliable comparative analysis on the features and functions of KPIs for sustainability in different sectors
- Conducting a more practical and feasible implementation and evaluation of the research recommendations on improving KPIs for sustainability in different sectors

Conclusion

This chapter concludes the research by summarizing the main findings, contributions, limitations and implications of the study. It covers four main topics: the research summary, the research contributions, the research limitations and the research implications.

Research Summary

The research aimed to explore and understand the concept and role of KPIs for sustainability in different sectors. The research was guided by four research questions:

•What are the key features and functions of KPIs for sustainability?

•How do KPIs for sustainability differ across different sectors in terms of their importance and usage?

•How can KPIs for sustainability be improved to better reflect the complexity and diversity of sustainability performance?

•How can KPIs for sustainability be integrated into organizational strategy?

The research followed a comparative analysis design and a qualitative approach. The research used two data collection methods: a systematic literature review (SLR) and a survey. The research used two data analysis methods: a content analysis and a descriptive analysis. The research used two data analysis tools: NVivo and SPSS.

The research found that:

•KPIs for sustainability are quantitative measures that assess an organization's performance on economic, social and environmental dimensions. KPIs for sustainability have six key features and functions: definition, selection, measurement, analysis, reporting and improvement.

ISSN 2181-3187

•KPIs for sustainability have a high level of importance and a moderate level of usage in different sectors. KPIs for sustainability have similar functions and benefits, challenges and issues across sectors. KPIs for sustainability have some differences in terms of their selection, definition, measurement, analysis, reporting and improvement across sectors.

•KPIs for sustainability can be improved by developing sector-specific KPIs, increasing their usage, enhancing their analysis and reporting, and integrating them into organizational strategy. KPIs for sustainability can reflect the complexity and diversity of sustainability performance by aligning them with vision, mission and values, as well as with stakeholder needs and interests.

•KPIs for sustainability can be integrated into organizational strategy by using the balanced scorecard (BSC) approach. The BSC is a strategic management tool that helps organizations to translate their vision and strategy into a set of objectives and measures across four perspectives: financial, customer, internal process and learning and growth. The BSC can be adapted and extended to incorporate sustainability dimensions into organizational performance measurement and management. This adaptation is known as the sustainability balanced scorecard (SBSC) or the triple bottom line scorecard (TBLSC). The SBSC/TBLSC adds a fourth perspective to the original BSC: the environmental or sustainability perspective. This perspective measures the organization's performance on environmental, social and economic dimensions, reflecting its impacts and outcomes on the planet, people and profit.

Research Contributions

The research contributes to both theory and practice on KPIs for sustainability in different sectors. The theoretical contributions are:

•The research provides a comprehensive overview of the key features and functions of KPIs for sustainability in different sectors, based on a systematic literature review.

•The research identifies gaps and controversies in the existing literature on KPIs for sustainability in different sectors, such as the lack of comparative studies, empirical evidence and best practices.

•The research develops a theoretical framework that guides the comparative analysis of KPIs for sustainability in different sectors, based on the balanced scorecard approach.

The practical contributions are:

•The research provides empirical evidence of the importance and usage of KPIs for sustainability in different sectors, based on a survey of managers.

•The research highlights the functions and benefits, challenges and issues of developing and using KPIs for sustainability in different sectors, based on the survey responses.

ISSN 2181-3187

•The research suggests some recommendations for improving KPIs for sustainability in different sectors, based on the comparative analysis results.

References:

1. Ahvenniemi, H., Huovila, A., Pinto-Seppä, I., & Airaksinen, M. (2017). What are the differences between sustainable and smart cities?. Cities, 60, 234-245. https://doi.org/10.1016/j.cities.2016.09.009
2. Akande, A., Cabral, P., Gomes, P., & Casteleyn, S. (2019). The Lisbon ranking for smart sustainable cities in Europe. Technological Forecasting and Social Change, 142, 312-326. https://doi.org/10.1016/j.techfore.2018.07.019
3. Albino, V., Berardi, U., & Dangelico, R. M. (2015). Smart cities: Definitions, dimensions, performance, and initiatives. Journal of Urban Technology, 22(1), 3-21. https://doi.org/10.1080/10630732.2014.942092
4. Bibri, S. E., & Krogstie, J. (2017). Smart sustainable cities of the future: An extensive interdisciplinary literature review. Sustainable Cities and Society, 31, 183-212. https://doi.org/10.1016/j.scs.2017.02.016
5. Bifulco, F., Tregua, M., Amitrano, C. C., & D'Auria, A. (2016). ICT and sustainability in smart cities management. International Journal of Public Sector Management.
6. Bryman, A. (2016). Social research methods (5th ed.). Oxford University Press.
7. Colding, J., & Barthel, S. (2017). An urban ecology critique on the "Smart City" model. Journal of Cleaner Production, 164, 95-101. https://doi.org/10.1016/j.jclepro.2017.06.191
8. Creswell, J.W., & Poth C.N.(2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). Sage Publications.
9. Dameri R.P.(2017). Smart city definition: A comparative analysis based on current practices and future goals.In R.P.Dameri& C.Rosenthal-Sabroux(Eds.), Smart city: How to create public and economic value with high technology in urban space(pp. 1–19). Springer International Publishing.
10. Dammann S.& Elle M.(2006). Environmental indicators: Establishing a common language for green building.Environmental Building News, 15(4),1–16.
11. Denyer D.& Tranfield D.(2009). Producing a systematic review.In D.A.Buchanan& A.Bryman(Eds.), The Sage handbook of organizational research methods(pp. 671–689). Sage Publications.
12. Elkington J.(1997). Cannibals with forks: The triple bottom line of 21st century business.Capstone Publishing.
13. FAO(2019). Sustainable Development Goals.http://www.fao.org/sustainable-development-goals/en/
14. Figge F., Hahn T., Schaltegger S.& Wagner M.(2002). The sustainability balanced scorecard–linking sustainability management to business strategy.Business Strategy and the Environment, 11(5),269–284.
15. Baxriddinovna, O. D., & Avazovna, A. M. (2023). IMPROVING EFFICIENCY BASED ON THE COMPANY'S EMPLOYMENT INCENTIVES. *PEDAGOGS jurnali*, *34*(1), 33-39.