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FORMULATING KEY PERFORMANCE INDICATORS FOR AN INTEGRATED ENTERPRISE MANAGEMENT SYSTEM USING A SUSTAINABLE DEVELOPMENT BALANCED SCORECARD

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The alignment of business strategies with the United Nations' Sustainable Development Goals has become increasingly essential. Companies are now required to adopt robust mechanisms to track and report on sustainability performance. The integration of KPIs based on a sustainable development balanced scorecard directly addresses this need, offering a structured framework for embedding sustainability metrics into enterprise management systems.

The process of developing and implementing sustainable KPIs fosters a culture of innovation and continuous improvement. Enterprises are encouraged to explore new ways to enhance their sustainability performance, driving innovation in products, services, and operational processes.

The aim of this paper is to develop key performance indicators for an integrated enterprise management system utilizing a balanced scorecard approach that incorporates sustainable development indicators.

A sustainable development balanced scorecard serves as a strategic tool to assess and manage organizational performance in alignment with sustainable development goals and objectives.

In determining the KPIs for the integrated management system, a modified balanced scorecard is proposed to account for stakeholder interactions and focus on sustainable development goals. This approach aligns sustainability objectives with organizational-level business strategies, promotes social responsibility, and supports informed decision-making for sustainable development. The sustainable development balanced scorecard includes the subsystems: "Results," "Stakeholders," "Processes," and "Enablers," with KPIs identified through multidimensional factor analysis. Establishing key performance indicators within these subsystems will harmonize the economic, social, and environmental goals of the enterprise, fostering a holistic approach to sustainable development.

Key words: *management, management system, enterprise, balanced scorecard, sustainable development*

РОЗРОБКА КЛЮЧОВИХ ПОКАЗНИКІВ ЕФЕКТИВНОСТІ ІНТЕГРОВАНОЇ СИСТЕМИ УПРАВЛІННЯ ПІДПРИЄМСТВОМ З ВИКОРИСТАННЯМ ЗБАЛАНСОВАНОЇ СИСТЕМИ ПОКАЗНИКІВ СТАЛОГО РОЗВИТКУ

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Фізична особа підприємець

Відповідність бізнес-стратегій Цілям сталого розвитку ООН сьогодні набуває все більшої важливості. Компанії мають впроваджувати надійні механізми для моніторингу та звітності про ефективність сталого розвитку. Інтеграція ключових показників ефективності (KPI) на основі збалансованої системи показників сталого розвитку відповідає цій потребі, пропонуючи структуровану основу для включення показників сталого розвитку в системи управління підприємством.

Процес розробки та впровадження KPI сталого розвитку сприяє розвитку культури інновацій та постійного вдосконалення. Підприємства заохочуються до дослідження нових способів забезпечення сталого розвитку, стимулюючи інновації в продуктах, послугах та операційних процесах.

Метою цієї статті є розробка ключових показників ефективності для інтегрованої системи управління підприємством із застосуванням збалансованої системи показників сталого розвитку.

Збалансована система показників сталого розвитку слугує стратегічним інструментом для оцінки та управління ефективністю організації відповідно до цілей і завдань сталого розвитку. При визначенні KPI для інтегрованої системи менеджменту пропонується модифікована збалансована система показників, що враховує взаємодію зацікавлених сторін та зосереджується на цілях сталого розвитку. Цей підхід узгоджує цілі сталого розвитку з бізнес-стратегіями організаційного рівня, сприяє соціальній відповідальності та підтримує прийняття обґрунтованих рішень для сталого розвитку. Пропонована збалансована система показників сталого розвитку включає підсистеми: «Результати», «Стейкхолдери», «Процеси» та «Активатори», які містять KPI, визначені за допомогою багатовимірного факторного аналізу. Встановлення ключових показників ефективності в рамках цих підсистем дозволить гармонізувати економічні, соціальні та екологічні цілі підприємства, сприяючи комплексному підходу до сталого розвитку.

***Ключові слова**: менеджмент, система управління, підприємство, збалансована система показників, сталий розвиток.*

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INTRODUCTION

In today's rapidly evolving business landscape, the formulation of key performance indicators (KPIs) for an integrated enterprise management system using a sustainable development balanced scorecard is of paramount importance. Traditional performance measurement systems have predominantly focused on financial metrics, often overlooking other critical areas such as environmental and social performance. This limitation necessitates a more comprehensive approach to evaluating organizational performance, which includes economic, social, and environmental dimensions.

The alignment of business strategies with the United Nations' Sustainable Development Goals (SDGs) has become increasingly essential. Companies are now required to adopt robust mechanisms to track and report on sustainability performance. The integration of KPIs based on a sustainable development balanced scorecard directly addresses this need, offering a structured framework for embedding sustainability metrics into enterprise management systems.

Moreover, the availability of diverse performance indicators within a cohesive management system enhances decision-making processes. Managers can leverage a broader range of data to make informed and balanced decisions that consider both long-term sustainability and immediate financial outcomes.

In response to the growing scrutiny from stakeholders, including investors, customers, and regulators, businesses must demonstrate their commitment to corporate social responsibility and transparency. Developing KPIs that reflect sustainable development principles is crucial for building trust and maintaining a positive reputation.

Regulatory landscapes are also evolving, with increased emphasis on environmental protection and social responsibility. By embedding relevant KPIs within their management systems, companies can proactively comply with these regulations, thereby ensuring continuous adherence to legal requirements.

Furthermore, businesses that effectively integrate sustainability into their operations can achieve a competitive advantage. This approach not only leads to improved operational efficiencies and cost reductions but also enhances market positioning as responsible and forward-thinking organizations.

Sustainable business practices contribute to long-term resilience by mitigating risks associated with environmental degradation, resource scarcity, and social unrest. Embedding sustainability into core management systems enables companies to better navigate these challenges, ensuring sustained growth and stability.

The process of developing and implementing sustainable KPIs fosters a culture of innovation and continuous improvement. Enterprises are encouraged to explore new ways to enhance their sustainability performance, driving innovation in products, services, and operational processes.

Thus, the formulation of key performance indicators for an integrated enterprise management system using a sustainable development balanced scorecard is critically relevant in addressing contemporary business challenges and opportunities. It provides a comprehensive framework for performance measurement, aligns with global sustainability goals, and promotes the creation of resilient and responsible enterprises.

The development of key performance indicators (KPIs) for an integrated enterprise management system based on a sustainable development balanced scorecard is an emerging field that addresses the growing need for comprehensive performance measurement frameworks. This literature review explores the foundational theories, methodologies, and applications of sustainable balanced scorecards and integrated management systems, drawing on various academic and industry sources.

LITERATURE REVIEW

The balanced scorecard (BSC), introduced by Kaplan and Norton (1992) [9], has become a widely adopted tool for performance measurement. Originally focused on financial, customer, internal processes, and learning and growth perspectives, the BSC has evolved to incorporate sustainability metrics [4, 5, 6, 8, 13]. Epstein and Wisner (2001) [3] were among the early proponents of integrating environmental and social dimensions into the BSC, arguing that traditional metrics failed to capture the broader impacts of organizational activities. More recent studies by Figge et al. (2002) [14] and Hansen and Schaltegger (2014) [5] have advanced the concept of the sustainability balanced scorecard (SBSC), which explicitly includes environmental and social indicators alongside traditional economic metrics. These studies highlight the necessity of aligning corporate strategy with sustainable development goals and the advantages of using SBSC to manage and report on sustainability performance comprehensively.

The role of KPIs in sustainability performance measurement has been also extensively studied. Parmenter (2010) [11] emphasizes the importance of selecting KPIs that align with strategic objectives and provide actionable insights. In the context of sustainability, KPIs must reflect environmental impact, social responsibility, and economic performance, offering a holistic view of organizational health.

Studies by Morhardt, Baird, and Freeman (2002) [10] and Searcy (2014) [12] discuss frameworks for developing sustainability KPIs, focusing on their relevance, measurability, and ability to drive strategic decision-making. These works underscore the importance of stakeholder engagement in defining KPIs, ensuring that they capture the interests and expectations of all relevant parties.

The concept of integrated management systems (IMS) encompasses the harmonization of various management functions and processes within a cohesive framework. Zeng, Shi, and Lou (2007) [15] argue that IMS enhances organizational efficiency by eliminating redundancies and improving coordination across different management areas. The integration of sustainability into IMS has been further explored by Asif, Searcy, Zutshi, and Fisscher (2013) [2], who propose that embedding sustainability principles into management systems enhances their effectiveness and supports long-term strategic goals.

Implementing an integrated enterprise management system with a sustainable development balanced scorecard presents several challenges. According to Adams and Frost (2008) [1], organizations often face difficulties in defining relevant sustainability metrics and integrating them into existing management systems. These challenges are compounded by the need for robust data collection and analysis mechanisms. Best practices for overcoming these challenges include adopting a phased implementation approach, engaging stakeholders throughout the process, and continuously refining KPIs based on feedback and changing conditions (Hubbard, 2009) [7].

The integration of KPIs into a sustainable development balanced scorecard within an enterprise management system represents a critical advancement in performance measurement. The literature underscores the importance of aligning KPIs with strategic objectives, engaging stakeholders, and adopting a holistic approach to sustainability.

AIM

The aim of this paper is to develop key performance indicators for an integrated enterprise management system utilizing a balanced scorecard approach that incorporates sustainable development indicators.

A sustainable development balanced scorecard (SBSC) serves as a strategic tool to assess and manage organizational performance in alignment with sustainable development goals and objectives. Traditionally, the balanced scorecard translates an organization's vision and strategy into strategic goals, performance indicators, and metrics across four key perspectives: financial, customer, internal processes, and learning and growth. The novel concept of SBSC expands upon this framework by incorporating environmental and social criteria into the existing balanced scorecard, thereby providing a more comprehensive evaluation of an organization's performance in the context of sustainable development [6].

Environmental and social aspects can be integrated into the SBSC using three methods: integration into the existing four standard subsystems; addition of an extra subsystem to account for environmental and social considerations; and formation of a dedicated environmental and/or social system of indicators.

The first method involves incorporating environmental and social aspects into the four existing subsystems of the SBSC. This is achieved by identifying strategic key elements or performance factors for which lagging and leading indicators, as well as targets and measures, are developed. Consequently, this approach determines the environmental and social aspects that are strategically relevant within the framework of the four standard subsystems of the SBSC.

The second method entails the introduction of an additional "non-market" subsystem into the balanced scorecard. To integrate strategically important environmental and social aspects, the standard structure of the SBSC, which typically reflects only the market system, must be expanded with this additional subsystem. The need for a non-market subsystem arises when environmental or social aspects significantly influence enterprise success outside the market system and cannot be adequately reflected within the four standard subsystems of the SBSC.

The third method for integrating environmental and social aspects into the SBSC involves developing a specific environmental and/or social indicator system. This environmental/social scorecard is not an independent alternative to integration but rather an extension of the previous two methods. The derived system of indicators is incorporated into the existing SBSC framework and is primarily used for coordination, organization, and further differentiation of environmental and social aspects.

We adopt the first approach to integrating social and environmental aspects into the balanced scorecard (BSC). In alignment with the perspective of R. Kaplan and D. McMillan [8], we recognize the necessity of adapting the BSC to account for the interactions between stakeholders.

Kaplan and McMillan introduced new designations for three of the original four subsystems of the BSC. The "Finance" subsystem was renamed the "Results" subsystem to reflect the triple dimension of performance – financial, environmental, and social. The "Clients" subsystem became the "Stakeholders" subsystem to encompass the interests of all ecosystem participants. The "Processes" subsystem retained its original name, while the "Learning and Development" subsystem was rebranded as the "Enablers" subsystem.

The "Results" subsystem continues to include financial indicators reflecting stakeholder interests, but it now also accounts for improvements in the environment and quality of life. The transformation of the "Clients" subsystem into the "Stakeholders" subsystem signifies that the company's value orientation should incorporate not only its customers but also the interests of other stakeholders.

The renaming of the "Learning and Development" subsystem to the "Enablers" subsystem is predicated on the premise that inclusive growth strategies necessitate change and coordination among all stakeholders.

The principles underlying the construction of a modified Balanced Scorecard for sustainable development are as follows [8]:

1. Adherence to Inclusive Growth Strategies: Most companies now have sustainability departments dedicated to implementing sustainability programs and initiatives, reflecting a commitment to inclusive growth.

2. Strategic Approach to Environmental and Social Issues: Strategies aimed at environmental and social improvement are most effective and sustainable when they align with a company's specific capabilities and profit-driven business model.

3. Understanding the Ecosystem: A company needs a well-developed ecosystem to effectively manage transactions and relationships with direct suppliers and customers. However, a limited strategy that focuses only on these connections overlooks potential relationships with a broader set of stakeholders in the supply and distribution chain.

4. Stakeholder Involvement: Engaging stakeholders in the co-creation of products and services fosters innovation and enhances loyalty.

5. Strive for Inclusive Growth: The overarching goal is to achieve growth that is inclusive, benefiting all stakeholders.

The approach to developing key performance indicators (KPIs) for the integrated management system was demonstrated through case studies of two Chinese enterprises. This practical application underscores the relevance and adaptability of the proposed KPIs within different organizational contexts.

Enterprise 1 primarily engages in the import and export of technologies, technological services, technological consulting, technology exchange, technology transfer, and technology promotion. Additionally, it focuses on the development of artificial intelligence software, sales of intelligent robots, industrial robots, and portable intelligent devices, as well as information and consulting services.

Enterprise 2 specializes in providing information and consulting services related to enterprise management, marketing planning, corporate image planning, educational consulting services, organizing cultural events, and managing conferences and exhibitions.

A survey conducted among the managers of these enterprises highlighted the necessity of establishing an integrated management system. For Enterprise 1, this system would integrate quality management, information security, and compliance management systems. For Enterprise 2, it would incorporate quality management technologies, knowledge management, and business relations management.

In light of these findings, a sustainable development balanced scorecard was developed for both enterprises (Table 1, Table 2).

Table 1.

Sustainable Development Balanced Scorecard for Enterprise 1

SBSC Subsystem	Strategic goals		Indicators
1	2		3
Results	economic	Increasing profitability	Return on equity
		Reducing costs	Cost-to-sales ratio
		Ensuring financial stability	Autonomy ratio
	social	Creating job opportunities	Hiring rate
	environmental	Promoting ecological development	Share of devices using efficient energy sources
Stakeholders	economic	Delivering high-quality services and software	Share of returns and complaints in the total number of products and services sold
		Expanding the customer base	Share of new customers in the total number of customers
		Ensuring profitability of customer relationships	Sales profitability
	social	Establishing a crowdsourcing platform to support public initiatives and government projects	Spending on social activities as a percentage of total expenses
	environmental	Minimizing consumption of public resources	Spending on electricity, water, and heat supply as a percentage of administrative expenses

1	2		3
Processes	economic	Ensuring high quality of products and services	Share of defective products and services in the total volume of products and services
		Maintaining information security	Number of information leakage or data theft incidents
		Providing timely delivery of products and services	Share of late deliveries in the total number of deliveries to customers
Processes	social	Ensuring decent working conditions according to legislation	Number of employees satisfied with working conditions as a percentage of total staff
	environmental	Reducing the use of non-recyclable materials	Share of the cost of non-recyclable materials in material expenses
Enablers	economic	Increasing employee competence	Average number of training hours per employee
		Reducing staff turnover	Percentage of employees who left as a percentage of total staff
		Developing innovative products and services	Number of implemented product innovations
	social	Fostering cooperation with key stakeholders for social projects	Number of agreements with stakeholders aimed at social projects
	environmental	Developing innovative IT solutions to address environmental challenges	Share of innovative environmental IT projects in the total number of projects

Source: compiled by the authors

The proposed system of key performance indicators (KPIs) diverges from traditional models by emphasizing social and environmental considerations and fostering more active stakeholder engagement. Enterprise's social initiatives and measures should be codified in the "Corporate Social Responsibility (CSR) Policy," a document that outlines the management of CSR processes and projects. Additionally, a Committee on Corporate Social Responsibility should be established to integrate CSR approaches into the enterprise's business processes and align initiatives with social problem-solving.

One of the enterprise's social objectives is to create a crowdsourcing platform where employees can participate in initiatives they find important and engaging. Each program should have clear goals, timelines, and measurable outcomes. Furthermore, the proposed KPI system includes metrics that reflect the objectives of the enterprise's integrated management system components, such as quality management, information security, and compliance.

Table 2.

Sustainable Development Balanced Scorecard for Enterprise 2

SBSC Subsystem	Strategic goals		Indicators
Results	economic	Revenue growth	Gross income growth rate
		Optimization of capital structure	Financial leverage ratio
		Optimization of cash flows	Cash flow ratio
	social	Increasing financial and technological literacy among the population	Literacy improvement expenditure as a percentage of total expenses
	environmental	Improving the environmental sustainability of offices	Expenditure on eco-friendly office upgrades
Stakeholders	economic	Retaining existing clients	Client loyalty index
		Increasing client acquisition efficiency	Client acquisition cost to project income ratio
		Providing high-quality consulting services to clients	Percentage of satisfied clients in total clients
	social	Creating social projects with universities and schools	Share of social projects in total projects
	environmental	Developing solutions for national environmental issues	Share of implemented environmental projects in total projects
Processes	economic	Establishing a Learning Management System within the enterprise	Expenditure on developing an internal Learning Management System
		Optimizing the preparatory phase of consulting services	Time spent on organizational and documentation support for service provision
		Increasing accounts receivable turnover	Accounts receivable turnover ratio
	social	Providing free services to vulnerable populations	Dynamics of the number of projects supporting low-income populations
	environmental	Disposal of used equipment and devices: monitors, system block elements, fluorescent lamps	Share of disposed equipment in total decommissioned equipment
Enablers	economic	Developing personnel capabilities for generating new knowledge	Dynamics of services developed using scientific methods
		Increasing employee productivity	Productivity ratio
		Implementing new technologies to improve product and service quality	Dynamics of the number of new technological solutions implemented
	social	Creating attractive working conditions for employees	Percentage of employees satisfied with working conditions
	environmental	Developing an eco-conscious culture among employees	Dynamics of activities promoting eco-consciousness

Source: compiled by the authors

For Enterprise 2, in addition to measures aligned with sustainable development goals, key performance indicators (KPIs) aimed at assessing quality management, business relations, and knowledge components of an integrated management system are provided.

To verify the alignment of the developed goals and KPIs of the integrated enterprise management system with the actual operating conditions of the investigated enterprises, a survey was conducted with 20 top and middle management managers at each enterprise, followed by a factor analysis procedure. The survey required responses on a five-point scale to assess the importance of the formulated strategic goals. Factor analysis using the principal components method was conducted to identify the most significant strategic goals and their corresponding KPIs based on factor loadings.

Each factor corresponds to the variance it explains. The number of principal components was determined according to the Kaiser criterion, which considers components with eigenvalues greater than 1 as significant.

Factor analysis of the importance of Enterprise 1's strategic goals was performed using the principal components method in the Statistica 13.5 software. The statistical characteristics of the obtained factors are presented in Table 3.

Table 3.

Results of the Factor Analysis of the Significance of Strategic Goals for Enterprise 1

Factor	Eigenvalue	Percentage of Total Variance, %	Cumulative Eigenvalue	Cumulative Variance, %
1	8,148412	40,74206	8,14841	40,74206
2	3,643891	18,21945	11,79230	58,96151
3	3,602446	18,01223	15,39475	76,97374

Source: Compiled by the authors based on own calculations.

The results of the factor analysis indicated that three factors were selected, with significant contributions to the total variance (40.74%, 18.22%, and 18.01%, respectively), demonstrating a high degree of factorization completeness at 76.97%. Although all strategic goals are included in each factor, the values of the factor loadings were assessed to identify the most significant goals.

The first factor exhibits the highest correlation with nine strategic goals: ensuring financial stability, creating jobs, promoting ecological development, ensuring the supply of high-quality services and software, creating a crowdsourcing platform to support public initiatives and government projects, ensuring information security, ensuring decent working conditions in accordance with legislation, developing innovative products and services, and fostering cooperation with key stakeholders for social project implementation.

The second factor is most correlated with the strategic goals of minimizing the consumption of public resources, increasing employee competence, and reducing staff turnover. The third factor is closely associated with ensuring the profitability of client relationships and ensuring timely delivery of products and services. Based on the magnitude of the factor loadings, these goals will form the foundation of the company's strategic map, aligned with the sustainable development balanced scorecard, and will be used to determine the corresponding key performance indicators of the integrated management system.

The statistical characteristics of the factors obtained from the factor analysis of the significance of Enterprise 2's strategic goals are presented in Table 4.

Table 4.

Results of the Factor Analysis of the Significance of Strategic Goals for Enterprise 1

Factor	Eigenvalue	Percentage of Total Variance, %	Cumulative Eigenvalue	Cumulative Variance, %
1	5,203289	26,01644	5,20329	26,01644
2	3,079048	15,39524	8,28234	41,41169
3	2,809487	14,04744	11,09182	55,45912
4	2,080076	10,40038	13,17190	65,85950
5	1,565941	7,82971	14,73784	73,68921

Source: Compiled by the authors based on own calculations.

Five factors were identified, with a cumulative variance of 73.69%. The first factor comprises goals such as increasing financial and technological literacy among the population, providing high-quality consulting services to clients, and offering free services to vulnerable segments of the population. The second factor includes goals related to increasing revenue, optimizing the preparatory phase of consulting services, and developing a culture of eco-awareness among employees. The third factor consists of goals aimed at optimizing cash flows, retaining existing customers, and introducing new technologies to enhance product and service quality. The fourth factor is most correlated with improving the environmental friendliness of offices and establishing a Learning Management System at the enterprise. The fifth factor is associated with the disposal of used equipment and devices, including monitors, system unit elements, and fluorescent lamps.

The factor analysis confirmed the relevance of incorporating social and environmental goals and key performance indicators into the balanced scorecard (Figures 1 and 2).

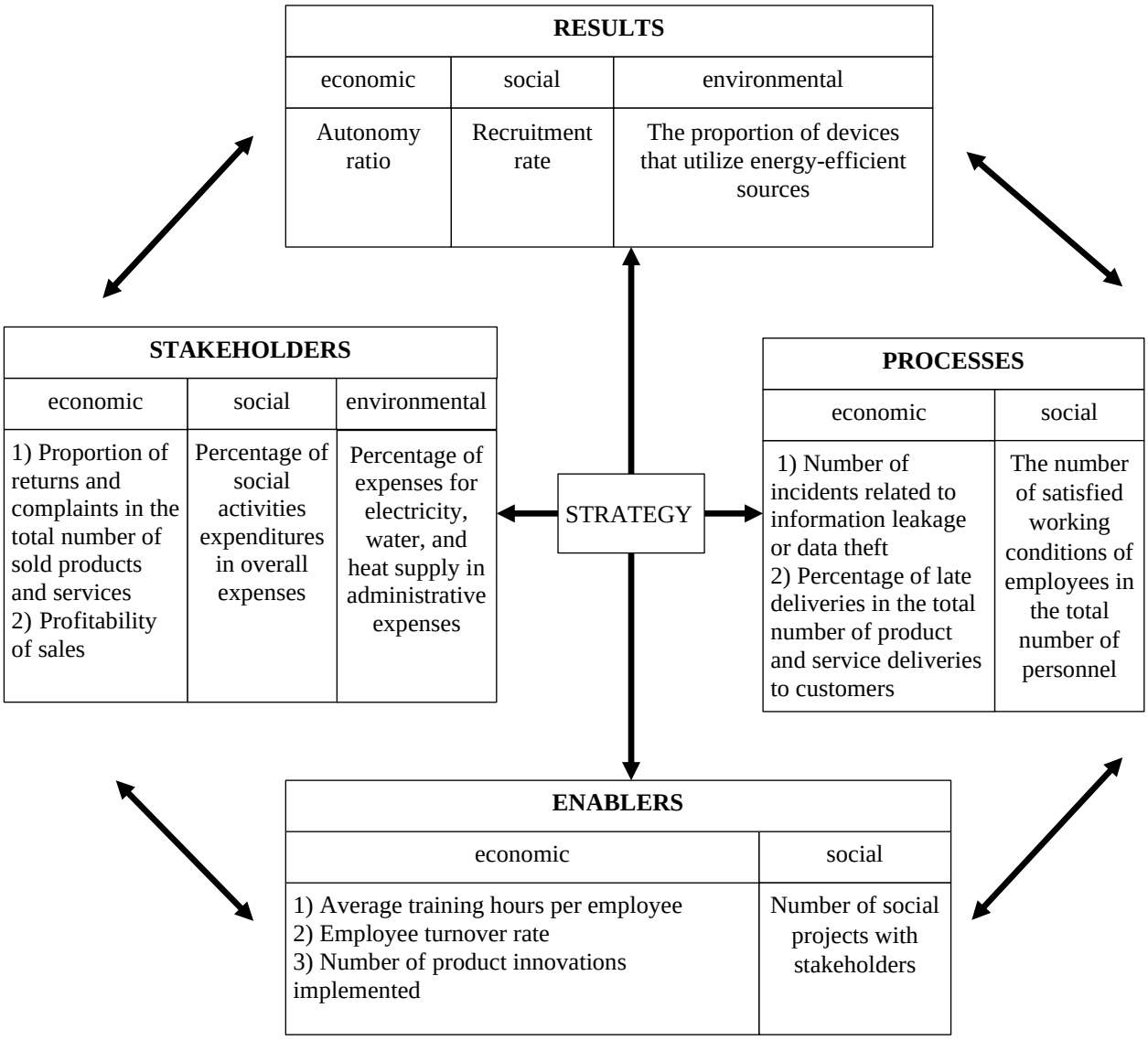

Fig.1. Key performance indicators map for integrated management system based on SBSC for the Enterprise 1.
Source: Compiled by the authors

The developed list of key performance indicators (KPIs) for the integrated management system, based on a sustainable development balanced scorecard, enables the measurement of goal achievement within the integrated system's subsystems. It also addresses the sustainable development goals in economic, social, and environmental dimensions.

CONCLUSIONS

In determining the KPIs for the integrated management system, a modified balanced scorecard is proposed to account for stakeholder interactions and focus on sustainable development goals. This approach aligns sustainability objectives with organizational-level business strategies, promotes social responsibility, and supports informed decision-making for sustainable development. The sustainable development balanced scorecard includes the subsystems: "Results," "Stakeholders," "Processes," and "Enablers," with KPIs identified through multidimensional factor analysis. Establishing key performance indicators within these subsystems will harmonize the economic, social, and environmental goals of the enterprise, fostering a holistic approach to sustainable development.

Future research should continue to explore the dynamic interplay between sustainability, performance measurement, and integrated management systems, ensuring that theoretical advancements translate into practical benefits for organizations.

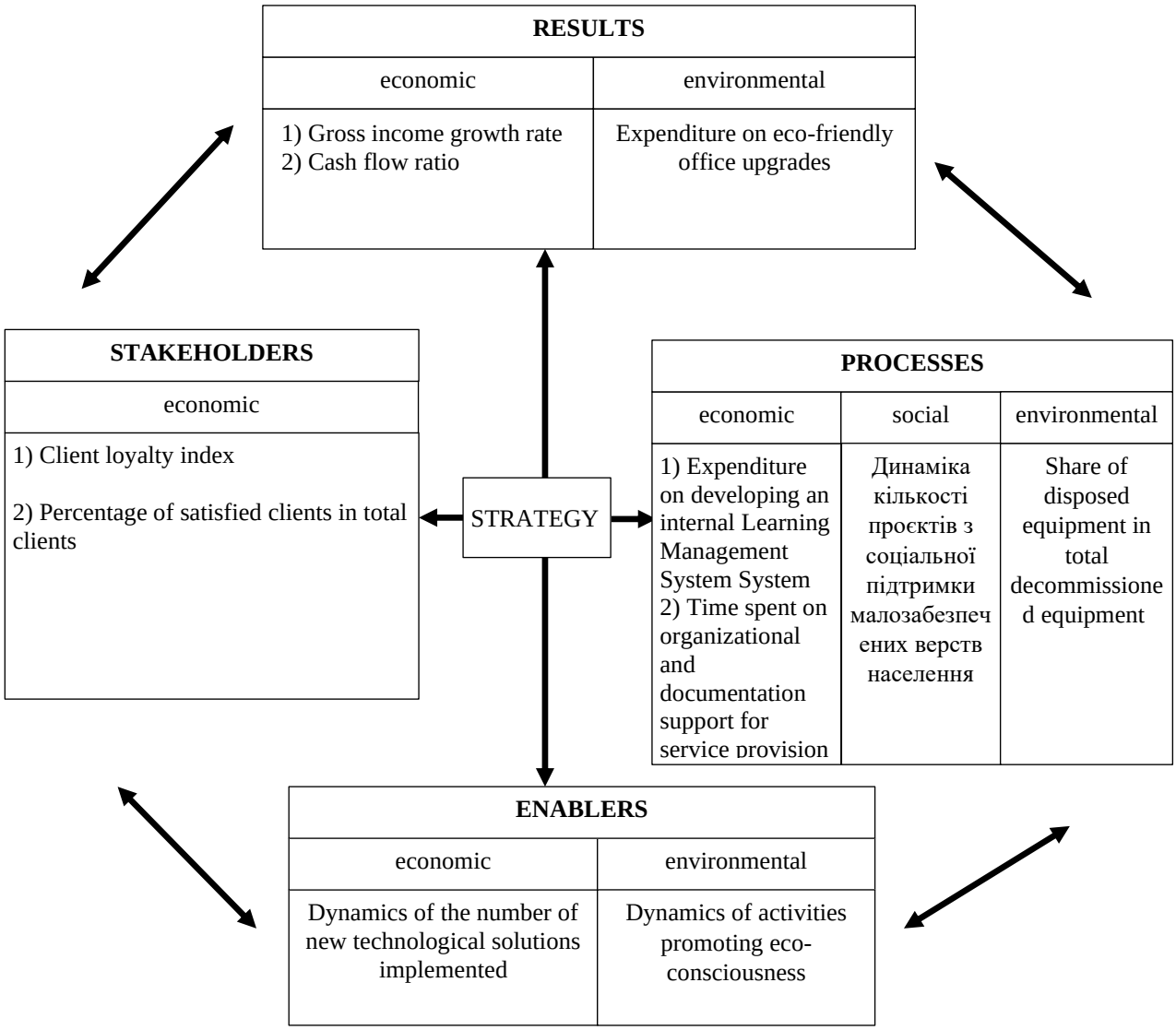

Fig.2. Key performance indicators map for integrated management system based on SBSC for the Enterprise 2.
Source: Compiled by the authors

References

1. Adams C. A., Frost G. R. Integrating sustainability reporting into management practices. *Accounting Forum*. 2008. Vol. 32, no. 4. P. 288–302. URL: https://doi.org/10.1016/j.accfor.2008.05.002 (date of access: 09.05.2024).
2. An integrated management systems approach to corporate social responsibility / M. Asif et al. *Journal of Cleaner Production*. 2013. Vol. 56. P. 7–17. URL: https://doi.org/10.1016/j.jclepro.2011.10.034 (date of access: 09.05.2024).
3. Epstein M. J., Wisner P. S. Using a Balanced Scorecard to Implement Sustainability. *Environmental Quality Management*. 2001. Vol. 11, no. 2. P. 1–10. URL: https://doi.org/10.1002/tqem.1300 (date of access: 07.05.2024).
4. Fathi A. Sustainability balanced scorecard: a comperhensive tool to measure sustainabilty performance. *International Journal of Social Science and Economic Research*. 2019. Vol. 4. Issue 2. P. 948-962.
5. Hansen E. G., Schaltegger S. The Sustainability Balanced Scorecard: A Systematic Review of Architectures. *Journal of Business Ethics*. 2014. Vol. 133, no. 2. P. 193–221. URL: https://doi.org/10.1007/s10551-014-2340-3 (date of access: 09.05.2024).
6. Heebkhoksung K. Rattanawong W. Vongmanee V. A New Paradigm of a Sustainability-Balanced Scorecard Model for Sport Tourism. *Sustainability*. 2023. 15. 10586. https://doi.org/10.3390/su151310586
7. Hubbard G. Measuring Organizational Performance: Beyond the Triple Bottom Line. Business Strategy and the Environment. 2009. no.18. P. 177-191. URL: https://doi.org/10.1002/bse.564 (date of access: 09.05.2024).
8. Kaplan R. S., McMillan D. Updating the Balanced Scorecard for Triple Bottom Line Strategies. Working Paper 21-028. Harvard Business School. 2020. URL: https://www.hbs.edu/ris/Publication%2520Files/WP21-028_Triple_Bottom_Line_8.28.20abstract_correction_dd38a54c-48f2-4471-80db-e0ed6f962309.pdf (Last accessed: 08.05.2024)
9. Kaplan R.S., Norton D.P. The balanced scorecard – measures that drive performance. *Global Business Review*. 1992. №70 (1). P. 71–79.
10. Morhardt J. E., Baird S., Freeman K. Scoring corporate environmental and sustainability reports using GRI 2000, ISO 14031 and other criteria. *Corporate Social Responsibility and Environmental Management*. 2002. Vol. 9, no. 4. P. 215–233. URL: https://doi.org/10.1002/csr.26 (date of access: 08.05.2024).
11. Parmenter D. Key performance indicators: developing, implementing, and using winning KPIs. Second Edition. John Wiley & Sons, Inc., Hoboken, New Jersey, 2010. 299 p.
12. Searcy C. Measuring Enterprise Sustainability. *Business Strategy and the Environment*. 2014. Vol. 25, no. 2. P. 120–133. URL: https://doi.org/10.1002/bse.1861 (date of access: 09.05.2024).

13. Suaad J., Zakaria Z., Che A. Sustainability balanced scorecard architecture and environmental investment decision-making. *Foundations of Management*. 2020. Vol. 12. Iss. 1. P. 193-210. https://doi.org/10.2478/fman-2020-0015
14. The Sustainability Balanced Scorecard - linking sustainability management to business strategy / F. Figge et al. *Business Strategy and the Environment*. 2002. Vol. 11, no. 5. P. 269–284. URL: https://doi.org/10.1002/bse.339 (date of access: 08.05.2024)
15. Zeng S. X., Shi J. J., Lou G. X. A synergetic model for implementing an integrated management system: an empirical study in China. *Journal of Cleaner Production*. 2007. Vol. 15, no. 18. P. 1760–1767. URL: https://doi.org/10.1016/j.jclepro.2006.03.007 (date of access: 09.05.2024).