BALANCED SCORECARD (BSC-GOV) APPLIED TO CENTRAL LOGISTICS STRUCTURES WITHIN THE AIR FORCE, AIMED AT DETERMINING THEIR READINESS LEVEL FOR DEPLOYMENT IN INTERNATIONAL OPERATIONAL THEATERS

Bogdan Gabriel ANDRIEȘ

”Hennri Coandă” Air Force Academy, Brașov, Romania (bogdan.andries@afahc.ro)

DOI: 10.19062/2247-3173.2026.27.1

Abstract: *implementing a complex, macro-level strategy—such as one related to the national defense of a NATO member state—requires an in-depth understanding of the multidimensional performance profile of its subsystems and associated processes. In practice, there are no standardized or comprehensive tools capable of measuring or reliably estimating the success of such a strategy. Therefore, the idea of employing an adapted version of the Balanced Scorecard (BSC), tailored to the specific context, may provide strategic decision-makers with a clearer perspective on the feasibility and effectiveness of implementation efforts. The BSC is a performance management instrument designed to assess an organization by establishing a clear vision, strategy, and a set of financial and non-financial key performance indicators (KPIs) with the explicit goal of improving overall effectiveness. When applied to a logistics structure responsible for deploying forces to international theaters of operation, the BSC supports the assessment of readiness levels by identifying potential issues that may hinder mission success.*

Keywords: *BSC, logistics system, theaters of operations, vision, mission*

1. INTRODUCTION

In the context of today’s disruptive technological progress, there is significant interest in applying performance-evaluation tools to military logistics systems. The integration of both non-financial and financial performance indicators provides the unique perspective required for designing and developing logistics structures toward a modern and efficient direction. The research problem stems from the need for a coherent framework to support the implementation of performance-management measurement tools within the current military logistics system.

The purpose of this article is to develop such a framework, enabling an in-depth exploration of the possibilities for visualizing multidimensional performance by identifying the managerial challenges specific to the military logistics system. The overarching objective is to enhance performance and quality.

The Balanced Scorecard (BSC) originated in 1990, when David N. Norton, director of the Nolan Norton Institute, together with Professor Robert S. Kaplan of Harvard Business School, conducted a study involving twelve prominent companies—including IBM, DuPont, and General Electric—regarding methods and tools for measuring future performance beyond traditional economic financial metrics. The BSC model simultaneously constitutes a comprehensive and global management tool, suitable for the formulation, implementation, and control of organizational strategies.

It also has a strong preventive character, centered on a diversified system of indicators intended to support and substantiate the decision-making process.

The first military organization to implement the BSC model was the United States Army, in an application dedicated to assessing the readiness of its forces deployed in international theaters of operations. For an organization as large and complex as the U.S. Army—whose purpose differs fundamentally from that of profit driven entities—the BSC represents a robust and appropriate instrument. It provides a comprehensive overview of non-financial performance and identifies critical performance elements beyond the financial domain.

By applying the BSC at the level of the U.S. Army, strong benchmarks were established in areas such as efficiency, agility, and adaptation to technological advances—factors that contribute to enhancing national defense and safeguarding national principles. Building on these considerations, and taking into account the model's scalability, it becomes necessary to explore the feasibility of applying the BSC within the military logistics system of the Romanian Armed Forces. Through the BSC, a comprehensive depiction of relevant performance dimensions can be constructed, enabling the establishment of quantitative benchmarks and facilitating an improved understanding of the logistics structure's performance within the current geopolitical context and under multiple financial constraints.

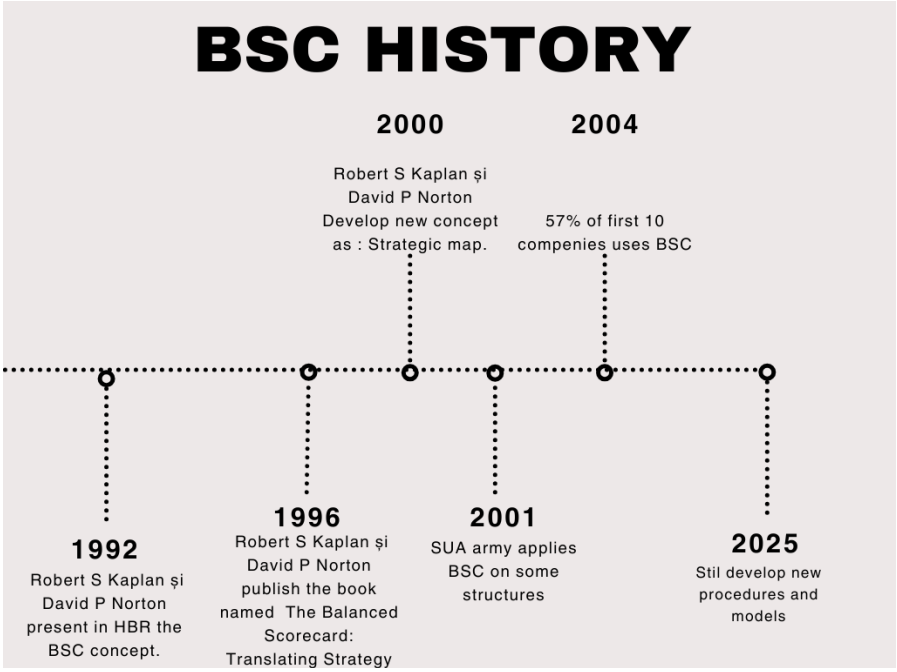

FIG. 1 History of BSC

2. CURRENT STATE OF RESEARCH

The Balanced Scorecard (BSC) integrates four distinct perspectives—financial, customer, internal processes, and learning and growth—providing decision-makers with a comprehensive view of performance and a practical insight into the degree of objective fulfillment. The BSC does not create strategy; rather, it contributes to its refinement, communication, and adaptation.

With regard to practical implementation exercises, the BSC has undergone several modifications aimed at improving the model and eliminating some of its initial shortcomings.

Although the BSC was originally applied exclusively in the private sector, its proven qualities and the widespread success among major corporations prompted Kaplan and Norton to adapt the model for governmental institutions as well. Whereas in the initial private-sector version the four perspectives (FCIL) were structured around a strong financial focus, an additional fiduciary perspective was later introduced for public-sector organizations, emphasizing fiscal responsibility—specifically, the management of public budget expenditures.

The BSC is built upon the four core perspectives (FCIL = Financial, Customers, Internal Processes, Learning and Growth), through which both short- and long-term synergies among organizational elements and activities can be observed:

- **Translating the vision** – By relying on measurable tools, managers are effectively compelled to agree unanimously on the KPIs used to ensure success.
- **Communication** – Through the vertical dissemination of performance - measurement tools, the chosen strategy becomes accessible at all organizational levels. Thus, each individual, regardless of position, understands how their productivity contributes to the implementation of the strategy.
- **Mission planning** – In the context of the BSC, mission planning refers to the alignment of procedures for strategic and budgetary management. This forces leadership to integrate two functions: ensuring that the budget supports the strategic goal, and identifying the most appropriate performance indicators to guide the organization throughout the process.
- **Learning and feedback** – By implementing a system of feedback and review, the BSC and its associated KPIs can be adjusted according to the needs of the organization and its stakeholders.

The BSC concept has been further expanded by introducing a strategic map of the organization, which incorporates intangible resources and capabilities—such as organizational culture and employee knowledge—thereby supporting a deeper understanding of performance management. This map, integrating intangible resources, also contributes to anticipating and interpreting the evolution of structural elements within the organization.

3. RESEARCH METHODOLOGY

3.1 The BSC framework adapted to a logistics structure

This study is grounded in the development of a Balanced Scorecard for a logistics structure responsible for preparing military units for deployment to international theaters of operations. The necessity of applying the BSC within the logistics system arises from its ability to support the monitoring of the national-level strategic vision, the establishment and quantification of performance indicators, and ultimately, the enhancement of mission success and the alignment of military personnel with the mission’s overarching vision.

While Kaplan and Norton initially proposed four equally important BSC perspectives for the private sector, as follows:

FIG. 2 BSC Perspective

After examining the successful application of the BSC in the private sector within several major corporations, Kaplan and Norton adapted the original perspectives so that they could be effectively used by governmental and non-governmental organizations, as follows:

This adaptation of the perspectives created an opportunity to develop a strategic map more closely aligned with the specific characteristics and operational realities of governmental organizations.

The data collection method employed in this study was documentary analysis, involving the gathering of information on the military logistics system from publicly available sources. For qualitative analysis, thematic analysis was chosen as the principal methodological approach.

3.2 Conceptual framework

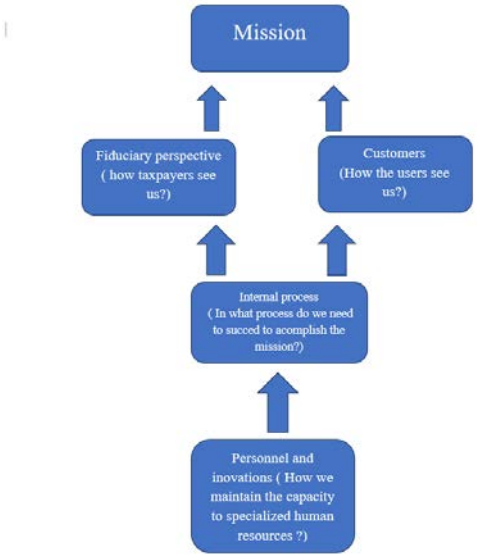

FIG. 3 BSC-GOV Framework

The development of the Balanced Scorecard for a logistics structure within the Romanian Armed Forces responsible for deploying troops to international theaters of operations is based exclusively on publicly available data, making the model versatile and applicable to any logistics structure. The starting point for constructing the BSC is the **Romanian Military Strategy**, issued in 2021.

Vision: Optimization of logistic support structures, aligned with the existing NATO model, in order to achieve high-level performance during deployment, recognized both nationally and internationally.

Mission: The logistic support structures ensure operational and sustainment logistic support required by combat and combat-support units, in accordance with operational requirements across the full spectrum of military operations. This support is delivered through specialized structures corresponding to the functional domains of sustainment and operational logistics, namely: supply, field services, maintenance, movement and transportation, Host Nation Support (HNS), and support for reception, staging, onward movement, and integration (RSOM).

3.3 The adapted framework for the balanced scorecard:

The objectives and performance indicators are grouped into four perspectives, interconnected through cause-and-effect relationships:

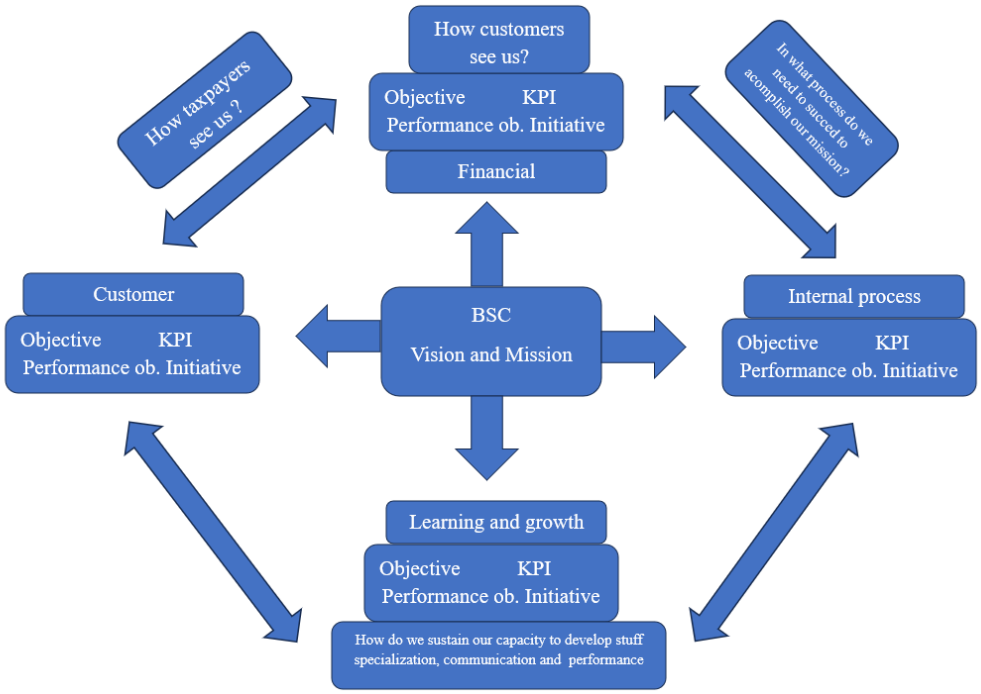

FIG. 4 Links of perspective

The objectives and performance indicators are grouped into four perspectives, interconnected through cause-and-effect relationships:

- **Fiduciary Perspective:**This perspective reflects how taxpayers perceive the actions undertaken by the structure, whether in national or international missions. It relates to the transparency of the organization, which primarily uses public funds.
- **Beneficiary Perspective:** Beneficiaries, in this case, include both civilian and military structures receiving services from the logistics organization. In recent years, considering the geopolitical context, emphasis has been placed on improving logistics processes, speed, and capacity.

- **Internal Processes Perspective:** This perspective refers to the organization's internal processes. Well-chosen performance indicators can provide insight into how effectively the structure operates and whether its mission aligns with beneficiary requirements.
- **Personnel and Innovation Perspective:** Human resources are the most valuable asset for any organization, especially a military one. In the current climate of rapid innovation, personnel must continuously adapt and engage in ongoing learning, a factor that can significantly contribute to mission success.

After establishing the BSC framework—defining the vision, mission, and perspectives—it becomes necessary to articulate strategic objectives, performance objectives, key performance indicators (KPIs), and the initiatives undertaken at organizational level to achieve the KPIs. When these components converge, a strategic map can be created based on the BSC tool, enabling members of the structure to visualize the data essential for mission success, while leadership can monitor the degree of performance-indicator fulfillment.

Strategic Objective:

This represents the process through which the leadership team communicates long-term action directions to the organization. Multiple strategic objectives may be issued within a structure.

Examples of formulation:

- **Strategic Objective SO1:** Increasing the efficiency of strategic-level logistics processes, in accordance with NATO STANAG standards.
- **Strategic Objective SO2:** Continuous professional development of all personnel.

Performance Objectives:

These are specific, measurable indicators aligned with organizational or individual goals, defining expected outcomes and enabling the evaluation of progress and performance.

- **Performance Objective PO1:** Deployment planning must be carried out in a timely and error-free manner.
- **Performance Objective PO2:** The provision of equipment must be executed according to the requested sizes.
- **Performance Objective PO3:** Contracts must be concluded on time.
- **Performance Objective PO4:** Equipment must be fully capable of executing assigned missions.

Key Performance Indicators (KPIs):

KPIs are essential quantitative measures that show how well an organization, project, or process is achieving its strategic objectives. These indicators provide insights into efficiency and progress, supporting informed decision-making for strategy adjustment and ensuring long-term success.

- **KPI 1:** Supply rate of material resources by category should exceed 95%.
- **KPI 2:** Weekly maintenance completion rate should exceed 90%.
- **KPI 3:** Staffing with qualified personnel should exceed 85%.
- **KPI 4:** Documentation accuracy and completion rate should exceed 95%.

Initiatives:

Initiatives are formulated once the organizational objectives are clearly defined.

- **Initiative 1:** During redeployment, all deployed personnel must return.
- **Initiative 2:** Equipment must be fully functional for the incoming rotation.
- **Initiative 3:** Construction of a new operational hall in the theater of operations.

The first step in creating a strategic map is to develop a detailed BSC based on the KPIs, the proposed objectives, and the current objectives, as follows:

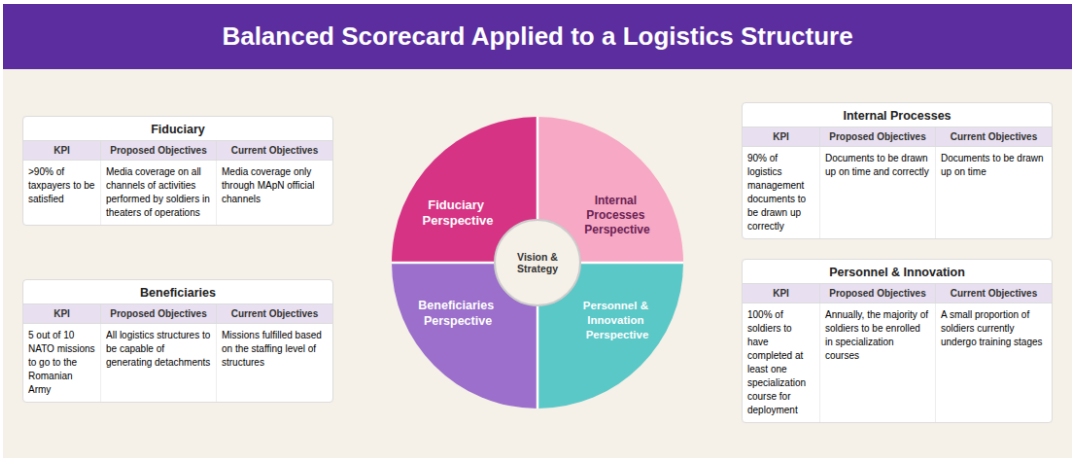

FIG. 5 BSC Objectives

After developing the BSC—using the collected data and the established indicators—we can create a strategic map for our model, integrating all strategic objectives, performance objectives, key performance indicators, and the initiatives undertaken at organizational level to achieve the KPIs.

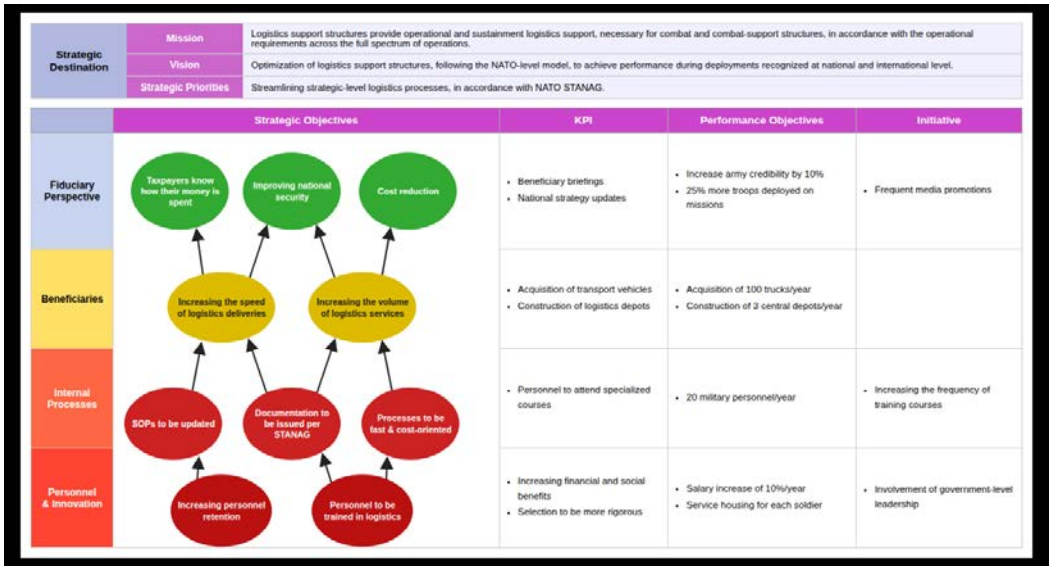

FIG. 6 BSC Strategic Map

The resulting strategic map creates an overall vision of the organization's strategy, which can be easily understood and disseminated. Establishing strategic objectives for each perspective forms the foundation for defining KPIs, performance objectives, and formulating initiatives.

As a future research direction, considering the rapid pace of technological evolution, the integration of artificial intelligence into the Balanced Scorecard management tool appears not only natural but highly important. The fusion of artificial intelligence (AI)—a controllable and adaptive instrument—with a performance-measurement tool such as the BSC can generate a powerful system capable of demonstrating the managerial resilience of an organization (Paula Cristina, Paulo Alexandre, 2024).

It becomes possible to illustrate how AI, using analytical data collected from companies or governmental systems, combined with machine-learning technology, may be integrated into the BSC to facilitate decision-making, enhance performance, and strengthen an organization's ability to recover from crises.

Through AI, each of the four perspectives (Fiduciary Perspective, Beneficiary Perspective, Internal Processes Perspective, Personnel and Innovation Perspective) can be improved, as AI can generate—based on the mission—performance objectives, KPIs, and analytical outputs with far greater speed, clarity, and accuracy than human processing. Based on these inputs, initiatives can be formulated precisely and objectively, eliminating the possibility of human error.

4. DISCUSSION ON THE RESULTS OBTAINED FROM APPLYING THE BSC TO LOGISTICS STRUCTURES

An analysis of the relevant literature reveals that the BSC has been and continues to be widely used across numerous domains, indicating that it can also be successfully applied to a logistics structure responsible for preparing military personnel for deployment to theaters of operations.

Following the application of the BSC and the creation of the strategic map, we can visually observe the connections between the perspectives and analyze their mutual influence. While the perspectives themselves are not highly flexible—since they must follow a clearly established model to allow comparison of results among different structures, particularly within the military—strategic objectives represent the most flexible component, as they allow the organization to determine from the outset what it aims to achieve and visualize the desired outcomes.

As with any military strategy, planning is essential. In our model, strategic objectives were formulated in such a way as to align with the organization's vision and mission. Selecting strategic objectives that do not converge with the mission and vision leads to a structurally flawed model from the beginning, resulting in outcomes that fail to meet expectations.

While strategic objectives can be derived from the organization's mission, KPIs cannot be selected solely based on the mission or the strategic objectives. KPIs must be formulated coherently and must follow the logical sequence:

Mission – Vision – Perspectives – Strategic Objectives.

A frequent mistake among organizations is selecting KPIs that are too complex or overly rigid, leading to structural destabilization due to lack of alignment with the organization's level of preparedness.

For a structure applying the BSC for the first time, it must be developed responsibly; KPIs, proposed objectives, and initiatives must originate from the organization's foundational level, as shown in Figure 1. Initially, simpler objectives should be established—achievable at a rate of 80–90%. Considering this, an optimal strategic map can be developed containing objectives, KPIs, performance objectives, and initiatives that are realistically attainable. As previously mentioned, the strategic map is dynamic, meaning that once objectives and performance goals are achieved according to the KPIs, the model can be revised and strengthened, increasing both objectives and KPIs to enhance organizational performance.

In the current study, the Likert scale was applied to specialists in the field of military logistics.

The questions and responses are open-source and do not include classified information.

The Likert scale is a unidimensional tool used by researchers to capture respondent attitudes and opinions. It is frequently employed to understand views and perspectives related to a brand, product, or target market.

The specialists involved belong to structures of different hierarchical levels, although the logistical procedures remain similar across the system.

No.	Afirrmation	Person 1	Person 2	Person 3	Person 4	Person 5
1	The current military logistics system effectively provides the resources required for mission accomplishment	5	4	4	4	3
2	The logistical procedures are clear and easy to apply under operational conditions	5	5	5	5	5
3	Communication between the logistics structures and the operational units is effective	5	3	4	4	4
4	The logistics personnel benefit from adequate training and preparation for their assigned missions	4	3	3	4	4
5	Does your organization use a performance management measurement tool?	1	1	1	1	1

The average score of the group is **3.52**, indicating a generally positive tendency, although leaning toward the lower end of the scale. As we can observe, the fact that military logistics structures do not yet employ performance-management measurement tools decreases the overall survey average.

The use of the BSC not only enhances organizational performance, but also facilitates the achievement of individual and collective objectives, the fulfillment of KPIs, and ultimately ensures the success of the structure’s mission.

7. CONCLUSIONS AND CONTRIBUTIONS

The research objective was achieved, as this study demonstrated that the BSC-GOV model can be successfully applied within a logistics structure of the Romanian Armed Forces. Moreover, it is evident that the implementation of performance-measurement tools is a necessity not only for logistics units but across all military structures.

Military strategies can be developed in a more coherent and sustainable manner through the use of performance indicators that can be monitored—and most importantly—quantified.

Currently, the organization of military logistics within the Romanian Armed Forces is based primarily on lessons identified from past activities and operations, rather than on structured tools capable of providing a clear picture of both current and future actions. The results indicate that although the Romanian Armed Forces have numerous highly trained logistics specialists, they lack a unified, system-level overview.

Future research directions should encompass the entire spectrum of military specializations, focusing on the development of predefined framework tools that can be applied rapidly while ensuring high efficiency. As demonstrated, the integration of performance monitoring tools originating from the civilian environment into the military domain is a critical necessity in the current century. Interoperability should not be limited to cooperation among NATO forces, but should also extend to the interaction between military structures and civilian systems.

Only through such mechanisms and tools can the performance of the military system be improved—leading to reduced operational costs, more efficient procurement, and even a decrease in human losses.

REFERENCES

[1] S. Goga, Z. Toth, A. Meclea, I. Puiu, M. Boscoianu, The Proliferation of Artificial Intelligence in the Forklift Industry—An Analysis for the Case of Romania, 2024;
[2] M. Boscoianu, Z. Toth., S. Goga, Sustainable Strategies to Reduce Logistics Costs Based on Cross-Docking—The Case of Emerging European Markets, 2025;
[3] Z. Toth, S. Goga, M. Boscoianu, AI Integration in Fundamental Logistics Components: Advanced Theoretical Framework for Knowledge Process Capabilities and Dynamic Capabilities Hybridization, 2025;
[4] Col. J. L. Stevenes, The Balanced Scorecard and Army Strategic Readiness System, 2004;
[5] R. S. Kaplan, D. P. Norton, Using the Balanced Score Card as a strategic management system, 2007;
[6] Rainer Lueg, Pernille Julner, How are strategy maps linked to strategic and organizational change? A review of the empirical literature on the balanced scorecard, 2014;
[7] R. S. Kaplan, D. P. Norton, Converting Intangible Assets into Trangible Outcomes, 2004;
[8] A. Tawse, P. Tabesh, Thirty years with the balanced scorecard: What we have learned, 2023;
[9] B. Marr, Balanced Scorecard Part 1: A Brief History, 2024;
[10] E. Pierce, A Balanced Scorecard for Maximizing Data Performance,2022;
[11] S. Kumar, W. Marc Lim, R. Sureka, Charbel Jose Chiappetta Jabbour &Umesh Bamel, Balanced scorecard: trends, developments, and future directions, 2023;
[12] R. S. Kaplan, Conceptual Foundations of the Balanced Scorecard, 1992;
[13] T. Libby, A. Webb, S. Salterio, The Balanced Scorecard: The Effects of Assurance and Process Accountability on Managerial Judgment, 2005;
[14] R. S. Kaplan and D. McMillan, Reimagining the Balanced Scorecard for the ESG Era, 2021;
[15] S.Garefalakis, E. Angelaki, S. Kostantinos, T. Gorge, G. Alexandros, The Implementation of ESG Indicators in the Balanced Scorecard—Case Study of LGOs, 2025;
[16] C. Oliveira, N. Martins, M. Rodrigues, The Contribution of the BSC to Strategic Focus and Organisational Performance – Perception of the Mayor Export Companies in Portugal, 2024;
[17] R. Silva Barros, Research on the balanced scorecard for government entities: a literature review, 2022;
[18] V. Ruiz-Fernández, J. Saiz, A. Gonzalez-Agirre, BSC-LANGTECH at FIGNEWS 2024 Shared Task:Exploring Semi-Automatic Bias Annotation using Frame Analysis, 2024.