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DOCTORAL THESIS RESUME

STUDY ON THE PERFORMANCE OF ECO- LEADERS IN THE MANAGEMENT OF MILITARY-TECHNICAL SYSTEMS

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Content

	Thesis Page	Summary Page
INTRODUCTION	7	5
PART I. THE SCIENTIFIC BACKGROUND OF THE RESEARCH— PERSPECTIVES FOR BUILDING THE ECO-LEADERS PERFORMANCE MEASUREMENT SYSTEM	13	7
CHAPTER 1. ELEMENTS OF THE RELATIONSHIP BETWEEN CURRENT TRENDS IN BUILDING PERFORMANCE AND ECO-LEADERSHIP	14	7
1.1. Performance factors of leaders	14	
1.2. Organizational variables	17	
1.3. The design of performance management	18	
1.4. Modern Leadership Performance Guidelines	19	
1.5. Individual performance variables	21	
1.6. Performance-building activities	23	
1.7. Performance practices	23	
1.8. High-performing leaders	24	
CHAPTER 2. FACTORIAL INCURSION ON MEASURING THE PERFORMANCE OF MANAGEMENT OF MILITARY-TECHNICAL SYSTEMS	26	7
2.1. Performance Appraisal Directions	27	
2.2. Performance measurement system—measures and models	30	
2.2.1. Performance measures	30	
2.2.2. Performance appraisal models	33	
2.3. Ways to improve performance measurement systems	36	
2.4. Individual-level influences in military-technical systems management	37	
2.5. Characteristics of military-technical systems	40	
2.6. Behavioural influencing aspects of the institutional environment	43	
2.7. The supranational context of military-technical systems	44	
CHAPTER 3. EFFORTS TO CONCEPTUALIZE MILITARY ECO-LEADERS	46	8
3.1. Defining the notion of eco-leader	47	
3.2. The ecological approach in the performance management system	49	8
3.2.1. Analysis of eco-leaders based on sustainability	52	
3.2.2. Analysis of eco-leaders based on ecological efficiency	54	
3.2.3. Analysis of eco-leaders based on eco-innovation	59	
3.2.4. Integrating eco-innovation into capabilities	63	
3.2.5. Factor analysis of performance transformation capabilities	67	8
PART II. REPORTING THE PERFORMANCE OF MILITARY ECO- LEADERS IN THE MILITARY HIGHER EDUCATION SYSTEM	70	9
CHAPTER 4. QUALITATIVE APPROACH TO ECO-LEADERSHIP RESEARCH	71	9
4.1. Applicable components and dimensions	71	9
4.2. Ecological leadership practices in the supply of military-technical systems	72	
4.3. Ecological ways of solving managerial problems	73	

Study on the performance of eco-leaders in the management of military-technical systems

4.4. Evolutionary feedback	75	
4.5. Connections between the high-performing eco-leader and organizational results	77	
4.6. Development of a performance model	79	
4.7. Consequences in the organization	80	
CHAPTER 5. OPERATIONAL COMPONENTS OF PERFORMANCE REPORTING	83	10
5.1. Conceptual level influences	83	
5.1.1. Performance	83	
5.1.2. Capability	84	
5.1.3. Eco-innovation	85	
5.1.4. Military technical systems	85	
5.2. Basic indicators in performance evaluation	86	
5.2.1. Research Directorate	86	10
5.2.2. The relevance of eco-innovation for practical research	87	10
5.2.3. The Moderating Role of Innovative Capability	89	10
5.2.4. The benefit of an ecological mix of social and technical innovations	89	10
CHAPTER 6. DESIGN OF ECO-INNOVATION ASSESSMENT METHODOLOGY FOR MILITARY PERFORMANCE MODELING	92	11
6.1. Requirements for synthesizing some criteria for implementing military eco-leadership	93	
6.2. Dimensions and performance variables	93	11
6.3. Determinants of the performance of eco-leaders	97	11
6.4. Research design	99	12
6.5. Population and sample size chosen	99	
6.6. The research tool	101	
6.7. Research hypotheses	101	
6.8. Data collection process	102	12
6.8.1. Sources of data collection	102	
6.8.2. Data collection methods	103	
6.8.3. Questionnaire administration	104	12
CHAPTER 7. STATISTICAL RESEARCH ON THE PERFORMING ACTIVITY OF MILITARY ECO-LEADERS IN THE YEAR 2023	105	12
7.1. Generalities on Practical Research	105	
7.1.1. Content elements of statistical research	105	
7.1.2. The need for statistical data collected	105	
7.1.3. Method of completion	106	
7.1.4. Main terms used	106	
7.2. Description of practical research	106	12
7.3. Data analysis techniques	107	13
7.4. Structure of the questionnaire	107	
7.5. Statistical data entry and variable transformation	108	
7.6. Internal consistency of variables or reliability analysis of all variables	108	

Study on the performance of eco-leaders in the management of military-technical systems

7.7. Incidence tables on different components with percentages and explanations	110	
7.8. Centrality measures for illustrating frequencies	116	
7.9. Descriptive statistics of the questions proposed in the questionnaire	117	
7.9.1. Descriptive statistics of composite indicators	119	
7.9.2. Correlation matrix of indices	119	
7.10. Benchmarking from respondents: Testing the equality of multiple environments	121	13
7.11. Regression analysis	124	
7.12. The standard deviation of the estimate	125	
7.13. Parameters of a bivariate distribution obtained with Crosstabs association tables and the Chi-square test—Karl Pearson	126	
7.14. Purpose of testing equality of proportions (Chi-square test for normality)	154	
7.15. The results of the Statistical Analysis	154	13
CHAPTER 8. METHODS OF IMPLEMENTING ECO-LEADERSHIP AT MILITARY MICRO-ORGANIZATIONAL LEVEL	157	13
8.1. Application of the model in the military system	158	14
8.2. Development of a competency development recommendation for enhancing the performance of military leaders	161	14
8.3. Research Implications	164	
8.4. Research results	166	15
CHAPTER 9. GENERAL CONCLUSIONS AND PERSPECTIVES OF THE RESEARCH	172	15
9.1. General conclusions on scientific research	172	
9.2. The researcher's contribution	175	16
9.3. Future directions, limitations, eco-innovative design of military administration	178	18
9.3.1. Limitation	179	
References	181	
ANNEX A. PERCEPTION QUESTIONNAIRE REGARDING THE NEED FOR THE DEVELOPMENT OF ECO-INNOVATIVE CAPABILITIES FOR THE MANAGEMENT OF MILITARY-TECHNICAL SYSTEMS	204	
APPENDIX B. CODING OF SCIENTIFIC RESEARCH VARIABLES	212	
APPENDIX C. FREQUENCY TABLES	214	
APPENDIX D. QUESTION CORRELATION MATRIX AND COMPOUND INDEXES	221	
APPENDIX E. LIST OF SCIENTIFIC ARTICLES PUBLISHED BY THE AUTHORS	222	

Keywords: *Eco-leader, eco-leadership, ecological innovation, military management, model, performance, military-technical systems, military eco-leader, military capabilities, eco-innovative capability.*

INTRODUCTION

The realization of new performance systems is a current concern for military leaders, who continuously redefine their personnel training doctrines due to the superior technical characteristics of modern technical systems. The main aspects explored in this thesis optimize management performance through the prism of eco-innovation.

The chosen theme is consistent with the realities of the environment, as the conceptualization of eco-leaders intersects with the needs of the staff. We encounter difficulty identifying ecological strategies because some European directives are not fully implemented. That's why we support initiatives to improve mentalities in the public domain by studying the performance of eco-leaders.

In our research, we started by developing the operational requirements. Accepting a new type of capability—the eco-innovative capability—makes a desirable level of performance in a short time and at low costs possible.

The move favours the military establishment for several valuable reasons. First, it facilitates understanding the perceptions, experiences, or expectations regarding the performance of eco-leaders. The context for decision-making emphasizes the reasoning behind the performance. The research product supports management bodies, which can deepen new ways of hierarchical performance reporting.

The motivation and importance of the research

The study's importance is supported by the issue's topicality for those interested in performance. The work allows the deepening of knowledge about implementing new management tools at the operational level and active involvement in solving managerial problems framed in current ecological trends.

The work changes decision-making orientation, offering a valid and accepted solution in international civil organizations. The motivation for choosing this topic stems from the desire to increase institutional responsibility in task performance and establish priorities for the ecological allocation of resources.

The general ambition in developing such a performance evaluation system based on eco-performance indicators arises from the desire to provide guidance on the quality of the evaluation of leaders without a common methodology associated with the activity in the military sphere. Therefore, military leaders can direct the activity through eco-innovative result indicators, improving the efficiency of the led unit.

Research Methodology

The research methodology combines several methods and techniques in correlation with the scientific objectives, respecting the classical stages. The work makes a unique contribution to the Romanian plan for the field of military management by empirically investigating the influence of eco-leaders. The purpose of the research coincides with the identification of ecological variables such as leadership activities and the awareness of the importance of top military management innovation, not only for the beneficiaries of the decision-making process but also for society. The main objectives guiding the study aim at:

Study on the performance of eco-leaders in the management of military-technical systems

- **Objective 1:** Examination of eco-innovative circumstances at work.
- **Objective 2:** Describing the eco-innovative behavior of the leaders and identifying the elements of eco-sensitivity of the military leadership.
- **Objective 3:** Analyzing the influence of eco-leadership on leaders' performance.
- **Objective 4:** Formulation of strategic guidelines regarding military eco-leadership.

The approach is integrative, as it contributes to the military-technical system. Therefore, the conversion to an eco-performing leader involves some **secondary objectives**, respectively:

- Demonstration of eco-innovation through positive reactions to the concept.
- The description of ecological performance in the management documents.
- Identification of ecological mechanisms in task management.
- Establishing a minimal set of steps in eco-innovative actions.
- Developing the performance model by operationalizing nine variables.
- Conferring relevance on the degree of overall growth of the sustainable impact of leaders in the military organization.

Thesis structure

The present paper is structured in two large parts. Part I of the research, "The scientific context of the research—Perspectives for building the system for measuring the performance of eco-leaders," is substantiated in chapters 1, 2, and 3. Part II of the research, "Reporting the performance of military eco-leaders in the military higher education system," includes qualitative and quantitative research carried out in chapters 4, 5, 6, 7, 8, and 9.

The novelty of the study

From the personal desire to expand the framework for improving situational knowledge regarding sustainability, as well as the development of concrete actions and initiatives to mitigate consumption factors, we propose through the material a dialogue on the good practices implemented at the regional and local level in the management of the issue, such as drawing some recommendations for the organizational future of the military command. Compared to other studies, *the novelty of the study* is reflected by:

- This paper summarizes the literature on eco-leaders from international researchers and less-published Romanian researchers, using a significant volume of material.
- Conduct performance analysis to provide sound advice for command technology investments and demonstrate the effects on military leaders' performance.

In response to the few approaches to eco-leadership, the study considers the concept from a critical perspective and illustrates the use of behavioral analysis.

The most challenging task in this research is identifying and validating statistical performance indicators. The correlation between eco-innovative results and military management has not been tested before, so it centers around scientific absenteeism addressed to the environment and military personnel. The maximum innovative capacity is directly proportional to the high rate of ecological performance. *The usefulness of the approach* consists in expanding the spectrum of ecological solutions for the military organization, which is, in fact, the argument for the need to develop the study.

THESIS CONTENT

PART I OF THE RESEARCH - THE SCIENTIFIC CONTEXT OF THE RESEARCH - PROSPECTS FOR BUILDING THE PERFORMANCE MEASUREMENT SYSTEM OF ECO-LEADERS

CHAPTER 1. ELEMENTS OF THE RELATIONSHIP BETWEEN CURRENT TRENDS IN BUILDING PERFORMANCE AND ECO-LEADERSHIP

Chapter One captures the theoretical aspects alongside the modern concepts that dictate performance. The processes of achieving performance demonstrate great interest for world leaders. The effects of curiosity also spill over into the military system. The series of claims regarding the contemporary competitive act has forced organizations to train their survival skills, and the explanation of performance, is still conceptually debated.

The first chapter also covers the design of performing management. It illustrates performing ways in the management of companies or public institutions through a discourse designed to explain the currently valid performance models and describe the important pawns involved in the delimitation of performance dimensions.

Several approaches to modern performance measurement systems are identified at the end of the chapter. The chapter ends with a synthesis of the analysis's results concerning the modern elements of impact on high-performance management.

CHAPTER 2. FACTORIAL INCURSION ON MEASURING THE PERFORMANCE OF MANAGEMENT OF MILITARY-TECHNICAL SYSTEMS

The second chapter documents performance, investigating leadership differences and a rating system. Numerous studies examine the evolution of contemporary performance trends, and the research extends to sustainability practitioners.

The chapter addresses several military leadership questions and challenges. Analyzing current situations helps propose a comprehensive approach to tracing leaders to solve problems. Leaders who formulate a strategy and are more centrally involved than staff follow the path to performance because they are in the best position to assess the consequences and overall performance. The Nordic Business Forum, one of the most relevant management forums, specifies new components for building the sustainable features of future management. We agree with this conceptualization because the popularity of new managerial models also increases in the public system.

We notice a fragmentation of military leadership, as leadership methods are not always adapted to organizational requirements, work-life balance preferences, or working with multiple generations of employees.

We already know that any assessment's primary purpose is to improve the efficiency of structures by assessing individual performances. Along with the primary target, an empirical level is highlighted by awareness of tasks' impact and recommendations to improve performance. The end of the evaluation records the ranking process of individual performance results.

CHAPTER 3. EFFORTS TO CONCEPTUALIZE MILITARY ECO-LEADERS

The third chapter connects the military organization with the conceptual boundaries of the eco-leader, according to military professional processes. The inclusion of eco-innovative theories changes the design of the traditional military leader. The chapter concludes by exposing the innovative managerial capabilities that result in military leadership.

The study indicates the usefulness of eco-innovative solutions from the individual to the strategic level. Improving the technical system starts at the top of the hierarchy, as leaders introduce new technological solutions and disseminate innovation from the top down to stimulate the finding of sustainable ways to solve problems.

The performance is analyzed through the functional requirements of eco-innovation strategic planning, through the current state and future projections interpreted with the following data set:

- input data: vision, mission and strategic objectives.
- checking whether the input data integrates the principles of eco-innovation.
- the organization of leaders for the association of eco-innovative objectives.
- identifying the performance goal and highlighting eco-innovative activities.

The thesis's primary objective in analyzing eco-leaders is to understand how theory and practice are integrated into the related results of military-technical systems. The approach reflects a conceptual synthesis of relevant eco-leadership studies and identifies the factors influencing intelligent organizational behavior. The study's results indicate new work perspectives through the systematization of eco-innovative decisions and recommendations for developing ecological interventions in supply practice.

Innovation and creativity are vital to providing unique products and services, but they depend on investment for funding, the activation of available resources and investment capital. Eco-leaders deal with the difficult decisions that influence investments in organizations, choosing strategic partners, and finding suitable approaches for developing a marketing mix that delivers performance (Halberstadt et al., 2021). Regardless of the level analyzed, the eco-leader influences the environment according to the degree of maturity.

➤ The ecological approach in the performance management system

A decision that generates eco-innovation reflects the current state of incorporation of innovative products and sustainable proactivity in meeting military-technical supply demand. So, eco-innovative capability determines the measure of eco-innovative competence by providing access to training, tools and functional methodologies for all hierarchical leaders. Eco-innovation research includes several benchmarks for a complete view of eco-innovation capability.

➤ Factor analysis of performance transformation capabilities

In the skill set that determines effective operational capability, eco-leaders are responsible for green planning, execution, and monitoring of workflow and innovative management of resources associated with supply and maintenance, from the point of supply to the point of consumption.

Next, we propose a theory of unification of existing military capabilities with that of eco-innovation. The generation, operationalization, and continuous adaptation of

Study on the performance of eco-leaders in the management of military-technical systems

performance needs depend on the adjustment of the normative framework characteristic of the military environment, the command-control architecture, the degree of allocation of the modernization resources of the Romanian Army, the training and preparation of the military and the valid operational requirements.

The "green" challenge will become a basis for innovation in the future, stimulating the integration of sustainable concepts into decision-making. Instead, "leaders must be smart, foresee the future, and build an organization that adapts intelligently and interdisciplinary, where the keyword is ecology" (Van Hal, 2006).

PART II OF THE RESEARCH NAMED "REPORTING THE PERFORMANCE OF MILITARY ECO-LEADERS IN THE MILITARY HIGHER EDUCATION SYSTEM"

CHAPTER 4. QUALITATIVE APPROACH TO ECO-LEADERSHIP RESEARCH

The fourth chapter involves a qualitative analysis of the operational requirements without considering too many theories that are less conclusive for the main objective of the research. The study is based on a managerial approach at the tactical level of the military organization, where leaders act to support sustainable interests. The approach is sufficiently interpretative as it focuses on developing the shared vision and identity of eco-leaders in public institutions.

➤ **Development of a performance model**

Our approach's contribution consists of expanding the conceptualization of a model of eco-leader performance. The authenticity of ecological behavior articulates the prototype of the leader of the future by outlining a new military leadership capability.

The performance model integrates an interdisciplinary vision, as it proposes sequential performance in direct and dynamic co-relation with existing competency models. In the performance network, the individual results obtained by the eco-leader indicate the ecological potential and characteristics of the military-technical system. The effect produced by the eco-leader is the synergistic amplification of ecological results.

The indicators defined in the research are divided into different eco-innovative responsibilities. Study participants customize the data collection process to which performance scores are assigned. Finally, a general score of the performance of the eco-leaders in the targeted organization is added up. Based on the results of the previous phase, a report is created based on strategies for integrating eco-innovative techniques and methodologies.

CHAPTER 5. OPERATIONAL COMPONENTS OF PERFORMANCE REPORTING

The fifth chapter addresses the definition of operational concepts applied in practical research. The explanation of modern prosperity is the generation of eco-innovation and intellectual resources. They transform the applicable methods of improving sustainable activities and including their performance. We believe that eco-

Study on the performance of eco-leaders in the management of military-technical systems

leadership is a powerful tool for improving performance and the key to developing the future of the military. Performance is measured mainly by various input or output indicators used by management. The final component of the evaluation of eco-leaders is the establishment of eco-innovative performance targets.

➤ **Research Directorate**

Analyzing some key performance indicators (KPIs) is necessary to define the performance criteria and requirements in the resulting areas to achieve the approach's objectives.

The paper aims to add to the field of research the empirical exploration of leadership value for the performance of eco-leaders. To implement sustainable opportunities in the military environment, a considerable number of eco-innovative products and processes are needed (Kogan et al., 2017), as is valid for all sectors of the European Union. So, a variety of military actions lead to the development of a new type of military leadership—eco-leadership.

➤ **The relevance of eco-innovation for practical research**

Eco-innovation capability leads to more efficient use of management resources and performance-achieving expertise. In addition, focusing on several similar elements of eco-innovation triggers organizational learning effects (learning from one leader to another due to the sharing of resources and work processes through standardization). Thus, we suggest the following main effect research hypothesis.

Hypothesis 1 (H1): An eco-leader (a leader focused on projects to improve technical systems through eco-innovative capability) is positively associated with performance.

➤ **The moderating role of eco-innovative capability**

Leaders who demonstrate eco-invoice capability can better manage sustainable actions and activities. Eco-leaders with sufficient knowledge and experience in addressing various environmental issues manage a more diverse set of eco-innovative projects. Thus, another moderating hypothesis is determined:

Hypothesis 2 (H2): Eco-innovative capability positively moderates the relationship between military leadership and performance outcomes, such that leaders with high eco-innovative capability benefit more from performance-focused outcomes.

➤ **The benefit of an ecological mix of social and technical innovations**

The approach, in turn, can help the leader overcome obstacles caused by the lack of sustainable resources and, consequently, be more effective in achieving sustainable benefits. This is why the above discussion leads to the following hypothesis:

Hypothesis 3 (H3): An eco-leader focused on social and technical initiatives improves the efficiency of the military-technical system more when the eco-innovative capability requirements are met.

Performance measurement is expressed in terms of performance characteristics assessed through tests and practical trials (trials). In a formal framework, military leaders are analyzed through characteristic metrics to identify ecological values in developing eco-innovative leadership capacity. Considering the insufficiency of studying the methods

Study on the performance of eco-leaders in the management of military-technical systems

of generating concrete performance systems among the military, we believe that introducing unconventional indicators allows the visualization of the interface between eco-leaders and eco-innovative capability. Driving performance is dependent on a set of technical-tactical stakes. We have divided each chosen factor into performance indicators based on the wide range of scientific research.

The research continues with the quantitative sequence defining the measurement object and the indicators' bare references. This chapter identifies the factors by reference, and the listed elements are used in formulating the eco-innovative capability requirements.

CHAPTER 6. DESIGN OF ECO-INNOVATION ASSESSMENT METHODOLOGY FOR MILITARY PERFORMANCE MODELING

The sixth chapter projects the boundaries of the eco-leader in military organizational processes. The inclusion of eco-innovative theories modifies current leadership design by exposing the innovation criteria that result in military leadership. We consider transforming new leadership capabilities through breakthrough solutions to investigate high-performing leaders. The improvements in the Ministry of National Defense's patrimony administration activities represent the most important method of achieving innovation in the future.

➤ Dimensions and performance variables

The variables of the research questionnaire are based on a previous study developed in Romania, namely the paper developed by Ceptureanu in 2020. From the mentioned research, the bibliographic formulation of the defining elements for the new type of eco-innovative capability emerges (Ceptureanu et al., 2020).

➤ Determinants of eco-leaders' performance

We address a future professional development strategy that produces an intersection between the military environment and sustainable organizational strategies. Integrated forms of sustainable training are still not introduced in military personnel's educational systems, so it appears that the lessons learned do constitute a source of information for future research.

Next, we research nine major components that indicate performance. Understanding the ecological mechanisms that transform the traditional organization into a sustainable one is essential for the performance of military eco-leaders. From the strategic and operational to tactical levels, eco-leaders become permanently aware of the sustainable impact of leadership efforts. As such, we conducted a survey using an original methodology developed in military leadership. This analyses the data, identifies the performing potential, the means used by eco-leaders, and how the leaders acquire the quality of eco-leaders. We apply the method to an aspect of performance less studied by researchers: analyzing performance through organizational eco-innovation projects/actions/efforts involving military leadership situations. The analyzed case refers to an original military context, where the problem of resources and the low concentration of sustainable activities prevent the attraction of high performances with a favorable environmental impact.

Study on the performance of eco-leaders in the management of military-technical systems

➤ **Design of practical research**

Quantitative research, particularly descriptive-correlational design, was used in the present endeavor. This type of research was applied to determine the current circumstances regarding eco-innovative leadership strategies in military units and their relationship with leader performance.

➤ **Data collection process**

The data used in the research represent secondary data of a qualitative nature obtained following the review of the specialized literature. Other items measure the development of eco-innovative capability requirements. The questionnaire items depict closed questions measured on a Likert-point scale.

➤ **Questionnaire administration**

The final stage is questionnaire administration, which precedes composing, updating and selecting questionnaire items. So, increasing the response rate required an inclusive survey methodology for all respondent approaches, namely telephone, self-administered or website-based means.

CHAPTER 7. STATISTICAL RESEARCH ON THE PERFORMING ACTIVITY OF MILITARY ECO-LEADERS IN THE YEAR 2023

Chapter seven proposes improving the management of military-technical systems and boils down to repositioning and adapting command strategies to build a sustainable vision. A perception questionnaire was completed, and the data followed the assessment of the military personnel's perception regarding the necessity of the requirements for the development of an eco-innovative capability for military leaders.

This chapter suggests that further scientific research is needed on the phenomenon of military eco-leadership to establish a statistically relevant relationship between eco-innovation capability and military leader performance.

The chapter enlists similar specialist approaches from interdisciplinary fields, which illustrate leadership performance. The systematization of the statistical Analysis is exposed using the prediction variables, i.e., the requirements of the eco-innovative capability and the performance level criterion of the military eco-leader.

➤ **Description of practical research**

The leader's innovation through the ecological role starts from the formulation. The performance identification questionnaire is the research method by which the innovation capacity of the unit is determined through the action of the eco-leader. Therefore, a methodology and a support tool are created that increase the competitiveness of hierarchical leaders, the work capacity, or the realization of partnerships for eco-innovation.

➤ **Data analysis techniques**

The evaluation of the performance of eco-leaders uses sub-indicators of eco-innovation grouped by functional areas specific to the current military organization. Validity and reliability of performance are measured. For the veracity of the hypotheses,

Study on the performance of eco-leaders in the management of military-technical systems

an empirical study is carried out based on the variables estimated by statistical methods and an empirical analysis of the survey data on the Academy of Land Forces "Nicolae Bălcescu" students in Sibiu.

To validate the representative model in managing military-technical systems, variables were created that can be transcribed as measurements for multi-items evaluated by various bipolar Likert scales. Three hundred sixty-six questionnaires were collected, corresponding to a response rate of 38% of all enrolled military students.

➤ **Statistical Analysis**

The statistical procedure used to verify the variables' two conditions of safety and internal consistency is Cronbach's Alpha Coefficient. A T-test, Chi-square test, binomial test, and analysis of variance were calculated using the test calculator. To elaborate detailed explanations on the analyzed case, the hypothesis was formulated, and following the data collection, DATAtab suggested the hypothesis test. Analysis of variance with pooled data ANOVA was performed using multiple-factor analysis without repeated measures.

➤ **The results of the statistical analysis**

The study presents a nominal distribution. It also examines the theoretical distribution of relative frequencies, which is a consequence of the null hypothesis that all categories have equal proportions or the suggested frequency distribution. This was done using the Chi-square test. We consider the variables checked according to respondents' perceptions. Respondents are equally divided on the frequency of performance perceptions.

The alternative hypotheses used in the research are marked with markers H1-H5, positioned in opposition to the null hypothesis. If the decision rule rejects the null hypothesis, alternative hypotheses are accepted in testing. As a result, our research aimed to prove that the alternative hypotheses H1-H5 are true.

CHAPTER 8. METHODS OF IMPLEMENTING ECO-LEADERSHIP AT MILITARY MICRO-ORGANIZATIONAL LEVEL

Chapter eight shows that performance measurement is closely related to the management of the reception of goods and services, inter-human relations, and heritage management. The military's activity essentially reflects the individual performance of eco-leaders, following a path of establishing decision-making methods for defining performance areas, performance values, indicators, and analysis measures.

The chapter serves to develop the actual task summary documents further. The approach aims to distribute tasks and performance attributions on a short time horizon. On the other hand, the correlation of leaders with performance potential induces new forms of control and their performance contributions, which are measured in parallel with the increase in the degree of sustainability. As a result, high-performance levels can be improved. Therefore, performance is subject to a different approach than the specialized literature, as it reflects how much military can achieve objectives by applying eco-leadership.

➤ **Application of the model in the military system**

After the pilot phase, the potential to transform ecological efforts based on sustainable data integrated into decisions is demonstrated. Further systematization means the involvement of the entire military organization to determine all possible cases of use and testing of the model proposed in Figure 1.

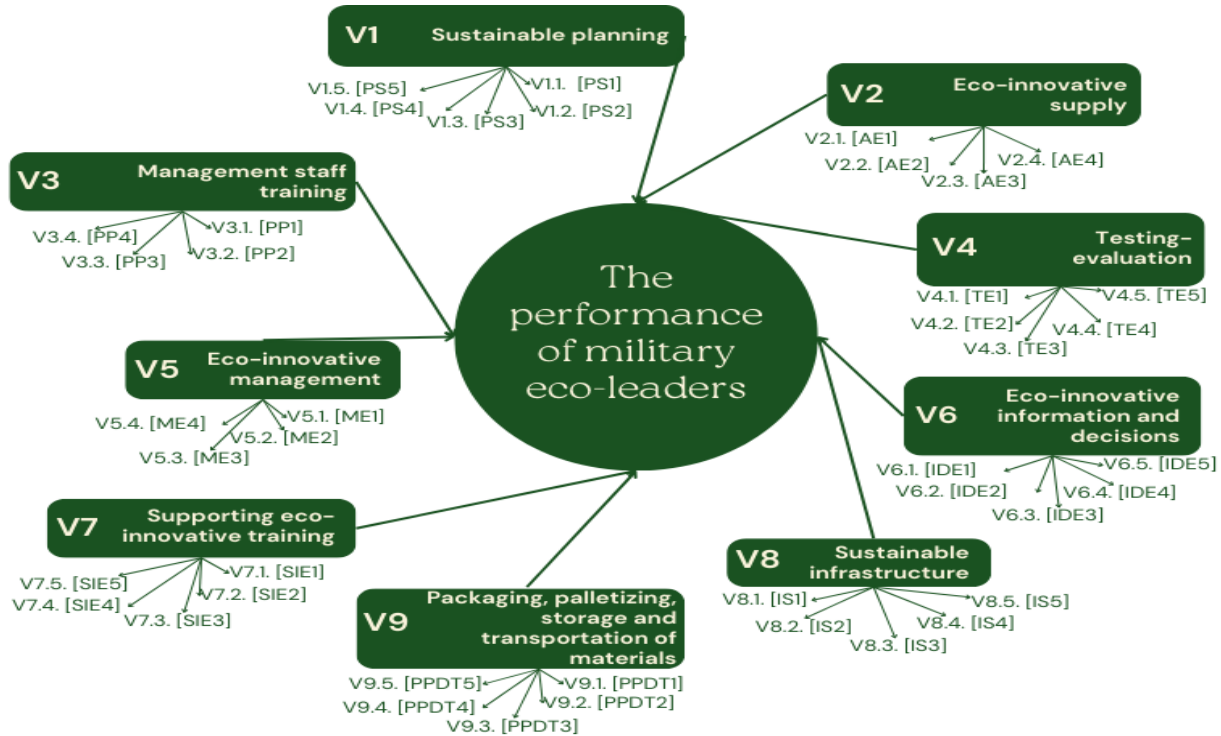


Figure 1. The military eco-leaders performance model(Source: Author's conception)

➤ **Boosting the leader's military performance through strategic development recommendations**

The performance of eco-leadership is composed of the performance of its components. The eco-innovative measures that determine the performance of the leaders are the following: information about the organization's sustainability; national and international regulations and standards in the field; evaluation methods; ecological impact assessment; and staff members involved in making, monitoring, and implementing decisions.

In the present study, the tactical level is exciting because the potential for performance activated at the tactical level presents the premises for generating future eco-leaders. Thus, by crossing the data related to the type of leader with potential eco-innovator performance, we observe some dynamics of the development of a new capability that associates future ecological leaders as energetic actors in military-technical systems.

The evaluation proved the validated data to be highly significant. We can now build a different picture of the performance of military leaders, especially the younger generation. The impact of the multifactorial combination on the eco-innovative capability is explained.

Study on the performance of eco-leaders in the management of military-technical systems

➤ Research findings valorization

The study demonstrates positive correlations between variables. The 366 respondents can be considered a cause, and the performance of eco-leaders—the researcher perceives leaders in managing military-technical systems as the future effect of performance efforts. We propose eco-innovative capability for the army of the future and consider the main capability characteristics. From Figure 2, we observe the constructed model of the performance of military eco-leaders.

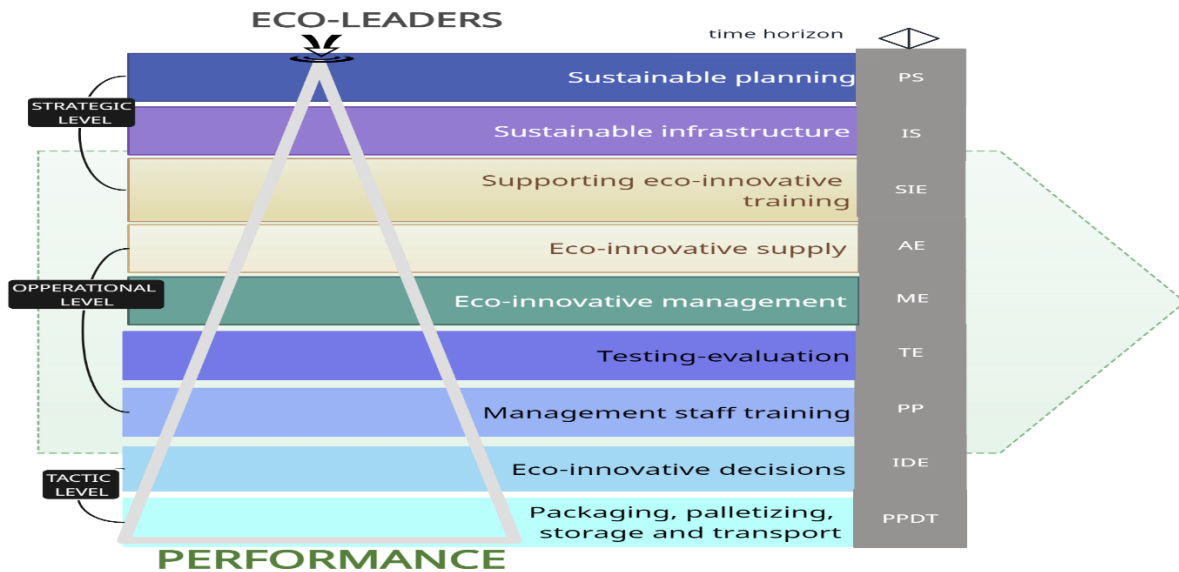


Figure 2. Eco-innovative capability for the performance of military eco-leaders (Source: Author's conception)

CHAPTER 9. GENERAL CONCLUSIONS AND PERSPECTIVES OF THE RESEARCH

Chapter nine indicates the optimization results in managing military technical systems through two aspects: identifying the elements of the eco-innovative capability among the military capabilities and organizing a framework for its application. Thus, the chapter summarizes the relationship between eco-leaders and performance by studying the case of the generation of young leaders - future officers of the Romanian Army. The personal contributions and the elements of originality that centered the direction of the military eco-leaders are emphasized. In addition, some recommendations have been formulated to improve the practice in the military field, stimulate the performance space in the defense sector, and provide solutions and future research directions.

➤ The researcher's contribution

A. Development of knowledge in the mentioned thematic area

Regarding the review of the specialized literature and the Analysis of the current stage of the development of theories in the thematic area of the thesis, the following contributions are indicated:

Study on the performance of eco-leaders in the management of military-technical systems

- An extensive analysis of specialized studies regarding performance in the military field and sustainability in the Romanian Army. Empirical research related to military performance reporting is applied in Chapter 6 of this thesis.
- Developing a winding database relevant to military eco-leaders. The illustration of the reference indicators of the Romanian eco-leader constitutes the basis of the performance and eco-innovation reporting specific to the defense sector (Annex B).
- Meticulous review of scientific sustainability and performance research produced by various researchers or made available on military reference sites, as well as the comprehensive content of performance reporting forms.
- Compiling research references. It reflects the most profound contemporary findings from international civil and military publications' theoretical and experimental performance research, demonstrating the documentation's diligence.
- Reflecting the avid interest, through bibliographic references, towards the latest scientific results for an in-depth understanding of the subject addressed and the determining factors of the evolutions of military eco-leaders and performance reporting.

B. Expanding research objectives

From the point of view of outlining the objectives of scientific research, it is noted:

- Clearly articulate the general purpose of the scientific endeavor by adhering to appropriate analysis methods to approach the scientific problem correctly.
- Developing a set of specific objectives aligned with the overall objectives of the thesis and providing clear scientific direction, streamlining the researcher's efforts.
- Illustrating the theoretical aspects and practical tools from the Analysis to establish a coherent, unified and interdependent approach to the sustainable responsibility and performance of military eco-leaders.
- Assessing the feasibility of conducting a comprehensive empirical study using defense performance reporting techniques of military leaders and efficient processing of collected data using statistical programs such as DataTab and SPSS.
- Undertaking an empirical investigation of eco-leadership performance within the environmental responsibility of military leadership.

C. From the perspective of theoretical research

- The definition of eco-leadership and its distinctive stereotypical features, the accumulation of numerous definitions elaborated in scientific documents, and the conceptualization in the military organization influence the development of the performance of military eco-leaders.
- Carrying out a separate study on the performance of military leadership also assumes responsibility for a comprehensive understanding of eco-leadership theory.
- The development of the eco-leader concept in Romania. At the international level, the integration of the SWOT analysis among military operational capabilities has a coordinating role based on specialized studies and strategic documents, but especially the program on the sustainability of the North Atlantic Alliance.
- Representation of the in-depth analysis of the dynamics and development perspectives of the eco-innovative sector in the Romanian Army, based on the synthesis and interpretation of a series of statistical data published in the last few years.
- Demonstrating valuable, sustainable solutions across military hierarchies.

Study on the performance of eco-leaders in the management of military-technical systems

- The clear graphic representation accompanies the integration of the eco-innovative capability and includes the following aspects: the ability of eco-leaders to define the concept of eco-innovation and the ecological motivation to participate in eco-innovative projects.
- Eco-leaders' ecological responsibility activities are based on the new performance indicators developed for eco-innovative projects.
- Develop a public information tool about the eco-innovative activities of the Romanian Army and related investments.
- Initiate an in-depth analysis to develop the concept and activities related to the performance of military eco-leaders. Thus, considering a paradigm shift from the scope perspective implies two concepts: managerial assessment tools and an integrated management system that unifies the ecological and specific approaches of military eco-leaders.
- Guiding military leaders through critical stages of the European Strategic Framework on Sustainability for the Strategic Capability Horizon 2025–2030.
- Initiating actions to develop and review sustainability guidelines at the military management level.

D. From the perspective of practical and applied contributions

- Carrying out a baseline analysis for the operational level of the military, responsible for identifying the causes and implementing steps to decrease the negative influence on the environment and pollution.
- The association of an emblematic institution for Romanian higher military education, AFT, constitutes one of the defence sector's active actors, demonstrating conscientiousness and consistency in regulating sustainable actions.
- Create a procedure for researching performance results by military leaders in Romania at a high scientific quality.
- Establishing the critical coordinates of the study.
- Conducting a broad descriptive analysis is essential to gaining an overall picture of the structure of the database holding the participating sample and examining specific performance status, variables, and distributions.
- Testing statistical hypotheses about the mean of leader performance reporting indices. The technique allowed the division of eco-innovative actions into quartiles.
- Pearson correlation coefficient to determine the relationship between quantitative (numerical) variables. Based on the findings, quantifiable variables are discovered that substantially influence the performance of the eco leaders' activities, namely eco-innovative training, public procurement performance, and eco-innovative decisions.
- ANOVA analysis of variance is used to investigate interactions between reporting indicators and nominal variables included in the analysis.
- The interpretation of the research results at the level of the chosen sample leads to several conclusions: military leaders are eco-leaders.
- Applying the analysis of the dependent variable and developing the prediction function, given the uniqueness of the empirical study in chapters 4-5-6-7-8.
- Examining the statistical relevance of reporting components on the general population of military leaders.

Study on the performance of eco-leaders in the management of military-technical systems

- A linear combination of predictor variables (logistic linear regression) is used to rank the parts that deliver eco-leaders' performance.

E. Publication efforts and dissemination of scientific results

Regarding the dissemination of research results, the development of this doctoral thesis has corroborated initial and continuous documentation efforts. I have published 14 scientific and research papers as author/co-author in the following categories:

- A scientific article is an ISI Web of Science journal publication.
- A paper accepted and published in the volume " Polish Journal of Management Studies ", indexed by ISI Web of Science.
- Three papers published with the ISI Conference Index Proceedings.
- A book chapter published in the volume "Digital Transformation ": Intelligent series Systems References Library with Springer indexing.
- A paper published with the Conference index Proceedings in the Springer volume.
- Five papers published in an international conference issue with the BDI index.
- A book chapter published in the volume "Managerial Challenges in the Field of Security and Defense - "Military Management" collection with BDI indexing.
- A scientific paper published in a BDI-indexed journal.

➤ Future directions, limitations, eco-innovative design of military administration

For the implementation of a sustainable program, it is necessary to initiate some projects with sustainable impact in the Ministry of National Defense structures, which must be consolidated through the act of command, with the support of the structures with sustainable responsibilities.

Personal efforts continue toward systemic improvement by focusing on one's actions, starting projects and innovative forms of supply, supporting eco-innovative ideas, implementing an IT package to manage material assets, and expanding digitization in the asset management sector.

We recommend supporting military eco-leaders through the cooperation of hierarchical echelons based on at least three mechanisms: multi-annual research programs, seminars and training courses. There are three perspectives to look at the future activity of military eco-leaders, to which we make the following additions:

- Sustainable military practices: performance outcomes related to how the Army incorporates sustainability into operations, logistics and supply chain management. The implications of using renewable energy, eco-innovative (Bădilă et al., 2024) procurement and waste reduction strategies are reflected.
- Environmental Impact Assessments in military operations: Performance outcomes often involve analyzing the environmental effects of military exercises, base development and decommissioning, and the environmental impact of conflict.
- Case Studies of successful Green Initiatives: Performance results of eco-leaders' detail specific cases of implementing eco-technologies, such as biofuel-powered vehicles, solar-powered bases, or land conservation efforts under management.