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**DEVELOPING SUSTAINABLE BUSINESSES
IN THE CONTEXT OF THE GREEN ECONOMY
THROUGH ECO-INNOVATION**

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CONCEPTUAL RESEARCH FRAMEWORK

The actuality and the importance of the research topic. In recent decades, concern for environmental and sustainability issues has grown significantly, and the green economy has become a global priority. Thus, the study and promotion of sustainable businesses are essential to respond to environmental challenges and to build a sustainable future.

One of the most significant changes worldwide has been the transition to a green economy. This is based on principles of sustainable development, which involve reducing carbon emissions, using natural resources efficiently, promoting renewable energy and adopting sustainable practices. Although this concept was first introduced by environmental organizations and specialists, it is now increasingly expanding into the business world as well. Sustainable business is a strategic approach that integrates responsible economic, social and environmental practices. They aim to create long-term value by considering their impact on the environment and the communities in which they operate. In this context, eco-innovation plays a key role, bringing innovations and sustainable solutions to business processes.

The importance of sustainable business development is evident from multiple perspectives. First, the need to address environmental issues and reduce negative impacts on ecosystems is crucial to protecting our planet. Climate change, pollution and biodiversity loss are just some of the major challenges we face, and sustainable business has the potential to bring viable and sustainable solutions to these areas. Second, sustainable business development can bring significant economic benefits. A sustainable approach can lead to increased energy efficiency, reduced operational costs and the identification of new business opportunities in the field of green technologies. In a world where natural resources are limited, adopting sustainable practices can create competitive advantages and ensure the long-term sustainability of businesses. Also, sustainable business development can help improve a company's image and reputation. Consumers who are increasingly aware of environmental issues prefer to support and purchase products and services from responsible organizations. Thus, the implementation of sustainable practices can strengthen the relationship with customers and bring long-term commercial benefits.

In the last 10 years, the Republic of Moldova has taken important steps in promoting sustainable development and the green economy, implementing policies and programs aimed at stimulating sustainable growth and reducing the impact on the environment. By signing the Association Agreement with the EU, the Republic of Moldova undertakes to harmonize national legislation according to European standards and to integrate the provisions of environmental protection, rational use of resources, energy efficiency, eco-labeling and eco-innovations in all areas of the national and social economy [3]. This transition, which we consider well-founded, has generated certain uncertainties regarding the promotion of sustainable business and eco-innovations, as well as the development of a solid infrastructure in the development of the green economy.

We consider that the topic selected for research is a current one, as it receives constant attention from international, national bodies and central public institutions. This is reflected in the approval of a number of national and international agreements, laws and rulings, as well as in studies conducted by scholars from around the world, including the Republic of Moldova. The topic studied by the author falls within the objectives set out in the *2030 Agenda for Sustainable Development* [4], which the Republic of Moldova has undertaken to implement, mobilizing its efforts to address the issue of climate change by promoting sustainable economic growth, as well as in the objectives set in the *National Development Strategy "European Moldova 2030"* [19], which adjusts the priorities, objectives, indicators and targets of the international commitments assumed by the Republic of Moldova to the national context. The research topic also falls within the key areas of the Small and Medium Enterprises Greening Program (Hotărârea nr. HG592/2019 din 27.11.2019) [12], aimed at eco-innovation, circular economy and energy and resource efficiency, as well as in the objectives of the *Green Economy Promotion Program in the Republic of Moldova for 2023-2027* [18], which supports the transition to a green and sustainable economy.

Promoting sustainable businesses not only responds to environmental challenges, but also brings economic and social benefits, being a particularly current and important field in today's context. Eco-innovation is becoming an innovative method to promote sustainable development and create a better future for future generations. By researching and analyzing this field, the thesis can make valuable contributions and inspire concrete actions to promote sustainable business in the green economy era.

The aspects, mentioned above, underline the importance of carrying out a detailed analysis, which investigates in depth the field of sustainable business development. The lack of scientific and applied research in this field leads us to the idea that the development of sustainable businesses through eco-innovation, in the context of the green economy, represents a new research field with great potential for the realization of multiple studies, analyses and fundamental research.

For this reason, we consider of increased importance the need to solve the **research problem**, which consists in *delineating the scientific and practical substantiation of the relevance of eco-innovation in the context of sustainable business development, in parallel with the development of a complex method of analysis of eco-innovation activities within enterprises, which allowed the determination of an econometric model, in order to promote and develop eco-innovations.*

Framing the theme in international and national concerns. The topic of sustainable development, sustainable business and the green economy has been explored and developed in a significant number of researches carried out internationally by: Burkart K., Kanianska R., Redclift M., Johnston P., Sneddon C., Pearce D., Borwn J., Barbier E.B., Carson R., Pezzey J., Giovanetti E., Rees W.F., Adams W.M., Lélé S., Gibson R., Meyercord R., Du Pisani J.A., Caldwell L.K., Sachs I., Arndt H.W., Purvis B., Mao Y., Robinson D., René Passet, Seghezze L., Freeman R., Carrol A., Atkinson S., Ramus C., Steger U., Epstein M., Roy M., Veleva V., Ellenbecker M., Bocken N., Lüdeke-Freund F., Elkington J., Hart S., Ocampo J.A., Cosbey A., Khor M., etc. In this context, it is important to highlight the contribution of some scholars from Romania, such as Dinga E., Albu M., Petrescu I., Zaman Gh., Gherasim Z, Gavrilescu M., Câmpean T., Danciu V., Paraschiv D. M., Nemoianu E.L., Langă C.A., Szabó T., Szilagyi A., Kardos M., Borza M., Constantinescu A., Dogaru L., etc., in carrying out various theoretical and empirical research on corporate sustainability, sustainable development, green economy, green growth and circular economy.

The studies carried out in the Republic of Moldova, in particular, in the last 15 years, by: ODIMM, 2018, UNECE, 2021, Gribincea C., 2019, Expert-Group, 2021, 2023, Bahnaru A., 2008, 2013, 2017, Cara E., 2020, Covas L., 2020, Pârțachi I., Derivolcov S., 2018, Litvin A., Petrascu S., Șavga L., etc. they highlighted various aspects of sustainable development and presented a series of arguments in support of the sustainable approach to business and the promotion of the green economy in Moldova.

Eco-innovation plays a crucial role in promoting sustainable business practices, redefining the way companies develop products and services, having the ability to strengthen organizational performance by integrating innovative solutions that lead to the creation of a positive impact on communities and the environment. Thus, during the evolution of the science of corporate and managerial sustainability, several studies were carried out, which reflect the characteristics of the concept of eco-innovation: actuality, role in resource efficiency, evaluation methods, policies, etc. A significant contribution to the development of the concept was made by researchers such as: Kemp R., Pearson P., James P., Xavier A.F., Manuel Frondel, Jens Horbach, Rennings K., Yusuf M.F., Ashari H., Razalli M.R., Miedzinski M., Carrillo-Hermosilla J., Pansera M., Hellstrom T., Reid A., Anderson M.M. And so on in the context of specialized literature in Romania, the topic of eco-innovation and corporate sustainability was analyzed and researched by: Gavrilescu M., Szilagyi A. et al, Davidescu A., Paul Vass A., Gogonea R.M., Zaharia M., Voicu -Dorobantu, R., Paraschiv D.M., Marinoiu A.M., Moisoiu C., etc. Research in the field of corporate sustainability in the Republic of Moldova has begun to address the concept of eco-innovation. The subject is analyzed in the works of researchers: Avram M.N., Crucerescu C., Suslenco A., Doncean M., Roșca-Sadurschi L., Bradu M. and others.

Research purpose and research objectives

The aim of the paper is to deepen and develop theoretical and applied perceptions in the field of sustainable development, green economy and eco-innovation, the analysis of consumer perceptions regarding sustainability and ecological products, as well as determining the interdependencies of factors related to the introduction of eco-innovations in the enterprises of the Republic of Moldova and their influence on turnover, through an econometric model. Also, the purpose of the thesis consists in deepening the theoretical concepts regarding sustainable businesses and the elaboration of practical recommendations regarding the development of eco-innovation and the promotion of sustainability within enterprises in the Republic of Moldova in order to facilitate the development of sustainable businesses.

The intention to achieve the predetermined goal determined the establishment of the following **objectives:**

- studying and deepening scientific research on the concepts of sustainable development, green economy, and eco-innovation, as well as the theoretical-scientific development of the concepts;
- identifying the benefits and risks of the transition to the green economy;
- studying sustainable business models, as well as arguing the role of eco-innovation in the process of corporate sustainability in the context of the green economy;
- studying the European and national context regarding the promotion of eco-innovation and the green economy, including through the establishment of public policies, strategies and programs in the field, with an emphasis on the reflection of eco-innovation in the Republic of Moldova;
- the development of a concept that would be the basis of the analysis of eco-innovation in the Republic of Moldova from the perspective of consumers and the business environment;
- the development of the study on consumer perceptions in relation to sustainability and ecological products, followed by the analysis of associated attitudes and behaviors;
- the elaboration of the study regarding the evaluation of the potential of eco-innovation and sustainability in enterprises from the Republic of Moldova (Central Region, Municipality of Chisinau), as well as the identification of barriers and engines for the accelerated adoption of eco-innovations in domestic enterprises;
- the development and use of methods, as well as statistical and econometric models for the analysis of eco-innovation and sustainability within domestic enterprises;
- establishing strategic directions for the growth and development of eco-innovation, at the national level, in order to facilitate the development of sustainable businesses.

Research hypotheses

The research problem outlined in front of the study led to the formulation of some research hypotheses. Thus, the research will be built around five **scientific research hypotheses:**

Hypothesis 1: Consumers in the Republic of Moldova are increasingly concerned about environmental issues and become more aware in their everyday choices by purchasing more sustainable products and services.

Hypothesis 2: Consumers, survey participants, do not trust companies' sustainability claims and reports and would not be willing to pay more for a sustainable product/service if they knew that a company invests in eco-innovations.

Hypothesis 3: Enterprises in the Republic of Moldova feel pressure from stakeholders to adapt their business strategy to climate change and make it more sustainable,

Hypothesis 4: The companies participating in the survey do not have a concrete sustainability/eco-innovation strategy, and the number of those undertaking eco-innovation activities is very small.

Hypothesis 5: The main barriers to the adoption of eco-innovations in companies in the country are related to: the lack of funds within the company, the lack of fiscal incentives and the uncertain return on investment.

The informational support of the thesis

Considering the specifics of the scientific research topic, we used the informative resources in the field of economy, sustainable development and eco-innovation, which are valuable both in the works of local and foreign researchers, in Romanian, English, French, and Russian language, the highest share coming from bibliographic sources published in English, in the period 2000-2023; materials of international (UN, OECD, Council of Europe, etc.) and national organizations (ODIMM, Ministry of Economic Development and Digitalization, Ministry of Environment, etc.); the statistical information of the National Bureau of Statistics and that of the European Union Statistics; national, European and international reports and studies, information obtained from participating companies and consumers in empirical surveys; own research.

Research Methodology

In the process of developing the thesis, I gathered information through direct and indirect research. For this, we used a variety of classic research methods, such as: empirical observation, analysis (quantitative, qualitative), field analysis, survey method, synthesis, induction and deduction, comparative analysis methods. This information was later systematized and analyzed using statistical, mathematical, and econometric methods. We must mention that two empirical studies were carried out, which allowed to analyze the research problem from two points of view: of consumers and of enterprises.

The empirical study N1 was carried out by the survey method, using the questionnaire as a tool. The study was conducted among consumers (Central Region and Chisinau Municipality), in the period August - September 2022, and the basic objective was to analyze the attitudes and behaviors of consumers in the Republic of Moldova regarding sustainability and ecological products. The sample consisted of **305 respondents**, a probabilistic, bistratified, stratified, random sample, respecting the gender and age quotas according to the BNSRM.

The empirical study N2 referred to the analysis of the behavior, attitudes and expectations of entrepreneurs from the Republic of Moldova regarding the development and adoption of eco-innovations, using a *questionnaire-based survey*. The study was carried out between August and September 2022, in the Center Region and the Municipality of Chisinau, on a sample of **200 enterprises** in the field of Industry, Agriculture and Services. The study was carried out on the basis of a probabilistic, stratified, random sample, respecting the quotas of the size of the enterprise, the sphere of activity and the region.

Subsequently, scientific research involved the processing of collected data, their analysis and interpretation. All data were taken in the SPSS statistical analysis program.

The novelty and scientific originality of the work reside in:

- Developing the notions of green economy, eco-innovation and company management based on green economy.
- Introduction of new concepts, such as: Hexagon of sustainable development with 6 dimensions, Echo sustainable organization model, Conceptual framework for eco-innovation business model – SEMCGP model.
- The development of a new concept that would be the basis of the analysis of eco-innovation in the Republic of Moldova (Constituent elements of the concept of eco-innovation in the Republic of Moldova from the perspective of consumers and the business environment).
- Elaboration and application of statistical and econometric methods and models in accordance with econometric calculations between different determinants of the results of the eco-innovation and sustainability activities of the analyzed companies, as well as consumer perceptions regarding sustainability and ecological products.
- Elaboration of proposals regarding the development of eco-innovation and the promotion of sustainability within enterprises in the Republic of Moldova (framework conditions, premises, strategic directions) in order to facilitate the development of sustainable businesses.
- The definition of the 5 principles of the green economy, the main risks and benefits of the

transition to the green economy, the definition of 4 principles of sustainable development, the realization of an own classification of the types of eco-innovations; establishing the components of eco-innovation in sustainable business models, defining the stages of developing an eco-innovation business model.

The theoretical and applied meaning of the thesis

The research carried out constitutes a revealing support of theoretical and methodological concepts in the field of eco-innovation, the green economy, and the demonstration of the impact of eco-innovation in the development of sustainable businesses. As an argument in favor of the applied value of the research, the implementation certificates from 2 companies, where the research results were integrated into practice, serve. The applicative value of the paper consists of the relevance and usefulness of the scientific arguments and practical recommendations made in the paper, which can be used in a wide variety of fields: in the academic environment, in the teaching process of higher education institutions; the results obtained can be taken over and applied by economic agents in the field of Industry, Services, Agriculture, etc., in determining the directions of development of sustainable and eco-innovative businesses, as well as non-profit organizations from the Republic of Moldova. At the same time, recommendations were submitted in the institutional framework of the Republic of Moldova, in order to promote eco-innovation to facilitate the development of sustainable businesses.

New scientific results for science and practice

The scientific results obtained are innovative and include the structuring and development of key concepts such as the green economy, sustainable development, eco-innovation, as well as the identification of the essential role of eco-innovation in the development of sustainable business models. Also, the research carried out allowed the creation of an analysis concept of eco-innovation in the Republic of Moldova from the perspective of consumers and the business environment and the performance of theoretical and empirical studies, which allowed for the elaboration of certain recommendations, which will facilitate the development of sustainable businesses. The obtained results determined the creation of a new scientific direction for the development of sustainable businesses through eco-innovation, and the econometric model determined the interdependencies of the factors related to the introduction of eco-innovations in enterprises in the Republic of Moldova and their influence on turnover.

Approval of scientific results

The theoretical-methodological and practical results, elaborated in the paper, were reported in 6 scientific papers. The research results were reflected in 3 articles in specialized scientific journals: *Univers Strategic*, 2022; *Journal of Research in Commerce, Management and Economic Development*, 2022; *EcoSoEn*, 2022. Also, the main theses of the research were reported in 3 national and international scientific-practical conferences, such as: Conference "*Management strategies and policies in the contemporary economy*" AESM, Chisinau, Moldova, 2016; International Scientific Conference "*Development through research and innovation*", Chisinau, Moldova, 2022; and International Scientific Conference „Present Issue of Global Economy” 2023, University Ovidius, Constanta, Romania.

Key words: sustainable development, eco-innovation, sustainable business, green economy, sustainable business models, eco-innovation business models, corporate sustainability, sustainable organization model, eco-innovation potential, development premises.

THESIS CONTENT

I. GREEN ECONOMY IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT (Chapter 1 content)

The first chapter of the thesis, entitled, "*Green economy in the context of sustainable development*", contains a multilateral synthesis of the concepts in the researched field: green economy, sustainable development and green growth. In this chapter, the principles and dimensions of sustainable development, the conceptual particularities of the green economy were studied and a critical analysis of the concept is carried out.

The central goal of the green economy is to create a sustainable and low-carbon future by transitioning to greener and more resource-efficient production and consumption patterns. This can be achieved by using renewable energy, adopting energy-efficient technologies, and implementing circular economy models that aim to reduce waste and increase resource efficiency. The green economy can have a positive impact on the economy by creating new jobs, increasing competitiveness and increasing the purchasing power of consumers or economic agents alike by reducing energy costs.

However, the transition to a green economy also presents important challenges, such as the need for significant investment in new technologies and infrastructure, and the need to balance economic, social and environmental considerations. Governments, businesses and individuals must work together to overcome these challenges and accelerate the transition to a green economy.

The concept of green economy has received significant international attention in recent years, both as a tool to address the financial crisis of 2008 and as one of the two themes for the United Nations Conference on Sustainable Development in 2012 (Rio+20) [2]. This has thus contributed to the development of the concept through a rapidly expanding literature and emerging international practice. It is important to note that when the concept was first adopted as a theme for Rio+20, there was also a lack of clarity regarding the relationship between the green economy and internationally agreed goals such as: sustainable development and poverty eradication, as well as the lack of understanding regarding the potential challenges, risks, costs and benefits of implementing green economy policies.

The concept of a green economy has evolved over time and was first used in 1989 in a report for the UK Government by a group of environmental economists entitled *Blueprint for a Green Economy* [1], and the idea of an inclusive green economy was substantiated at the 2012 World Conference on Sustainable Development, entitled Rio+20.

Studying the specialized literature, the author finds that there is no internationally agreed definition of the green economy, so the author analyzed various definitions to show the different approaches from the perspective of various publications and organizations, and finds that the definitions of the green economy include the three dimensions of development sustainable: environmental, social and economic. For example, the UNEP (2011) definition [33] is one of the most recognized internationally, being also the most used, through which "green economy is an economy that leads to the improvement of the population's well-being and social equity, simultaneously with the significant reduction of environmental risks and ecological constraints. It is an economy with low carbon emissions, efficient in the use of resources and socially inclusive".

In order to better delineate the conceptual differences of the green economy from other concepts, which are closely related, but have different particularities, the author carried out a comparative analysis of the concepts in the field, namely: environmental economy, ecological economy and green economy, following to which he formulates his own definition of the concept: "*The green economy is part of the economy that studies the legitimacy, models of symbiosis, the interaction of the participating parties (economic agents, society, government agencies, etc.), the technological, human and natural limits in a certain country and/or geographical area, having as its objective sustainable economic development and growth, improving human well-being, reducing, at the same time, environmental risks and ecological problems, being efficient in the use of resources and preserving natural capital, as well as socially inclusive*" [25].

For a better understanding of the concept of green economy, the author analyzes the principles on which it is based and identifies in the specialized literature 11 common principles, which include all three dimensions of sustainable development and finds that the most frequent emphasis is on the social dimension. This is an interesting development that demonstrates how various organizations and stakeholders interpret the green economy. In this context, in a different vision, namely in the vision of Nordhaus, Shellenberger, and Mifflin, qualitative and not quantitative consumption is promoted, in order to regenerate ecosystems. Consequently, the green economy operates on the basis of ten principles, covering its key dimensions, as follows [20]: 1) Prioritizes Value & Quality, 2) It is based on natural flows in which society does not exceed the limits of the ecosystem, 3) Waste = food resources, 4) Elegance and multifunctionality of complex food chains, 5) Ideal scale/connected scale, 6) Diversity, 7) Self-confidence, self-organization, self-design, 8) Participation and direct democracy, 9) Human creativity and development, 10) The strategic role of landscape and territorial design in building the environment.

In essence, according to the author of the thesis, the green economy is built on five fundamental principles: Resource efficiency, Sustainable development, Reduction of greenhouse gas emissions, Regional development, and Social and environmental responsibility. By following these principles, we can ensure that economic growth benefits for consumers, organizations and the planet, helping to ensure a healthy future for future generations. Thus, the green economy is a promising approach to achieving sustainable growth and development while reducing the negative impact on the environment. This has the potential to create new jobs, reduce energy costs and increase competitiveness, requiring investment, joint efforts, and cooperation from all stakeholders.

In the context of a world dominated by climate change and exhaustible natural resources, *sustainable development* has become an essential and urgent theme worldwide, and the magnitude of the problem must now be matched by comprehensive, effective and quality solutions. Although the concept of sustainable development enjoys popularity at all levels of socio-economic life, the author believes that, many times, the use of this concept is abused in various contexts, without the assumption of concrete actions of sustainable development strategies. This is either due to a lack of full understanding of the concept itself or due to controversies regarding the definition of the concept or its approach. Since the concept of sustainable development interferes and is related to the concept of sustainability, a delimitation of some theoretical aspects is needed, their deeper understanding both in the specialized literature and in their use in practice. The terms "durability", "sustainability" and "sustainable development" are often considered synonymous in the specialized literature, but with varied meanings in various contexts, so in this chapter, the author presents the differences between each one by referring to dictionaries and authors in the field. The problem of studying the concept of sustainable development is not limited to the term "sustainable", but rather to the word "development", which is perceived as having a negative and harmful impact. This issue has been addressed by numerous authors, who believe that the term "sustainable development", like "sustainable growth", is an oxymoron (Redclift, 2005 [27]; Johnston et al. 2007 [15]; Brand, 2012 [6]).

Thus, although sustainability and sustainable development are related concepts, they have distinct meanings. Sustainability refers to the ability of a system or process to be maintained at a certain level over time. In the environmental context, it means meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. Sustainable development, on the other hand, is a broader concept that encompasses not only environmental sustainability but also economic and social sustainability.

The most well-known definition of sustainable development is certainly that given by the World Commission on Environment and Development (WCED) in the Brundtland Report: "Sustainable development is development that seeks to meet the needs of the present without compromising the ability of future generations to meet their own needs" [24]. Whatever the exact origins of the concept, it is certain that, in the 1970s, the concept of sustainable development experienced an expansion and it is the period in which the first ideas that reflect the identity of this

concept take shape. This situation derives, in particular, from the awareness of the imperative of responsible management of natural resources, motivated by the alarming increase in the level of pollution, the global population and the concern about the depletion of resources. In general, following the analysis of the definitions of the concept, the author finds that sustainable development involves two components: *the meaning of development* (which are also the main objectives of development: economic growth, basic needs, etc.); and *the necessary conditions* for sustainability.

From the analyzed definitions of sustainable development, the author deduces that this concept is not only vast and complex, but also very controversial. The criticisms brought to the concept of sustainable development analyzed in Appendix 6, reveal the diversity of perspectives and challenges in its approach, in the view of several authors such as: Daly Redclift, Adams Latouche S., L  l   S., Gibson R, Meyercord R. etc. These critiques bring to the fore issues related to theoretical foundation, the balance between economic growth and sustainability, as well as the influence of social and power factors in the definition and implementation of sustainable development. These debates highlight the complexity and the need for continuous dialogue to improve and clarify approaches to sustainable development.

Sustainable development is a multidimensional concept that aims equally at the environmental component in the sustainable consumption of natural resources, the protection of environmental factors, the care of the health of the population, the social side through equality, the quality of life and the eradication of poverty, but also the economic component through sustainable growth . These three dimensions – economic, social and ecological – are closely interrelated and must be addressed in an integrated way to ensure sustainable development. The 3 dimensions of sustainable development are offered by most authors in specialized literature, such as: Petrescu I., Ren   Passet, Zaman Gh., Gherasim Z, etc. Seghezzeo L. tried to show that the conventional idea of sustainable development has a number of conceptual limitations and does not sufficiently capture some spatial, temporal and personal aspects. To alleviate these shortcomings, he introduced a conceptual framework with five dimensions: Space: the three dimensions – of space (x, y and z); Permanence: the fourth dimension – of time (t); Persons: The fifth – human dimension (i).

The analysis carried out in Chapter 1 regarding the dimensions of sustainable development in the specialized literature determined the development of its own 6 dimensions in the vision of the author of the thesis, being conceptualized in the Hexagon of sustainable development: *economic, social, environmental, cultural, political and geographical* (Fig.1). The 6 dimensions of sustainable development described above are interdependent and must be approached as a whole to ensure sustainable and balanced progress in our society.

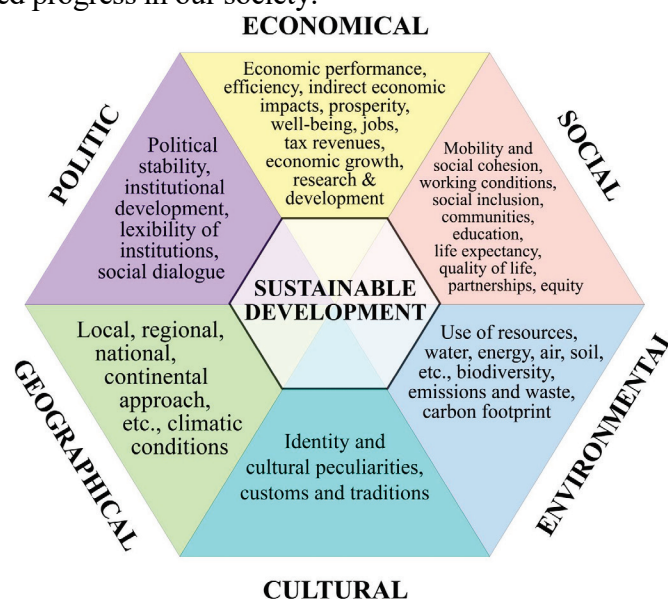


Fig. 1. The hexagon of sustainable development with 6 dimensions

Source: elaborated by the author

An essential principle of sustainable development is the adoption of strategic and integrated management that takes into account sustainability aspects. A sustainability criterion implies the need for future generations not to live in worse conditions than the current ones. To meet this criterion, the necessary conditions must be met for all future generations to have equal access to basic resources.

These principles are often associated with the Sustainable Development Goals (2015-2030), adopted in 2015 by the United Nations General Assembly, also known as the 2030 Agenda, which is a global plan to build a more sustainable and equitable future for everyone. The 17 Sustainable Development Goals address global challenges including poverty, inequality, climate change, innovation, economic growth, environmental degradation, peace, and justice. Following the analysis carried out, in the view of the author of the thesis, the principles of sustainable development constitute the basis for a better and more sustainable future for everyone and refer to *environmental protection, economic development, social responsibility, and partnerships*.

Also, in this chapter, the steps taken so far for the transition to the green economy at the European level are researched, the benefits, risks and challenges of the transition to the green economy being identified. As with the concept of the green economy, no standard definition of green growth has yet emerged in public debates. A reference definition is that provided by the OECD, whereby green growth involves "encouraging economic growth and development while ensuring, at the same time, that natural assets continue to provide the environmental resources and services on which our well-being is based" [22]. Analyzing several bibliographic sources, the author has identified a number of definitions of this concept, ranging from a narrow desire to reconcile emissions reduction with economic growth to a comprehensive plan to improve the resource efficiency and environmental sustainability of the capitalist system.

Studying the concept of green growth, the author finds that it is controversial for several reasons. On the one hand, there is the question of whether the global economy can continue to grow in a green and sustainable way. Critics argue that this concept can become an excuse for maintaining economic models of consumption and production, instead of truly addressing the issue of reducing consumption and regenerating resources. In addition, some believe that green growth does not sufficiently address the systemic problems and corporate power behind environmental degradation, and suggest alternatives such as the circular economy, degrowth or radical changes that respect planetary limits.

The related concepts of green growth, green economy and sustainable development are sometimes used differently by various organizations, but are also used interchangeably. Some organizations also include social aspects in their definitions.

The transition to a green economy means policies and investments that will decouple economic growth from the increase in the current intensive consumption of raw materials and energy. A green economy can be thought of as an economy with low emissions, through the efficient and sustainable use of resources and ensuring social inclusion. In a green economy, income growth and employment should be driven by public and private investments that reduce carbon emissions and pollution, increase energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.

In the context of multiple crises, economic growth is possible, but with limits. A correlation must be made between economic growth and the sustainable use of natural resources, as well as sustainable production and consumption, with an emphasis on sustainable industrial policy.

The author of the thesis believes that all interested parties should be aware of the fact that the Green Economy has as its general goal the transition to an economy that is compatible with sustainable development, and this new form of economic development must be seen as a form of adaptation of the economic system on long term to the various crises it may face. Efforts must also be focused on the implementation of policies associated with the Green Economy in the context of sustainable development. We believe that it is necessary to accelerate such coordinated actions, possibly under the new environmental institutional construction at the global level.

At European level, the transition to a green economy is essential and is reflected in the "European Green Deal", a plan to transform the economy into a sustainable and green one by 2050, with an initial investment of €1 trillion. This pact supports the transition to a clean and circular economy, restoring biodiversity and reducing pollution. Another relevant initiative, "The Green Growth Knowledge Platform", is a global community of experts focusing on knowledge for a green economy, covering three areas: green policies, green industry and sustainable finance, supported by organizations such as GGGI, OECD, UNEP, UNIDO and the World Bank. The Paris Agreement, signed at COP 21 in 2015, represents a significant moment of global action to limit the increase in global temperature below 2°C, being the first legally binding agreement to combat climate change. The European Enterprise Network supports SMEs in the transition to the green economy by facilitating access to finance for eco-innovation, energy efficiency and international partnerships, contributing to innovation and growth at international level. The flagship initiative for a resource-efficient Europe under the Europe 2030 Strategy promotes the sustainable use of natural resources, supporting an efficient economy with low emissions and sustainable growth.

Numerous specialists have analyzed the risks and benefits of the transition to the green economy in the context of sustainable development. Experts such as José Antonio Ocampo examined the macroeconomic policy implications of this transition, while Aaron Cosbey addressed issues related to trade, investment and technology. Martin Khor assessed the risks for developing countries and the policies needed to promote the green economy according to the principles of sustainable development. These analyzes focus on six major topics, including the advantages and risks of the green economy concept, the macroeconomic dimensions of green growth, the domestic strategies of developing countries, technological aspects, international trade issues, and financial support for these countries.

Companies that adopt a transition to a green economy not only reduce their negative impact on the environment, but also improve their business efficiency and profitability, opening up new business opportunities and strengthening relationships with customers and other stakeholders, by adopting sustainable practices and technologies that reduce gas emissions greenhouse effect, energy consumption and waste generation, thus contributing to the environment and mitigating climate change, and offering new possibilities such as the development and commercialization of clean technologies and environmental solutions.

Thus, the author finds that the transition to a green economy is not only an act of social responsibility, but also an essential aspect of business strategy for companies that want to remain competitive in the long term, but at the same time it is important to find the right solutions for the risks associated with this transition.

II. DEVELOPING SUSTAINABLE BUSINESSES THROUGH ECO-INNOVATION

(Chapter 2 content)

Chapter two, entitled, "*Developing sustainable businesses through eco-innovation*" includes an analysis of sustainable economic growth through the approach of eco-innovation and resource efficiency. Also, the author summarizes the definition of the concept of eco-innovation and describes the typologies of eco-innovations, the dimensions of the concept, evaluation methods and indicators, presenting, at the same time, the interdependence between sustainable economic growth, eco-innovation and resource efficiency.

The concept of *eco-innovation* appeared almost 3 decades ago when authors began to use it in their works and developed various research around it. For example, Fussier Claude and Peter James apparently were the first to use the concept in 1996, in a book called "Driving Eco-Innovation: A Breakthrough Discipline for Innovation and Sustainability." A year later, Peter James boldly defines eco-innovation as "*new products and processes that deliver value to customers and businesses, but significantly reduce environmental impact*" (James, 1997). Thus, it

seems that until it was decided to call this concept "eco-innovation", it was used as the term "innovation towards sustainable development" (Rennings, 2000).

For the OECD, eco-innovation is an innovation that refers not only to products but also to organizational processes and methods, which bring benefits to the environment or at least reduce the impact on the environment [31], whether this was an intentional one or not. For almost 3 decades, the concept of eco-innovation has been in the attention of researchers and authors, and the variety of definitions have determined the use of various terms and concepts. Following the consultation of specialized literature, we identify several terms used for the concept of eco-innovation, such as: environmental innovation, green innovation, sustainable innovation or sustainability-oriented innovation. The definitions presented in the thesis regarding **eco-innovation** refer to this concept as a means of minimizing pollution and the impact of human activity on the environment, on the one hand, and, on the other hand, as a means of achieving a more efficient use of resources. Also, in all the definitions of the term eco-innovation, the author notes 3 essential dimensions: it includes the idea of reducing pollution, eco-innovation is linked to the theory of innovation, and eco-innovation must be oriented towards the market.

Analyzing the views of scholars, the perceptions in this field, the author defines eco-innovation as *"a set of interdependent and interacting processes, activities, resources and decisions within an organization, economic entities, state/private/non-profit organizations that have the right resulting in the development and implementation of products (goods or services), processes, economic-managerial methods and tools, development plans and strategies, organizational structures, equipment, etc. new or significantly improved, which results in the achievement of sustainable development by reducing the negative impact of activities on the environment, increasing natural resistance to loads or ensuring greater efficiency and responsibility in the exploitation of natural resources, in cooperation with partners within the entire value chain"*

The literature reveals a wide range of eco-innovation typologies that vary greatly according to different characteristics. Also, numerous attempts have been made to classify eco-innovation, so following the study, the author identified the following types of eco-innovations: process, product, system, organizational, managerial, marketing, social, eco - technical and non-technical, incremental and radical innovations, clean production technologies, end-of-pipe depollution technologies, etc. Based on this extensive analysis, the author centralizes all types of eco-innovations and proposes a complex classification of eco-innovations, depending on their nature, degree of diffusion, degree of novelty, environmental technologies, providing examples for each in part.

Measuring eco-innovation is essential to assess policy effectiveness, identify best practices and monitor progress towards sustainable development goals. According to Andersen (2006) [5], eco-innovation indicators are important to (1) signal decision-makers, emphasizing the importance of eco-innovation development, and not just the state of the environment, (2) provide incentives to key actors in the innovation system to take environmental measures, (3) to provide new analytical insights into the process of greening industry and the economy as a whole, and last but not least, to (4) help address environmental challenges. The author of the thesis believes that the measurement of eco-innovation is important for several reasons. First, measuring eco-innovation provides a way to track progress, identify successes and areas for improvement. This can help encourage innovation and investment in environmentally friendly technologies and practices. Also, measuring the impact of eco-innovation helps to understand the benefits for the environment and promote their adoption.

Sustainable economic growth is a growing global concern, as limited natural resources and the impact on the environment require us to focus on economic development that meets the needs of the present without compromising the ability of future generations to meet their own needs. To achieve this goal, eco-innovation is essential through the development and implementation of innovative technologies that support resource efficiency and the reduction of environmental

impact. Sustainable economic growth does not imply diminishing economic development, but represents a smart and responsible approach. It can alleviate poverty by improving living standards through job creation, improved public services and reduced energy costs. It is not only a viable option but necessary for a sustainable future, balancing development with the protection of the environment and society for a more prosperous future for all. So, sustainable economic growth, eco-innovation and resource efficiency are interdependent. In the author's view, sustainable economic growth is linked to eco-innovation in that it can only be sustained through innovation and the development of technologies that reduce the impact on the environment and allow more efficient use of natural resources. Eco-innovation includes the development of green technologies, the use of renewable energies, as well as the promotion of the circular economy, which is based on the reduction and recycling of waste.

To become sustainable and adopt sustainability practices, there are multiple benefits for a company, starting from increasing efficiency, reducing costs and risks, to improving market reputation and attracting more customers and investors; benefits that the author develops in the work.

The Sustainable Organization Model has been developed over many years by sustainability and management researchers and specialists such as John Elkington, Stuart Hart, Marc J. Epstein, Gurtu, Seracy, Jaber, Lüdeke-Freund, etc. They analyzed current trends and identified best practices to create an organization that can be sustainable in the long term and that can work harmoniously with the environment, society and economy.

As the Sustainable Organization Model is a management concept that focuses on creating and maintaining an organization that can operate sustainably in the long term, considering its impact on the environment, society and the economy, it essentially aims to integrate the dimension of sustainability in all aspects of the organization, from strategy to operations and organizational culture. In this context, based on the classical approach of inputs, processes and results, as well as starting from Marc J. Epstein's model of sustainable organization, the author created his own model of sustainable organization, called the "ECHO Model" (Fig.2).

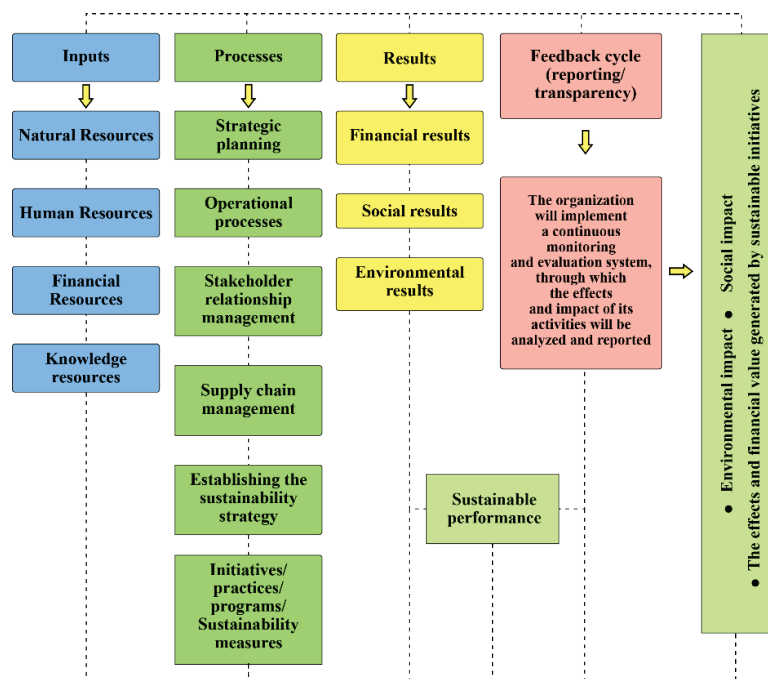


Fig. 2. The ECHO Sustainable Organization Model

Source: elaborated by the author

By applying the ECHO Model, the organization can ensure an integrated and sustainable approach for all its activities and operations, aiming to improve financial, social and environmental performance, ensuring increased responsibility towards the environment and society.

Therefore, the author of the thesis claims that companies that opt for sustainable strategies and practices will have a competitive advantage on the market, obtaining value by increasing revenues due to new goods and services, reducing costs through eco-efficiency and eco-innovation, managing operational risks and complying with more effective regulations. These companies will be able to transform intangible assets, such as brand and reputation, and create collaboration networks with all stakeholders (customers, employees, partners, competitors, suppliers, etc.), which will accelerate the process of improving sustainability.

The shift from traditional to sustainable business models represents a significant change in the way companies operate, taking into account the impact on the environment and society as a whole. While traditional business models focus mainly on making immediate profits, sustainable models aim to integrate ecological, social and economic principles to create long-term value.

The recognition and importance of sustainability is becoming more widespread among companies around the world, being taken into account by their business models in an attempt to reduce the negative impact on the environment and society. Over the years, researchers have defined sustainable business models in different ways. For example, Stubbs and Cocklin define the sustainable business model as "a model in which sustainability concepts shape the firm's driving force and decision-making so that the dominant neoclassical model of the firm is transformed by social and environmental priorities." [29]. According to Osterwalder, Pigneur, Bernarda and Smith (2014), an important factor in developing a sustainable business model is the value proposition which should focus on solving problems and satisfying the needs of customers and stakeholders [23]. In addition, higher levels of sustainability can be achieved by co-creating value through partnerships and collaborations with stakeholders. Thus, the author studies in a complex manner sustainable business models, their characteristics, as well as the 8 archetypes defined by Bocken et al. (2014).

Regarding the development of sustainable business models, many tools and approaches can be used that are also used for classic business models, only adapted from the perspective of sustainability and the concept of sustainable development. One such tool is the Canvas business model, which can be used to develop sustainable business models. The Sustainable Business Model Canvas is a framework that helps organizations design and implement sustainable business models. It is based on the principles of the "triple bottom line", which takes into account not only financial performance, but also social and environmental impact (Elkington, 1998 [10]). This framework can be used by companies of all sizes and in all industries to create a sustainable strategy that aligns with their values and goals. Using the Sustainable Business Model Canvas, organizations can identify areas where they can improve their sustainability practices and create a plan to achieve their goals.

Starting from these considerations, the author highlighted the main components of eco-innovation in business models that refer to the identification of opportunities for eco-innovation, the design and development of eco-responsible products/services, the development of sustainable business models and, not in lastly, when collaborating with other companies and partners.

In this context, eco-innovation is essential in the development of sustainable business models, including technological innovation, systematic approaches and collaboration. It contributes to sustainable solutions to social and environmental challenges, and business models facilitate the adoption of green technologies and solutions, generating economic and environmental value. The focus on business models enables a deeper understanding of the generation, distribution and delivery of environmental value in products and services. Following the study of sustainable business models, the author also develops the stages of their development, which boils down to: identifying key sustainability challenges; developing a vision of sustainability; identifying eco-innovation opportunities; evaluating different business model options; business model design and testing; implementation and monitoring; communication and stakeholder engagement.

In this chapter, the thesis author summarizes the previous conceptual field of the sustainable business model and provides a basic theoretical framework for business model eco-innovation research. Starting from the interdependence between eco-innovation, sustainable growth and resource efficiency, as well as from the Canvas sustainable business model, the author of the thesis conceptualized the framework of the eco-innovation business model – the SEMCGP Model, fitting it into the hexagon of the evolved dimensions of sustainable development previous. Thus, by integrating these crucial aspects and the stages of the eco-innovation business model in a comprehensive vision, a solid foundation is outlined for the research and practical implementation of sustainable development and resource efficiency initiatives. The SEMCGP model is established as a valuable tool in orienting businesses towards a sustainable future based on ecological innovation and responsible growth, having at its center the sustainable business model focused on the value offered to all interested parties, thus reflecting a holistic approach to economic development and social.

Therefore, the author considers that a systemic approach to eco-innovation is necessary that takes into account the interdependence of social, environmental and economic systems. Eco-innovation should be seen as a process of continuous improvement and learning and that firms should be encouraged to collaborate and share best practices to accelerate the adoption of sustainable models while contributing to sustainable development. This is only possible through collaboration between business, governments and other stakeholders to drive the green transformation of the global economy.

III.OPPORTUNITIES FOR SUSTAINABLE BUSINESS DEVELOPMENT THROUGH ECO-INNOVATION (Chapter 3 content)

Chapter three, entitled "**Opportunities for sustainable business development through eco-innovation**" includes the analysis of the European and national context regarding eco-innovation and green economy policies. To manage the challenges of the transition to a green economy, the European Union has developed a number of policies and programs to support it. These include funding programs, regulations and policy directions to stimulate investment in the green economy and ensure that the transition is carried out in a fair and efficient manner. In addition, the EU promotes cooperation between Member States to share best practices and maximize the benefits of the transition to a green economy across the European Union.

As far as the Republic of Moldova is concerned, for more than a decade, the green economy has been promoted through various national programs, projects, strategies, normative acts, etc., but also by assuming international commitments. The promotion of the green economy in the Republic of Moldova is reflected in the main policy documents of the Government, especially in the National Development Strategy of Moldova 2030, the Energy Strategy 2030, the Development Strategy of the SME sector for the years 2012-2020, the Roadmap for the promotion of the green economy, Agriculture Development Strategy 2013-2020, Environmental Strategy 2014-2023, Program for the promotion of the Green Economy in the Republic of Moldova for 2018-2020. At the same time, they are part of the commitments of the Republic of Moldova towards external partners, such as: the Association Agreement with the EU and the 2030 Agenda for Sustainable Development, which aim to ensure sustainable development and promote the green economy in Moldova.

We mention that the objectives and targets of the green economy in the Republic of Moldova refer to: (1) energy efficiency and renewable resources; (2) reduction of greenhouse gas emissions, waste recycling; (3) organic farming; (4) forestry and state-protected natural areas; (5) sustainable public procurement; (6) green industry; (7) environmental education and education for sustainable development, information and public awareness [9].

According to the evaluation report of the program for the promotion of the green economy 2018-2018 [26], less than half of the planned actions were carried out, more precisely - 46.81%.

This poor performance was based on several reasons, such as the short implementation period for certain actions, the Covid-19 pandemic or the lack of funding. Among the major achievements regarding the implementation of the program are the encouragement of ecological enterprises/businesses or ecological technologies by offering various facilities, including financing (EU4Business Program); Approval and implementation of the SME Greening Program (HG nr. 592/2019), implemented by the Organization for the Development of Small and Medium Enterprises (ODIMM).

At the national level, there are few studies that provide a complete and comprehensive view of the perception of the green economy and eco-innovation among businesses and consumers alike. Therefore, we distinguish 2 relevant studies on the green economy within enterprises, namely: the survey "Promoting the improvement of the environmental performance of SMEs", carried out in 2014 by the National Institute of Economic Research (INCE) and the study "The degree of perception by SMEs of the principles of the Green Economy", realized in 2018 by ODIMM. The latter study found that most SMEs in Moldova are not informed about their impact on the environment, although they are familiar with the concept of Green Economy. They need more knowledge and information on the principles and implementation of the Green Economy, along with the obstacles related to environmental management and financial resources. According to the results of the research, carried out by Covas L. in 2020, within companies in the Republic of Moldova, less attention is paid to environmental aspects, compared to social ones [7]. Thus, among the types of initiatives carried out by companies, the most frequent are the planting of green spaces in the community – 67.3%, the development of the company's territory – 60.7%, the efficient use of raw materials – 46.4%, while eco -innovations represent only 10.7%, being among the rarest actions undertaken by companies.

The green economy has seen an accelerated development recently, namely in this sector a series of innovative and complex projects with a special value, both from an economic and ecological point of view, are being started. Integrating sustainability into all economic decisions is a chance to limit the negative impact of our actions and support the positive impact, along with economic growth.

For the European Union, eco-innovation became a major policy objective through the Treaty of Lisbon and the Environmental Technologies Action Plan of 2006 [30]. Since then, the European Commission has gradually stepped up its support for eco-innovation, which today is the subject of the activities of several Directorates-General and is integrated into their main programs and initiatives. Eco-innovation policies represent one of the environmental policies of the European Commission, which are closely related to industry and technologies.

Thus, the author of the thesis claims that eco-innovation in European countries is essential for the constant transformation necessary towards a sustainable development and for the fulfillment of the EU's vision towards a green economy. Many European countries implement eco-innovation, however most either do not yet introduce this type of innovation, or the material savings obtained due to the innovation are minor.

With the growing interest in innovations with beneficial effects on the environment, the problem of measuring it in the most precise way has been put forward. The importance of measuring progress towards eco-innovation was highlighted by the OECD in 2009, which pointed out that this measurement process can help lagging countries to identify opportunities to improve their performance. Thus, the Eco-innovation Observatory is an initiative of the European Commission that provides a comprehensive information platform on eco-innovation for businesses and innovation service providers, as well as serving as a robust foundation for decision-making processes in policy development.

In chapter 3, the author performs a comparative analysis of the performance of EU member countries in eco-innovation, following the platform of the European Commission's Eco-innovation Action Plan (EcoAP), the Eco-innovation Scoreboard (Eco-IS) and the Index included Eco-

innovation (Eco-innovation Index), which illustrates the performance of eco-innovation in the 28 EU member states. According to the results obtained in the process of implementing eco-innovation, the author finds that European countries fall into three categories: 1) **eco-innovation leaders group**, with better results than the European Union average: Sweden, Finland, Germany, Luxembourg, Denmark and, Slovenia; 2) **average eco-innovation performers group**, with results around the EU average: Austria, Italy, Spain, Portugal, the United Kingdom, France, Ireland, the Netherlands and Malta; 3) **eco-innovation catching-up group** with performances below the EU average – the rest of the EU countries.

There are few studies at European or national level on eco-innovation activities. The most representative European study is the Eurobarometer Flash 315 "Attitude of European entrepreneurs towards eco-innovation", which identifies the main barriers and drivers in the adoption of eco-innovations. According to this study, around 3 out of 10 European companies have implemented new or significantly improved eco-innovative products or methods in the last two years, and a similar proportion have brought eco-innovative products or services to market. The main *obstacles* encountered in promoting eco-innovation include uncertain market demand, the uncertainty of return on investment and payback period, lack of financial resources for eco-innovation, and limited access to subsidies and tax incentives, while the *drivers* for the accelerated adoption of eco-innovation - innovation consists of anticipated energy price increases, current high energy and material costs, strong business partnerships, strengthening existing market share, and access to existing subsidies and tax incentives.

The main challenge for the Republic of Moldova remains its low level of competitiveness, which significantly affects the research and innovation system. The high and medium technology sectors do not contribute enough to the trade balance, the demand for knowledge remains weak and the culture of innovation continues to be underdeveloped.

Next, the Republic of Moldova occupies a modest position worldwide in terms of investments in research, innovation and sustainability. According to the Global Innovation Index 2021 [13], The Republic of Moldova occupies the 64th place among the 132 economies, registering a decrease in the position in the last 3 years, respectively, the 37th place among the European states. In terms of ecological sustainability, the Republic of Moldova ranks 105th, environmental performance – 76th, and the implementation of ISO 14001 environmental certificates – 97th, registering better performance compared to 2019.

According to the National Report, based on the OECD set of green growth indicators, the socio-economic context in Moldova is improving, but at a suboptimal pace [28]. The economy of the Republic of Moldova, in recent years, has registered a modest rate of growth. Despite the constant growth of GDP in relation to CO₂ emissions, Moldova recorded an increase in CO₂ productivity from 7.3 to 9.5 MDL/kg and an increase in the GDP/greenhouse gas emissions ratio of to 10.7 to 14 MDL/kg CO₂ equivalent. This development has led to a partial decoupling of economic growth from CO₂ emissions, but the country is in a lower position in terms of CO₂ productivity compared to other European states. In terms of environmental impact, the dominant economic sectors in Moldova, such as electricity and heating, transport, waste, agriculture, construction and industry, are responsible for major greenhouse gas emissions. Both the Government and Moldovan enterprises spend too little for environmental protection purposes. Thus, Moldova occupies the last place among European countries regarding green investments. In recent years, the Republic of Moldova allocated only 0.5% of GDP for environmental protection, while the EU average is 1.9% [28].

Innovations in the field of the environment and the green economy within the national Research and Development system, as well as within economic operators, remain quite small. Green investments require considerable financial resources for long-lasting results, resources that neither the state nor the vast majority of economic agents possess. Regarding environmental innovations, the situation can be evaluated based on the technologies developed in the field relative

to the total number of technologies. Thus, on average, about 1/5 of the new technologies applied by domestic enterprises can be considered environmental. Most of these relate to environmental management procedures and climate change mitigation in the energy or goods production sector.

Both environmental and innovation policy areas would benefit from better integration and interconnection. At the market level, a combination of market-based instruments can be designed for eco-innovation, with demand-side measures (regulations and standards, public procurement and demand support, technology transfer) and supply-side measures (equity support, research and development (R&D), education and training, networks and partnerships, infrastructure provision).

As an overview of the situation of eco-innovation in Moldova, we can observe that, although the first steps have been taken in promoting a green economy, concrete actions in the development of eco-innovation are lacking. The main reasons for this situation are: the regulatory framework does not encourage eco-innovative practices, products and services, research and development activities do not meet current economic, environmental and social needs, and the business sector is characterized by a short-term perspective regarding obtaining profit.

The analysis, carried out for this paper, identified several barriers for the development of eco-innovation in the Republic of Moldova, but also catalysts and positive premises that can contribute to a large-scale application of eco-innovative solutions. *The main barriers to eco-innovation* are: the absence of government support for research and development in terms of funding, infrastructure and policies; lack of legislative framework and mechanisms to support eco-innovation initiatives in the industry and services sector and stimulate the development of products and services with low environmental impact; lack of knowledge of the economic and environmental benefits, at the company level, regarding the efficient use of resources and the minimization of waste and emissions; reduced availability for financing platform initiatives or sustainable production and consumption projects; lack of cooperation between interested parties in supporting the introduction of eco-innovation; sacrificing environmental priorities in favor of other momentary priorities.

From the author's point of view, the *conditions for eco-innovation, at the national level*, are based on a number of elements, such as: the attitude of companies towards eco-innovation; the public policy framework and legislative environment that supports eco-innovation; support services for eco-innovation and access to financing and available financial resources.

In recent years, Moldova has developed its programmatic framework, in particular, due to the pressures from the EU and the commitments assumed, as a precondition to access funds. The plans and strategies implemented so far address more or less ecological aspects and innovation, in a wider social and economic context. So, we consider that the *possible strategic directions* for increasing eco-innovation in Moldova are:

- Alignment with the priorities and objectives of the 2030 Sustainable Development Agenda and the European Ecological Pact, as well as the commitments of the EU-RM Association Agreement.

- Strengthening the capacities of public authorities, as well as of the business environment regarding the promotion and implementation of eco-innovation.

- Greater use of green public procurement and other demand-side policies could encourage more sustainable business practices.

- Research and development activities should be made more efficient in order to face the current challenges in Moldova, thus improving the economic and social attractiveness.

- Adjusting the normative regulatory framework to the needs of SME development; improving their access to finance to improve their conditions and capacity to eco-innovate; human capital development by promoting skills in eco-innovation.

- Defining national sectors with potential for smart specialization in order to give them a more focused and specific support that will also improve the potential for eco-innovation.

- Updating the legislative framework regarding product labeling and indicating, through

labeling and standard information about the product, the consumption of energy and other resources of products with an energy impact.

- Ensuring a good coordination of the sectoral efforts of the ministries (Ministry of Economy, Ministry of Environment, Ministry of Education and Research, Ministry of Agriculture and Food Industry, etc.).

- Collaboration in the field of eco-innovation, especially between the public and private sectors.

- Establishing partnerships at national, European and international level in order to transfer know-how in the field of eco-innovation.

Starting from these premises, as well as from the catalysts of eco-innovation, for a better understanding of the concept of eco-innovation and the development of this concept in Moldova, the author develops a new concept of analysis of eco-innovation in the Republic of Moldova, through the prism of consumers and the business environment.

Table 1. Constituent elements of the concept of eco-innovation in the Republic of Moldova from the perspective of consumers and the business environment

Studying the Demand <i>Study among consumers</i>	<i>Studying the Offer</i> <i>Study among enterprises</i>
The studies aim to analyze:	
1. The interest of Moldovan consumers regarding climate change, as well as the degree of knowledge of the concepts of green/ecological products and what they consider a sustainable product. 2. Consumer attitudes and behaviors regarding organic products and sustainability. 3. The main barriers and needs in adopting a more sustainable lifestyle.	1. Strategies, the business environment in the context of climate change. 2. Costs of materials within the enterprise. 3. Eco-innovation activities within the enterprise. 4. Barriers and incentives for accelerated adoption of eco-innovations. 5. Interests, expectations and needs of entrepreneurs regarding the development of eco-innovative businesses.

Source: elaborated by the author

Thus, the author carries out 2 empirical studies on the territory of the Republic of Moldova with the generic "*Sustainability and eco-innovation in the Republic of Moldova: perceptions of consumers and the potential of enterprises*", one – among enterprises and the other – among consumers, the surveys being carried out in the Center region and Chisinau municipality.

Study N1 aimed to analyze the attitudes and behaviors of Moldovan consumers regarding sustainability and ecological products. The results of the study are analyzed and interpreted in detail in Annex 32.

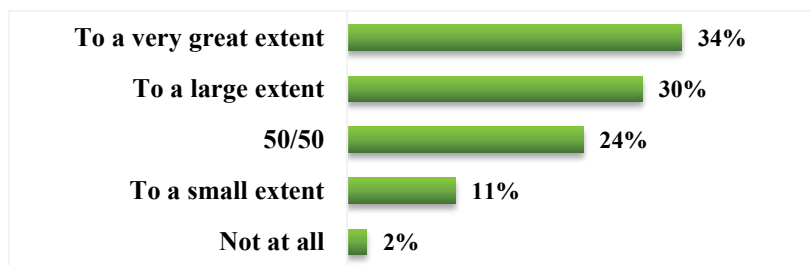


Fig. 3. How concerned consumers are about environmental issues, climate change, and the future of the planet

Source: elaborated by the author

According to the study, 64% of the respondents are concerned to a very large extent and to a great extent about environmental issues, climate change and the future of the planet. The results of the study reveal that this manifests itself, in particular, among women, in the proportion of 74%.

In the survey, we aimed to obtain the answer to the question: *What is the behavior of*

consumers regarding the purchase of ecological/environmentally friendly products? Thus, according to Fig.4, the results reveal that the majority of respondents (53%) sometimes buy environmentally friendly products, indicating that there is a significant level of interest and awareness of these products. While a small percentage (24%) often buy such products, it is important to note that there is also a segment of respondents (10%) who, although they do not currently buy them, intend to do so in the future. These results suggest a diversity of behaviors among respondents regarding the purchase of organic products, with a majority tendency to choose these products sporadically.

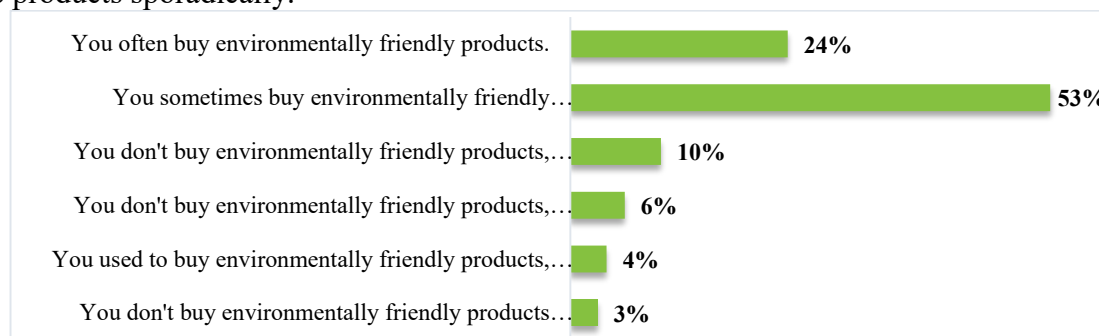


Fig.4. Consumer behavior regarding the purchase of environmentally friendly products

Source: elaborated by the author

Referring to the personal practices of consumers in adopting a sustainable lifestyle, the most common actions refer to: reducing the use of single-use plastic, planting trees, buying seasonal products or saving resources (gas, water, electricity). The results of the study also show that cost and lack of information are the most common reasons why consumers do not adopt a sustainable lifestyle (Fig.A32.6 in Appendix 32). Also, there is a combination of other factors, such as economic uncertainty, time consumption and perceived difficulty, that influence the decision to adopt such a lifestyle or not. The study found that "food products", "household goods", "clothing and footwear" are the most popular types of goods for most consumers in their actions to adopt a more sustainable lifestyle, such as: limiting the use single-use plastic products, buying local products or choosing brands with sustainable practices. At the opposite pole are "tobacco products", "major household appliances", "alcoholic beverages" or "holidays and hotels" (Appendix 15). Following the research carried out, we found that there is a significant predisposition of consumers to support sustainable practices within companies, approximately three quarters of the participants (77%) are willing to accept a longer waiting time in the case of delivering products or providing services, while 89% of them agree to accept less packaging. According to the research results, the majority of consumers have a tendency to trust companies' claims (53%) and their reports (46%), suggesting that there is a level of perceived credibility in companies' communication regarding their environmental performance and a positive perception regarding transparency. Thus, companies must be aware of these perceptions and pay particular attention to transparent and truthful communication of information about their environmental performance in order to gain and maintain consumer trust. Other analyzes regarding the results of the N1 study are carried out in Appendix 13, Appendix 14, Appendix 15, Appendix 16 and Appendix 32.

The study carried out among consumers allows us to conclude that there are changes in the buying behavior and preferences of consumers, who are increasingly oriented towards products and companies that adopt sustainable practices and are committed to protecting the environment. For companies, these results represent an opportunity to adapt their strategies and business models, an incentive to develop eco-responsible products and services, to communicate more effectively their commitment to sustainability, to respond to consumer demand and to differentiate themselves on market.

The research carried out by the author of the thesis, among N2 companies, certified that the number of Moldovan companies that have a sustainability/eco-innovation strategy or that have

introduced innovations with environmental benefits is very low, although entrepreneurs recognize the importance of increasing demand for ecological products and the increased costs associated with climate change. It is also found that a relatively small number of enterprises have introduced eco-innovations (the Industry and Services sector being the domains that have introduced the most eco-innovations), and the number of enterprises that allocate between 10% and 29% of their budget in eco-innovation is minimal.

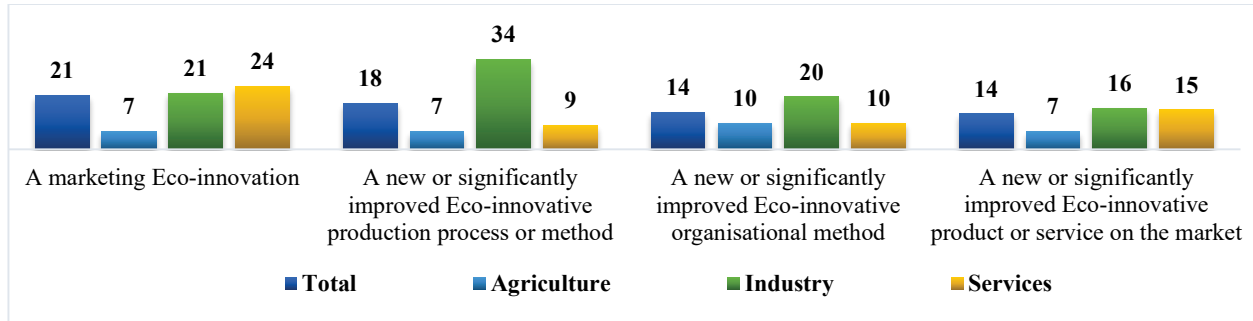


Fig.5. Eco-Innovations introduced by companies according to the field of activity

Source: elaborated by the author

The results of the study demonstrate that although companies are aware of the importance of sustainability and feel pressure from multiple stakeholders to combat climate change and change their business model, in reality, they do not undertake concrete eco-innovation measures due to a complex set of barriers, including the lack of external financing, insufficient funds, limited access to subsidies and tax incentives, as well as uncertainty related to the return on investment. These results emphasize the need to promote and support the adoption of sustainability and eco-innovation strategies in companies, in order to reduce the negative impact on the environment and promote sustainable development in different economic sectors. The *main barriers to the adoption of eco-innovations* in domestic companies, according to the study, are: the lack of external financing/funds within the company, insufficient access to subsidies/tax incentives and the uncertain return on investment and *the main drivers* for the adoption of eco-innovations are: the price current high energy price and expected future increases, access to subsidies/fiscal incentives and the high price of materials.

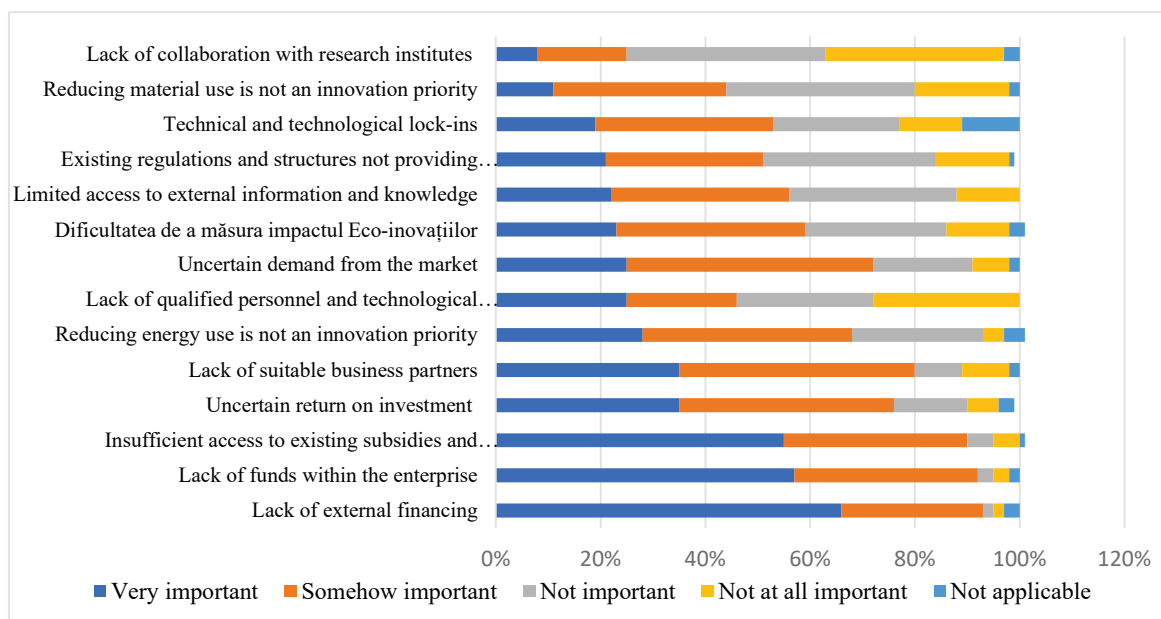


Fig. 6. Barriers to accelerated adoption and development of eco-innovation

Source: elaborated by the author

These results underline the need to promote and support the adoption of sustainability/eco-innovation strategies in companies, in order to reduce the negative impact on the environment and promote sustainable development in different economic sectors. An extensive analysis of the results of the N2 study is provided in Appendix 17, Appendix 18 and Appendix 33.

When introducing modern statistical methods into the practice of scientific, technical, socio-economic and other fundamental and applied research, when developing appropriate software products, it is impossible to do without the classification of these methods themselves.

The method of principal components is one of the methods of factor analysis. Different factor analysis algorithms are united by the fact that in all of them there is a transition to a new basis in the original n-dimensional space. Important is the concept of "factor loading", used to describe the role of the initial factor (variable) in forming a particular vector from a new basis [32].

According to Nunnally's applied research criterion, the coefficient of 0.8 and higher is more suitable for most empirical studies [21], therefore, the consistency of the items in the given study is very good (Table 2).

Table 2. Reliability coefficient α Cronbach

<i>α Cronbach</i>	<i>α Cronbach, based on standardized points</i>	<i>N of item</i>
0,889	0,890	34

Source: elaborated by the author

The Hotelling method is a multivariate statistical method for detecting anomalies between variables. A large value of T^2 means a large deviation of the observation values x_i from the mathematical expectation of the analyzed set of observations [14].

Table 3. Hotelling's T-squared test

Hotelling's T-squared	F	g.l. 1	g.l. 2	Sig.
2841,765	72,267	33	167	,000

Source: elaborated by the author

For the purposes presented, group effects are of interest because they indicate whether or not scores on a given survey differ. The column of real interest is the one that contains the significance values of the F value. So, with a significance level of 0.05 and corresponding degrees of freedom it can be said that the items under study have a mean equal to a hypothetical mean. Economic modeling is a process of mediated knowledge of reality with the help of a tool with special characteristics: the model. The real system under study is replaced by its model, which is a simplified representation of the researched object [34]. Often, the study of an economic phenomenon requires the introduction of several explanatory variables. An endogenous variable is therefore expressed as a function of several exogenous variables. The regression methods used are in this case generalizations of those used in previous research [16].

We considered the following model [11]:

$$y_t = a_0 + a_1x_{1t} + a_2x_{2t} + \dots + a_px_{pt} + \varepsilon_t, \quad t=1, 2, \dots, T \quad (1)$$

in care:

- Y represents an endogenous variable; Are the variables to be explained (or dependent) in the given study is the turnover, X_1, X_2, \dots, X_p are exogenous variables; They are the explanatory variables of the studied variable and are considered as given autonomously. In our model exogenous (or explanatory, independent) variables are the following: x_1 – the share of Eco-innovation expenses in the company's annual budget, x_2 – Designing a new business model, x_3 – Reducing costs or avoiding them, x_4 – Strategic forecasting, x_5 – Attracting investments, x_6 – Exceeding legal requirements, standards and regulations, x_7 – Creating new products or services, x_8 – New markets and new consumers, x_9 –

Increasing customer satisfaction, x_{10} – Limited access to external information and knowledge, including lack of well-developed technology support services.

The regression equation has the following form:

$$Y = -219,340 + 32,802 * X_1 + 13,107 * X_2 + 23,906 * X_3 + 14,413 * X_4 + 22,976 * X_5 + 36,025 * X_6 + 25,151 * X_7 - 23,732 * X_8 + 22,198 * X_9 - 43,908 * X_{10} \quad (2)$$

The interpretation of the obtained results is as follows:

1. The free term a_0 (constant) in the given model is equal to -219,340 which indicates the point where all the factorial variables are equal to zero.

2. The regression parameter shows when the effort variable X changes by one unit, the outcome variable Y changes by beta units [16]. When increasing the share of Eco-innovation expenses in the company's annual budget by one percent, the company's turnover will increase by 32,802 thousand lei.

3. Business managers believe that the introduction of eco-innovations can have the effect of adopting a new business model, which will influence the increase in turnover by an average of 13,107 thousand lei, and the reduction of costs or their avoidance by one unit will influence the increase of business by 23,906 thousand lei. In the case of strategic forecasting (by anticipating how the business can innovate to generate additional value), the turnover will increase by 14,413 thousand lei.

4. An important factor in business development is the attraction of new investments, as a result of the introduction of eco-innovations, which in turn will contribute to increasing the turnover of the enterprise by 22,976 thousand lei.

5. The leaders of the companies believe that the adoption of eco-innovations can have the effect of exceeding legal requirements, standards and regulations (through pro-active attitude and the development of good practices), which will positively influence the increase in turnover by 36,025 thousand lei.

6. The creation of new products or services, following the introduction of eco-innovations, will positively influence the turnover of companies by 25,151 thousand lei.

9. Although managers believe that the adoption of eco-innovations can generate new markets and new consumers, they negatively influence turnover – 23.732. While the increase in customer satisfaction, as a result of the introduction of eco-innovations, contributes to the increase in turnover by 22,198 thousand lei.

10. Business managers believe that limited access to external information and knowledge, including the lack of well-developed technological support services, represents a barrier to the adoption of eco-innovations, which will lead to a decrease in turnover on average by 43,908 thousand lei.

The econometric model determined that business managers believe that the introduction of eco-innovations can have effects such as: increasing the share of expenses in eco-innovation, reducing costs, attracting investments, strategic forecasting, increasing customer satisfaction, etc. (factorial variables), which influence the turnover in proportion of 79.8%, which determines a good model for the company's activity.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Carrying out theoretical, methodological and applied investigations on the topic of the dissertation allowed the author to formulate the following **conclusions**:

1. In this thesis, an extensive study was carried out on the notions of sustainable development, green economy and eco-innovation, according to the evolution over time, followed by the definition of the concepts of national and international scholars. At the same time, the author's own notions were offered and his own models were developed (Echo Model, SEMCGP Model), which develop the research theme.

2. The transition to the green economy brings with it a new paradigm of economic growth, which emphasizes sustainability and reducing the negative impact of economic activities on the environment. However, this approach involves risks, challenges and benefits alike, especially for developing countries where economic development is difficult. The transition to a green economy is not only an act of social responsibility, but also an essential aspect of business strategy for companies that want to remain competitive in the long term, but at the same time it is important that they also identify the appropriate solutions for the risks associated with this transition.

3. Sustainable business models are an innovative approach that integrates ecological, social and economic concerns in a balanced way to create long-term value and contribute to a sustainable future. The evolution of approaches in business models allows us to see that sustainability and eco-innovation are not only a necessity for companies that tend to adapt to permanent changes, but present multiple benefits for the business: increasing resource efficiency and profitability, considerable competitive advantage, creating of new business opportunities, strengthening relations with stakeholders, risk monitoring, etc. Thus, eco-innovation plays an essential role in the development of sustainable business models.

4. Based on the theoretical study regarding the course followed by the Republic of Moldova in adopting the green economy and eco-innovation through the UN 2030 Agenda, the Moldova-EU Association Agreement, as well as various national strategies and programs, it was found that significant efforts are needed in this direction. The research conducted provides evidence that underlines the presence of several challenges at the macroeconomic level in the process of aligning with the Sustainable Development Goals and the green growth indicators established by the OECD, which register a modest growth rate, underlining that economic units have a crucial role in the fulfillment of these objectives. This study allowed us to create our own model that would be the basis of the analysis of eco-innovation in the Republic of Moldova, defining "The constituent elements of the concept of eco-innovation in the Republic of Moldova from the perspective of consumers and the business environment" and formulating possible strategic directions for the growth eco-innovation in Moldova.

5. The investigations carried out by the author of the thesis, among consumers, allow us to find that consumers in the Republic of Moldova are increasingly concerned about environmental issues, but this is reflected less in everyday choices through the purchase of products and more sustainable services, due to too high costs and insufficient information in the field. At the same time, it is observed that there is a significant predisposition of consumers to support sustainable and eco-innovative practices within companies, being willing to accept longer waiting times or a reduced number of packages, which suggests that consumers are increasingly receptive to sustainability issues and believe that companies' efforts in developing green products/services are worthy of support and recognition. The study also highlighted the fact that consumers trust companies' claims and reports, highlighting the perceived credibility and transparency in communication on environmental performance. The study carried out among consumers allows us to conclude that there are changes in the purchasing behavior and preferences of consumers, who are increasingly oriented towards products and companies that adopt sustainable practices and are committed to protecting the environment. For companies, these results represent an opportunity to adapt their strategies and business models, an incentive to

develop eco-responsible products and services, to communicate more effectively their commitment to sustainability, to respond to consumer demand and to differentiate themselves on market.

6. The research, carried out by the author of the thesis, among the companies, allowed the attestation of the fact that the number of companies in Moldova, which have a sustainability/eco-innovation strategy or which have introduced innovations with environmental benefits, is very small, although the entrepreneurs recognize the importance of increasing demand for green products and the increased costs associated with climate change. It is also found that a relatively small number of enterprises have introduced eco-innovations (the Industry and Services sector being the fields that have introduced the most eco-innovations), and the number of enterprises that allocate between 10% and 29% of their budget in eco-innovation is minimal. The results of the study demonstrate that although companies are aware of the importance of sustainability and feel pressure from multiple stakeholders to combat climate change and change their business model, in reality they are not taking concrete eco-innovation measures due to a complex set of barriers, including : lack of external financing, insufficient funds, limited access to subsidies and tax incentives, as well as uncertainty related to the return on investment. These results underline the need to promote and support the adoption of sustainability and eco-innovation strategies in companies to reduce the negative impact on the environment and promote sustainable development in different economic sectors.

7. The econometric model determined that business managers believe that the introduction of eco-innovations can have effects such as: increasing the share of expenses in eco-innovation, reducing costs, attracting investments, strategic forecasting, increasing customer satisfaction, etc. (factorial variables), which influence the turnover in proportion of 79.8%, which determines a good model for the company's activity.

As a result of the scientific research carried out, we submit the following **recommendations:**

1. To the Government, the Ministry of Economic Development and Digitalization, the Organization for the Development of Entrepreneurship (ODA), the Ministry of Education and Research:

- *Facilitating the integration of sustainable practices in the operations of enterprises in the Republic of Moldova.* To encourage the adoption of these approaches, it is imperative to make available a wide range of facilities, including tax advantages and legislative measures, which encourage economic actors to familiarize themselves with eco-innovation concepts and effectively implement sustainable practices in their activities.

- *Financing the field of research & development, and innovation.* Attracting researchers from national and foreign research institutions, universities, experts, and specialists in the field to accelerate the process of applying eco-innovations in the national economy.

- *Strengthen long-term collaboration between all actors of the value chain:* government, companies, universities, investors, consumers, NGOs, research centers and technology. This cooperation requires establishing strong connections between all these actors, including through the establishment of innovation hubs/platforms. Collaboration must also extend to the inter-ministerial level within the government for effective action.

- *Public awareness and awareness of the principles of sustainable development.* Among the main steps in achieving the Sustainable Development Goals are the application of direct and indirect strategies, in order to increase the level of attention of the population towards social and environmental challenges.

- *Promoting awareness among students and pupils of the benefits of a sustainable lifestyle.* In this sense, it is suggested to include the values of sustainable development in educational programs and their active promotion through various methods.

- *Developing university courses and master's programs in the field of sustainability,*

especially for students majoring in Business and Business Administration. Training future entrepreneurs in the spirit of sustainable development will help them understand the importance of moving to sustainable business models, promoting a balanced, ethical, and environmentally friendly economic development.

2. Enterprises from the Republic of Moldova are advised to:

- *The transition from classic business models to sustainable business models* by implementing the elements/principles of eco-innovation, establishing a sustainable strategy and carefully following the realization of key elements with the aim of resource efficiency and eco-innovative business development.

- *Collaboration with partners* (research institutes, specialists, non-governmental organizations, etc.) for the development of ecological products and services, in response to consumer demand and to differentiate in the market.

- *Increasing awareness of sustainability/eco-innovation and existing national programs* through active participation in dedicated events (seminars, conferences, courses, etc.). These learning and networking opportunities provide a valuable framework for the exchange of knowledge, experiences, and best practices with other professionals in the field, thus contributing to the consolidation of expertise and the integration of sustainable concepts in companies' activities.

- *Environmental impact assessment* through an assessment of the business' impact on the environment, including resource consumption, carbon emissions, and waste management in order to identify critical points where sustainable changes can be implemented.

- Business managers are recommended to use the results obtained in the paper for the analysis of the situation in the entity regarding sustainability and eco-innovation and of the external environment in determining the directions of development of managerial policies with the aim of developing sustainable and eco-innovative businesses.

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LIST OF PUBLICATIONS ON THE THESIS TOPIC

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1.2. in journals from other databases accepted by ANACEC

1.3. in journals from the National Register of professional journal from the field (indicating the category)

1. PĂDURARU, Tatiana, Eco-inovarea în Uniunea Europeană în contextul dezvoltării durabile, *In: UNIVERS STRATEGIC, revista universitară de studii strategice interdisciplinare și de securitate*, Anul XIII, Nr.3(51), july-september 2022, Editor: Universitatea Creștină „Dimitrie Cantemir”, București, 2022, pag 108-124 ISSN 2068-1682 Online. ISSN 2067-7464 Print, Available at: <http://iss.ucdc.ro/revista-pdf/us51.pdf> (1,12 c.a.).

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4. PANAGHIU (PĂDURARU), Tatiana. Dezvoltarea afacerilor sustenabile în contextul economiei verzi prin eco-inovare și responsabilitate socială corporativă. *In: Strategii și politici de management în economia contemporană, Conferința* Ed. 5, 25-26 march 2016, Chișinău: Departamentul Editorial-Poligrafic al ASEM, 2016, Ediția 5, pp. 224-228. ISBN 978-9975-75-791-1. Available in IBN: 29 january 2021, https://ibn.idsi.md/vizualizare_articol/120752 (0,5 c.a.)

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ADNOTARE

Păduraru Tatiana, “Dezvoltarea afacerilor sustenabile în contextul economiei verzi prin eco-inovare”. Teză de doctor în științe economice. Specialitatea: 521.03 Economie și management în domeniul de activitate (Științe sociale și economice), Chișinău, 2023

Structura tezei: introducere, trei capitole, concluzii generale și recomandări, bibliografie din 373 de referințe, 36 de anexe, 152 de pagini de text de bază, 31 de figuri, 18 tabele și 8 formule.

Numărul de publicații la tema tezei: rezultatele obținute sunt publicate în 6 lucrări științifice.

Cuvinte-cheie: dezvoltare durabilă, eco-inovare, afaceri sustenabile, economie verde, modele de afaceri sustenabile, modele de afaceri de eco-inovare, sustenabilitate corporativă, modelul organizației sustenabile, potențial de eco-inovare, premise de dezvoltare.

Scopul lucrării constă în aprofundarea și dezvoltarea percepțelor teoretice și aplicative din domeniul dezvoltării durabile, economiei verzi și eco-inovării, analiza percepțiilor consumatorilor privind sustenabilitatea și produsele ecologice, precum și determinarea interdependențelor factorilor legați de introducerea eco-inovațiilor în întreprinderile din RM și influența acestora asupra cifrei de afaceri prin intermediul unui model econometric.

Obiectivele cercetării constau în: studierea și aprofundarea cercetărilor științifice privind conceptele de dezvoltare durabilă, economie verde și eco-inovare; identificarea beneficiilor și riscurilor tranziției către economia verde; studierea modelelor de afaceri sustenabile și argumentarea rolului eco-inovării în procesul de sustenabilitate corporativă; studierea contextului european și național privind promovarea eco-inovării și economiei verzi; elaborarea unui concept ce ar sta la baza analizei eco-inovării în Republica Moldova prin prisma consumatorilor și mediului de afaceri; elaborarea unui studiu complex privind percepțiile consumatorilor în legătura cu sustenabilitatea și produsele ecologice, precum și analiza potențialului de eco-inovare în întreprinderile din Republica Moldova, identificând barierele și motoarele în adoptarea accelerată a eco-inovațiilor; elaborarea și utilizarea unor metode, precum și a modelelor statistice și econometrice de analiză a eco-inovării și sustenabilității în cadrul întreprinderilor autohtone; stabilirea direcțiilor strategice pentru creșterea și dezvoltarea eco-inovării, la nivel național, în vederea facilitării dezvoltării afacerilor sustenabile.

Noutatea și originalitatea științifică rezidă în dezvoltarea noțiunilor de economie verde, eco-inovare și management al companiei bazat pe economia verde; introducerea unor noi concepte, precum: Hexagonul dezvoltării durabile cu 6 dimensiuni, Modelul organizației sustenabile Echo, Cadrul conceptual pentru modelul de afaceri de eco-inovare – Modelul SEMCGP; elaborarea unui nou concept care ar sta la baza analizei eco-inovării în Republica Moldova; elaborarea și aplicarea metodelor și modelelor statistice și econometrice în conformitate cu calculele econometrice dintre diferiți factori determinanți ai rezultatelor activităților de eco-inovare și sustenabilitate ale companiilor analizate, precum și a percepțiilor consumatorilor cu privire la sustenabilitate și produsele ecologice; elaborarea propunerilor privind dezvoltarea eco-inovării și promovarea sustenabilității în cadrul întreprinderilor din Republica Moldova (condiții cadru, premise, direcții strategice) în vederea facilitării dezvoltării unor afaceri sustenabile.

Problema științifică importantă soluționată în teză constă în delineaarea fundamentării științifice și practice a relevanței eco-inovării în contextul dezvoltării afacerilor sustenabile, paralel cu elaborarea unei metode complexe de analiză a activităților de eco-inovare din cadrul întreprinderilor, fapt ce a permis determinarea unui model econometric în scopul promovării și dezvoltării eco-inovațiilor.

Semnificația teoretică. Rezultatele obținute în lucrare constituie un suport revelator de concepte teoretice și metodologice în domeniul eco-inovării, economiei verzi și demonstrarea impactului eco-inovării în dezvoltarea afacerilor sustenabile.

Valoarea aplicativă a lucrării constă în relevanța și utilitatea argumentelor științifice și recomandărilor practice realizate în lucrare, care pot fi folosite într-o varietate extinsă de domenii, precum: în mediul academic, instituțiile de stat, ca: Ministerul Dezvoltării Economice și Digitalizării, Ministerul Mediului, Ministerul Educației și Cercetării, Ministerul Agriculturii și Industriei alimentare, Organizația pentru Dezvoltarea Antreprenoriatului, Camera de Comerț și Industrie etc.; agenți economici în determinarea direcțiilor de dezvoltare a afacerilor sustenabile și eco-inovative.

Implementarea rezultatelor științifice. Rezultatele cercetării au fost evaluate pozitiv de două organizații autohtone, recunoscându-se importanța deosebită a temei de cercetare și valoarea aplicativă a acestora.

ANNOTATION

Păduraru Tatiana, “Development of sustainable businesses in the context of green economy, through eco-innovation”. Doctoral thesis. Specialty: 521.03 Economics and management in the field of activity (Social and economic sciences), Chisinau, 2023

Thesis structure: introduction, three chapters, general conclusions and recommendations, bibliography of 373 references, 36 appendices, 152 pages of basic text, 31 figures, 18 tables, and 8 formulas.

Number of publications on the topic of the thesis: the results obtained are published in 6 scientific papers.

Keywords: sustainable development, eco-innovation, sustainable business, green economy, sustainable business models, eco-innovation business models, corporate sustainability, sustainable organization model, eco-innovation potential, development premises.

The purpose of the paper is to deepen and develop the theoretical and applied perceptions in the field of sustainable development, green economy and eco-innovation, the analysis of consumer perceptions regarding sustainability and ecological products, as well as the determination of the interrelated factors related to the introduction of eco-innovations in enterprises in the Republic of Moldova and their influence on turnover, through an econometric model.

The objectives of the research are: studying and deepening scientific research on the concepts of sustainable development, green economy and eco-innovation; identifying the benefits and risks of the transition to the green economy; studying sustainable business models and arguing the role of eco-innovation in the corporate sustainability process; studying the European and national context regarding the promotion of eco-innovation and the green economy; the development of a concept that would be the basis of the analysis of eco-innovation in the Republic of Moldova from the perspective of consumers and the business environment; the development of a complex study on consumer perceptions regarding sustainability and ecological products, as well as the analysis of the potential of eco-innovation in companies from the Republic of Moldova, identifying the barriers and drivers in the accelerated adoption of eco-innovations; the development and use of methods, as well as statistical and econometric models for the analysis of eco-innovation and sustainability within domestic enterprises; establishing strategic directions for the growth and development of eco-innovation, at the national level, in order to facilitate the development of sustainable businesses.

The scientific novelty resides in the development of the notions of green economy, eco-innovation and company management based on green economy; the introduction of new concepts, such as: The hexagon of sustainable development with 6 dimensions, the sustainable organization model Echo, the conceptual framework for the eco-innovation business model – the SEMCGP model; the development of a new concept that would be the basis of the analysis of eco-innovation in the Republic of Moldova; the development and application of statistical and econometric methods and models in accordance with the econometric calculations between different determining factors of the results of eco-innovation and sustainability activities of the analyzed companies, as well as consumer perceptions regarding sustainability and ecological products; the development of proposals regarding the development of eco-innovation and the promotion of sustainability within Moldovan enterprises (framework conditions, premises, strategic directions) in order to facilitate the development of sustainable businesses.

The important scientific problem solved in the thesis consists in delineating the scientific and practical substantiation of the relevance of eco-innovation in the context of sustainable business development, in parallel with the development of a complex method of analyzing eco-innovation activities within enterprises, a fact that allowed the determination of an econometric model, in order to promote and develop eco-innovations.

Theoretical significance. The results obtained in the work constitute a revealing support of theoretical and methodological concepts in the field of eco-innovation, the green economy and the demonstration of the impact of eco-innovation in the development of sustainable businesses.

The applicative value of the thesis consists of the relevance and usefulness of the scientific arguments and practical recommendations made in the paper, which can be used in a wide variety of fields, such as: in the academic environment, state institutions, such as the Ministry of Economic Development and Digitalization, the Ministry of the Environment, Ministry of Education and Research, Ministry of Agriculture and Food Industry, Organization for Entrepreneurship Development, Chamber of Commerce and Industry, etc.; economic agents in determining sustainable and eco-innovative business development directions.

The research results were positively evaluated and implemented by two domestic organizations, recognizing the special importance of the research topic and their applicative value.

АННОТАЦИЯ

Păduraru Tatiana, “Развитие устойчивого бизнеса в контексте зеленой экономики посредством экоинноваций”. Докторская диссертация. Специальность: 521.03 Экономика и управление в сфере деятельности (Социально-экономические науки), Кишинев, 2023 г.

Структура диссертации: введение, три главы, общие выводы и рекомендации, библиография из 373 ссылок, 36 приложений, 152 страниц основного текста, 31 рисунок, 18 таблиц и 8 формул.

Полученные результаты опубликованы в 6 научных работах.

Ключевые слова: устойчивое развитие, экоинновации, устойчивый бизнес, зеленая экономика, устойчивые бизнес-модели, экоинновационные бизнес-модели, корпоративная устойчивость, модель устойчивой организации, экоинновационный потенциал, предпосылки развития.

Целью исследования является углубление и развитие теоретических и прикладных представлений в области устойчивого развития, зеленой экономики и экоинноваций, анализ потребительских представлений об устойчивости и экологических продуктах, а также определение взаимосвязанных факторов, связанных с внедрению эко-инноваций на предприятиях Республики Молдова и их влиянию на товарооборот через эконометрическую модель.

Задачи исследования являются: изучение и углубление научных исследований концепций устойчивого развития, зеленой экономики и экоинноваций; выявление преимуществ и рисков перехода к зеленой экономике; изучение устойчивых бизнес-моделей и обсуждение роли экоинноваций в процессе корпоративной устойчивости; изучение европейского и национального контекста в отношении продвижения экоинноваций и зеленой экономики; разработка концепции, которая легла бы в основу анализа экоинноваций в Республике Молдова с точки зрения потребителей и бизнес-среды; разработка комплексного исследования восприятия потребителей в отношении устойчивости и экологических продуктов, а также анализ потенциала эко-инноваций в компаниях Республики Молдова, выявление барьеров и движущих сил на пути ускоренного внедрения эко-инноваций; разработка и использование методов, а также статистических и эконометрических моделей анализа экоинноваций и устойчивости на отечественных предприятиях; установление стратегических направлений роста и развития экоинноваций на национальном уровне в целях содействия развитию устойчивого бизнеса.

Оригинальность и научная новизна диссертации заключается в: развитии понятий зеленой экономики, экоинноваций и управления предприятиями на основе зеленой экономики; внедрение новых концепций, таких как: Шестиугольник устойчивого развития с 6 измерениями, модель устойчивой организации Echo, концептуальная основа экоинновационной бизнес-модели – модель SEMCGP; разработка новой концепции, которая легла бы в основу анализа экоинноваций в Республике Молдова; разработка и применение статистических и эконометрических методов и моделей в соответствии с эконометрическими расчетами между различными определяющими факторами результатов экоинновационной и устойчивой деятельности анализируемых компаний, а также потребительскими представлениями об устойчивой и экологичной продукции; разработка предложений по развитию экоинноваций и продвижению устойчивости на молдавских предприятиях (рамочные условия, предпосылки, стратегические направления) с целью содействия развитию устойчивого бизнеса.

Важная научная задача, решаемая в диссертации, состоит в определении научно-практического обоснования актуальности экоинноваций в контексте устойчивого развития бизнеса, параллельно с разработкой комплексного метода анализа эколого-инновационной деятельности предприятий, факт, который позволил определить эконометрическую модель для продвижения и развития эко-инноваций.

Теоретическая значимость. Полученные в работе результаты представляют собой показательную поддержку теоретико-методологических концепций в области экоинноваций, зеленой экономики и демонстрацию влияния экоинноваций на развитие устойчивого бизнеса.

Прикладная ценность диссертации состоит в актуальности и полезности научных аргументов и практических рекомендаций, изложенных в тезисах, которые могут быть использованы в самых различных областях, таких как: в академической среде, государственных учреждениях, таких как Министерство Минэкономразвития и цифровизации, Минэкологии, Минобрнауки, Минсельхозпрома, Организация развития предпринимательства, Торгово-промышленная палата и др.; хозяйствующими субъектами в определении устойчивого и эколого-инновационного направления развития бизнеса.

Результаты исследования были положительно оценены и внедрены двумя отечественными организациями, признавая особую важность темы исследования и их практическую ценность.

PADURARU TATIANA

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IN THE CONTEXT OF THE GREEN ECONOMY
THROUGH ECO-INNOVATION**

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