

SUSTAINABLE DEVELOPMENT BASED ON ECO-INNOVATION

Ph.D. Associate Professor, Mădălina ALBU

Petroleum-Gas University of Ploiești, Faculty of Economic Sciences

E-mail: malbu@upg-ploiesti.ro

Abstract: *Creating and maintaining a stable balance between economic development and resource use, the domain of the major objective, unanimously accepted, of sustainable development. In this context, all stakeholders, openly from entrepreneurs, decision makers and all members of the communities, must make sustained efforts to implement the specific tools. The role of entrepreneurs who approach "green" business is to develop sustainable products and services that protect the environment. This is possible to depart from eco-innovation. The concept of eco-innovation defines that process through which modern, innovative processes are developed, implemented and maintained, with the aim of protecting the environment. The definition and implementation of a management based on the concept of eco-innovation, the circumstance of a modern entrepreneurial desire. This paper proposes to present relevant aspects of the implementation of the concept of eco-innovation in sustainable development.*

Keywords: *sustainability, social innovations, innovative technologies.*

JEL Classification: *Q56, O35, O32.*

1. Introduction

Creating and maintaining a stable balance between economic development and the use of resources is the major objective, unanimously accepted, of sustainable development. In this context, all stakeholders, starting from entrepreneurs, decision makers, and up to all members of the communities, must make sustained efforts to implement specific tools.

The extremely fast pace of technological changes manifested in the last decade forces organizations to generate and apply, as urgently as possible, innovative, complex ideas that contribute to eco-innovation.

When an analysis of a company's strong factors is carried out, among the first competencies that generate the company's assets, its ability to generate innovation must also be found.

The idea that progress, in any field of activity, is based on innovative ideas is accepted worldwide. They are the basis of innovation management, which, in turn, must integrate the basic concepts of sustainable management.

The definition and implementation of a management based on the concept of eco-innovation, represents a desire of modern entrepreneurship.

The role of entrepreneurs who approach "green" business is to develop sustainable products and services that protect the environment. This is possible starting from eco-innovation.

The concept of eco-innovation defines that process through which modern, innovative processes are developed, implemented and maintained, with the aim of protecting the environment.

2. Eco-innovation basic component of sustainable management

The concept of sustainable management was created to be able to define, as precisely and realistically as possible, all the practices that are applied in a business and lead to its sustainable development.

The practical application of these ideas is based on a management focused on the future, a management that, starting from the basic concepts, will manage to plan, organize and coordinate the entire activity of the organization, taking into account the principles of sustainable development.

The integration of sustainability into the current activity of organizations is a strategic decision, with a time horizon defined as long-term, a decision that is adopted at the top management level of the respective organization.

In order to be able to apply these ideas in economic practice, it is necessary to raise the awareness of all parties involved, regarding the sustainable side of applied management.

A management based on eco-innovation is a management that wants to develop a product or a technology designed in such a way as to bring benefit to the organization's activity, to be an asset on the market, and at the same time to respect the principles of sustainability. In this sense, the novelties achieved through eco-innovation will be based on reducing the impact that these products or technologies will have on the environment.

"Eco" innovations have the role of contributing to the development of sustainable economic activities. Their impact on the economic and social environment is manifested through (figure 1):

- the creation of new sustainable products and technologies
- reduction of raw material costs
- generating sustainable business models
- sustainable management of the resources used
- Improving the quality of life.

Eco-innovation can be applied to create a new business, but it can also reshape activities from a business that is already underway, by creating and developing services, products and technologies that generate innovation based on the concept of sustainability.

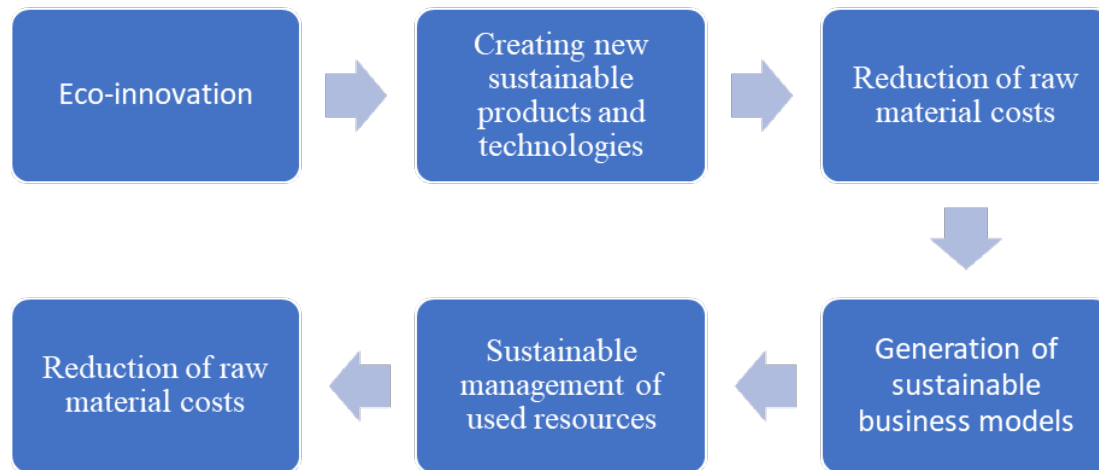


Figure 1. The impact of eco-innovation on the economic and social environment

Innovation represents the application of a new idea or an invention, a product, a technology or a system in economic activity (Albu, 2014).

The "green" approach to an innovation represents the ability to create innovative products, services or technologies that use renewable raw materials and energy.

Innovation involves the following steps (Albu, 2014):

- taking the decision to initiate the financial efforts necessary for its realization and obtaining the necessary resources;
- investing these resources in an innovation project;

- project development, respectively the technical activity of detailing the original concept and transforming it into a new product, process or system, suitable for commercialization.

Eco-innovation must be applied in all aspects of a business, starting from the identification of the materials necessary to make new products, passing through the processes necessary to make them, and ending with the identification of methods of controlled and ecological disposal of waste.

At the level of the European Union, the "eco-innovation" index is calculated, based on 18 indicators that measure:

- the level at which ecology is given importance
- quantifying the effects of economic activities with an ecological side
- efficiency of resource use.

According to this index, countries are classified into 3 categories (figure 2):

- the group of leading countries in eco-innovation
- the group of countries with medium performances in eco-innovation
- the group of countries that require massive recovery in the field of eco-innovation.

As can be seen from the graph, Romania is at the bottom of the ranking and requires a massive orientation towards eco-innovation.

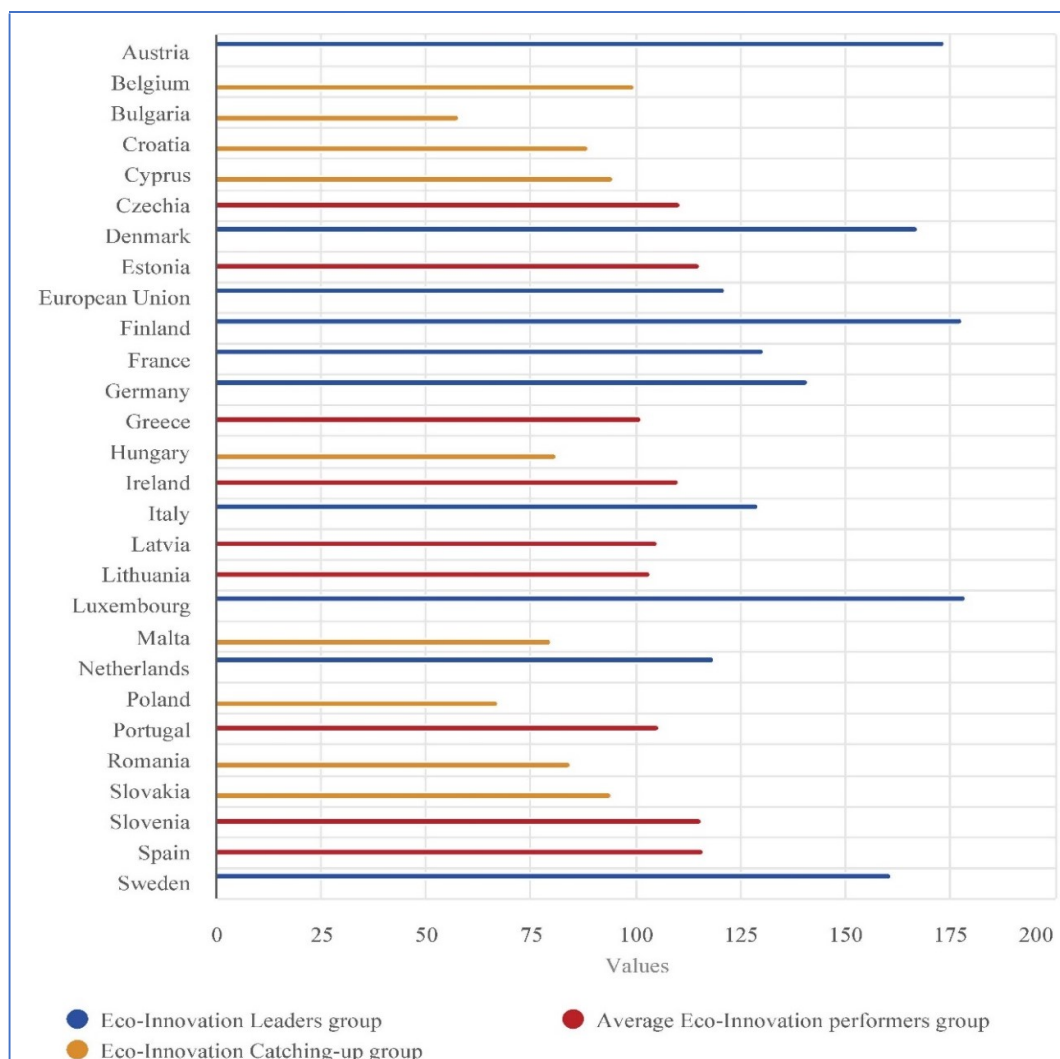


Figure 2. European eco-innovation score, 2022

Source: processing after <https://ec.europa.eu/eurostat/statistics-explained>

From the first stage, that of initiating financial efforts to achieve innovation, organizations must have the ability to direct their resources towards the acquisition of patents for inventions, raw materials, energies that generate sustainable innovations.

The eco-innovation process must have two major orientations:

- *towards production*, when the producer directs his resources towards the acquisition of invention patents, raw materials, sustainable innovative technologies;
- *to the demand*, when the link between the demand shown on the market and the innovation activities is based on the tendency shown by customers to orientate towards eco-designed, eco-innovated and eco-realized products.

Organizations that approach eco-innovation can benefit from a number of advantages, such as:

- increasing the reputation in the market
- improving the relationship with community members

- increase in sales
- compliance with the legal requirements regarding environmental protection.

3. Business accelerators based on eco-innovation

In recent years, especially in the last decade, businesses all over the world are turning to eco-innovation solutions. This fact implies reducing the effects of pollution using modern, sustainable products and technologies.

Within the implementation of eco-innovation, the entire life cycle of a product is rethought from the point of view of sustainability.

The technical and technological changes attract the approach of the organization's strategy by putting in the foreground the aspects related to sustainability.

In order to achieve sustainable business models, a series of initiatives aimed at diversifying entrepreneurship that capitalize on opportunities have been implemented at the European Union level.

The so-called "friendly businesses" are sustainable businesses whose primary objective is to reduce the impact on the environment. In practice, this major objective manifests itself through:

- reducing the carbon footprint
- reducing water consumption
- Waste recycling.

The essential advantages deriving from a sustainable business, based on eco-innovation, are:

- reduction of energy costs, raw materials
- reducing waste and making the production process more efficient
- reducing pollution
- protecting the environment
- Increasing the reputation of the organization.

Business models based on eco-innovation use a number of elements that generate innovative momentum. The most important of these refer to the attitude of managers towards eco-innovation, the existence of a political and legislative framework to support eco-innovation, access to financing.

Organizations can achieve their eco-innovation objectives by carrying out sustainable activities. In addition, eco-innovations bring advantages not only to the organizations that implement them, but also to the national economy in general; helping to create new jobs (Paraschiv, s.a, 2012).

Starting from energy efficiency and the approach to the use of resources through the concept of circular economy, modern business models have the chance to develop their future based on eco-innovations.

In order to accelerate the creation of businesses based on eco-innovation, a series of innovation hubs were created at the national level to support entrepreneurial development.

The main targeted areas are:

- waste management
- education about and for nature
- reducing emissions
- waste reduction
- greening of economic activities
- development of sustainable raw materials
- renewable energy.

A suggestive example was the Black Sea ClimAccelerator 2021, which offered the chance for 42 green start-ups, from Romania and Bulgaria, to start their activity and develop. All the entrepreneurs representing the selected start-ups benefited from mentoring sessions with specialists from the domestic and international business environment.

In 2023 Romania ClimAccelerator represented the largest and most complex accelerator of start-ups with low impact on the environment and which, through the technologies used, are generators of a "green" economic future.

The start-ups that were beneficiaries of Romania ClimAccelerator, approached different businesses, such as:

- promoting the circular economy by developing technologies that use raw materials obtained from waste
- reducing food waste in the Horeca sector by optimizing the operations of placing, receiving and making orders
- reducing the carbon footprint through the digital management of emissions
- managing green cities
- Reducing waste through reuse.

The role of these hubs is to create a business school based on eco-innovation and to establish a platform to connect the interested parties, largely also securing the sources of funding (figure 3).

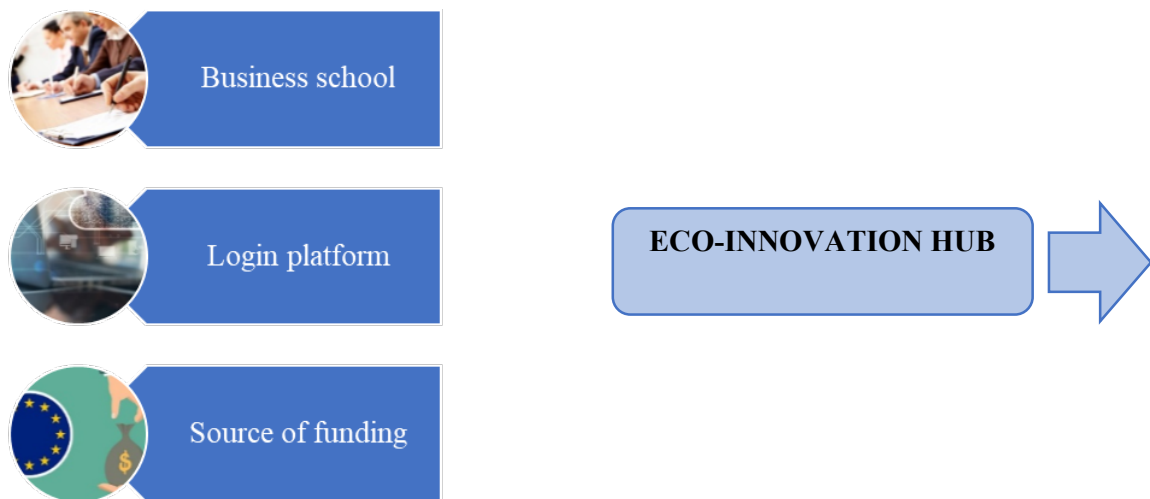


Figure 3. The role of eco-innovation hubs

4. Conclusions

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Although at an early stage, Romania is making great strides towards approaching business from an ecological perspective. In this sense, the creation of development hubs in this field represents an optimal approach.

The use of techniques, technologies and products based on eco-innovation is an essential approach of modern businesses. Innovation and design based on the protection of the environment and resources are essential elements in sustainable development based on eco-innovation.

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