

# ECONOMIC PARADIGMS AND BUSINESS MODELS TO ACHIEVE THE SUSTAINABILITY OF COMPANIES

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Received 22 July 2020; Accepted 11 December 2020

## **Abstract:**

*The signing of the 2030 Agenda committed the countries of the world to find the best mechanisms for the functioning of economies able to ensure sustainable development. Companies need to meet new requirements in order to remain competitive, while generating higher economic, environmental and social values. This article aims to describe the diversity of three economic paradigms: lean economy, green economy, circular economy and its business models that are able to support sustainability. The principles of operation, benefits and how they will contribute to sustainable development were analyzed. Depending on the specifics of the business sector, national and international programs, policies and strategies, companies must identify the most appropriate solutions for their business to be able to comply with the principles of sustainable development. Companies can implement several business models belonging to different economic paradigms to take advantage of their synergistic effect.*

**Key words:** economic paradigm, sustainable development, lean economy, green economy, circular economy, business model

**JEL classification:** M21, O44, Q01

## **1. INTRODUCTION**

The situation characterized by population growth against the background of reduced availability of natural resources needed to meet human needs and desires is becoming increasingly alarming. At the same time, the development of industrial production and irresponsible consumption entails the depletion of resources, ecological catastrophes and the polarization of society. It seems that what is believed to be able to improve our lives, to diminish our efforts to obtain what we need for life, can ultimately destroy us. Donella Meadows (1972) in her work *Limits to Growth* warned that the limits of growth will be exhausted within a century if that pace of development is maintained. The academic environment, politicians and governors have long signaled and thought about a way to develop a society without depleting resources and without negative effects on the environment, organized in such a way that everyone has a decent life. Today, humanity supports and connects to the mode of development that meets the needs of the present without compromising the ability to meet the needs of future generations, called sustainable development (SD) (WCED, 1987).

Although the best-known and most cited definition of SD is the one published in the World Environment Commission's Brundtland Report, "Our Common Future", its first international approach was discussed at the UN Conference on the Human Environment in 1972 in Stockholm.

The concept of sustainable development took shape in the second half of the twentieth century and today continues to expand its area of applicability in different areas of our lives. In contemporary society, concerns about sustainable development have reached such an extent that any activity in its various phases, whether design, planning, organization or implementation is addressed through the prism of sustainable development.

Sustainability is at the top of the agenda of world governments, in all its dimensions: economic, social and environmental. The business environment has a key role to play in this process, which is why it must be aligned with the principles of sustainability. Companies need to change their strategies and transform their business models to meet social and environmental

challenges, while remaining competitive and prosperous. Countries' commitment to implementing the 17 SDGs does not provide clarity for companies as to how to shape their business to meet the challenges. The literature reflects discussions on the ability of several economic paradigms to achieve sustainability. In this research, three of them were selected: the lean economy, the green economy and the circular economy, in order to analyze their functioning and the contribution to business sustainability.

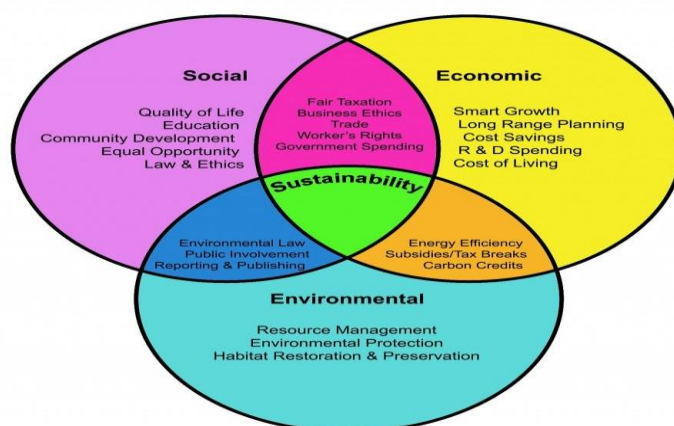
Various research methods have been used to study the essence and mechanisms of operation of different economic paradigms in order to ensure the sustainability of industrial enterprises. First of all, the existing concepts and the researches carried out so far by different recognized authors in the field of sustainability, ecology, lean, green and circular economies were studied. The paper also used the method of analysis and synthesis in order to follow the evolution of different conceptual approaches of various economic paradigms. Analyzing various points of view of famous researchers, we used the synthesis-based method, which allowed the parties to come together as a whole to express own point of view on the researched phenomenon (business models to ensure sustainability). In addition, the method of transition from abstract to concrete was used, which allowed the explanation of the economic essence of sustainable industrial development starting from the concept of resource limitation, linear economy, economy-environment, sustainability and economic paradigms.

## 2. ECONOMIC PARADIGMS THAT LEAD TO BUSINESS SUSTAINABILITY

The three aspects of sustainable development are present in the activity of an enterprise. The economic aspect is dominant, but at the same time the complexity of the enterprises' activity requires solving the social and ecological aspects as well. Figure no.1, proposed by Wanamaker (2018), highlights the economic, social and environmental concerns able to comply with the principles of SD. The activities of enterprises to be qualified as sustainable must not contradict any aspect of SD but ensure a synergistic effect at the intersection of economic-societal, societal-environmental and economic-environmental relations.

Analyzing the interdependent connection of the three spheres of influence, we conclude the main characteristics of a sustainable enterprise.

From an economic point of view, a business is considered sustainable when it designs and develops rational processes in terms of resource use, ensures a high degree of efficiency of capital use, implements innovations, digitization and integrated management systems, and remains competitive in the national or international market.



**Figure no. 1. Relationships among social, environmental and economic sustainability.**

Source: Wanamaker, 2018.

Ecological sustainability refers to preventing the depletion of resources, preserving natural ecosystems and their ability to regenerate. From this point of view, a company is challenged to implement technologies and processes with the lowest waste, to use renewable resources and

materials with the lowest water and carbon footprints, to implement efficient waste management and to protect ecosystems.

The social aspect of sustainability translates into a better quality of life for all people regardless of social group. This principle must be found in the organizational culture of a sustainable enterprise, namely by ensuring decent jobs and a high level of motivation, involvement in training and improving skills, but also increasing the level of corporate social responsibility by involvement in the social life of the community.

In academia, politics and governance various economic visions and business models are increasingly being debated to find the best solutions to ensure sustainability, such as: green economy, lean economy, circular economy.

## **2.1. LEAN ECONOMY**

The lean economy is oriented towards increasing the efficiency of processes in order to achieve competitive.

The emergence of lean thinking is linked to the Toyota Company, which implemented the Toyota Production System after World War II. John Krafcik (1988) in his paper mentions that the performance of Japanese companies, as opposed to better technically equipped North American companies, is achieved by implementing lean operations, which are characterized by maintaining a minimum level of equipment with low cost contributions, by the detection and immediate solution of quality problems in the production process, through reduced repair spaces and the constant presence of the assistance of skilled workers. Perfection is achieved through the efficient use of all types of resources and the execution of all processes at a high quality level, involving highly qualified staff at all levels.

According to Womack and Jones (1996) all employees of the company must be involved in improving the various processes of the company either related to the vision and design of the whole process, or manufacturing, or management of information flows and logistics.

Starting from the production processes, the lean principles have been extended in all fields of activity of an enterprise (Alves et al. 2014b). Over time, several researches have been carried out in the field of lean production (LP), being studied its specificity for different sectors, SMEs, applied methods, expected purposes but also for sustainable development.

In the recent study, Paulo Amaro et al. (2019) analyzed 129 bibliographic sources, published during the period 1990-2018, based on case studies and surveys dedicated to LP. Structural analysis of sources, according to various criteria showed that about 50% of research addresses LP for a wider range of value flows at the scale of a region or sector. The authors do not like such an approach because they believe that lean operations are strictly focused and must start from consumer preferences. In 43% of researches, the principles of the LP are implemented selectively, only for some value chain processes. The connection with the areas of implementation of lean principles is 66% for industry and 25% for the services sector.

Lately, special attention has been paid to the analysis of the link between LP and DD. The link of the LP with DD principles is ensured by the concerns of this model to achieve a high degree of efficiency of use of resources and time, which is applied in a complex and systematic manner from idea and process design to the execution of basic and auxiliary activities that occur along the entire value chain.

## **2.2. GREEN ECONOMY**

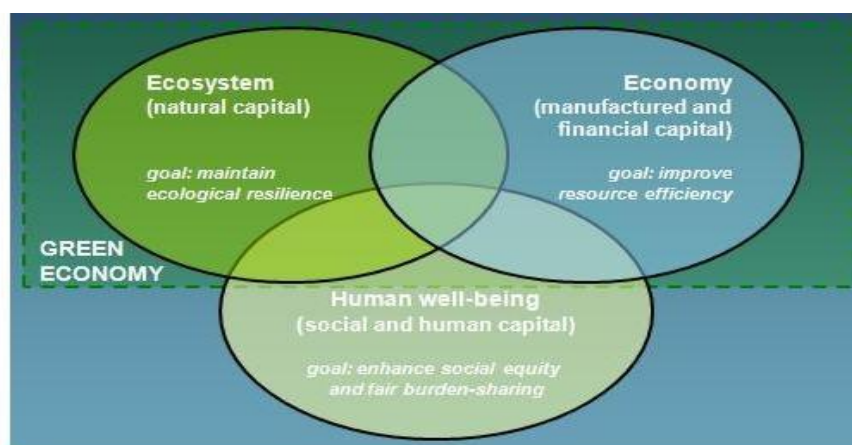
The green economy is oriented towards activities that support environmental protection and contribute to the well-being of the population.

The green economy or the ecological economy is the opposite of economic expansion which is based on the irresponsible extraction and processing of natural resources and the environment

having the function of absorbing and neutralizing waste. This cannot go on indefinitely: the environment has natural limits in terms of how much it can offer and absorb.

Although the definition of the green economy is still debated, many organizations - including the EEA - now have a common understanding of the concept. In a green economy the process of value creation is based on the principle of preserving natural ecosystems (EEA, 2016). Looking to the future, it is the only way to sustain economic growth, as it opposes the destruction of natural systems, which cannot be justified by the apparent gains they offer. The goals of a green economy are to meet society's needs - for food, transport, energy and so on - in a sustainable and equitable way.

The concept of the green economy obviously has much in common with the notion of sustainable development, although it focuses mainly on environmental and economic issues. According to the EEA report (2011) the green economy is such an economic growth in prosperity without increasing the use of resources and the impact on the environment, taking into account human well-being in the growth process (figure no. 2).



**Figure no. 2. The components of the green economy**

Source: Green economy, EEA, SOER 2010, 2011

The transition to the green economy is practiced in two ways:

- Greening enterprises: increasing resource efficiency, pollution prevention and waste management;
- Creation of green enterprises: sustainable design, innovative technologies and innovative services.

Implementing the principles of the green economy requires investments to capitalize on or adapt to high-efficiency technologies. Developing countries have an advantage in creating new businesses through the green design of industrial facilities, unlike developed countries which follow the slower path of investment in modernizing traditional infrastructure. It is often argued that by using modern available technology and commercializing new knowledge, developing and transition countries could jump into several stages of development and quickly reach a higher degree of industrialization.

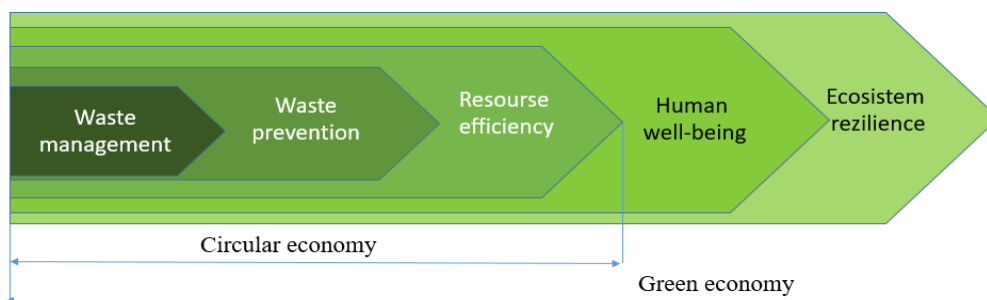
An important role in promoting the green economy lies with the consumer, who becomes more informed and concerned about green products and services. Companies will take into account the growing interest of customers in the environmental impact of the products they use and will adjust the processes to meet their expectations (Asefeso, 2013).

Paul et al (2014) state that the application of ecological practices has been already quite frequent and becomes effective because this business model generates low costs due to the rational use of resources. The greening of businesses has theirs through the implementation of environmental management, the formation of chains of ecological resources and the sustainability of processes.

Deif (2011) defines a business as an ecological one when in the managerial system of the enterprise are integrated actions to reduce the negative impact on the environment, such as the use of raw materials that are as natural and less processed as possible, technologies based on natural processes without chemicals, the use of renewable energies and the reuse of waste.

### 2.3. CIRCULAR ECONOMY

The circular economy is a rethinking of value creation. According to the European Environment Agency (EEA), the circular economy is the foundation of the green economy, which focuses on resource efficiency and waste management (figure no.3).



**Figure no. 3. Circular economy and green economy**

Source: Adapted by the author based on the EEA Report, Circular economy in Europe, 2016

The term circular economy was first defined by the Ellen MacArthur Foundation (2013b) according to which the model is conceived and designed in such a way as to self-establish and self-regenerate. This approach is based on three guiding principles: conserving and improving natural capital, optimizing resource efficiency, and encouraging system efficiency (MacArthur et al. 2015). The circular economy aims at processes with fewer inputs and the use of natural resources, with less loss of materials/residues, which increase the share of renewable and recyclable resources and energies, which reduce emissions, and which ensure the extended life of the product while maintaining the value of products used.

The usual way of accumulating, storing or incinerating waste will be used on a smaller scale and in a more selective manner. Instead, the emphasis will be on waste prevention through the ecological design of processes, which will generate less waste and the inevitable waste will serve as raw materials for other sectors. The life cycle of the products will be extended by repair or re-conditioning and the possession of any products will be replaced by their rent.

**Table no.1. Fundamental changes to achieve circular economy**

<i>Socio-economic system</i>	<i>Variety of changes</i>
Economic incentives and finance	shifting taxes from labour to natural resources and pollution; phasing out environmentally harmful subsidies; internalisation of environmental costs; deposit systems; extended producer responsibility; finance mechanisms supporting circular economy approaches
Business models	focus on offering product-service systems rather than product ownership; collaborative consumption; collaboration and transparency along the value chain; industrial symbiosis (collaboration between companies whereby the wastes or by-products of one become a resource for another)
Eco-innovation	technological innovation; social innovation; organisational innovation
Governance, skills and knowledge	awareness raising about changing lifestyles and priorities in consumption patterns; participation, stakeholder interaction and exchange of experience; education; data, monitoring and indicators.

Source: Own elaboration based on the EEA Report, Circular economy in Europe, 2016

The transition to a circular economy promotes sustainable production and consumption patterns that can be implemented in a society in constant search of new sources for self-sustaining

economic growth. In 2016, the European Environment Agency identified a series of fundamental changes to be undertaken by social and economic systems to move to the circular economy (table no. 1). The financial system will operate according to the principle: business greening actions will be supported and encouraged through financial mechanisms but environmentally harmful actions will be penalized. The business environment will adopt circular business models by extending the life cycle of products and eco-innovation must be present in a variety of forms.

**DISCUSSIONS**

The analyzed economic paradigms appeared and developed in various periods, in response to different challenges and needs of society and business. Some have reached high levels of methodological perfection, others are in the process of training and searching for the most appropriate implementation mechanisms to achieve the expected effects. Some are applicable to existing production systems, others involve major adjustments or radical changes in the principles of production and consumption.

The intentions and final beneficiaries were different. LP arose from the need to reduce costs and increase competitiveness. The implementation of lean operations started in some companies at the production level. Lately, the good experience was taken over by competitors and then spread to all economic sectors along the entire value chain. The green and circular economy have been widely thought of, for sustainability purposes, rather from top to bottom, then from the acute needs of some companies, with the aim of protecting the environment and saving resources, producing and consuming responsibly to increase the welfare of the population of today and tomorrow.

The LP was developed for linear production systems. LP's strong focus on streamlining processes by reducing resource and time losses, by capitalizing on value growth reserves through the improvement of links along the value chain, over time, has come to fit perfectly into the principles of sustainable development. The philosophy and methods of the lean system looking for and solving various problems have also proved to be suitable for adapting business to the principles of DD. Moreover, in some sectors, the exercise of continuous improvement and efficiency can naturally lead to green and circular economy models. This phenomenon will certainly happen when consumers choose products and services based on their impact on the environment.

In table no. 2 is highlighted the strategic visions of the three economic paradigms studied in the matter of achieving the sustainability of companies and is systematized the main business models that are characteristic for each of them. Today we cannot draw a line between these three economic paradigms. The boundaries between them are erased and they complement each other. If we highlight the comprehensive paradigm, this would be the green economy, because by definition it contains the circular one and the lean economy models help to identify the most successful solutions for adapting business to the principles of the green economy.

**Table no 2. Specificity of economic paradigms and applied business models**

<i>Economic paradigms and business models</i>		
<b>Lean economy</b>	<b>Green economy</b>	<b>Circular economy</b>
<i>Maximize process efficiency, based on a set of management practices</i>	<i>Strong bio and ecological focus of processes and products, population welfare and ecosystem resilience</i>	<i>Complex resource processing and use, based on the potential of value generation resources in a system</i>
<b>Main business models</b>		
<ul style="list-style-type: none"> <li>• Total Quality Management</li> <li>• Just in Time</li> <li>• Total Preventive Maintenance</li> <li>• Value Stream Mapping</li> <li>• Human Resources Management,</li> <li>• Six Sigma/Kaizen</li> </ul>	<ul style="list-style-type: none"> <li>• Use of organic ingredients</li> <li>• Manufacture of biodegradable finished products</li> <li>• No chemicals</li> <li>• Clean energy</li> <li>• Maximizing resource efficiency</li> <li>• Minimization of waste produced</li> <li>• Reuse of waste</li> <li>• Clean emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Life Cycle Responsibility</li> <li>• Use of renewable energy</li> <li>• Eco-Design</li> <li>• 4R (Reduction &amp; Reuse &amp; Recycling &amp; Recovery)</li> <li>• Maintenance commitments</li> <li>• Circular suppliers</li> <li>• Sharing platforms</li> <li>• Business based on services and functions</li> </ul>

<ul style="list-style-type: none"> <li>• Statistical Methods of Control</li> <li>• etc</li> </ul>	<ul style="list-style-type: none"> <li>• Collaborative consumption</li> <li>• Waste as a resource</li> <li>• Adapted financial models</li> </ul>
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Source: Own elaboration based on the studied literature

In terms of priority, the circular economy is the fundamental one, which must be at the heart of the green economy. Radical change and stopping disastrous development can only be achieved through circular patterns of production and consumption. SD commitments can be achieved by implementing lean models for circular and green businesses.

## CONCLUSIONS

The perspectives offered by the green and circular economy reinforce the broader approach to sustainable development, as a unitary whole, with the common denominator of environmental protection, increasing the competitiveness and productivity of the resources available in an economy. The new business models will contribute to the creation of green jobs, the competitiveness of which can be achieved by the combined application of the development of new skills of the workforce required by the green economy but also by the use of management practices applied in the lean economy.

Each of the three studied economic paradigms specifically contributes to sustainable development. The transition to a green and circular economy for some companies and organizations can be costly. Using lean principles for circular business will find sources of savings that will compensate the costs of the transition. Building management strategies based on combining business models from different economic paradigms would have a synergistic effect as companies meet pressing environmental challenges, while remaining competitive and prosperous.

At the same time, the transition of companies to new business models must be encouraged by providing government support, developing an appropriate legislative framework, allocating funds / grants to support the implementation of new solutions and providing more active support from local authorities. Organizations need to implement a green organizational culture and together with society recognize the benefits of green products and services as promoters of sustainable production models.

Acknowledgements: The research is funded by the Erasmus+ Program, the Jean Monnet Module Action „Sustainable Industrial Development in the Context of European Integration”, EU4SID, 610848-EPP-1-2019-1-MD-EPPJMO-MODULE.

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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