

**UDC 33**

**ISSN 3042-2523**

**eISSN 3041-318X**

**Vol. 2, Issue 1**

# **Journal of REGENERATIVE ECONOMICS**



**Niš, 2025**

## **JOURNAL OF REGENERATIVE ECONOMICS**

### **Editor-in-Chief:**

Jelena Stanković, Faculty of Economics, University of Niš

### **Executive Editor:**

Bojan Krstić, Faculty of Economics, University of Niš

### **Editorial Board:**

Aura Reggiani, University of Bologna, Italy  
Carlo Sessa, Euro-Mediterranean Economists Association – EMEA  
Yannis Psycharis, Panteion University, Athens, Greece  
Renato Casagrandi, Polytechnic University of Milan, Italy  
Claudia van der Laag, Oslo Metropolitan University, Norway  
Benjamin Buttner, TU Munich, Germany  
Peter Nijkamp, VU University Amsterdam, Netherlands  
Anila Bejko, Co-PLAN, Institute for Habitat Development, Tirana, Albania  
Žiga Turk, University of Ljubljana, Slovenia  
Saša Čegar, University of Rijeka, Faculty of Economics and Business, Croatia  
Ana Lalević Filipović, University of Montenegro, Montenegro  
Simona Muratori, Poliedra - Polytechnic University of Milan, Italy  
Vladislav Marjanović, Faculty of Economics, University of Niš, Serbia  
Vesna Janković Milić, Faculty of Economics, University of Niš, Serbia  
Sonja Jovanović, Faculty of Economics, University of Niš, Serbia  
Stephan Brunow, University of Applied Labour Studies, Germany  
Georgi Nikolov, University of National and World Economy, Sofia, Bulgaria  
Jelena Vučković, Faculty of Law University of Kragujevac, Serbia  
Marina Toger, Uppsala University, Sweden  
Umut Turk, Abdullah Gül University, Kayseri, Turkey

### **Technical Editor:**

Aleksandar Manasijević, Faculty of Economics, University of Niš

### **Language Editor:**

Ivana Marjanović, Faculty of Economics, University of Niš

### **Publisher:**

Faculty of Economics, University of Niš  
Trg Kralja Aleksandra Ujedinitelja 11, 18000 Niš, Serbia  
phone +381 18 528 624

### **Contact:**

Email: [regenerative.economics@eknfak.ni.ac.rs](mailto:regenerative.economics@eknfak.ni.ac.rs)

**ISSN 3042-2523**

### **Publication Frequency:**

Semiannual (twice a year)

### **Print**

Donat graf Belgrade

### **Circulation:**

50 copies

# CONTENTS

1. **Carlo Sessa**  
BEYOND SUSTAINABILITY: REGENERATIVE ECONOMY  
PRINCIPLES AND BUSINESS PRACTICE ..... 1 – 22
2. **Vladan Martić, Veselin Popović**  
SILENT PROGRESS: REGENERATIVE TOURISM THROUGH ESG  
PRACTICE – THE LUŠTICA BAY EXPERIENCE ..... 23 – 31
3. **Claudia van der Laag, John Östh**  
COMMENTARY - ASKING ARTIFICIAL INTELLIGENCE ABOUT  
REGENERATIVE ECONOMY ..... 33 – 39
4. **Georgi Nikolov, Nikola Tanakov**  
THE ECONOMIC DEVELOPMENT OF BULGARIA AND SERBIA IN  
THE CONTEXT OF CROSS-BORDER COOPERATION AND EUROPEAN  
INTEGRATION ..... 41 – 53
5. **Snežana Radukić, Milan Kostić, Zorana Stanković**  
THE NEXUS BETWEEN CIRCULAR ECONOMY AND COMPETITION  
POLICY ..... 55- 68

## Editorial introduction

With great pleasure we can present the first issue of the *Journal of Regenerative Economics in 2025*. This journal is an open-access, peer-reviewed platform for cutting-edge interdisciplinary research on the theory and practice of regenerative economic systems. This issue is a scientific outcome of the Horizon Europe project *CROSS-REIS (CROSS-disciplinary network for research excellence in Regenerative Economy Innovation eco-Systems)*, Grant Agreement No. 101132684), which aims to build a strong European knowledge base for transformative sustainability, circularity, and economic regeneration.

The collection begins with *Carlo Sessa's* conceptual contribution "*Beyond Sustainability: Regenerative Economy Principles and Business Practice*." Grounded in the outcomes of a CROSS-REIS training session held at the Euro-Mediterranean Economists Association in Barcelona, this paper offers a comprehensive overview of regenerative economy principles. Sessa explores the distinctions between regeneration, sustainability, and circularity, and introduces systems thinking, flow networks, and net-positive value creation as essential to the next generation of economic models. The paper suggests new directions for building regenerative innovation living labs across Europe.

The second article, "*Silent Progress: Regenerative Tourism through ESG Practice – The Luštica Bay Experience*," by *Vladan Martić* and *Veselin Popović*, examines how ESG (Environmental, Social, and Governance) frameworks are implemented in a luxury tourism context. Through the case of Luštica Bay in Montenegro, the authors demonstrate how sustainability can transition from being a peripheral obligation to a core business strategy, generating not only environmental and social value, but also long-term competitive advantage.

In a unique interdisciplinary dialogue, *Claudia van der Laag* and *John Östh* present the commentary "*Asking Artificial Intelligence about Regenerative Economy*." By comparing how leading large language models (LLMs) define regenerative economy, the authors highlight both the potential and the limitations of AI in translating and communicating complex academic concepts. This piece provides valuable reflection on the evolving role of AI in science education and knowledge transfer.

The issue continues with a regional economic perspective in the article "*The Economic Development of Bulgaria and Serbia in the Context of Cross-Border Cooperation and European Integration*," by *Georgi Nikolov* and *Nikola Tanakov*. Through a comparative analysis of national statistics and EU programs such as Interreg IPA CBC, the authors explore how cross-border cooperation fosters regional convergence and supports socio-economic transformation in peripheral areas. The

Bulgarian experience is particularly relevant as a model for Serbia's institutional alignment with EU standards.

The final contribution, "*The Nexus Between Circular Economy and Competition Policy*," co-authored by *Snežana Radukić, Milan Kostić, and Zorana Stanković*, investigates the underexplored intersection of market competition and sustainability. The authors argue that competition policy, when properly directed, can play a pivotal role in facilitating the circular economy transition by encouraging efficient resource use and innovation. Their findings advocate for a better alignment between regulatory frameworks and sustainability objectives.

It is our pleasure that we have even more valuable contributions from international authors. They reflect the foundational vision of the *Journal of Regenerative Economics* and that is to bridge countries, disciplines, link theory with practice, and support the development of innovation ecosystems that regenerate both natural and social capital.

We express our sincere gratitude to all authors, reviewers, and project partners whose engagement made this issue possible.

Editor-in-Chief

*Jelena J. Stanković, PhD*



Vol. 2(1): 1-22 (2025)



Journal of Regenerative Economics

DOI 10.5937/jre2501001S

## BEYOND SUSTAINABILITY: REGENERATIVE ECONOMY PRINCIPLES AND BUSINESS PRACTICE

Carlo Sessa

Euro-Mediterranean Economists Association, Spain

✉ mc7920@mlink.it

**Abstract:** *Based on the results of CROSS-REIS training session on “Building capacities and the knowledge base for regenerative economy stewardship”, held at EMEA, in Barcelona, on October 30<sup>th</sup> 2024, the paper offers an overview of regenerative economy definitions and principles, with an excursus through the concepts of net-positive business, how regeneration differs from sustainability and circularity paradigms, system value creation, regenerative finance, the delivery of better growth, and the application of flow network theory principles to characterize Regenerative Innovation eco-Systems (REIS). future research directions are suggested to build up regenerative innovation living labs engaging citizens, experts and decision makers in different regions of Europe, aiming to raise awareness on the regenerative economy challenges and opportunities and assess if present and future quality of life is enough for all living beings – i.e. the aim of regenerative economy transition.*

**Keywords:** *Regeneration, Net-Positive, Regenerative Finance, Flow Network, Territorial Quality of Life.*

### 1. Introduction

The Cross-disciplinary Network for Research Excellence in Regenerative Economy Innovation Eco-Systems (CROSS-REIS)<sup>2</sup> is committed to advancing knowledge and research that fosters regenerative economies. Regenerative economies are built upon principles that not only sustain but restore and revitalize natural ecosystems and societal wellbeing. In this context, CROSS-REIS brings together researchers, policymakers, and practitioners from across Europe and the Mediterranean region to engage in collaborative efforts to enhance research capacities and develop innovative solutions.

---

Original scientific paper

Received: 11.06.2025

Accepted: 30.06.2025

<sup>2</sup> <https://crossreis.com/>

This paper is based on the results of CROSS-REIS training session on “*Building capacities and the knowledge base for regenerative economy stewardship*”, held at EMEA, in Barcelona, on October 30<sup>th</sup> 2024. The paper offers an overview of regenerative economy definitions and principles, with an excursus through the concepts of net-positive business, how regeneration differs from sustainability and circularity paradigms, system value creation, regenerative finance, the delivery of better growth, and the application of flow network theory principles to characterize Regenerative Innovation eco-Systems (REIS). In the conclusion, future research directions are suggested to build up *regenerative innovation living labs* engaging citizens, experts and decision makers in different regions of Europe, aiming to raise awareness on the regenerative economy challenges and opportunities and assess if present and future quality of life is enough for all living beings – i.e. the aim of regenerative economy transition.

## 2. Regenerative economy: a new business paradigm

The goal of sustainability has been to meet the needs of present generations without compromising the ability of future generations to meet their own needs. However, the prevalence of a linear and degenerative economy has weakened the planet’s regenerative capacity, making it increasingly hard to achieve this ambition. Sustainability has become a necessary but insufficient condition for long-term human welfare. Next to sustaining, there is a growing need to regenerate our and the planet’s ability to meet present and future needs. This has given rise to the field and idea of **regeneration**. The term essentially refers to the *ability of a system to remake or renew itself continuously*, and it has its origins in biology and natural sciences, relating to the ability of cells, organisms and ecosystems to renew themselves. As a process it is essential to biological systems and describes their capacity to bring themselves again into existence.

The starting point for regenerative thinking is the realization that humans are fundamentally dependent on nature. We are indeed in a situation where rapid change to a healthy relationship with the planet is in order. Nowadays, the concept of “regeneration” and “regenerative economy” moves our frame of discourse from “doing things to nature” to “participate as partners with and as nature”.

By taking a regenerative worldview, we radically change the concept of sustainability. The question in *sustainable development* was “How can the economy work in such a way that we sustain or do not hurt the underlying ecological and social support systems?” Now, the question in *regenerative development* becomes “How can the economy work in such a way that we improve the capacity of the underlying support systems?”

### 2.1. Regenerative economy: foundational concepts

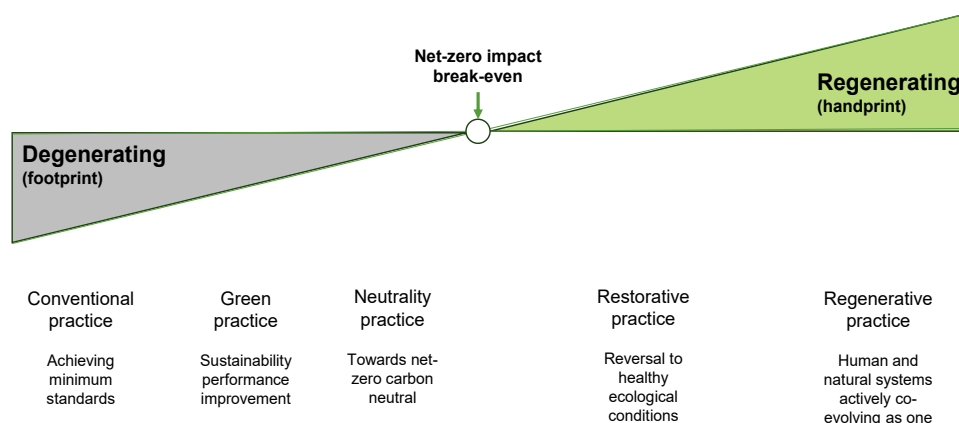
**Regenerative organizations** take a more holistic view of their business practices and aim to regenerate the natural and societal spaces in which they operate, promoting the self-renewable capacity of natural systems that have been damaged or overexploited, through a co-evolutionary process, where organizations align their

activities with the living systems that surround them. Their business model asks to deliver a **net positive environmental and social impact**, which is achieved when the benefits created by an organization's product or service (*handprint*) are bigger than the negative impact that this same product or service creates along its life cycle (*footprint*).

In practice, “regenerative” and “net positive” can be considered equivalent attributes: for a business to qualify as regenerative it is no longer enough not to do harm by neutralizing its own impact on the environment and society (*net-zero*), it needs to do good by delivering an eventually positive impact (*beyond net-zero*), as illustrated in Figure 1 below.

**Figure 1 – Shifting towards regenerative practices**

## Regenerative = Net Positive Business



The figure shows the whole span of conventional (not sustainable), sustainable (green and net-zero carbon neutral), restorative (of good ecological conditions) and regenerative (of whole socio-ecological systems) practices, which cause a shift from degenerating (negative footprint) to regenerating (positive handprint) impacts on the environment and society.

Polman & Winston advocate net positive business as a form of sustainable capitalism that “improves for everyone it impacts and at all scales – every product, every operation, every region and country, and for every stakeholder, including employees, suppliers, communities, costumers, and even future generation and the planet itself” (Polman, P., Winston A., 2022, p.7).

This claim for a “wider purpose” driven business is not new. In the year 2019, just before the COVID 19 pandemic, the World Economic Forum (WEF) Davos Manifesto declared that “A company serves society...support communities...pays its fair share of taxes...act as a steward of the environment...consciously protects our biosphere and champions a circular, shared and regenerative economy”.



These are still the guiding principles for a regenerative and net positive business. Frameworks like the Stockholm Resilience Centre's work on planetary boundaries (Rockström, J., 2009), economist Kate Raworth's Doughnut Economics (Raworth, K., 2017) and Bob Willard's Future Fit (Future-Fit Foundation (2019) all offer important perspectives towards a regenerative economy horizon.

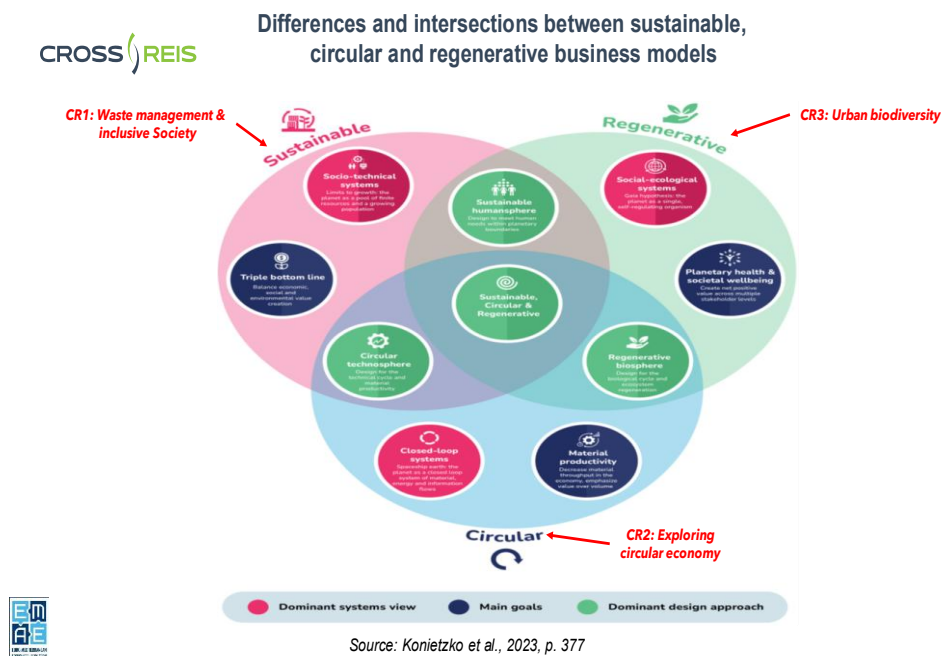
They all share a key vision: the world is finite, with biophysical limits that we can't exceed without threatening our survival, and we have human and moral minimum standards that we don't want to live below – that is, providing a level of sufficiency for everyone to live enough to thrive. In between those minimum and maximum limits is what Raworth calls the “safe and socially just space in which humanity can thrive”. A net positive company “operates in that space and helps other get there as well” (Polman, P., Winston A., 2022, p.21).

## 2.2. How does regenerative differ from sustainable or circular economic paradigms?

To better understand what regenerative economy is, it is useful to highlight the differences from two other neighbouring concepts: sustainable and circular economy.

Differences and overlaps among the three concepts of sustainable, circular and regenerative economy are presented in figure 2 below.

**Figure 2 – Differences and intersections between sustainable, circular and regenerative business models**




Quoting the Konietzko et al. explanation of this figure “we frame these differences and overlaps in terms of their dominant systems views, main goals, as well as the design foci. In their dominant systems view, we find that sustainable business models focus primarily on socio-technical systems, circular business models on closed-loop economic systems, and regenerative business models on social-ecological systems. In terms of their main goals, sustainable business models focus on the triple bottom line (i.e. achieving a balance between economic, social and environmental value creation), circular business models on material productivity, and regenerative business models on planetary health and societal wellbeing.” (Konietzko et al., 2023, p. 377).

Looking at the intersections, sustainable and circular business models share a design focus on the technical cycle and material productivity, sustainable and regenerative business models on designing solutions to meet human needs within planetary boundaries, and finally circular and regenerative business models focus on biological cycles and ecosystems regeneration.

The elements which help to distinguish sustainable, circular and regenerative business models – their main target, strategy and design approach - are summarized in table 1 below.

**Table 1 – Overview of sustainable, circular and regenerative business features**

 Differences and intersections between sustainable,  
circular and regenerative business model:  
Matrix view

BUSINESS			
Model	Target (making profit by)	Strategy	Design approach
<b>Sustainable</b>	Balancing economic, social and environmental value creation (triple bottom line)	Mitigate negative impact on nature and communities	Sustainable design for meeting human needs within planetary boundaries
<b>Circular</b>	Increasing material productivity	Organize closed-loop economic systems to minimize material and energy throughput, while maximizing value creation	Circular design for recycling manmade materials and durable products
<b>Regenerative</b>	Enhancing health and well-being in socio-ecological systems	Focus on integrated and interdependent systems and human society, ecological health and human well being	Regenerative design of nature based solutions contributing to ecosystems restoration and human well being

### 2.3. Regenerative practices

An empirical way to define regeneration is to describe concrete examples of regenerative practices. These can be clearly found in fields such diverse as agriculture, design, conservation, tourism and built environment.<sup>3</sup>

The most dominant industry in the regeneration literature is food and agriculture, which occupies large areas of land and has more than 50 % of the estimated overall pressure on nature and biodiversity (Kurth et al., 2021). The literature contains extensive reference to regenerative agriculture and its potential to improve species abundance, soil health and fertility, or store carbon through agroforestry. Another important legacy industry for regenerative thinking in business is the built environment (including infrastructure), because it is material intensive and co-occupies vast areas of land with nature (Robinson and Cole, 2015; Mang and Reed, 2020). There is a direct opportunity for organizations in this industry to source materials from regenerative sources, create more biodiverse habitats for other living species in cities and surrounding areas, and align buildings and infrastructure more closely with water, air, soil, carbon, and nutrient cycles.

A comprehensive **collection of regeneration practices** can be accessed on the [www.regeneration.org](http://www.regeneration.org) website. This is based on the recent Paul Hawken book “Regeneration. Ending the Climate Crisis in one generation”, and it is an organized cornucopia of information, ideas, groups, videos, books’ references, and people who are implementing regeneration worldwide and who welcome support and involvement. The information is organized using the concept of “nexus” to identify regeneration practice challenges and/or solutions. Nexus are large, complex issues that intersect multiple institutions, geographies, cultures, and people, but which do not fall under a single category of action or impact. For each nexus category, the website includes:

1. Clear descriptions of the issues, history, players, and impacts.
2. The specific parties actively causing degradation and damage.
3. The NGOs, activists, affected populations, and other institutions that are addressing the issue.
4. Addresses and emails of CEOs, politicians, or other people who are key decision-makers.
5. Products and companies to lobby, avoid, or support.
6. Links to videos, conferences, documentaries, articles and papers,

The website is open source, and participation is welcomed to help improve, add and update the information on regeneration practices. The following checklist of questions is suggested for detecting to what extent an action is regenerative:

1. Does the action create more life or reduce it?

---

<sup>3</sup> One recent and complete **collection of regeneration practices** in several sectors can be accessed on the [www.regeneration.org](http://www.regeneration.org) website. This is based on the recent Paul Hawken book “Regeneration. Ending the Climate Crisis in one generation” (Hawken P., 2023).

2. Does it heal the future or steal the future?
3. Does it enhance human well-being or diminish it?
4. Does it prevent disease or profit from it?
5. Does it create livelihoods or eliminate them?
6. Does it restore land or degrade it?
7. Does it increase global warming or decrease it?
8. Does it serve human needs or manufacture human wants?
9. Does it reduce poverty or expand it?
10. Does it promote fundamental human rights or deny them?
11. Does it provide workers with dignity or demean them?
12. In short, is the activity extractive or regenerative?

#### 2.4. Regenerative value creation

Conventionally, creating *shareholder value* – potentially at the expense of other stakeholders, including the environment – was considered the sole purpose of business. The more a company was able to privatize gains and socialize losses, the more successful it would become. But since the 1970s, evidence has started to mount that such behavior is not sustainable on a finite planet with a rapidly growing population.<sup>4</sup>

A few years ago, the term *creating shared value* was coined, to describe how companies can continue to focus primarily on financial performance, by identifying ways to make money wherever their core business and societal problems overlap (...). But this approach is still insufficient to cope with the increasing complexity of the global economy. Today's companies operate in a world of complex, interlinked systems – markets, communities, ecosystems, etc. – in which linear notions of cause and effect evaporate. Any action in one area can lead to undesirable consequences elsewhere. A company embracing a shared value approach might – in all good conscience – seek to solve one problem, only to create another.

We can avoid these disconnects if we embrace systems thinking. The international sustainable development nonprofit Forum for the Future describes systems as “parts connected by a web of relationships toward a purpose,” and offers examples from natural ecosystems like the marine environment and our food systems, and socially created systems, such as education. A human body, a home, a neighborhood, an organization, a city, a planet – all are systems.

Changing a system means changing its purpose as well. For instance, consider our food system and its web of machinery manufactures, natural capital like soil health, farmers, workers, wholesalers, food companies, retailers and the eaters. Short-term, narrowly focused financial incentives drive the system to pay farmers very little, reduce the richness of soil, lower the health and nutritional quality of our

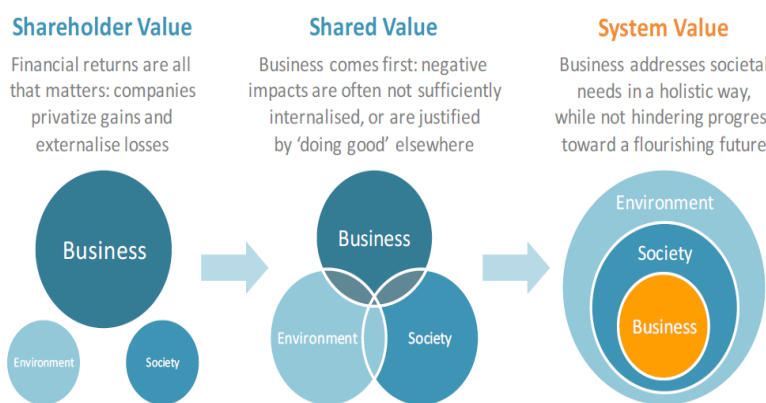
---

<sup>4</sup> A ground-breaking study in this respect was the 'Limits to Growth' report from Donella Meadows and others.

crops, weaken labor rights, and much more. Long-term, future fit regenerative farming financing schemes will encourage capital flowing to projects that seek environmental and/or nature restoration, together with social and community benefits.

Business can only thrive in a strong society. Society, in turn, can only prosper if its needs are being met by a healthy natural environment. These relationships are best described with a systems analysis approach, as nested dependencies of the economy on the society and environmental conditions, as shown in figure 3 below:

**Figure 3 – Rethinking value creation through a systems lens**



Source: Future Fit Business Benchmark, 2019

To understand the full extent of a company's impacts – good and bad – we must think in terms of *creating system value*. No business decision is ever free of potential trade-offs. But a system-based approach makes it possible to identify otherwise unforeseen issues. This allows negative trade-offs to be anticipated, avoided or, at the very least, addressed. This kind of holistic decision-making must become the norm if we are to avoid – and eventually reverse – damage to our natural systems and social fabric.

Creating system value and achieving a greater future-fit is possible only if economic agents – business, governments, civil society organizations – work together in pursuit of a collective progress towards which they all aim. But how can any specific social system (company, business ecosystem, territorial community – neighborhood, city, region, nation) that is taking its own purposeful actions be sure it is helping, rather than hindering, the collective progress?

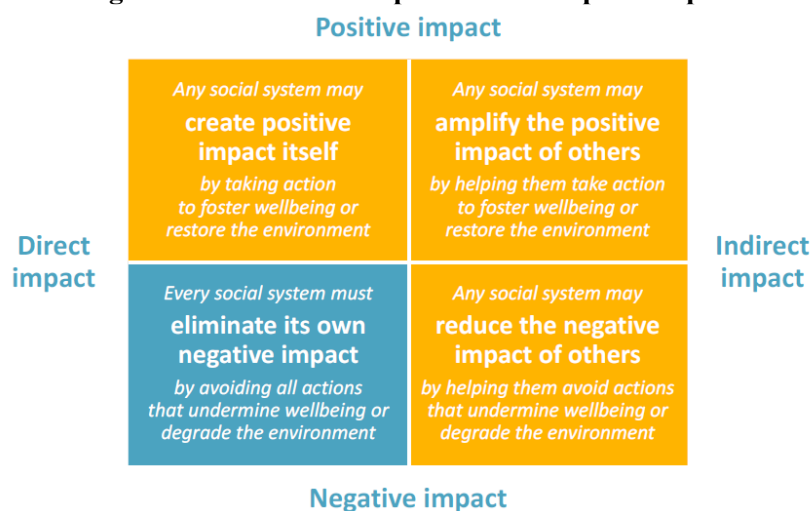
To answer this question, we can classify the full range of impacts any social system may have across two independent dimensions – positive versus negative, and direct versus indirect:

- The social system's impact may be either positive or negative. Positive impacts are those which help to bring society into closer alignment with the desired regenerative outcomes. Negative impacts are those which hold us back.

- The social system's impact may be either direct or indirect. All social systems rely on the activities of others – for example, to provide them with essential goods and services – and those activities might lead to a wide range of impacts, both good and bad. We can classify such impacts as indirect, in contrast to the direct impacts which one's own activities cause.

Based on these criteria, any social system impacts are classified in four categories, as shown in figure 4 below:

**Figure 4 – Matrix of footprint and handprint impacts**



Source: Future Fit Business Benchmark 2019

This matrix of footprint (own negative impacts colored in blue) and handprint (own direct positive and indirect impacts colored in orange) helps us to define operationally a *regenerative economy break-even rule*, which can be used to guide regenerative business strategies.

So far, the conventional economic system has evolved to treat financial returns and value creation as one and the same thing. The financial break-even is achieved by any social system – a company, investor or other economic actor – when financial returns are at least able to cover the ongoing costs. Any profit is welcomed, but the minimum requirement is to break even.

The shift to a regenerative value-driven business requires a more holistic value creation approach: one in which all business and other social systems (e.g., government) strive to create system value by positively impacting all three dimensions - environmental, social and economic - simultaneously. To guide the creation of system value effectively, we must clearly identify what it means to break even for the social and environmental dimensions, extending the break-even rule to cover extra-financial performance. In a nutshell:

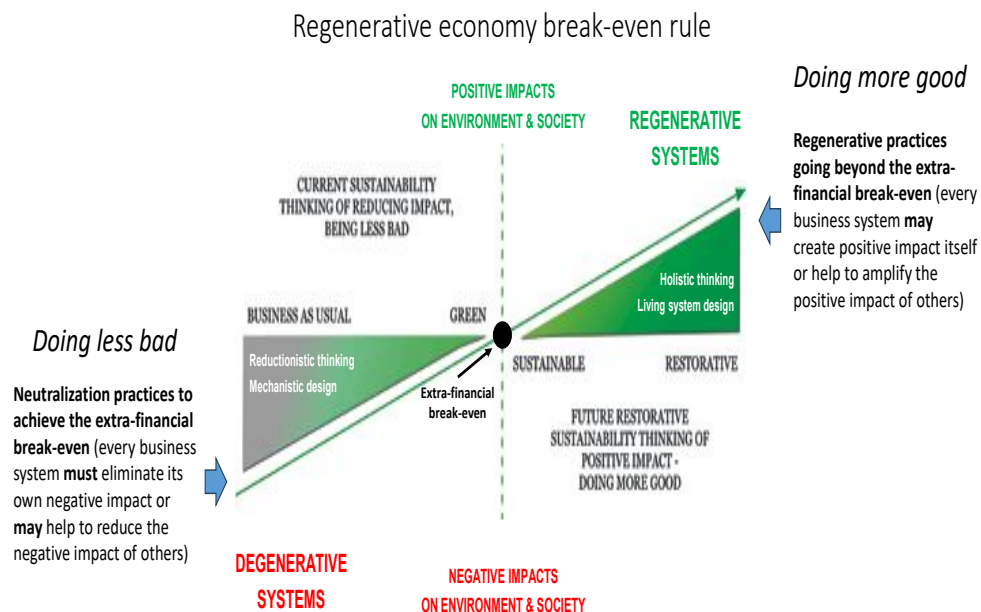
- Any business system *must* do everything in its power to reduce and eventually eliminate its own direct negative impacts, as well as indirectly reduce and

eventually eliminate any dependence on others who deliver negative impacts. Following this rule, the company goal is to achieve an *extra-financial break-even point*.

- In addition to achieving the break-even point, aiming to neutralize its own (direct) and other (indirect) negative impacts, a regenerative business *may* actively seek to speed up society's progress, by directly creating a positive impact itself, or indirectly by amplifying a positive impact created by others. In this way, the company goal goes beyond *the extra-financial break-even point*.

Based on this approach, the first commitment of a net positive business is responsibility for the impact it has across its value chain. This commitment is evident in companies adopting the Greenhouse Gas Protocol, which provides standards for how companies should measure carbon emissions, to take over a broader responsibility. The protocol puts corporate emissions in three categories, called "scopes": direct burning of fossil fuels in own facilities and vehicles (Scope 1), emissions from purchased energy that you bought from the grid (Scope 2), and emissions from own suppliers and from own customers when they use the company products (Scope 3). For most companies outside the heavy industries, transportation, and utilities, Scope 3 is the largest slice of the life cycle emissions pie. Companies can influence value chain emissions by working with suppliers on systemic change or by designing products that help customers to reduce their impact. Tech companies, for instance, by enabling virtual meetings, help companies cut emission from travel. And Artificial Intelligence (AI) tools for precision agriculture reduce energy use on farms.

**Figure 5 – Visualization of the regenerative economy break-even rule**



This scheme of scopes is powerful. Since that terminology is used mainly for carbon emissions, Polman & Winston suggest broadening the concept by calling them “Impact Levels” (L) and adding other three broader spheres of influence of a regenerative net-positive business. They suggest therefore six spheres of influence (impact levels) with a core of direct operations (L1) and moving out to indirect operations (L2), value chain (L3), sector and community (L4), systems and policy (L5) and the world and society (L6). As you move outward, “the company control greatly diminishes, and the focus turns to influence, advocacy, and partnership” (Polman, P., Winston A., 2022, p.251). The six impact levels framework is applied to show the greenhouse emissions in line with the scopes framework, but also simultaneously to give an example along the dimension of well-being, starting with employee safety at the core (L1) and extending out to employee well-being (L2), supplier and customer well-being (L3), community well-being (L4), influence on systems of well-being as healthcare, food, etc. (L5) and human and natural world thriving at the largest level (L6).

Summing up, a net-positive company considering all the six spheres of influence will aim to pursue regenerative impacts at all levels, beyond the extra-financial break-even, creating system value with a better future-fit alignment. The concept is summarized in figure 5 below:

In practice, regenerative business leaders should formulate specific break-even goals, which can be grasped by key stakeholders without lengthy explanation and represent the minimum level of performance to aim for, related to one issue (e.g., income inequality, waste). All specific goals together will then identify the social and environmental break-even point that every company/social system must reach.

## 2.5. Regenerative finance

The term “regenerative finance” describes finance for projects that are designed to increase prosperity in terms of regenerating environment, nature and that also have community aspects, aiming to provide a more sustainable future for all. Underlying the conjunction of “regeneration” and “finance” is the idea that the extractive or consumptive nature of traditional financial instruments, systems and services is stripped away and rebuilt so they regenerate rather than exploit.

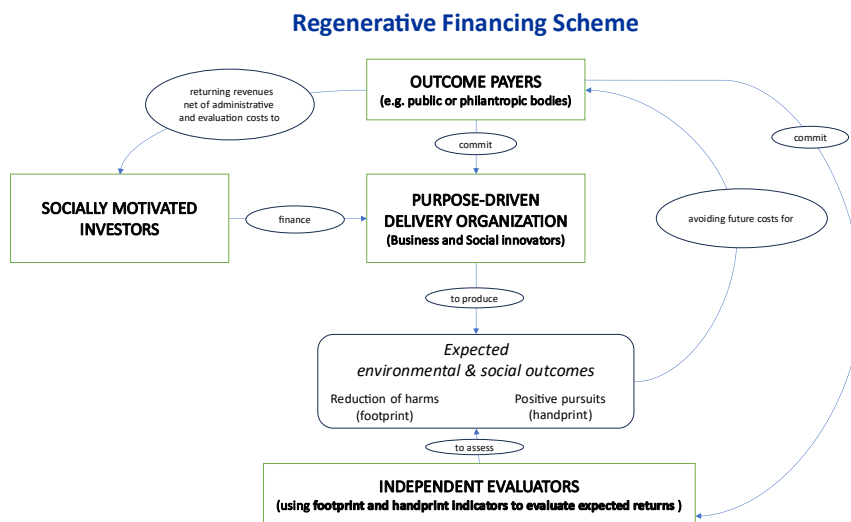
Our current financial system encourages decisions that are based on how to make as much money as possible with the lowest level of risk. To foster regenerative economy growth, we need to shift to a regenerative finance system that encourages making as much money as possible but in a way that is consistent with achieving positive environmental and social impacts and with the lowest level of economic risk. A novel concrete way to make finance “regenerative” – i.e. supporting regenerative value-driven businesses – is *impact investment*. This approach to investment marries social and environmental impact (“doing good”) with economic profit (“doing well”). Social Impact Bonds (SIBs) - the most used form of impact investment - are outcome-based contracts for services between an outcome payer (usually a government or philanthropic foundation) and a delivery organization (a social enterprise or purpose-driven business) to achieve social or environmental



outcomes. Achieving social and environmental outcomes is expected to produce future savings for the outcome payer budget, avoiding costs that this will have to cover if those outcomes are not achieved. An investor then provides the funding to deliver the services. If results do not meet the targets set in the contract, the investor loses their money, having effectively made, at worst, a philanthropic donation. If, on the other hand, the targets are met, the investor receives the investment back, with a return that rises with the extent of the outcome achieved. Independent evaluators are needed to verify the outcomes achieved, in terms of targets to which impact returns are linked.

This impact investing scheme is illustrated in figure 6 below:

**Figure 6 – Regenerative financing scheme**



To make this regenerative finance scheme work on a large scale, it is necessary to measure impact dependably. To change the behavior of investors and companies, it is essential that we measure companies' extra-financial results (both footprints and handprints) in a way that is easily understood by everyone. One priority therefore is to work towards standardized metrics for different environmental and social impacts, aiming to go beyond measuring a single impact to measuring all significant impacts created by organizations or initiatives.

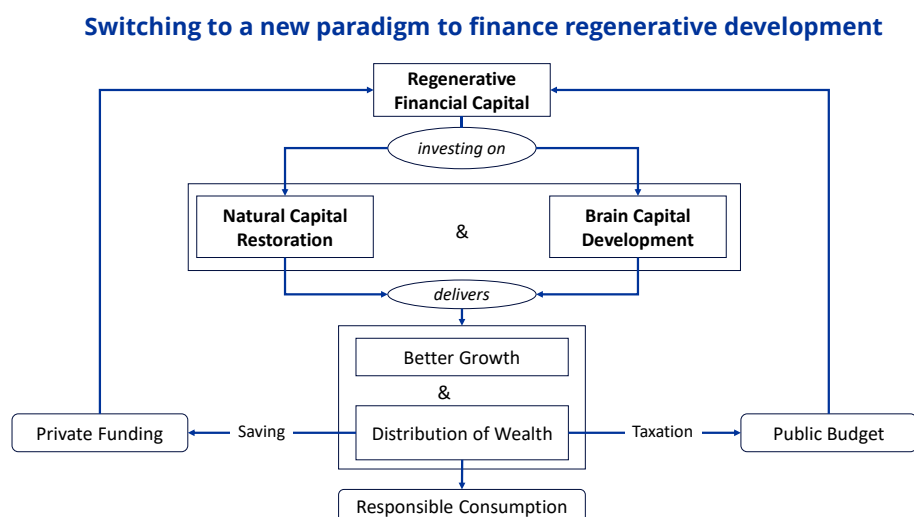
The development and diffusion of extended financial accounts - that reflect both the financial performance of a company (profit and loss statement and balance sheet), and the impact it creates on people and the planet through its products, employment and operations – will be the watershed between the traditional risk-return and the new risk-return-impact paradigm driving regenerative financial capital.

Eventually, we may assist to a paradigm shift in global finance towards a prevalent pattern of regenerative finance, whereby the impact investment approach is spread worldwide to fund nature capital restoration and brain capital development projects that ultimately should contribute to deliver better growth and more

distributed wealth - enabling a virtuous economic cycle of regenerative development as sketched in figure 7 below.

Clearly this all sounds like great progress for nature and society – and it is - but there are challenges and drawbacks both in the technological aspects of regenerative finance and in the biodiversity and nature methodologies underpinning these projects, which tend to be complex and also highly specific to the relevant ecosystem. Regenerative finance is like impact investment, but there is commonly a fundamental digital element, typically employing blockchain, which may be used to simplify tracking of payments, to embed automated smart contract functionality or to make monitoring, reporting and verification (MRV) of real-world results both transparent and credible.

**Figure 7 – A new paradigm to finance regenerative development**



There is however a risk that the use of tokenization and blockchain can make investments and credits more complex than they need to be, rather than simplifying and increasing the credibility of processes. Conversely, even if the use of blockchain and tokenization is entirely appropriate for a particular project or a specific benefit, it is not a “fix-for-all” solution. If the methodology underpinning the project is flawed and does not achieve the applicable carbon ultimately, as well as nature and/or biodiversity aims, then the planet will not see the impact it needs, no matter how safe and transparent the relevant technology is.

## 2.6. The regenerative economy delivers more, less or better growth?

Regenerative practices may do more than anything in the next generation to reverse the deteriorating human and environmental conditions that accompany unchecked human expansion. Limiting and reducing that damage, whilst working relentlessly to raise the living standards of the poorest third of humanity, is arguably the most pressing problem of our time. The hub of the problem now is how to flip over the

magnificent growth energy of modern civilization into a non-acquisitive search for deeper knowledge of self and nature. If people come to realize that there are many non-material, non-destructive paths of growth, it would help dampen the common fear that a steady state economy would mean deadly stagnation.

Clearly, we must look at growth differently. Some measures of company success should grow almost without limit – engagement and purpose of employees, customer satisfaction and wellness, and community well-being. This is “net positive” growth. However, in terms of physical material, the world is not regenerative, circular or decoupled from today’s growth. The harder question on consumption is how much stuff we need. A thriving world is one where every person has their basic needs met. Even that low bar would vastly increase material demand, as billions rise out of poverty. Since sincere climate action has started too late, we cannot hit the targets we need and reduce inequality to increase the quality of life for billions without something to give. That something may need to be the consumption of the richest billion among us: as Mahatma Gandhi said, “the rich must live simply so that the poor can simply live”.

At the core, shifting toward a regenerative economy will need to restate that economic growth is to find the way for societies to provide people with the opportunities, goods and services they need for a dignified ‘good’ life. GDP per capita is a broad measure that’s useful for comparing countries with each other and over time. However, natural capital (the services and goods provided by nature) is not measured when calculating GDP, and environmental destruction often scores as a positive – a forest generates GDP when it is chopped down, for example. This is clearly unsustainable, and economists including Kate Raworth, author of *Doughnut Economics*, have proposed more appropriate metrics to measure economic growth in the twenty-first century. We value what we measure, and we need to find better ways of measuring the things that contribute to a nation’s wealth, such as clean air, healthy soils, and dignified elderly care, which don’t obviously contribute to GDP or incomes.

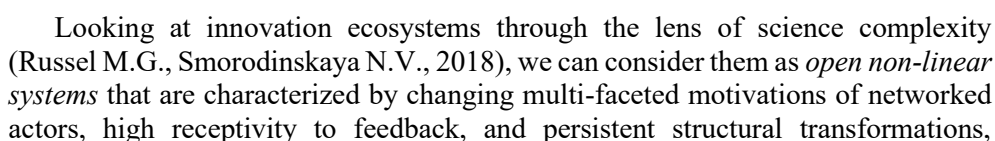
Recall, also, that economic growth is the increase in the amount and quality of products and services over time. Moving from coal power to wind power, even if the same amount of power is produced, is an increase in quality of power – air pollution is slashed, greenhouse gas emissions are avoided, and wind turbines are safer and require less maintenance. This, then, is “qualitative” economic growth. If scientists find a way to cure cancer or eliminate malaria, that is qualitative growth. In other words, economic growth is not intrinsically predicated on an increase in unnecessary consumption or of pollution; we do not need to replicate all the growth patterns of the last couple of centuries, we can grow better with better policies. “Better no Bigger” could become the best motto for a regenerative economy.

The currently relentless economic growth assumes instead that the human species can with articulate with impunity its own purposes unchecked by imperatives to relate to, or to honour, the diverse purposes of other species. Today’s global economic activity, because it overly equates fulfilment too much with quantitative growth rather than qualitative enrichment, prompts humans to encroach too far, too fast on the habitats of other species. This extreme emphasis on unlimited quantitative

## 2.7. Regenerative Innovation eco-Systems (REIS)

Borrowed from biology, the term “ecosystem” generally refers to a group of interacting entities that depend on each other’s activities. Business ecosystems require providers of complementary innovations, products, or services, that might belong to different industries and need not be bound by contractual arrangements—but have significant interdependence, nonetheless. Especially “innovation ecosystems” are focused on a particular innovation or a new value proposition and the constellation of actors that support it – and when the innovation creates regenerative value we speak of “regenerative innovation ecosystems”.

### Figure 8 – Examples of flow networks



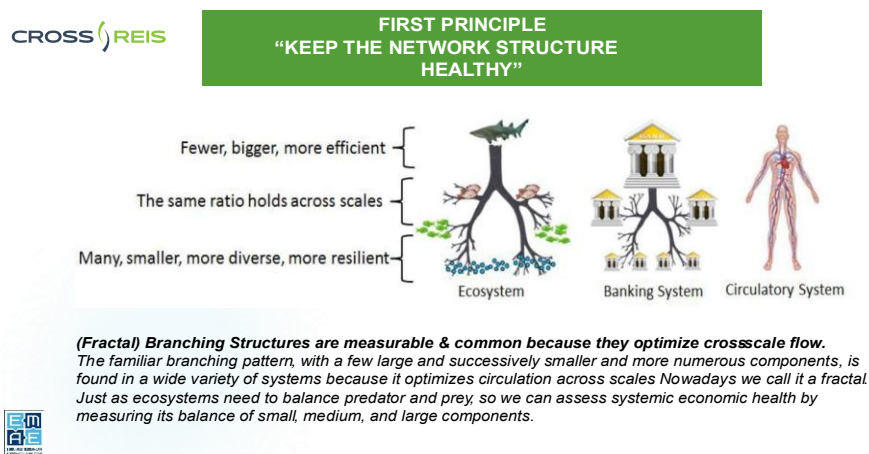
induced both endogenously and exogenously. Such ecosystems rely on the agility of network relationships (Adner, 2017) and collaborative, non-hierarchical models of governance, which enables their self-adaptability to rapid change. Their further proliferation demands decision-makers of all levels to provide and support a favorable context (social, economic, institutional) for continual networking, more horizontal linkages, and the enhancement of collaborative cohesive milieu within and among entities and economies.

Taking a holistic perspective, a whole regenerative innovation eco-system can be schematized as a *flow network*. This concept is initially developed in the context of Energy Network Science (ENS) to represent not only energy flows (e.g. various forms of fuels, oil, gas, solar, etc.) but also any kind of flows that are critical to drive the system. In a nutshell, according to this perspective a *regenerative system is a flow network whose existence arises from and depends on circulating energy, resources, or information throughout the entirety of its being*.

As shown in figure 8 below, examples of flow networks surround us in nature and society, and our own body is a flow network itself. All flow networks follow some universal principles to stay healthy and vital:

1. **Fractal structure:** A wide variety of systems - from leaves and river deltas to circulatory systems and ecosystems - exhibit a hierarchical branching pattern connecting a power-law ratio of small, medium, and large elements across scales. Big, efficient elements (arteries or multinationals) provide the speed and volume needed for rapid cross-level circulation, while the many small elements (capillaries or local contractors) reach every nook and cranny. This first principle is visualized in figure 9 below.

**Figure 9 – Healthy flow network structure**

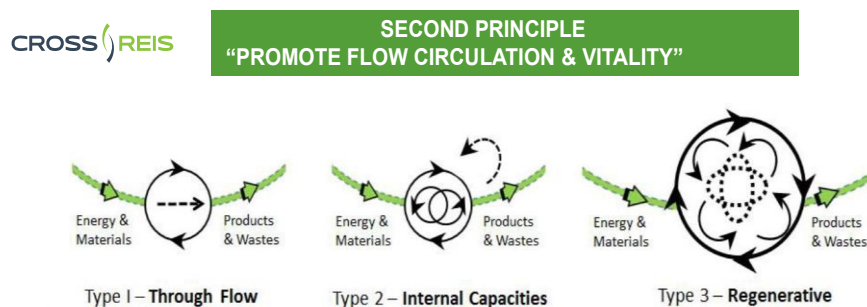


Source: Goerner S., 2015

2. **Robust circulation:** Robust, timely circulation of critical resources is essential to support a system's internal organization and processes - and the more organization there is to support, the more nourishing circulation is needed to

support it. If critical resources do not adequately nourish all sectors or levels, then we can expect the undernourished segments of the economy to suffer and eventually become necrotic. This thought applies as much to human organizations as to natural ecosystems. This second principle is visualized in figure 10 below.

**Figure 10 – Robust flow network circulation**



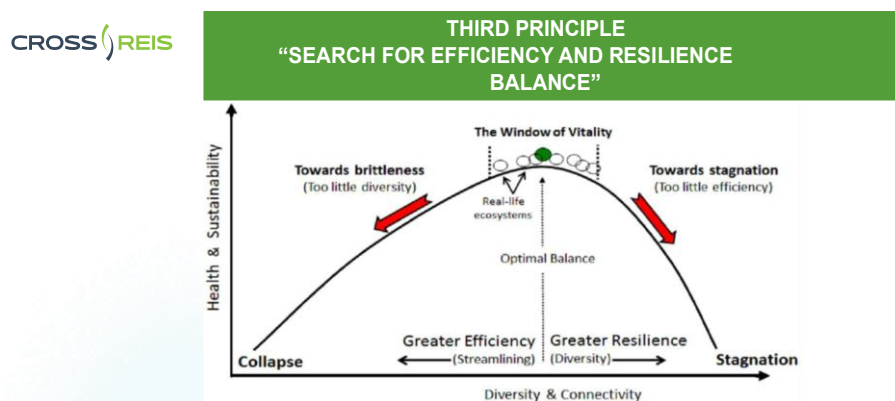
**A Circulatory View of Vitality: ThroughFlow to Regenerative** (See Allenby & Richards, 1994)

In flow terms, the least vibrant economies are "throughflow" systems: ones with few locally-rooted capacities and businesses, and little reinvestment in local capacities. Such economies are generally built around the extraction of some set of resources by a more powerful outside entity (usually a corporation). This situation is easily seen in coal towns and corporate towns, but it is also visible in multinationals' race-to-the-bottom pursuit of ever cheaper labor. In contrast, regenerative economies such as New York or London have so many, interlocking, mutually reinforcing, synergetic systems that the loss of one or two businesses makes little difference. Such economies become economic engines that attract the resources—monetary, intellectual, labor, etc.—they need to thrive. The ones that thrive long term also have governance systems which heavily invest in internal capacities.



Source: Goerner S., 2015

**Figure 11 – Healthy balance of efficiency and resilience**



**The Window of Vitality: Why systemic health requires a balance of efficiency & resilience**

Because efficiency and resilience are both important to systemic health, healthy systems must maintain a balance of **resilience factors** (small, diverse, flexible & densely connected) and **efficiency factors** (big, streamlined & powerful) within a Window of Vitality representing optimal network health.



Source: Goerner S., 2015

3. **Balance of efficiency and resilience factors:** Healthy systems maintain a balance of resilience factors – with the presence of small, diverse, flexible, and densely connected agents - and efficiency factors - big, streamlined, and powerful activities - within a window of vitality representing optimal network health. This third principle is visualized in Figure 11 below.

These principles make economic flow vibrant over the long-term period. Since the circulation must reach all parts of the system, systemic health is more a function of where money goes than of how much money is exchanged (i.e., GDP). The two key questions for regenerative health are therefore: 1) how much energy (i.e., money, resources, and information) is directed towards constructive activities like building a road, vs destructive ones like polluting the environment; and 2) how much is directed toward building and maintaining capacities. The latter is particularly critical. So, just as your body turns the food you eat into the energy and nutrients you need to feed your brain and muscles, so any society that wants to stay vibrant over the long-term period should better pour money and resources back into developing and endlessly renewing the human capital and material infrastructure that allows it to function well.

By the same token, systemic health is also a function of optimal network structure. For instance, just as an ecosystem must maintain a particular balance of predators and prey, so healthy economies must also maintain a proper balance of small, medium, and large organizations. One reason a proper balance of small, medium, and large organizations is critical is that this arrangement supports sufficient actors at each scale to perform that scale's functions.

Maintaining proper balance of power also helps keep actors at any scale from doing excessive harm to other parts of the system. This concept of scale-appropriate entities actually has wide application. It explains, for example, why maintaining sufficient diversity of perspectives and/or talents is critical to healthy functioning, and why hiring local workers, who are well-connected and know the local community, has benefits for businesses that want to serve local needs effectively.

Finally, the need to maintain a balance of small, medium, and large elements also explains why vitality also requires a balance of efficiency & resilience. *Resilience*, the ability to spring back from crises, generally increases with diversity and the flexibility that goes along with small size. Efficiency, meaning ability to focus efforts and move large amounts of materials, generally increases with the high capacity and streamlining uniformity that tends to go along with large size.

Systemic health requires a balance of these two critical factors because both are important, but the characteristics that support them run in opposite directions. Too many small agents with too little efficiency or capacity leads to economic stagnation due to lack of efficiency. Too much monopolistic concentration with too few agents creates economic brittleness due to loss of resilience.

### 3. Conclusion

Regenerative business models offer a path towards a more responsible future by incorporating strategies that go beyond net zero and focus on actively restoring the natural and social systems they operate in, creating a more holistic net positive impact. In the previous sections of the paper we have given an overview of regenerative economy definitions and principles, with an excursus through the concepts of net-positive business, how regeneration differs from sustainability and circularity paradigms, system value creation, regenerative finance, the delivery of better growth, and the application of flow network theory principles to characterize Regenerative Innovation eco-Systems (REIS).

The key finding is that we live in times of deep and accelerated transformation of our economy, and we have the opportunity to steer this as a transition to the new regenerative economy paradigm described in the paper, beyond the sustainability drive. Everything in our world is interconnected. Taking a narrow view of complex systems is no longer an option. Today's linear economy is failing. We need to transition to a regenerative economy and see the bigger picture. 'Doing less bad' is no longer enough. Regeneration goes beyond sustainability and seeks to 'do more good'. By creating conditions that support life in all its forms, regeneration has a positive impact on nature, society and the economy.

We are in a period of regenerative economy transition that will see the restoration, renewal and regrowth of environmental, social, and economic systems. Taking such a holistic perspective creates a thriving balance between the different systems and allows them to flourish together, rather than one being traded off against the other. The transition phase in which we now find ourselves may well be shorter than many expect, if the adoption of new methods progresses quickly, as has been the case in the past with former industrial revolutions.

In this context, we recommend to pursue two main directions of future research and responsible innovation.

First, we should all become aware that *doing less bad is not enough*. To enact this motto, pursuing "net-zero" transformation scenarios is no more enough, we need to move foresight and scenario building studies towards more radical exploration of possible regenerative futures. The core issue is how to foster future oriented policy making, i.e. a process of designing and implementing policies that anticipate and address long-term challenges, opportunities, and trends, to eventually take decisions that generate effective action for highly complex problems as the regeneration challenges usually entail. Extremely complex issues can tend to make us believe only experts can find solutions. We – the "citizens" – unintentionally give our power over to technocrats, international leaders, or scientists, and hope they do something to get it right. But a direct way to create a more effective system is pushing the power of decision-making out of the periphery and away from the center, giving people the room to adapt, based on their experience and expertise. All that should be supported by investing in participation processes – is that people talk to each other and take responsibility. This is what well organized *regenerative innovation living labs* can do, and it works to empower citizens and stakeholders giving them the room for



working together with experts and policy makers on future oriented policy issues, and search solutions to wicked problems.

Second, we should all ask ourselves: *Is our life good enough?* A way for answering this question has been recently proposed in the context of the ESPON programme, with a chain of applied research projects aiming to define and experiment a methodology to measure present and future quality of life in European cities and regions, with the ultimate purpose of improving the coordination and effectiveness of territorial quality of life policies across the continent. A major step forward in assessing the territorial quality of life was achieved, indeed, with the ESPON QoL–Quality of Life Measurements and Methodology project, which defines territorial quality of life as “the capability of living beings to survive and flourish in a territorial context.” (Sessa et al., 2020, p. 4). The project developed a *conceptual model to measure territorial quality of life in all its facets*, encompassing three spheres – personal, socio-economic and ecological - and three territorial quality of life dimensions: good life enablers, life survival or “maintenance,” and life flourishing. This Territorial Quality of Life (TQoL) dashboard of indicators has been used so far to map quality of life conditions across all NUTS3 regions in Europe (ESPON 2020), across all municipalities of Slovenia (ESPON 2022), and in several local pilot cases scattered in Europe. The use of different indicators makes possible in-depth insight into the specific features of a particular region or municipality, defining its strengths and weaknesses and thus areas for policy intervention. The dashboard can serve as valuable tool for local decision-makers in directing the development of a particular municipality or region, and it can support as well spatial policies at national level aiming to ensure cohesion of regional territories. Besides the measurement outcomes, the aspect more interesting of the TQoL methodology is the living lab process tested in several pilot cases, engaging the citizens in a co-creation activity to select the quality of life priorities and related indicators. This approach can be adapted and replicated for building up regenerative innovation living labs aiming to steer the transition to a regenerative economy in the regions of Europe.

#### 4. References

- Adner, R., 2017. *Ecosystem as structure: an actionable construct for strategy*. J. Manag. 43 (1), 39–58. <http://dx.doi.org/10.1177/0149206316678451>.
- Ayadi, R. and Sessa, C. (2023) Regenerative Value-driven Business Ready for Switching to a Wellness-fit Economy: Delivering a Framework for Action. EMEA Policy Paper under the INVESTMED Project, n. 10.
- British Academy (2019), Principles for Purposeful Business. How to deliver the framework for the Future of Corporation. London. Available at:
- Cohen, R. (2020). *Impact. Reshaping Capitalism to Drive Real Change*. London: Ebury Publishing
- Elkington J. (2020). *Green Swans. The coming boom in regenerative capitalism*. New York: Fast Company Press.
- ESPON (2020). *QoL – Quality of Life Measurements and Methodology*. Available at:

- ESPON (2021). *Quality of Life Measurements and Methodology: ESPON QoL spin-off Slovenia Development of a case study for measuring TQoL in the cross-border region Slovenia-Croatia-Italy*. Available at:
- ESPON (2022) *Atlas on Quality of Life in Slovenia*. Available at:
- Fullerton, J. (2015). *Regenerative capitalism: How universal principles and patterns will shape our new economy*. Capital Institute, <https://cbey.yale.edu/event/regenerative-capitalism-how-universal-principles-and-patterns-will-shape-our-new-economy>.
- Future-Fit Foundation (2019), *Future-Fit Business Benchmark. Positive Pursuit Guide: Pursuing outcomes that contribute to a Future-Fit Society*. Release 2. October 2019.
- Goerner, S. (2015) *Regenerative Development. The Art and Science of Creating Durably Vibrant Human Networks*. The Capital Institute.
- Hawken, P. (2023) *Regeneration. Ending the Climate Crisis in one generation*. London. Penguin Books
- <https://www.espon.eu/programme/projects/espon-2020/applied-research/quality-of-life> [Accessed 30 6 2023].
- <https://www.espon.eu/sites/default/files/attachments/ESPON%20QoL%20spin-off-Slovenia.pdf>
- [https://www.espon.eu/sites/default/files/attachments/ESPON\\_Atlas\\_on\\_QoL\\_in\\_Slovenia-WEB.pdf](https://www.espon.eu/sites/default/files/attachments/ESPON_Atlas_on_QoL_in_Slovenia-WEB.pdf) [Accessed 30 6 2023].
- <https://www.thebritishacademy.ac.uk/publications/future-of-the-corporation-principles-for-purposeful-business/>
- Konietzko, J., Das, A., Bocken, N., 2023. *Towards regenerative business models: a necessary shift?* Sustainable Production and Consumption 38, 372–388. <https://doi.org/10.1016/j.spc.2023.04.014>.
- Kurth, T., Wübbels, G., Portafaix, A., Zielcke, S., Meyer Zum Felde, A., 2021. *The Biodiversity Crisis Is a Business Crisis*. Accessed 11 December 2022 at. BCG. <https://web-assets.bcg.com/fb/5e/74af5531468e9c1d4dd5c9fc0bd7/bcg-the-biodiversity-crisis-is-a-business-crisis-mar-2021-rr.pdf>.
- Mang, P., Reed, B., 2020. *Regenerative development and design*. Sustainable Built Environments 115–141.
- Polman, P & Winston, A. (2022). *Net Positive: How courageous companies thrive by giving more than they take*. Boston: Harvard Business Review Press.
- Raworth, K. (2017): *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. Vermont, USA: Chelsea Green Publishing. 320 p. ISBN-13: 978-1603586740
- Reed, B. (2007). *Forum. Shifting from “sustainability” to regeneration*. Building Research and Information. Taylor & Francis.
- Robinson, J., Cole, R.J., 2015. *Theoretical underpinnings of regenerative sustainability*. Build. Res. Inf. 43 (2), 133–143.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S., Lambin, E.F., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H.J., Nykvist, B., de Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., Foley, J.A. (2009): *A safe operating space for humanity*. Nature, 461. 7263. 472–475. p. doi: 10.1038/461472a
- Russell, M.G., Smorodinskaya, N.V. (2018). *Leveraging complexity for ecosystemic innovation*. Technological Forecasting & Social Change 136 (2018) 114–131
- Sessa C., Di Biaggio, S. (2020). *Is our life good enough?*. ESPON QoL Working Paper

**Acknowledgement:** Funded by the European Union, under the GA101136834 - CROSS-REIS. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

## IZA ODRŽIVOSTI: PRINCIPI REGENERATIVNE EKONOMIJE I PRIMENA U POSLOVNOJ PRAKSI

**Apstrakt:** Na osnovu rezultata CROSS-REIS treninga na temu „Izgradnja kapaciteta i baze znanja za upravljanje regenerativnom ekonomijom“, održanog u EMEA, u Barseloni, 30. oktobra 2024. godine, rad pruža pregled definicija i principa regenerativne ekonomije, uz ekskurz kroz koncepte neto-pozitivnog poslovanja, razlike između regeneracije i paradigmi održivosti i cirkularnosti, stvaranja sistemske vrednosti, regenerativnih finansija, ostvarivanja boljeg rasta, kao i primene principa teorije mreža protoka za karakterizaciju ekosistema regenerativnih inovacija (REIS). Predloženi su pravci budućih istraživanja u cilju uspostavljanja living labova za regenerativne inovacije, koji angažuju građane, stručnjake i donosioca odluka u različitim regionima Evrope, sa ciljem podizanja svesti o izazovima i prilikama koje pruža regenerativna ekonomija, kao i procene da li je sadašnji i budući kvalitet života dovoljan za sva živa bića – što predstavlja krajnji cilj tranzicije ka regenerativnoj ekonomiji.

**Ključne reči:** Regeneracija, Neto-pozitivno, Regenerativne finansije, Mreža protoka, Teritorijalni kvalitet života.



Vol. 2(1): 23-31 (2025)



Journal of Regenerative Economics

DOI 10.5937/jre2501023M

## SILENT PROGRESS: REGENERATIVE TOURISM THROUGH ESG PRACTICE – THE LUŠTICA BAY EXPERIENCE

Vladan Martić

Mediterranean University, Montenegro

✉ vladan.martic@unimediterranean.net

Veselin Popović

Luštica Development AD Tivat, Montenegro

✉ veselin.popovic@lusicadevelopment.com

**Abstract:** This paper analyses the application of ESG (Environmental, Social, and Governance) principles in the luxury tourism sector through a case study of The Chedi Hotel and the Luštica Bay destination in Montenegro. The focus is on identifying concrete sustainability measures and evaluating their impact on operational performance, branding, and social responsibility. The paper adopts a case study methodology, relying on secondary sources such as ESG reports, international standards, and EU regulatory frameworks. The findings suggest that ESG strategies can become a competitive advantage, while also highlighting challenges related to reporting standardization and replicability in smaller entities. Particular attention is given to the role of ESG policies in the process of European integration. It is concluded that sustainability should not be a peripheral business component but the foundation of modern tourism development.

**Keywords:** ESG principles, sustainable tourism, non-financial reporting, competitive advantage, social responsibility.

### 1. Introduction

Tourism is one of the fastest-growing sectors in the world and is increasingly recognized for its contribution to job creation, economic growth, environmental protection, and poverty reduction. When properly planned and managed, tourism can help preserve natural and cultural assets and support local communities. However,

---

Original Scientific paper

Received: 24.05.2025.

Accepted: 27.06.2025.

the rising number of travelers may also lead to issues such as pollution, excessive resource consumption, and negative impacts on local populations.

Luxury tourism follows the trends of other luxury goods and services markets but is not regularly considered part of the luxury industry. Nonetheless, much like traditional luxury products—cars, watches, fashion, or cosmetics—luxury tourism distinguishes itself primarily through brand image, uniqueness, and high pricing (Horwath HTL, 2011).

Within the tourism industry, luxury tourism represents a unique niche, not only from the supply side but especially from the demand perspective. It typically encompasses two opposing categories. One involves a preference for exclusive vacations in destinations frequented by celebrities (e.g., exotic islands, cosmopolitan cities, or remote international locations). The other entails a desire for undiscovered and untouched places (e.g., deserted islands, secluded beaches, low-demand towns with historical significance and no pollution) (Popescu & Olteanu, 2014).

In recent decades, increasing concern about climate change, environmental degradation, and the depletion of natural resources has led to a redefinition of corporate priorities. Traditional models that place profit at the center of business strategy are being increasingly criticised for their adverse impact on society and the environment (Wright & Nyberg, 2015). At the same time, sustainable development is becoming an essential concept—not only in regulatory and political discourse but also in private sector strategies.

**Environmental, Social, and Governance (ESG)** refers to a set of standards that align business operations with sustainable development principles across three key areas: environmental protection, social responsibility, and corporate governance. ESG comprises three pillars:

- The **Environmental (E)** pillar may include climate change mitigation and adaptation, sustainable resource use and energy efficiency, circular economy practices, pollution prevention and waste management, environmental conservation, biodiversity protection, and the restoration of natural habitats.
- The **Social (S)** pillar encompasses internal and external social factors and impacts, including human rights, labour practices, decent work, consumer issues, community relations and engagement (implying inclusion, impact, and integration of an organization's ESG initiatives), privacy and data protection, health, well-being and safety, supply chain management, human capital development, and issues of social justice.
- The **Governance (G)** pillar relates to the management of the organization, including oversight of environmental and social categories. It covers board composition and structure, strategic sustainability oversight and compliance, executive compensation, process standardization, anti-corruption measures, responsible political engagement, fair competition, promotion of social responsibility within the value chain, respect for property rights, and relations with communities and society at large.

ESG also encompasses the concept of **Corporate Social Responsibility (CSR)**.

In the context of tourism and particularly luxury tourism ESG principles are becoming key mechanisms for safeguarding competitiveness, reputation, and long-term sustainability (UNWTO, 2023). Nonetheless, challenges in operationalizing ESG principles remain, especially concerning their concrete implementation and the measurement of their contribution to the overall performance of tourism destinations (GSTC, 2022).

This paper explores how an ESG-based approach can serve as a source of competitive advantage in luxury tourism, through an analysis of the Luštica Bay destination and The Chedi Hotel, which have positioned themselves as leaders in sustainable practices in the Adriatic region.

## 2. Theoretical Framework and ESG in Contemporary Tourism

Interest in sustainability among high-end travellers is on the rise, with tangible effects across the tourism industry. This growing awareness provides significant impetus to destinations committed to environmental protection, cultural preservation, and the well-being of local economies—while simultaneously benefiting the sector as a whole. Wealthy travellers seek luxury accommodation, fine dining, and comfortable transportation, but increasingly also desire unique experiences in meaningful locations. Moreover, they want their travel to support nature, people, and wildlife. This may involve staying in a “green” hotel or participating in nature conservation initiatives. According to the *Virtuoso Sustainable Travel Report 2024*, as many as 82% of affluent travellers prefer hotels that implement eco-friendly practices, while 62% actively seek sustainable luxury accommodation. Likewise, 88% of institutional investors prioritise companies aligned with ESG principles.

In its report *The Future of Luxury Travel – The Sustainability Imperative*, Deloitte notes that luxury travel brands are presented with numerous opportunities to enter the market by merging exclusivity with sustainability. Some notable examples include:

- Accor, operating in 110 countries under a variety of resort and hotel brands, is a member of the *Sustainable Hospitality Alliance*—a global sustainability network representing 25% of the industry. This hotel group funds tree-planting initiatives using savings generated from reduced water and energy consumption, equips hotels with recycled and eco-certified materials, and sources food from sustainable suppliers or its own organic gardens.
- Aman Resorts, a Swiss-based luxury hospitality operator active in 20 countries, adheres to the criteria of the *Global Sustainable Tourism Council (GSTC)*, integrating respect for local heritage, culture, and economy, environmental conservation, and social responsibility into every stage of hotel development and operations.
- Magdas Hotel in Vienna presents itself as Austria’s first *Social Business Hotel*, combining social entrepreneurship with sustainable design using recycled materials to deliver a distinctive tourism experience. The hotel trains and employs former refugees, newly arrived immigrants, and professionals from diverse backgrounds. Guest rooms are furnished with mid-20th-century

recycled furniture, and the building is powered by geothermal and solar energy. Travellers arriving by bicycle or public transport receive a 10% discount.

These examples underscore the importance of embedding ESG principles not only as a matter of regulatory compliance, but as a strategic foundation for the long-term success of luxury hospitality brands.

An analysis of international research and best practices indicates that initiatives such as energy efficiency, waste management, local community engagement, and ethical governance significantly contribute to the growth and attractiveness of high-end tourism destinations. For example, the *UNWTO report Tourism and Sustainability: Towards a Green Economy* (2012) highlights that sustainable tourism—engaging local communities, conserving resources, and supporting green initiatives—enhances the long-term appeal of destinations.

Furthermore, *Booking.com's Sustainable Travel Report (2023)* states that 76% of global travellers want their trips to have a positive impact on local communities and the environment, reinforcing the growing role of sustainability in attracting tourists.

In this context, the core ESG pillars in luxury hospitality (Srikant Peri) include:

#### 1. Environmental Sustainability

Luxury brands lead the way in sustainability through:

- Energy optimisation,
- Waste management,
- Water conservation,
- Sustainable sourcing – prioritising local, organic, and ethically sourced products,
- Guest education – raising awareness about sustainable options.

#### 2. Social Responsibility

Brands play a vital role in promoting social justice by:

- Employee development,
- Community engagement,
- Guest participation – such as eco-tours, farm-to-table initiatives, and more.

### 3. Methodology

This study employs a case study methodology, allowing for a deeper understanding of ESG integration within the context of a specific tourism destination and hotel brand. The case study approach is particularly suitable when examining contemporary phenomena within real-world settings.

The selection of Luštica Bay and The Chedi Hotel is based on the presence of formalised ESG policies and reporting, international certifications, and a strategic commitment to sustainability.

The analysis relies on secondary data sources, including ESG and CSR reports, publications of international organisations, and EU regulations. The limitations of the research include the inability to generalise findings and the reliance on internal reports that may contain elements of bias.

The ESG data referenced are included in corporate ESG reports. Non-financial reporting, sustainability reports, and ESG disclosures are among the new practices shaping the emerging system of corporate reporting and governance. While the EU adopted the Corporate Sustainability Reporting Directive (Directive 2022/2464) in early 2023, Montenegro will be required to comply with it from January 2029.

Luštica has prepared a corporate-level ESG report that can serve as a model for other organisations aiming to begin effective ESG-aligned reporting. Many companies initially treated ESG primarily as a marketing tool until it became a legal obligation subject to audit and regulatory oversight. Therefore, the goal should not be the report itself, but the activities it reflects and their ability to demonstrate a destination's commitment to the green agenda.

The evolving system of corporate reporting, previously limited to non-financial disclosures, must now incorporate dual materiality: alongside profit-related information, reports must include environmental, social, and governance data. Dual materiality requires identifying issues that are material from both the organisation's and stakeholders' perspectives. Prioritising them based on their impact enables the creation of a time-sensitive action plan.

CSR activities are part of these reports, along with initiatives aimed at improving working conditions and employee well-being. Through this process, employees are encouraged to continue advancing these practices. Additionally, it contributes to the development of an ethical and responsible business culture, promotes transparency, and supports the comprehensive alignment of financial performance and ESG outcomes.

#### **4. Case Study: ESG Practice at The Chedi Hotel**

The Chedi Hotel is the first five-star luxury hotel in Europe officially on the path to becoming Zero Waste, positioning itself as a leader in sustainable luxury hospitality. According to the 2024 ODH ESG annual report, its environmental initiatives include the elimination of single-use plastics, an 85% reduction in waste, and a significant decrease in paper usage.

The social component is demonstrated through the employment of local residents (72%), annual donations, and comprehensive ESG training for all staff.

The governance of ESG aspects includes the implementation of standard operating procedures (SOPs), key performance indicators (KPIs), and internationally recognised certifications (Responsible Hospitality VERIFIED™, Green Key, EarthCheck Bronze).



The results include an 11% reduction in energy consumption and increased international visibility, indicating both operational and reputational benefits from the ESG model.

Key achievements<sup>2</sup>:

- Implementation of the Responsible Hospitality VERIFIED™ standard by Forbes Travel Guide;
- First hotel in Montenegro to receive this label and among the first 100 globally;
- Complete elimination of single-use plastics and significant paper reduction;
- Avoidance of over 75,000 plastic bottles annually;
- 85% reduction in waste through 7R principles and life-cycle assessment;
- Local and seasonal cuisine – 50% of the wine list features Montenegrin wines.

Community contributions:

- 1% of annual revenue donated;
- 82.56% of suppliers are local;
- 72% of employees are from the local community;
- 100% of employees trained in sustainability;
- Energy efficiency: 11% reduction in energy use.

Cultural and environmental conservation:

- 21 community support projects;
- Collaboration with local artists;
- Establishment of the Adriatic Green Hub – a platform for sustainable hospitality practices.

## 5. Results and Discussion

The Luštica Bay project aspires to become the leading destination on the Adriatic. At present, The Chedi Hotel operates as Europe's first luxury Zero Waste hotel. Achievements in 2024, as reported by ODH ESG, are outlined as follows:

Sustainable development is implemented through:

- Integration of natural surroundings into planning and management;
- Support for Montenegro's environmental agenda;

---

<sup>2</sup> Source: Author's calculation

- Activities of the ESG Ambassador Team, active at the destination since the previous year.

Key accomplishments in 2024<sup>3</sup>:

- Recognition by the Red Cross of Montenegro for social responsibility;
- Inclusion in the ODH ESG annual report;
- Environmental and health initiatives such as beach cleanups.

Core ESG metrics from the annual report:

Environment:

- Water consumption: 152,377 m<sup>3</sup>;
- Total waste: 1,161 tonnes;
- Paper recycling: 3 tonnes out of 3.7 tonnes;
- Energy consumption: 7,364 MWh;
- Renewable energy: 4,261 MWh;
- CO<sub>2</sub> emissions: 5,852 MT.

Social:

- 71% of employees from the local community;
- 13 different nationalities;
- Average of 12 hours of training per employee;
- 100% of employees trained in health and safety.

Governance:

- Transparent policies and zero tolerance for discrimination;
- 81 SOPs implemented;
- Defined KPIs;
- Internal auditors trained according to ISO 9001 standards.

The destination is recognised through participation in the ESG Adria Summit, its inclusion in the ODH ESG report, and accolades from the Red Cross.

The case examples confirm that ESG in tourism can serve as a strategic tool for differentiation and long-term growth. At The Chedi, ESG enhances brand identity, while at Luštica Bay, ESG serves as a destination-wide narrative.

Challenges include the need for deeper impact evaluation and increased external validation of ESG reporting. The replication of such models requires institutional support, education, and appropriate regulatory frameworks.

---

<sup>3</sup> Source: Author's calculation

In the context of EU accession, ESG must become an integral part of Montenegro's tourism strategy.

## 6. Conclusion and Recommendations

ESG principles provide a sustainable foundation for enhancing competitiveness, resilience, and reputation in luxury tourism. The analysed cases—The Chedi and Luštica Bay—demonstrate that ESG can be strategically integrated into core business models.

Recommendations:

- For the private sector: establish ESG teams, provide employee training, and implement transparent reporting;
- For regulators: prepare for EU CSRD implementation, introduce incentives, and develop a national ESG platform;
- For academia: conduct quantitative research on ESG ROI and map implementation barriers.

Sustainable tourism is feasible when ESG is not treated as a formality, but as a principle of action. Sustainability is not merely a goal but a responsibility. Zero waste is not a destination but a continuous process without end.

Luštica Bay has emerged as a leading example of strategic development guided by ESG principles—setting a new standard for responsible and sustainable growth in the region. Its vision is clear: to establish a premier Adriatic destination that promotes sustainable living 365 days a year, ensuring long-term stability and a prosperous, self-sustaining community.

This is more than building a town—it is about creating an ecosystem in which economic resilience, environmental stewardship, and quality of life generate a lasting value. Luštica Bay exemplifies how a visionary and well-executed investment can yield enduring prosperity while preserving the region's natural and cultural identity. Through innovation, strategic planning, and deep respect for the environment, it not only redefines the Montenegrin coast but positions it as a global benchmark for sustainable excellence.

The challenges facing the destination stem primarily from external stakeholders. For example, advancing waste classification is difficult if local municipal utilities do not keep pace. Moreover, regulatory frameworks often lag behind, with certain deficiencies acting as bottlenecks.

The findings confirm that sustainable luxury tourism not only reduces environmental impact but also increases guest loyalty, operational resilience, and long-term profitability.

In light of the above, this paper demonstrates the competitive advantages of ESG integration and provides practical examples and recommendations for successful implementation in contemporary luxury tourism.

## References

- EarthCheck. (2022). *EarthCheck certification for sustainable tourism*, <https://earthcheck.org>
- European Commission. (2022). *Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Directive 2013/34/EU as regards corporate sustainability reporting*, <https://eur-lex.europa.eu>
- Forbes Travel Guide. (2024). *Responsible Hospitality VERIFIED™ hotels list*, <https://www.forbestravelguide.com>
- Global Reporting Initiative (GRI). (2023). *GRI standards for sustainability reporting*, <https://www.globalreporting.org>
- Green Key Global. (2022). *Green Key certification standards*, <https://www.greenkey.global>
- ISO. (2015). *ISO 9001:2015 – Quality management systems – Requirements*. Geneva: International Organization for Standardization.
- SASB (Sustainability Accounting Standards Board). (2023). *Materiality map for the hospitality industry*, <https://www.sasb.org>
- UNWTO (World Tourism Organization). (2022). *Tourism and sustainable development goals – Journey to 2030*, <https://www.unwto.org>
- Virtuoso Ltd. (2024). *Virtuoso sustainable travel report 2024*, <https://www.virtuoso.com>
- Wright, C., & Nyberg, D. (2015). *Climate change, capitalism, and corporations: Processes of creative self-destruction*, Cambridge: Cambridge University Press.
- WTTC (World Travel & Tourism Council). (2023). *Environmental & social research: Measuring tourism's impact*, <https://wtcc.org>

**Acknowledgement:** Funded by the European Union, under the GA101136834 - CROSS-REIS. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

## RAZVOJ U TIŠINI: REGENERATIVNI TURIZAM KROZ ESG PRAKSU – ISKUSTVO LUŠTICA BAY

**Apstrakt:** Rad analizira primjenu ESG (ekoloških, društvenih i upravljačkih) principa u sektoru luksuznog turizma kroz studiju slučaja hotela The Chedi i destinacije Luštica Bay u Crnoj Gori. Fokus je na identifikaciji konkretnih mjera održivosti i evaluaciji njihovog uticaja na operativne performanse, brendiranje i društvenu odgovornost. Rad koristi metod studije slučaja, oslanjajući se na sekundarne izvore – ESG izvještaje, međunarodne standarde i regulatorne okvire EU. Rezultati pokazuju da ESG strategije mogu postati konkurentna prednost, ali i ukazuju na izazove vezane za standardizaciju izvještavanja i replikabilnost u manjim subjektima. Poseban značaj dat je ulozi ESG politika u procesu evropskih integracija. Zaključuje se da održivost ne treba biti marginalna komponenta poslovanja, već temelj savremenog razvoja turističkih destinacija.

**Ključne reči:** principi, održivi turizam, nefinansijsko izvještavanje, konkurentna prednost, društvena odgovornost.



Vol. 2(1): 33-39 (2025)



Journal of Regenerative Economics

DOI 10.5937/jre2501033L

## COMMENTARY - ASKING ARTIFICIAL INTELLIGENCE ABOUT REGENERATIVE ECONOMY

**Claudia van der Laag**

OsloMet – Oslo Metropolitan University, Norway

✉ claudia.vanderlaag@oslomet.no

ORCID: 0000-0002-2847-4975

**John Östh**

OsloMet – Oslo Metropolitan University, Norway

✉ johnosth@oslomet.no

ORCID: 0000-0002-4536-9229

**Abstract:** *This commentary studies how AI/LLM defines the concept of regenerative economics and compares their interpretations to an academic definition. While LLMs (Large Language Model) capture elements such as systemic thinking and net positive impacts, they seem to omit the transformational change required across individuals, organizations, and societies. Through a comparative analysis of responses from ChatGPT, Grok, and Copilot, we highlight the strengths and gaps in AI-generated definitions. The findings raise important questions about the pedagogical implications and risks of relying on AI tools to convey complex and evolving academic concepts.*

**Keywords:** *Regenerative economy, artificial intelligence, definitions, LLM comparison.*

### 1. Introduction

Regenerative economy has gained popularity in academia over the past decade, spanning from classic economic theories to biodiversity in urban planning (Čegar et al., 2024). Given the climate crisis, it has become a pressing topic with a breadth and depth that the understanding of regenerative economy has impacted all walks of life with an ever-increasing complexity.

However, although the concept is well established, the realms, meaning and implication of the concept overlaps and poses pedagogical problems when

---

Rewiev paper

Received: 24.05.2025.

Accepted: 01.06.2025.

communicated to students, practitioners and the public and when broken down into components, fields and applications.

A contemporary common practice among the listed groups is the use of LLM for description and detailing of concepts such as regenerative economy. This makes sense if the descriptions also make sense, but can lead astray if descriptions are partly incorrect, or if different LLM promotes parts that other models don't (see for instance Kourtiti et al., 2024; Östh et al., 2025). This leads us to the fundamental questions of this commentary text; how do LLM describe regenerative economy, and how does the description compare to each other and to conventional descriptions.

If we depart from a recent paper having the aims of defining regenerative economy (see Unter et al., 2024) we find the following definition:

A holistic, dynamic system that fosters renewal, restoration, preservation, and net positive impacts across ecological, economic, and social systems, necessitating transformational change within and across individuals, organizations and societies.

Although definitions would vary between researchers, fields, agencies and practitioners, the benefit of using a paper such as that of Unter et al., (2024) is that the definition has scooped wide to find a definition that is agreeable from most angles. This means that the definition has a useful core meaning and can as such be used as a point of departure for comparison to LLM output. In short, the definition can be broken down into three segments; 1) a holistic and dynamic system, 2) a need for net positive impacts, and 3) a transformational change. These three segments will be used in the comparison below.

To mimic assumed common searches for regenerative economics on LLM, we have employed ChatGPT 4, Grok 3, and Microsoft Copilot, and we have specified the following prompts/questions: (i) Define regenerative economy, and (ii) What fields have the most potential for a regenerative economy in the future?

#### i. Definition and comparisons

Using the specified definition as a baseline, we compared the output for each provider to the core definition, and used the three segments to further the analysis. The LLM output/response to the prompts is provided in the Appendix of the commentary. In Table 1., The providers are listed as rows, and the comparative response for the text segments are listed as columns. Finally, the rightmost column summarizes texts and deviations.

The results are clear: net-positive impacts are well described and understood by all LLM providers included in the study, with moderate to strong alignment in their responses regarding the definitions of holistic and dynamic systems. However, the transformational change (among/within individuals, organisations and societies) is to a large extent missing.

This is unfortunate since the transformative part also can be understood as the strongest agency needed for change towards regenerative economics. It also suggests (although the analyses conducted in this commentary are limited) that provided definitions are convincing enough to pass as valid all-encompassing definitions,

although an essential pillar is missing, and when/if LLM is used to define the topic, the transformative part is likely to be left out.

**Table 1., LLM responses compared to definition of regenerative economics**

LLM provider	Holistic & Dynamic System	Net Positive Impacts	Transformational Change	Summary of Key Deviations/gaps
Chat GPT	Strong: explicitly mentions systems thinking, interconnections, and long-term focus	Strong: Explicitly states “restore and renew”; includes restoration of ecosystems and equity	Weak: Lacks strong emphasis on transformational or deep structural change (mentions Indigenous knowledge, but not systemic overhaul)	Descriptive and thorough, but stops short of emphasizing transformational change as a necessity. More focused on principles and components than systemic improvement.
Grok	Moderate: Some holistic framing (mentions equity, sustainability, resilience) but lacks a systems-level dynamic structure	Strong: Clearly aims at positive outcomes – “enhance,” “regenerate,” “long-term prosperity”	Weak: Suggests improvements, but does not explicitly mention fundamental shifts or transformation	Short and clear, but omits both the system's dynamic nature and the transformational change component of the core definition.
Copilot	Strong: Mentions systems thinking, interconnectedness, local economies, and “self-renewing systems”	Strong: Emphasizes “restore and enhance” and “doing more good,” not just harm reduction	Moderate: Describes a “shift” and “healing,” but transformation remains more implied than explicit	Closest match overall (to core definition). It conveys directional change, but avoids the word transformational.

A possible link to transformative change could be found in prompting/asking for the future. The second prompt directs attention to the fields of the future for regenerative economics.

ii. What fields have the most potential for a regenerative economy in the future?

When we asked the LLM which could be the most promising fields in regenerative economy in the future, we got a long range of answers, and although not all suggestions were similar, there is a striking resemblance of where the future lies according to AI. The LLM output suggests agriculture (of different kinds) as central to regenerative economics; and if we add ecosystem restoration/rewilding, green sustainable planning and blue economies (the latter not listed by copilot) it becomes clear that our use of the nature/environment is seen as the cornerstone of the concept. Energy and economics (wide definition) belong to groups of fields that are seen as vital, but for fields related to tourism, education, behavior, health and social innovation not all of the LLM providers underscores its importance.

If we consider democratization, and governance few or no suggestions are given. Copilot suggests that decentralization of governance is important but gives no clear reason to why centralization should be more harmful for regenerative economics. The results rather seem to underline what we learned from querying the definition, i.e., that the transformative change across/between individuals, organizations and societies are absent also when defining future fields. This is of great interest, since the definitions and future outlooks direct most of the attention to technical or practical applications, but fails to see the role of governance.

**Table 2., LLM responses for the identification of future fields of regenerative economics**

Field	ChatGPT	Grok	Copilot
Regenerative Agriculture / Food Systems	transformation of global food systems, improving soil health, CO2 reduction	Agroforestry, permaculture and food sovereignty	Suggest as most important field and as the cornerstone of regeneration, biodiversity and soil health
Renewable Energy / Decentralized Energy	Focus on clean, distributed and local controlled energy	Focused on the technologies such as solar, wind, smart grids and battery storage	Focus on environmentally friendly energy distributions such as solar microgrids and the aim to reduce environmental harm
Circular Economy / Materials Innovation	Focus on zero waste and reuse	Biodegradable packaging and industrial symbiosis (i.e. resources sharing, co-location, etc.) in focus	Textile oriented with potential for circular fashion and regenerative textiles
Ecosystem Restoration / Rewilding	underlines rewilding, wetland restoration and green infrastructure	underlines 350M ha goal (Bonn challenge to restore degraded land), biodiversity and carbon sinks	Focus on restoring habitats and on nature-positive tourism
Green / Sustainable Urban Planning	planning focused on zero-waste cities, retrofitting and (energy) passive design	Planning focus on greening and PT including urban forests, public transit, green buildings	planning with Biophilic cities and net-zero buildings in focus
Sustainable Finance / Regenerative Capital	Local currencies and regenerative finance are listed as important	More global focus including green bonds, carbon markets and wealth-building	global perspective with focus on investments in ecological and social well-being



Blue Economy / Ocean Restoration	Kelp farming and marine permaculture (farming while mimicking local marine conditions)	focus on vulnerable areas such as mangroves, reefs and on coastal livelihoods	–
Tech / Data for Regeneration	Technology focused with AI, IoT, blockchain and ecological governance	Underlines AI-powered restoration and monitoring	Underlines local smart systems and decentralized decision-making
Health & Care Economies	Underlines preventative healthcare and food as medicine	–	–
Education & Behavioral Change	Focus on mindset shifts and regenerative design training	–	–
Tourism / Regenerative Travel	–	–	Only LLM that highlights tourism, and suggests importance of eco-tourism that improves ecosystems and culture
Social Innovation / Community Economies	–	indicate the potential for time banks and community land trusts	highlights the local community with cooperatives and decentralized governance
Fashion / Textiles	–	–	Circular models and regenerative cotton
Construction / Built Environment	–	–	Circular methods in construction and the creation of carbon-sink buildings

## 2. Conclusions

AI/LLM is a tool of growing importance for the understanding of our society simply because AI/LLM is used by students, stakeholders and researchers when looking for a quick summary of topics. The responses are quick and well composed and often convincing in its message, but are we at risk of missing out on important facts, if we rely too much on LLM for our information generation. In this small study we have shown that when asking AI to define regenerative economics, we are getting long and convincing answers, but the answers lack parts which are the defining fabric of regenerative economics if we turn to the scientific definition. In the example where we are defining regenerative economy using LLM, the definition lacked the transformative change of organizations and individuals and focused more on technical or environmental factors.

We fear that the accessible and often pedagogical output of Ai/LLM may alter our understanding of this and other fields, and that the curation of information using

LLM as a tool happens on the basis of comprehension from a probability/AI perspective and not on the basis of dynamics of the community that drives the field forward. This means that over-time development, critique and adaptation to changes caused by disruptive technologies, modernization, political change or similar, fails to be recognized.

## References

- Čegar, S., Drezgić, S., & Čišić, D. (2024). Exploring the Regenerative Economy: A Comprehensive Review of Literature. *Niš*, 2024, 1(1), 1-40.
- Kourtit, K., Nijkamp, P., Östh, J., & Türk, U. (2024). Is artificial intelligence a trustworthy route navigation system for smart urban planning? *Eastern Journal of European Studies*, 15(2).
- Östh, J., Türk, U., Kourtit, K., & Nijkamp, P. (2025). Hedonic price models, social media data and AI—An application to the AIRBNB sector in US cities. *Computers, Environment and Urban Systems*, 120, 102303.
- Unter, K., Vogel, L. L., Walls, J. L., Küng, C., & Tamayo, J. (2024). Towards Defining a Regenerative Economy. Institute for Economy and the Environment, University of St. Gallen, Sustainable Development Solutions Network Switzerland

**Acknowledgement:** *Funded by the European Union, under the GA101136834 - CROSS-REIS. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.*

## Appendix

Responses from LLM providers when prompted: Define regenerative economy.

### Chat GPT

A regenerative economy is an economic system designed to restore and renew natural, social, and human capital, rather than depleting or exploiting them. It goes beyond sustainability by actively improving ecosystems, communities, and well-being through its operations.

Key characteristics include:

Circularity: Waste is minimized or eliminated by reusing, recycling, and designing products and systems that keep materials in use.

Restoration: Economic activity contributes to the regeneration of ecosystems, such as soil, health, biodiversity, and clean water.

Equity: Social systems are structured to support inclusiveness, resilience, and the fair distribution of resources and opportunities.

Systems thinking: A holistic approach considers the interconnections between economy, environment, and society.

Long-term focus: Prioritizes resilience, adaptability, and the health of future generations over short-term profits.

A regenerative economy often draws on principles from Indigenous knowledge systems, ecological economics, and the doughnut economics or bioregionalism frameworks.

### **Grok**

A regenerative economy is an economic system designed to restore and enhance natural and social systems rather than deplete them. It prioritizes sustainability, equity, and resilience by fostering practices that regenerate resources, ecosystems, and communities. Unlike extractive economies, it focuses on circular processes, renewable energy, local production, and fair distribution of wealth, aiming to create long-term prosperity while addressing environmental and social challenges.

### **Microsoft AI Copilot**

A regenerative economy is an economic system designed not just to sustain, but to restore and enhance the natural, social, and economic capital it depends on. Unlike traditional models that often deplete resources in pursuit of growth, a regenerative economy aims to work in harmony with nature and communities, creating systems that are self-renewing and resilient over time.

Key features include:

Circular design: minimizing waste by reusing, recycling, and regenerating materials.

Regenerative agriculture: farming practices that restore soil health and biodiversity.

Local and place-based economies: emphasizing community well-being and ecological balance.

Systems thinking: recognizing the interconnectedness of ecological, social, and economic systems.

It's a shift from "doing less harm" to "doing more good." Think of it as moving from damage control to proactive healing—economically, socially, and environmentally.

## **KOMENTAR: POSTAVLJANJE PITANJA VEŠTAČKOJ INTELIGENCIJI O REGENERATIVNOJ EKONOMIJI**

**Apstrakt:** Ovaj komentar proučava kako veštačka inteligencija i veliki jezički modeli (LLM) definišu koncept regenerativne ekonomije i upoređuje njihova tumačenja sa akademskom definicijom. Iako LLM modeli obuhvataju elemente kao što su sistemsko razmišljanje i neto pozitivni uticaji, čini se da izostavljaju transformacione promene koje su neophodne na nivou pojedinaca, organizacija i društava. Kroz komparativnu analizu odgovora ChatGPT-a, Groka i Copilot-a, ističemo snage i nedostatke u definicijama koje generišu AI alati. Nalazi otvaraju važna pitanja o pedagoškim implikacijama i rizicima oslanjanja na AI alate prilikom prenošenja složenih i evolutivnih akademskih koncepata.

**Ključne reči:** Regenerativna ekonomija, veštačka inteligencija, definicije, poređenje LLM modela.



Vol. 2(1): 41-53 (2025)



Journal of Regenerative Economics

DOI 10.5937/jre2501041N

## THE ECONOMIC DEVELOPMENT OF BULGARIA AND SERBIA IN THE CONTEXT OF CROSS-BORDER COOPERATION AND EUROPEAN INTEGRATION

**Georgi Nikolov**

UNWE, Bulgaria

✉ gnikolov@unwe.bg

ORCID: 0000-0003-4152-6300

**Nikola Tanakov**

UNWE, Bulgaria

✉ ntanakov@unwe.bg

ORCID: 0000-0001-7140-4908

**Abstract:** *This article examines the economic development of Bulgaria and Serbia through the lens of cross-border cooperation and the process of European integration. A comparative analysis is conducted using secondary data from national and European institutions to explore macroeconomic trends, regional disparities, and the impact of European Union programs, including Interreg IPA CBC and pre-accession funds. The findings indicate that bilateral cooperation and the countries' engagement with the EU exert a significant positive influence, particularly on peripheral and economically lagging regions. The Bulgarian experience is also considered as a potential model for institutional and administrative convergence with EU standards.*

**Keywords:** *cross-border cooperation, economic development, European integration, Bulgaria, Serbia, IPA, regional policy.*

### 1. Introduction

Economic integration in Southeast Europe has acquired particular significance in light of the European Union's policies aimed at enlargement, convergence, and the reduction of regional disparities. In this context, cooperation among the countries of the region becomes not only a political and economic necessity but also a strategic opportunity for sustainable development and social cohesion (European Commission, 2024; Manasijević, 2024). The focus on Bulgaria and Serbia—two

---

Original scientific paper

Received: 06.05.2025.

Accepted: 11.06.2025.

neighboring countries with historical and cultural ties but situated at different stages in the European integration process—allows for an in-depth exploration of the dynamics between EU membership and accession aspirations, as well as of the instruments through which cross-border cooperation can mitigate the effects of structural disparities and regional peripheralization (Đukanović, 2020; Stamenković & Petrović, 2021).

This research is driven by the need for a comprehensive understanding of the effects of cross-border partnerships within the framework of EU-funded programs and policies aimed at socio-economic convergence. The emphasis on border areas and economically vulnerable regions seeks to assess the extent to which joint development initiatives, financed through European instruments, effectively address local needs, stimulate economic activity, and create the preconditions for long-term regional inclusion (Interreg IPA CBC Bulgaria–Serbia, 2021). Particular attention is given to the way in which European policies are translated into practice within the cross-border space between Bulgaria and Serbia, including through the implementation of specific projects and strategic initiatives supported by EU funds (European Court of Auditors, 2022).

The aim of this study is to evaluate the impact of cross-border cooperation and European integration instruments on the economic development of both countries, with a focus on less developed areas where socio-economic disparities are most pronounced (NSI, 2023; SORS, 2023; Eurostat, 2023). The research is based on a mixed-methods approach, combining both quantitative and qualitative analytical techniques.

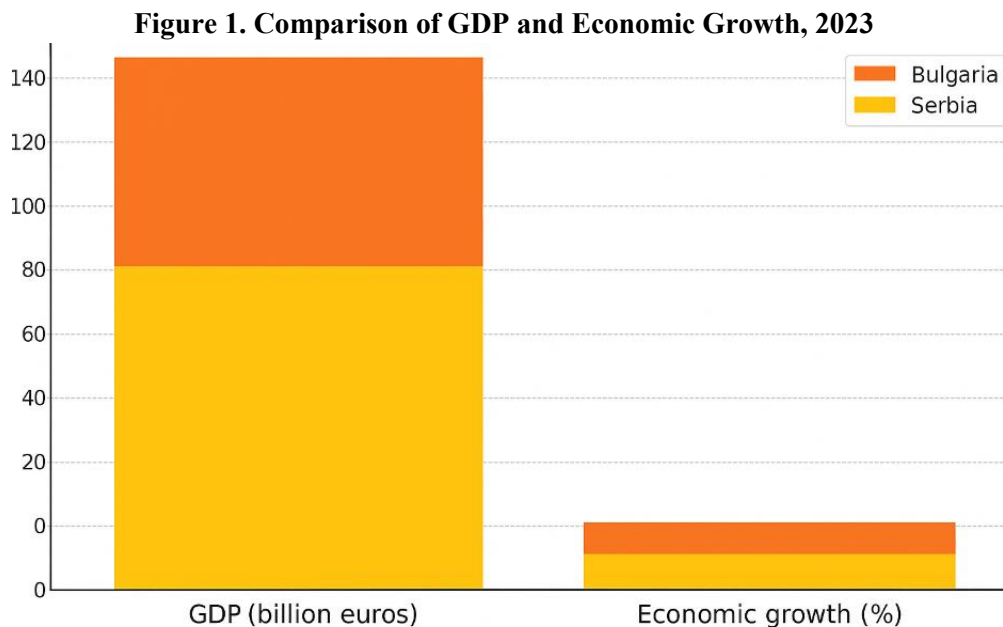
Data were collected from the national statistical institutes of Bulgaria and Serbia (the National Statistical Institute of Bulgaria and the Statistical Office of the Republic of Serbia), as well as from Eurostat and the European Commission. The study involves a substantive analysis of strategic documents, cross-border cooperation plans, and programmatic frameworks, combined with a comparative evaluation of implemented projects in order to identify the specific economic effects of integration mechanisms on the targeted regions (Interreg Annual Report, 2022; European Commission DG REGIO, 2023).

The study is guided by the hypothesis that cross-border cooperation and European integration tools contribute to enhanced economic resilience and socio-economic convergence between Bulgaria and Serbia, with particularly positive effects observable in marginalized and peripheral areas (Boeckhout & Nicolaidis, 2020).

In this regard, the focus extends beyond statistical indicators to include deeper processes of institutional interaction, network-based integration, and the transfer of best practices, which are reshaping the emerging geography of development along the shared border between the two countries.

## 2. Economic Profile of Bulgaria and Serbia

In 2023, the economic profiles of Bulgaria and Serbia reveal a number of similarities and differences that reflect both their historical trajectories and contemporary challenges and opportunities. Macroeconomic indicators position Bulgaria as the larger economy, with a gross domestic product (GDP) of approximately €89 billion, compared to Serbia's GDP of around €63 billion at current prices (Eurostat, 2024; IMF, 2024). However, the pace and structural nature of economic growth in the two countries diverge. Bulgaria recorded a growth rate of 1.8%, driven by contractions in foreign trade and a slowdown in industrial production, whereas Serbia achieved a higher growth rate of 2.3%, supported by public investment and export-oriented sectors (World Bank, 2024).



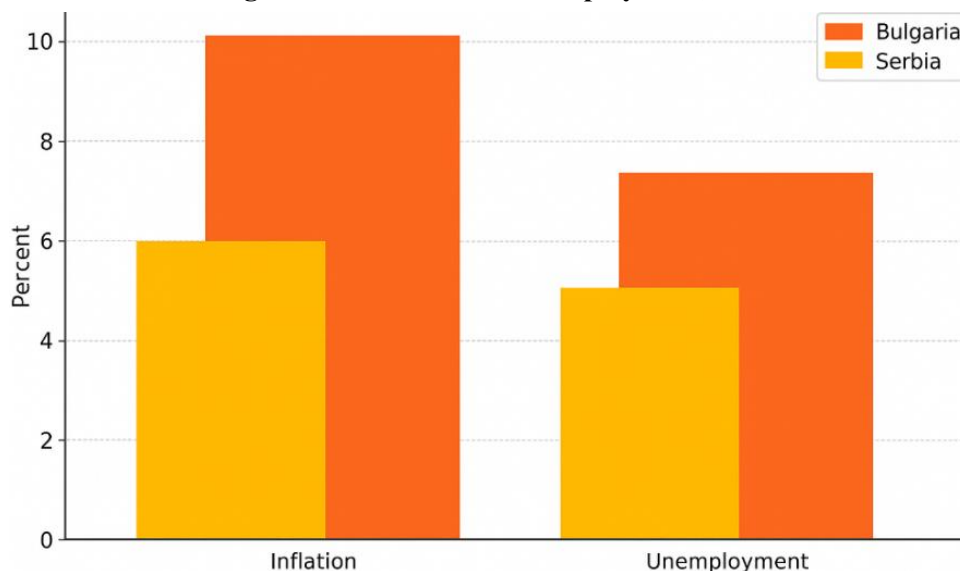
*Source:* Data compiled from official statistics provided by Eurostat and the World Bank for the year 2023.

Inflationary pressures remain a sensitive issue across the region. Bulgaria experienced a decline in inflation to 5.9% compared to the previous year, attributable to relatively stable fiscal policy and a drop in energy prices. In contrast, inflation in Serbia remained elevated at approximately 10.5% in 2023, driven by rising food and energy costs and a monetary policy geared toward stimulating domestic consumption (National Bank of Serbia, 2024).

Bulgaria's labor market displayed relative stability, with unemployment declining to around 4.7%, supported by job growth in urban centers and service-oriented sectors. Major employment concentrations were observed in Sofia, Plovdiv, and Varna, regions that also benefit from better infrastructure, access to education, and higher investment density (UNDP Serbia, 2024). By contrast, Serbia's labor market remained structurally challenged, with unemployment exceeding 9%. Rural

and border areas—especially in eastern and southern Serbia—continue to suffer from limited access to employment, education, and connectivity, exacerbating socio-economic inequality (UNDP Serbia, 2024).

**Figure 2. Inflation and Unemployment, 2023**



**Source:** Data obtained from Eurostat and the World Bank, 2023.

In terms of economic structure, both countries have made strategic efforts to develop high value-added sectors. Bulgaria has positioned itself as a regional hub for advanced industries such as information technology, electronics, mechanical engineering, and the automotive sector. This transformation has been facilitated by EU funding, favorable industrial policies, and the expansion of logistics and industrial zones around Sofia, Ruse, and Plovdiv (InvestBulgaria Agency, 2023). Serbia has also recorded sectoral progress, albeit more incrementally. The pharmaceutical industry, agribusiness, and business process outsourcing have emerged as priority sectors, particularly in cities such as Novi Sad and Niš, where targeted government incentives have attracted foreign capital and enhanced export capacity (Serbian Chamber of Commerce, 2023).

Despite these advances, both economies remain characterized by significant territorial disparities. Metropolitan centers like Sofia and Belgrade generate over 35% of national GDP and dominate in terms of investment, innovation, and population growth (OECD, 2024). Peripheral regions—such as Vidin and Kyustendil in Bulgaria, and Pirot and Zaječar in Serbia—continue to lag significantly behind, with GDP per capita often less than half the national average (Eurostat Regional Yearbook, 2024). The spatial inequalities are largely a product of demographic decline, insufficient infrastructure, and weak integration into national and European markets.

Foreign direct investment (FDI) and external trade orientation represent another axis of divergence. As an EU member state, Bulgaria enjoys access to structural and

cohesion funds, as well as a predictable legal environment that attracts long-term investors. German, Austrian, and Dutch companies are among the most prominent investors in industrial regions like Burgas, Stara Zagora, and Varna (InvestBulgaria Agency, 2023). Serbia, while outside the EU framework, has pursued a pragmatic foreign investment strategy, leveraging bilateral agreements with non-EU actors such as China, the United Arab Emirates, and Russia. These partnerships have facilitated investment in infrastructure, energy, and manufacturing, offering access to new markets but also exposing Serbia to geopolitical volatility (CEFTA Report, 2023; EBRD, 2024).

In conclusion, the economic profiles of Bulgaria and Serbia in 2023 reveal differentiated development strategies rooted in divergent institutional affiliations and policy frameworks. Bulgaria's economic strategy is anchored in European integration and high-tech industrial development supported by EU funding and regulatory stability. Serbia, meanwhile, follows a hybrid approach, balancing European ambitions with strategic partnerships outside the EU. Notwithstanding their differing trajectories, both countries face common structural imperatives: reducing regional disparities, enhancing labor productivity, and investing in human capital to ensure inclusive and sustainable growth across their entire territories. (Velikova, 2019)

### **3. Political and Institutional Frameworks for Sustainable Development**

Cross-border cooperation between Bulgaria and Serbia has emerged as a key strategic instrument for promoting socio-economic convergence in peripheral regions along their shared border. Within this framework, the Interreg IPA Cross-Border Cooperation (CBC) Bulgaria–Serbia Programme, co-financed by the European Union through the Instrument for Pre-Accession Assistance (IPA II), played a central role during the 2014–2020 programming period. This programme was designed not only to mobilize financial and institutional resources but also to address structural disparities by enhancing territorial cohesion, fostering sustainable development, and strengthening cross-border connectivity (European Commission, 2021).

Over the course of the programming period, more than one hundred projects were implemented, targeting a range of thematic priorities. These included the preservation of natural and cultural heritage, the promotion of sustainable tourism, the improvement of cross-border accessibility, the facilitation of social inclusion, and the deepening of institutional cooperation between local actors. The projects addressed both physical infrastructure gaps and socio-institutional deficiencies, offering comprehensive and multi-sectoral benefits to the region.

At the economic level, the programme's impact is discernible through several flagship projects that achieved notable results in terms of investment, employment, and direct local benefits. For instance, the road rehabilitation project connecting Kyustendil (Bulgaria) and Niš (Serbia) significantly improved transportation



efficiency. Travel time between the two cities was reduced by approximately 35%, while traffic volumes increased by over 20% in the first year following the project's completion (Ministry of Regional Development and Public Works, 2020). This intervention not only enhanced mobility but also served as a catalyst for increased cross-border trade, tourism, and economic interaction (Botseva, et al., 2021). Concurrently, investments in cultural infrastructure provided complementary support for regional development. The establishment of multifunctional cultural centers in Bosilegrad and Vidin illustrates this dual focus on cultural preservation and economic revitalization. These centers have contributed to job creation, strengthened local identity, and supported the development of cultural tourism. By offering venues for performance, exhibitions, and community engagement, they foster both social inclusion and economic activity in previously underutilized areas.

To illustrate the measurable outcomes of selected key initiatives, Table 1 presents economic indicators including investment levels, employment effects, and the number of direct beneficiaries:

**Table 1. Economic Impact of Key Projects**

No.	Project	Investment (millions €)	Jobs Created	Direct Beneficiaries
1.	Kyustendil–Niš Road	4.5	120	15,000
2.	Bosilegrad Cultural Center	1.2	18	3,000
3.	Vidin Cultural Center	1.5	22	4,500
4.	SME Support Program	2.8	60	90

*Source:* Impact Evaluation of the Interreg IPA Cross-border Programs 2014–2020

The SME Support Programme, another notable example, directed targeted funding toward local enterprises, resulting in the creation of 60 jobs and directly assisting 90 businesses. Such interventions fostered entrepreneurship, built local capacities, and increased economic resilience—key priorities in peripheral border areas with historically limited access to capital and market networks.

Beyond the quantifiable economic outcomes, the Interreg IPA CBC Programme also contributed to deep institutional and social transformations. By promoting collaborative networks among municipalities, non-governmental organizations (NGOs), educational institutions, and business associations, the programme facilitated new forms of multi-level governance.

Local authorities, in particular, enhanced their administrative capacity in areas such as strategic planning, financial oversight, and transnational project management. According to Balogh and Gál (2019), this increased institutional competence has laid the foundation for more effective public administration and long-term regional partnerships.

The active engagement of NGOs and civil society organizations has further enriched the programme's social impact. NGOs played a mediating role between citizens and state institutions, ensuring that project implementation remained responsive to local needs. They were especially instrumental in advocating for the inclusion of marginalized groups in educational, cultural, and employment

initiatives, thereby promoting a more inclusive and equitable development trajectory.

Moreover, this cross-border civic engagement has contributed to the cultivation of a shared regional identity, grounded in mutual understanding and cooperation beyond national and ethnic boundaries.

In conclusion, the Interreg IPA CBC Bulgaria–Serbia Programme stands as a compelling example of how structured cross-border cooperation can advance regional integration, economic modernization, and institutional renewal.

Through a combination of infrastructure investments, support for entrepreneurship, cultural revitalization, and participatory governance, the programme has contributed meaningfully to the transformation of historically marginalized border regions.

Although challenges remain—particularly with respect to administrative coordination and the sustainability of project outcomes—the accumulated experience during the 2014–2020 period confirms that such cooperation is both feasible and impactful, provided that commitment is sustained across local, national, and European governance levels.

#### **4. The Role of European Integration**

European integration constitutes a strategically significant trajectory for the Western Balkan countries, particularly for Serbia, as it offers a multidimensional platform for advancing economic modernization, institutional reform, and regional stabilization. This process transcends the mere fulfillment of formal accession criteria; it embodies a transformative agenda that aligns national development strategies with the normative and regulatory framework of the European Union.

Central to this transformative process is the Instrument for Pre-Accession Assistance (IPA III), the primary financial mechanism through which the EU supports candidate and potential candidate countries during the 2021–2027 period. Under the current cycle, Serbia stands to benefit from over €1.5 billion in EU assistance, which is allocated to key sectors such as administrative capacity-building, infrastructure enhancement, competitiveness, and social inclusion (European Commission, 2023). The successful absorption and deployment of these funds is intimately tied to Serbia's ability to harmonize its governance structures with EU standards and demonstrate tangible progress in key areas of reform.

However, Serbia's path toward European integration is fraught with structural and political challenges that must be addressed with a comprehensive and sustained commitment to reform. Among the most pressing of these are the necessity of profound judicial reform, the establishment of robust anti-corruption mechanisms, and the resolution of the long-standing dispute regarding the normalization of relations with Kosovo. These issues are not peripheral but rather form the core of the EU's conditionality framework, with particular emphasis on democratic consolidation, rule of law, and good governance (European Parliament, 2024). The resolution of these challenges bears significant implications for institutional

integrity, public trust in governmental institutions, and the overall credibility of Serbia's European aspirations. Moreover, the effectiveness with which Serbia can implement and internalize the objectives of IPA III is largely contingent upon its capacity to undertake systemic reforms that go beyond technical compliance and reflect genuine political will.

Nevertheless, the European integration process offers Serbia a structured and credible framework for institutional learning, policy innovation, and sustainable development. Through gradual alignment with the *acquis communautaire* and the adoption of European administrative and legal standards, Serbia is positioned to gain access to one of the largest and most sophisticated internal markets in the world. This access carries the potential not only to accelerate economic growth but also to foster cross-border cooperation, enhance regional cohesion, and improve the quality of public administration (European Commission, 2023). The process of harmonization and reform also facilitates the transfer of knowledge and technology, stimulates public sector modernization, and promotes transparency and accountability within governmental institutions.

In this context, the experience of Bulgaria emerges as a particularly instructive example for Serbia, offering both practical guidance and normative inspiration. Since joining the EU in 2007, Bulgaria has developed a comprehensive and well-functioning framework for the management and oversight of EU funds. This includes the institutionalization of partnership principles, the establishment of multi-level governance structures, and the operationalization of diverse funding instruments such as the Cohesion Fund, the European Regional Development Fund, and the European Social Fund Plus (Ministry of Finance of the Republic of Bulgaria, 2024). These mechanisms have been instrumental in supporting infrastructural modernization, particularly in the domains of transport and energy, while simultaneously fostering innovation, entrepreneurship, and social inclusion.

What makes Bulgaria's experience especially relevant is not merely the technical proficiency in fund management, but the broader transformation of its administrative and institutional landscape. The implementation of transparent procedures, the advancement of digital governance, and the establishment of coherent coordination between central and local authorities have collectively enhanced the effectiveness and legitimacy of public institutions (Ministry of Finance of the Republic of Bulgaria, 2024). These reforms have contributed to greater efficiency in public administration and improved the absorption capacity for EU funds—an area in which Serbia continues to face significant constraints. Bulgaria's trajectory thus serves as a concrete example of how sustained institutional adaptation, when aligned with EU standards and supported by coherent policy planning, can yield tangible developmental outcomes.

In conclusion, while Serbia's accession process is undoubtedly marked by complex political and institutional hurdles, it simultaneously offers a singular opportunity for comprehensive modernization and integration into the European institutional, economic, and normative order. Instruments such as IPA III represent more than financial assistance; they function as catalysts for strategic convergence and institutional resilience. In navigating this path, Serbia can draw valuable lessons

from Bulgaria's experience, which illustrates the critical importance of administrative capacity, transparency, and coordinated governance in achieving the objectives of European integration. The successful emulation of such models may significantly enhance Serbia's preparedness for membership and strengthen its position within the evolving architecture of the European Union.

## **5. Challenges and Prospects**

The development of modern infrastructure and the advancement of digitalization represent fundamental pillars in the endeavor to deepen economic cooperation between neighboring states, particularly in cross-border regions characterized by both shared potential and historical disparities. In this regard, strategic projects dedicated to the construction, modernization, and integration of transport and communication networks—most notably the development of Corridor X—occupy a central role in reconfiguring border areas into dynamic logistical and technological corridors. As an integral component of the Trans-European Transport Network (TEN-T), Corridor X not only facilitates seamless physical connectivity but also fosters the conditions necessary for the enhanced circulation of goods, services, labor, and capital (European Commission, 2023). This, in turn, significantly stimulates bilateral trade, boosts cross-border investment, and invigorates tourism, thereby contributing to the broader objectives of territorial cohesion and regional competitiveness (European Committee of the Regions, 2021).

Concurrently, the systematic enhancement of digital infrastructure constitutes a critical complement to physical connectivity, as it enables the formation of integrated cyber-ecosystems capable of supporting innovation, entrepreneurship, and knowledge exchange across borders. Initiatives such as the deployment of high-speed broadband networks, the establishment of interoperable digital platforms, and the creation of shared cross-border data and cybersecurity frameworks are instrumental in bridging digital divides and fostering inclusive digital transformation (European Commission, 2023). These efforts not only empower small and medium-sized enterprises (SMEs) to engage in cross-border e-commerce and innovation networks but also underpin the resilience and adaptability of regional economies in the face of technological disruption and global uncertainty (European Investment Bank, 2022).

Despite these advances, one of the most persistent and structurally embedded challenges to effective cross-border cooperation lies in the asymmetrical patterns of regional development. Economic dynamism remains disproportionately concentrated in capital cities and metropolitan centers, while peripheral and rural regions—particularly those adjacent to national borders—often face stagnation, depopulation, and structural marginalization. This spatial imbalance risks exacerbating socio-economic inequalities and undermining the long-term viability of cross-border initiatives. The OECD has emphasized the need to counteract such disparities through holistic and place-sensitive policy interventions that prioritize human capital development, support research and development (R&D), and encourage the proliferation of social enterprises in disadvantaged areas (OECD, 2022). Enhancing the quality and accessibility of education, fostering vocational

training aligned with regional economic needs, and cultivating innovation ecosystems tailored to local contexts are essential components of a strategic response that seeks to transform underperforming border regions into active participants in the broader regional economy (OECD, 2022; European Commission, 2023).

In this context, the prospects for achieving sustained economic convergence between neighboring countries—especially within the institutional framework of the European Union and its cohesion policy—are inextricably linked to the implementation of integrated cross-border development models. These models are premised on the principles of joint economic planning, shared resource management, and institutional coordination. Among the most promising mechanisms for operationalizing such models are the creation of joint industrial parks and cross-border economic zones, which serve to amalgamate production capabilities, research institutions, and transport infrastructure on both sides of the border. These zones can function as innovation-intensive growth poles, supported by targeted investments from EU structural and cohesion funds, as well as by programs such as Interreg, which are specifically designed to foster transnational cooperation and regional synergies (European Committee of the Regions, 2021; Interreg Europe, 2023).

Moreover, the successful realization of such integrative initiatives depends critically on the removal of non-tariff barriers and the simplification of cross-border administrative procedures. Harmonization of legal and regulatory frameworks—encompassing areas such as labor mobility, tax policy, environmental standards, and public procurement—is essential for facilitating cross-border investment, reducing transaction costs, and enhancing institutional trust between partner regions (European Commission, 2023; European Investment Bank, 2022). The establishment of transparent, predictable, and interoperable governance structures is equally vital for ensuring the sustainability and scalability of cross-border projects.

In conclusion, the sustainable development of cross-border regions necessitates a comprehensive, multi-level governance approach that aligns infrastructure modernization, digital transformation, and economic integration into a coherent strategic framework. Only through such an integrated, inclusive, and forward-looking paradigm can regional disparities be effectively addressed, unlocking the latent potential of border areas and laying the groundwork for a model of growth that is not only economically viable, but also socially equitable and innovation-driven.

## **6. Conclusion and Recommendations**

The present study clearly affirms that cross-border cooperation and European integration serve as essential mechanisms for promoting economic convergence and sustainable growth in both Bulgaria and Serbia. These processes not only enhance physical infrastructure and facilitate access to strategic resources but also exert a significant impact on institutional modernization, the strengthening of administrative capacity, and the deepening of regional cohesion (Tzifakis & Tsardanidis, 2020).

Of particular importance is the development of administrative potential in border regions, where there is a pressing need for enhanced institutional effectiveness, knowledge transfer, and the application of sound governance practices. In this

context, European cross-border cooperation programmes such as INTERREG contribute to building the capacity of local administrations and improving coordination across various levels of governance (European Commission, 2022). Integration efforts should also be accompanied by support for innovative public–private partnerships capable of mobilizing resources, fostering entrepreneurship, and creating new opportunities for youth employment and social inclusion.

The study further underscores the importance of targeted regional development policies that take into account the socio-economic specificities of border areas. The implementation of integrated interventions—particularly those related to access to education, healthcare, and social services—is crucial for overcoming social marginalization and territorial inequalities (Bachtler et al., 2017).

In this regard, Bulgaria’s experience in implementing policies within the EU’s Cohesion Policy framework may serve as a valuable reference for Serbia, especially during its pre-accession reform phase. The transfer of good practices and institutional expertise can facilitate Serbia’s adaptation to EU standards and strengthen the administrative preparedness of its institutions.

In conclusion, Serbia’s integration into the European Union and the deepening of its cross-border cooperation with Bulgaria should be regarded not only as strategic objectives but also as practical tools for addressing regional imbalances and achieving long-term sustainability in the economic and social development of both countries.

A synergistic approach is required—one in which national and European policies are effectively integrated and implemented at the local level, with the active participation of all relevant stakeholders.

## References

- Bachtler, J., Mendez, C., & Wishlade, F. (2017). New approaches to territorial development: Implications for the EU cohesion policy post-2020. *Regional Studies*, 51(6), 817–826. <https://doi.org/10.1080/00343404.2017.1281625>
- Balogh, P., & Gál, Z. (2019). Cross-border cooperation in Central and Eastern Europe: A review of empirical evidence. *Regional Studies, Regional Science*, 6(1), 239–254. <https://doi.org/10.1080/21681376.2019.1611689>
- Boeckhout, S., & Nicolaides, P. (2020). EU Cohesion Policy and Regional Development: Evaluating Policy Effects in Less Developed Regions. *Journal of European Integration*, 42(5), 701–718. <https://doi.org/10.1080/07036337.2020.1789510>
- Botseva, D., Vasileva, E., & Tsolov, G., (2021), Digital Europe - Adaptability to Modernization, Regional Development and Cross-Border Cooperation, pp. 523-534, Chamber of Economy Pirotd District.
- CEFTA Secretariat. (2023). *Annual report on CEFTA implementation 2023*. Retrieved from <https://cefta.int/reports>
- Dukanović, D. (2020). Serbia and European integration: Challenges and prospects. *Journal of Balkan and Near Eastern Studies*, 22(3), 381–397. <https://doi.org/10.1080/19448953.2020.1711552>

- E Velikova 2019, Innovation and digitalization in tourism-restriction or development for business in Bulgaria- *Trakia Journal of Sciences*
- EBRD. (2024). *Transition Report 2024: Business Environment and Economic Resilience in the Western Balkans*. European Bank for Reconstruction and Development. Retrieved from <https://www.ebrd.com/publications/transition-report>
- European Commission DG REGIO. (2023). *Regional policy report 2023*. Retrieved from [https://ec.europa.eu/regional\\_policy](https://ec.europa.eu/regional_policy)
- European Commission. (2021). *Evaluation of the Interreg IPA CBC Bulgaria–Serbia Programme 2014–2020*. Publications Office of the European Union. Retrieved from <https://ec.europa.eu>
- European Commission. (2023). *IPA III programming framework 2021–2027*. Retrieved from [https://ec.europa.eu/neighbourhood-enlargement/instruments/overview\\_en](https://ec.europa.eu/neighbourhood-enlargement/instruments/overview_en)
- European Committee of the Regions. (2021). *Cross-border cooperation in the EU: Building resilient border regions*. Retrieved from <https://cor.europa.eu>
- European Court of Auditors. (2022). *Special Report on Pre-accession Assistance to the Western Balkans*. Publications Office of the European Union. <https://www.eca.europa.eu>
- European Investment Bank. (2022). *Western Balkans Economic Resilience and Investment Report*. Retrieved from <https://www.eib.org>
- European Parliament. (2024). *Serbia's progress on the path to EU accession: Challenges and perspectives*. Retrieved from <https://www.europarl.europa.eu>
- Eurostat. (2023). Регионална икономическа статистика.
- IMF. (2024). *World Economic Outlook: Recovery and Risks in Emerging Markets*. International Monetary Fund. Retrieved from <https://www.imf.org>
- Interreg Europe. (2023). *Annual Report 2023: Fostering Cross-Border Cooperation*. Retrieved from <https://www.interregeurope.eu>
- Interreg IPA CBC Bulgaria–Serbia. (2021). Доклад за изпълнение на програмата 2014–2020.
- Interreg IPA CBC Bulgaria–Serbia. (2022). *Annual Report on Programme Implementation 2022*. Retrieved from <https://www.ipacbc-bgrs.eu>
- Manasijević, A. (2024). Fostering sustainable regions in Serbia: Strategic approach, Ai, and Regenerative economics. *Journal of Regenerative Economics*, 1(1), 113-128.
- Manasijević, A. (2024). Rurban: Strategic, Smart and Innovative development model. *Economic themes*, 62(1).
- Ministry of Finance of the Republic of Bulgaria. (2024). *EU Funds Management Report 2024*. Retrieved from <https://www.minfin.bg>
- Ministry of Regional Development and Public Works. (2020). *National Development Programme Bulgaria 2020*. Retrieved from <https://www.mrrb.bg>
- National Bank of Serbia. (2024). *Annual Report 2024*. Retrieved from <https://www.nbs.rs>
- OECD. (2022). Регионална политика в Западните Балкани.
- OECD. (2024). *Economic Surveys: Bulgaria 2024*. Organisation for Economic Co-operation and Development. <https://www.oecd.org>
- Serbian Chamber of Commerce. (2023). *Annual Report 2023*. Retrieved from <https://pks.rs>
- Stamenković, S., & Petrović, M. (2021). Cross-border cooperation between Serbia and Bulgaria: Opportunities and challenges. *Economic Themes*, 59(3), 297–312. <https://doi.org/10.2478/ethemes-2021-0017>

- Tzifakis, N., & Tsardanidis, C. (2020). EU conditionality in the Western Balkans: Implications and limitations. *Southeast European and Black Sea Studies*, 20(1), 47–65. <https://doi.org/10.1080/14683857.2020.1719298>
- UNDP Serbia. (2024). *Human Development Report Serbia 2024*. United Nations Development Programme. Retrieved from <https://www.rs.undp.org>
- World Bank. (2024). *Western Balkans Regular Economic Report: Spring 2024*. World Bank Group. Retrieved from <https://www.worldbank.org>
- Европейска комисија. (2022). Регламент за IPA III.
- Европейска сметна палата. (2021). Специален доклад за предприсъединителната помош.
- Министерство на регионалното развитие и благоустройството (2023). Национална програма за развитие.
- Национален статистически институт (НСИ). (2023). Макроикономически показатели на България.
- Световна банка. (2023). Икономически преглед за Западните Балкани.
- Статистически офис на Република Сърбия (SORS). (2023). Данни за сръбската икономика.

## EKONOMSKI RAZVOJ BUGARSKE I SRBIJE U KONTEKSTU TRANSGRANIČNE SARADNJE I EVROPSKE INTEGRACIJE

**Apstrakt:** Ovaj članak analizira ekonomski razvoj Bugarske i Srbije kroz prizmu prekogranične saradnje i procesa evropske integracije. Korišćeni su komparativna analiza i sekundarni podaci iz nacionalnih i evropskih institucija u cilju proučavanja makroekonomskih trendova, regionalnih disproporcija i uticaja programa Evropske unije, uključujući Interreg IPA CBC i predpridružne fondove. Rezultati pokazuju da saradnja između dve zemlje i njihova posvećenost Evropskoj uniji imaju značajan pozitivan efekat, naročito na periferne i ekonomski nerazvijene regione. Razmatra se i bugarsko iskustvo kao model institucionalnog i administrativnog približavanja standardima EU.

**Ključne reči:** prekogranična saradnja, ekonomski razvoj, evropska integracija, Bugarska, Srbija, IPA, regionalna politika.





Vol. 2(1): 55-68 (2025)



Journal of Regenerative Economics

DOI 10.5937/jre2501055R

## THE NEXUS BETWEEN CIRCULAR ECONOMY AND COMPETITION POLICY

**Snežana Radukić**

University of Nis, Faculty of Economics, Serbia

✉ snezana.radukic@eknfak.ni.ac.rs

ORCID: 0000-0001-5636-28

**Milan Kostić**

University of Kragujevac, Faculty of Economics, Serbia

✉ mkostic@kg.ac.rs

ORCID: 0000-0003-2883-1474

**Zorana Stanković**

University of Nis, Faculty of Mechanical Engineering, Serbia

✉ zorana.stankovic@masfak.ni.ac.rs

ORCID: 0000-0001-8974-3916

**Abstract:** *Competition and sustainability are interdependent concepts which critically try to find ways to maintain the market economy without the threats to the sustainable development goals. There are a few approaches by which the competition policy might promote the circular economy. Both concepts stimulate companies to maximize the value of inputs and raw resources, while improving the efficiency of using limited resources. Since the effective use of natural resources and production efficiency go hand in hand, competition is one of the forces which accelerates the transition to a circular economy. As a result, using the present analytical framework and conventional methods, competition authorities' work can fundamentally aid in the shift to a circular economy, even in cases where regulatory action may be lacking or is insufficient. The domain of this field is not examined enough and provides ambiguous findings. The objectives of the circular economy and competition are significantly aligned, even though competition by itself does not always impel the adoption of circular business models. The main goal of the paper is to connect the circular economy and competition policy, as well as to determine the nature and specifics of this connection.*

**Keywords:** *competition advocacy; circular economy markets; consumers behavior; market failures; efficiency; anticompetitive conduct.*

## **1. Introduction**

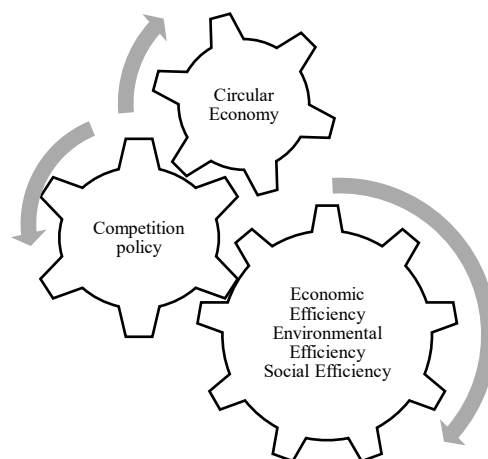
Circular economy and competition policy are two very important concepts. Both are related to the higher economic and social welfare. In the case of circular economy, higher welfare could be achieved through minimizing the usage of the natural resources and through minimizing the waste, emission, and energy leakages. All these things could improve economic and social welfare, especially for future generations. On the other hand, competition policy could improve welfare through enabling free competitions between undertakings and in that case allocative efficiency. One could conclude that the circular economy approach is related to the long-run welfare increasing, while competition policy is mainly related to short-run welfare increasing. The key purpose of the paper is to connect these two concepts and to estimate if they are connectable and compatible. The usual opinion is that competition policy limits initiatives that promote sustainability and its goals, while circular economy does not. The manuscript would challenge this statement.

According to the main purpose of the paper, the manuscript is organized in next interconnected sections. Beside Introduction and Concluding remarks there are two sectors. The first sector is related to the contribution of circular economy and competition policy to improving the sustainability and efficiency, while the second sector, which is crucial, deals with the relationship between the competition advocacy and the circular economy at contemporary markets.

## **2. The contribution of circular economy and competition policy to improving the productive efficiency and green growth**

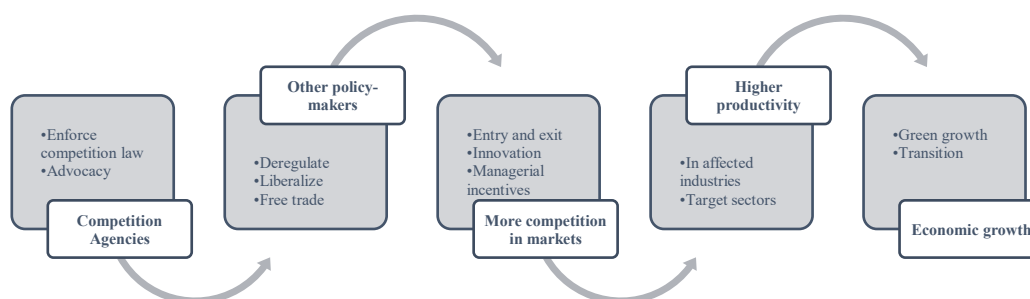
The circular economy based on the reduction of waste and on the re-use and recycling of resources and materials is increasingly recognized to be at the core of supply chain resilience, the financial risk mitigation and the green transition. The main research question is whether the competition law and policies, as currently designed and applied, are compatible with circular paradigm and how these elements can be considered under the competition framework. The competition policy mediates between the circular economy and the efficiencies among the businesses (Figure 1). A competitive environment is the basis for the effective use of resources and economic growth, forcing companies to be more efficient, limit costs, and spend more to invent and develop new products (Abuselidze & Zoidze, 2023).

The main objective of the EU competition policy has been to preserve the competition within the single market. Fair competition leads to diminishing market barriers, enhances the market openness and competitiveness of sectors and the whole national economics. Also, competition propels the healthy progression of the market economy (Yan et al., 2024; Ding et al., 2022). The contemporary institutional design of competition policy is characterized by four features: (1) authority independence, (2) active stance in cartel cases, (3) economic approach in investigating the abuse of a dominant position of undertakings, and (4) competition-focused merger approach (Golovanova et al., 2024).

**Figure 1. Theoretical framework**

*Source: Authors*

New technologies are transforming markets, new competitors are emerging globally, and policy makers are facing a new set of priorities. Competition authorities at national and the supranational level should be determined that they forbid measures that stifle competition and productive efficiency by considering how anticompetitive agreements, actions, and mergers affect the circular economy. The demand will also drive the shift from a linear to a circular economy as knowledgeable customers will choose more and more circular economy items and businesses will compete more to supply them. Therefore, to preserve the market shares from non-circular competitors, competition agencies can use their enforcement tools to stop non-circular economy players from impeding their competitors in the circular economy and from purposefully delaying the release of their own products' more recyclable versions. In addition, competition authorities may ensure that they allow consumers to reap the circularity benefits yielded by several forms of pro-competitive business co-operation, such as standardization and R&D agreements. Competition authorities can provide concrete guidance to businesses on how competition law can consider and, when appropriate, facilitate unproblematic circular economy initiatives, with exemptions or by issuing guidelines exemplifying how pro-competitive collaborations contribute to circular economy goals. Finally, competition policy can be used as a proactive tool to support the transition to a circular economy. Competition authorities can engage in advocacy efforts to promote awareness and understanding of the value of competition principles for a well-functioning circular economy among policymakers, businesses consumers, and other stakeholders. This can be done, for instance, by issuing opinions to inform government action, by conducting market studies in strategic sectors, influencing the design of competitive tenders in circular economy markets, and monitoring regulatory barriers that may unduly hinder competition, innovation and circularity.

**Figure 2. The effects of competition on green economic growth**

*Source:* Authors according to OECD, 2014.

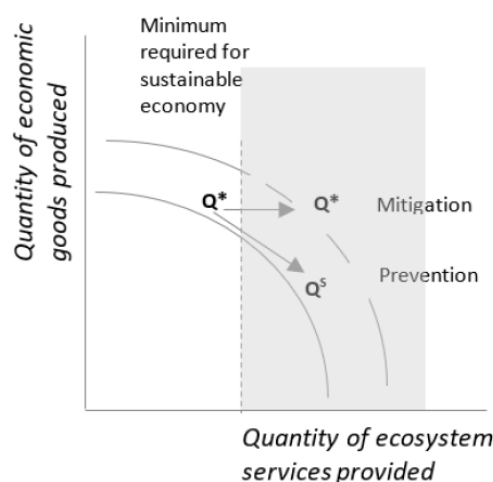
Figure 2 shows that industries where there is greater competition experience have faster productivity growth. Some studies seek to explain differences in productivity growth between industries using the measures of the intensity of competition they face. Others study the effects of specific pro-competitive interventions, particularly trade liberalization or the introduction of competition into a previously regulated, monopoly sector. An intensive competition in the upstream sectors can ‘cascade’ to improve the productivity and employment in the downstream sectors and so through the economy more widely. Competition leads to an improvement in allocative efficiency by allowing more efficient firms to enter and gain market share, at the expense of less efficient firms (between-firms effect). Anti-competitive behavior preventing entry and expansion, may therefore be particularly damaging for economic growth. Competition also improves the productive efficiency of firms (within-firms effects), as firms facing the competition seem to be better managed.

Although most consumers favor more sustainable products, which means that these products have “zero impact” to the consumption of resources, carbon dioxide emissions, and the creation of waste (Genova & Allegratti, 2024), in many cases they are not prepared to pay enough for clean or sustainable production. In such cases market failures occur. On the demand side, market failures include: an unwillingness to pay for the environmental or social costs unless all other consumers pay an equivalent amount, as well as underestimating the importance of future environmental damage, behavioral biases (such as the status quo bias, which discourages consumers from trying new products or changing their behavior), and the lack of accessible and reliable information about the future costs of unsustainable products. On the supply side there are the coordination issues. For instance, an investment in expensive clean technology or a decision to source raw materials more responsibly may raise a producer’s costs, exposing it to the risk of being undercut by rivals relying on cheap and dirty technology or raw materials, leading everyone to stay away from investing in the better alternative. That fear may deprive the firm from the economy of scale (International Chamber of Commerce, 2020).

When the competition does not work well, the ecosystem suffers because the resources are wasted: the inefficient markets lead to a situation where the consumers

are collectively worse off. The market in which the consumers are depleting the earth's vital resources is not efficient, and it is failing. At the core of this statement is the understanding that a competition works by bringing market prices into line with the true costs of production and consumption. The role of competition can be lowering prices, limiting market power so that firms can't raise their prices above costs and extract the excessive profits. But another cause of inefficiency in markets is when prices are too low, below the true costs of production and consumption. An effective competition policy should, therefore, seek to ensure that neither of these happens. Markets could achieve more efficiency by considering the trade-off between the consumption of material goods and the preservation of ecosystem services as a Production Possibility Frontier (PPF). In Figure 3, the PPF curves illustrate all possible combinations of goods and services that society can provide, given the current level of technology. A minimum amount of natural capital must be preserved for the system to be sustainable – this is the point at which the Earth's rate of regeneration and absorption equals the rate at which the resources are harvested, or the waste is emitted. Sustainable levels of natural capital are shown as the shaded zone. Mitigation and prevention are two ways in which a society, starting from an unsustainable position on the chart ( $Q^*$ ), can move into the sustainable zone (Frontier Economics, 2024).

**Figure 3. The ecological-economic production possibility frontier**



Source: Frontier Economics, 2024.

The first strategy is mitigative so that rationalizing and innovating can change the production processes and make them less damaging, pushing the curve outwards. Mitigation is necessary if we want to maintain the current level of consumption of material goods ( $Q^*$ ), while at the same time achieving the sustainable markets. These agreements are there only to source sustainably produced raw materials, phase out plastics in food packaging and coordinate logistics to reduce transport distances. The second way of shifting the economy to the sustainable zone is preventative and includes limiting the quantities of a product or service produced, so that the damage

to the environment and the depreciation of natural capital can be prevented. The most appropriate strategy in any given market will be determined by the relative costs and economic logic. The price elasticity of demand plays a key role in determining the costs under each strategy, because the estimated price of the elasticity model determines the response of demand (Kansal & Tiwari, 2023; Sarkar et al., 2023; Morlotti et al., 2024). If demand is elastic, the costs of a preventative strategy are likely to be lower because it would only require a small price increase to achieve a large reduction in demand for the product. Conversely, if demand is inelastic, then a mitigative strategy may be more cost-effective. In the fast-moving markets with innovations and technological changes, a mitigative approach might be more cost effective and would avoid dampening the dynamic efficiency (Frontier Economics, 2024).

### **3. Competition advocacy and the circular economy markets**

Competition should continue to play the vital role of eroding the profit margin, in such manner that firms do not earn excess profits over and above the price levels necessary to reverse the environmental harm. It must also work to ensure that markets deliver what consumers want and need. This would be a market delivering allocative efficiency, whereby resources are utilized in the minimum amounts necessary to bring maximum value to society on a sustainable basis.

A significant alignment between the goals of competition policy and those of the circular economy can reinforce each other, so the market players can engage in competitive dynamics that supports the maximization of productive efficiency and the transition to a circular economy. The complementarity of the competition and the circular economy is fostered by the competition enforcement against the practices hindering sustainability and the interaction of competition law and business activities can lead to an increased sustainability (OCED, 2020).

Competition is largely supportive of the circular economy by providing the incentives for productive efficiency, which in turn leads to innovative business models and products, new markets, co-operative and synergy-creating settings, and standardization. There are some ways in which competition may promote circularity by stimulating innovation investments, the development of new circular business models, collaboration with other companies for the exploitation of synergies, standardization, and market creation.

Companies may be encouraged by competition to implement one or more of these business models to gain a competitive edge. Therefore, they can satisfy the demands of the circular economy while reducing costs, breaking into a profitable market or providing customers with a more innovative product. In this regard, the main ways in which the competition law and policy, as traditionally interpreted and applied, can support the circular economy are these:

1. Creation of incentives for an efficient use of resources,
2. Development of innovations,
3. Design of circular economy business models:

- *Circular supply* (renewable and recovered input is used instead of extraction of virgin resources);
- *Resource recovery* (the use of secondary input materials derived from waste is maximized to avert extraction of new resources);
- *Product life extension* (the end of life of products is extended as late as possible);
- *Sharing* (existing infrastructure and scarce goods are shared to avoid under-use and reduce demand for new raw materials);
- *Product-as-a-service* (the products are marketed by the supplier as a service, encouraging recycling and refurbishing of products).

#### 4. Pro-competitive collaboration.

Competition can also encourage businesses to collaborate by combining complementary skills and technologies to offer new and better circular products to consumers. Various forms of pro-circularity cooperation, such as those aimed at providing a new solution to a technical problem or at creating a new product, do not typically raise competition concerns, provided that the exchange of information that they involve is limited to what is strictly necessary for the collaboration to be successful. This pro-competitive collaboration creates energetic effects.

#### 5. Standardization.

These arrangements aim at setting technical or quality requirements for a certain product or service. In addition, standardization is largely beneficial from the competition viewpoint, because it may allow compatibility and interoperability of products, with positive impact on consumers, technological advancement, creation of new products and markets, and lower transaction costs.

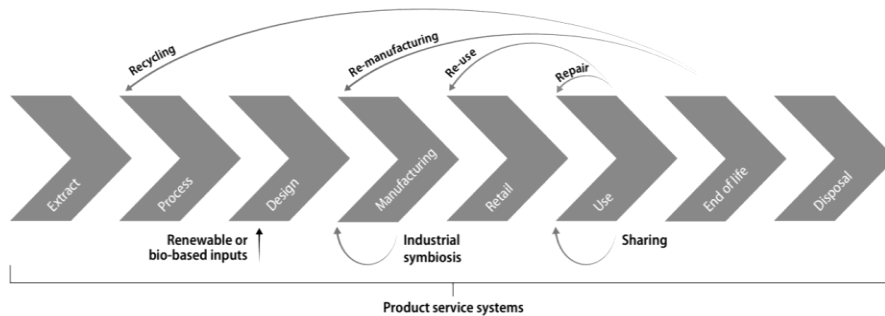
#### 6. Market creation.

Competition pushes market players to respond to consumer demands in the most efficient way. Innovative ways to reuse or recycle waste materials can enable the firm to enter and compete in new markets where such materials are a valuable input in the production process. Then, this can lead to market creation and the development of entirely new circular products which attract market players and generate more competition in circular markets, further promoting efficiency, choice, and innovation.

The global economic system, which is characterized by the rapid increase in consumerism, is no longer sustainable. The adoption and adherence to linear practices have resulted in the depletion of natural resources. In response to these challenges, there was presented an approach designed to achieve sustainable growth and which can ensure a transition from a traditional linear production function to a circular one (Broman & Robert, 2017; Hondroyiannis et al., 2023). This approach is a circular economy approach. Circular economy can be defined as “a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. This can

be achieved through a long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling” (Geissdoerfer et al., 2017). It is referred to as an economic system based on 3Rs: reduction of waste, reusing and recycling of resources and materials to the maximum extent possible (Figure 4). It is important to point out that the environmental knowledge positively affects both environmental concern and green consumption (Stoimenova, 2016).

**Figure 4. Circular business models value chains**



Source: OECD, 2019.

According to the Ellen MacArthur Foundation, the circular economy is thus founded on the following three principles: avoiding the creation of waste and pollution, saving and preserving energy, labor and materials, and protecting and enhancing renewable resources, by prolonging their duration, their re-use. Circular economy approach business model has an obligation to change business values, mindset, processes and practices (Jabbour, et al., 2019; Malik et al., 2022). Firms have to change their traditional process from the take-make-waste approach to the reduce-reuse-recycle-recover approach (Malik et al., 2022).

**Table 1. Anticompetitive conduct and theories of harm related to circular economy**

<i>Anticompetitive conduct</i>	<i>Description</i>
<i>Horizontal restrictions of competition</i>	Cartel or exchange of commercially sensitive information between buyers of recycled materials. Agreements or exchange of information between undertakings with an access to circular input or technology to reduce the use of that input, increase its price or slow down the development or the implementation of technology.
<i>Vertical restrictions of competition</i>	An agreement between the manufacturer and the retailers imposing fixed and minimum resale prices for the recycled product. Selective distribution agreements where the quality criteria implicitly exclude the recycled materials. Exclusive supply obligations to make the supplier sell a recyclable input only to one buyer and affecting a significant part of the market.



	Exclusive purchasing obligations to make the downstream customer buy from a specific non-circular supplier and affecting a significant part of the market.
<i>Mixed horizontal and vertical restrictions</i>	Exchange of commercially sensitive information between different manufacturers, facilitated by the supplier of scrap material coordinator the recycling and not necessary for setting up the recycling scheme
<i>Abuse of dominance</i>	Refusal to supply or provide access to indispensable infrastructure by the dominant player. Exclusivity provisions aimed at preventing trading partners from recycling more. Preventing consumers from developing or implementing more circular products and processes.

Source: OECD, 2023, pp. 20.

Some studies give specific policy recommendations for the EU competition legislation in the direction of how might supply chain and climate change issues be included into antitrust laws. Competition authorities can contribute to the shift to a more sustainable market economy (Haucap et al., 2024). Circular economy markets have some features that may be relevant under a competition analysis. These markets may often be characterized by one or more of the following:

- Infrastructure may be costly, and natural monopolies may be present. In municipal solid waste management, for example, evidence shows that costs increase when more than one collector is used.
- Markets may be local, and transportation costs may be quite relevant (e.g., the market for the collection of heavy scrap metals or for waste collection and management). Long transportation journeys may make the recycling or re-use of resources more costly, and the relevance of local infrastructure higher given the transport costs.
- Data collection and information exchange may be necessary to provide the product or the service. Sharing data may enable technological research for the reduction of waste, it may enable more efficient transport coordination along the supply chain; or it may allow collective switching to electric vehicles. To ensure that resources are used in the most efficient way, it is particularly important to preserve their quality to ensure their re-use and to enable coordination along the supply chain. The type of information that may need to be exchanged may entail anticompetitive risks, ranging from time windows and modalities for material returns, repair services, inventory, and the costs of collection and recycling (Serafimova & Hörnig, 2023).
- The service offered may be associated with a by-product or production waste that has a negative rather than a positive value (e.g., disposal of waste, scrap metal, exhausted tires, or batteries). For example, extended responsibility obligations require producers to take charge of the disposal of the by-product, which is therefore considered as a cost, rather than a source of revenue. This, however, may shift once a market for the re-use of the by-product has been established, affecting its appreciation significantly for high value material (Laubinger & Brown, 2022).

- The players may operate in an “eco-system” or so-called industrial symbiosis using the waste or by-products from one production process as an input for a different one.
- Different business models may be used for the purpose of keeping materials as long as possible within the economy. This leads to the development of business models sharing infrastructure and limited goods or on product-service systems, where products are offered as a service.
- Innovation and R&D investments may represent an extremely important part of a circular business and inform competitive commercial strategies and acquisitions. Companies which have in the past invested in non-circular technologies (e.g. for the extraction of primary resources) are more likely to continue investing in such technologies, rather than switching to circular ones. Therefore, there can be incentives for anticompetitive dynamics between circular and non-circular undertakings when they interact in a specific market, particularly if the former meet customers’ or consumers’ preferences.

Based on the above-described features of the circular economy markets, there are a few characteristics of the circular economy that may contribute to market power and potentially raise the competition policy challenges such as *intellectual property rights* and:

- *Infrastructures, economies of scale, and network effects*: in many circular economy markets, the presence of infrastructure (for recycling or waste collection) may be relevant. At times, it may even be a necessary condition to operate in the market. In some cases, significant economies of scale may be present. It may also often be the case that the service offered becomes increasingly more valuable for the consumers if more consumers purchase or participate in it (as it may be the case for the establishment of a waste disposal initiative or a take-back scheme). These features, alone or in combination, may create the conditions for market power and, in some circumstances, anticompetitive concerns (especially in the form of vertical restrictions and abuses of dominance). In some cases, such conditions may also emerge following the granting of public concessions which establish an incumbent to create a market but may unduly persist, thus preventing the market entry by alternative suppliers of the service. In this context, an important distinction may be drawn in these scenarios between the competition for the market and the competition in the market. The competition for the market occurs in those situations where the market features lead undertakings to compete for the whole market rather than for only a share of it. This may happen because the market is more suitably served by only one player (e.g., a significant infrastructure), which means that that tends to be the most efficient scenario for that market. The examples include natural monopolies (where only one company can fully exploit the available economies of scale), legal monopolies (where the monopoly position of the market player is protected by law, such as by the means of intellectual property rights), publicly funded monopolies (where the government only purchases from one supplier) and platform monopolies (where the network effects are significant). Since all these categories of markets may be relevant for the circular economy it must be observed that, while the competition in the

market tends to be always desirable, in some markets where the circularity may be important (e.g., recycling waste), the competition in the market may not take place due to specific circumstances. Where this is the case, and governments decide to opt for the award of time limited exclusive rights to enable market entry and create competition for the market in the short run, these should be allocated by the means of competitive tendering, as a preferable option to the direct granting of privileged rights.

- *Vertical integration as barriers to entry and local markets:* circular economy supply chains and business models may require significant infrastructural or technological investments or vertical integration. This may facilitate the creation of barriers to entry for undertakings that do not have the size or the necessary access to capital to compete. For instance, a circular economy undertaking which owns a necessary infrastructure can attempt to prevent competitors from entering the market or, if present both upstream and downstream, engage in margin squeeze type of behavior. The presence of the infrastructure or vertical integration may provide the opportunity to lessen the competition (Sharma et al., 2022).

## 5. Concluding remarks

As one can notice the competition policy could be the engine of sustainable economic growth. That could be, for example, through supporting the circular economy. There is a high interconnection between the competition policy and the circular economy. This interconnection means that the competition policy needs to be some kind of a supporter of the circular economy. This support can be through preventing the anticompetitive practice related to the agreements between the undertakings related to the decreasing usage of circular inputs or technology, or on slowing down the development or implementation of the circular technology. Also, circular friendly competition policy has to prevent vertical agreement from an exclusive supply of recyclable inputs only to one buyer. In the field of abuse of a dominant position, the competition policy has to prevent dominant undertakings from the established charges which can prevent trading partners from recycling more. Also, the competition policy has to stop dominant undertakings from preventing consumers from launching more circular processes and products (Table 1).

The competition policy enforcement has to be tailored to the circular economy goals. Because some investment in circular infrastructure and productions is very expensive, the competition policy has to be more flexible to the horizontal agreements, especially the ones related to the R&D. On the other hand, it means that the competition authorities have to be proactive and escape every potential abuse of horizontal agreements which can be destructive for competition and economic and social welfare. Tailoring the competition policy is related to the favoring undertakings which applied the circular economy approach, as opposed to the undertakings which force the linear economy approach. In this case, the competition authorities have to be careful because of the potential “greenwashing phenomenon” or “green PR”. Greenwashing is a marketing trick which means that the undertaking

(company) persuades the public that a company's products and procedures are environmentally friendly. It is some kind of act which misleads the consumers regarding the environmental practices of a company or the environmental benefits of products and processes in a company (Srisathan & Naruetharadhol, 2025). In that case these undertakings couldn't have circular economy friendly approach of the antitrust regulations. Some studies estimated that when regulators discovered greenwashing and it became publicly recognized, it can reduce the market power of the company (Liu, et al., 2025).

The general conclusion is that the competition policy and the circular economy can be compatible with the same aim, which is achieving sustainable goals. Policymakers have to understand the compatibility of these two concepts and to mix both of them in a well manner, where the circular approach and sustainable growth are crucial.

## References

- Abuselidze, G., & Zoidze, G. (2023). Competitive environment problems and challenges in the pre-pandemic and post-pandemic society. *Economic Themes*, 61(3), 289-306.
- Broman, I. G., & Robèrt, K., H. (2017). A framework for strategic sustainable development, *Journal of Cleaner Production*, 140(1), 17-31, <https://doi.org/10.1016/j.jclepro.2015.10.121>.
- Ding, W., Levine, R., Lin, C. & Xie, W. (2022). Competition laws, ownership, and corporate social responsibility. *Journal of International Business Studies*, 53(8), 1576–1602. <https://doi.org/10.1057/s41267-022-00536-4>.
- Frontier Economics (2024). How should competition policy help save the planet? <https://www.frontier-economics.com/uk/en/news-and-insights/articles/article-i20521-how-should-competition-policy-help-save-the-planet/>
- Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143(6), 757-768, <https://doi.org/10.1016/j.jclepro.2016.12.048>.
- Genova, C., & Allegretti, V. (2024). Sustainable Food Consumption: Social Representations of Definitions, Drivers, and Obstacles. *Sustainability*, 16(4), 1415. <https://doi.org/10.3390/su16041415>
- Golovanova, S., Ribeiro, E. P., & Avdasheva, S. (2024). Economic analysis and competition policy practice: A comparative empirical examination. *Economic Systems*, 101245, <https://doi.org/10.1016/j.ecosys.2024.101245>.
- Haucap, J., Rösner, A., Podszun, R., & Rohner, T. (2024). *Competition and Sustainability: Economic Policy and Options for Reform in Antitrust and Competition Law*. Edward Elgar Publishing.
- Hondroyiannis, G., Sardianou, E., Nikou, V., Evangelinos, K., & Nikolaou, I. (2023). Energy market dynamics and institutional sustainability: How affect the Europe's circular economy. *Circular Economy*, 2(3), 100048, <https://doi.org/10.1016/j.ccc.2023.100048>.
- International Chamber of Commerce (2020). *Competition policy and environmental sustainability*. Paris, France.
- Jabbour, C., J., C., Sarkis, J., Jabbour, A., B., L. de S., Renwick, D., W., S., Singh, S., K., Grebinyevych, O., Kruglianskas, I., & Moacir Godinho Filho, M., G. (2019). Who is in

- charge? A review and a research agenda on the 'human side' of the circular economy, *Journal of Cleaner Production*, 222(2), 793-801, <https://doi.org/10.1016/j.jclepro.2019.03.038>.
- Kansal, G., & Tiwari, R. (2023). Elasticity modelling of price-based demand response programs considering customer's different behavioural patterns, *Sustainable Energy, Grids and Networks*, 36(5), 101244, <https://doi.org/10.1016/j.segan.2023.101244>.
- Laubinger, F., & Brown, A. (2022). Deposit-refund systems and the interplay with additional mandatory extended producer responsibility policies. OECD Environment Working Papers, No. 208, OECD Publishing, Paris, <https://doi.org/10.1787/a80f4b26-en>.
- Liu, X., Wang, C., & Wang, X. (2025). Greenwashing and corporate market power, *Journal of Cleaner Production*, 486, 144486, <https://doi.org/10.1016/j.jclepro.2024.144486>.
- Malik, A., Sharma, P., Sharma, P., Vinu, A., Karakoti, A., Kaur, K., Gujral, H., S., Munjal, S., & Laker, B. (2022). Circular economy adoption by SMEs in emerging markets: Towards a multilevel conceptual framework. *Journal of Business Research*, 142(C), 605-619, <https://doi.org/10.1016/j.jbusres.2021.12.076>.
- Morlotti, C., Mantin, B., Malighetti, P. & Redondi, R. (2024). Price volatility of revenue managed goods: Implications for demand and price elasticity, *European Journal of Operational Research*, 312(3), 1039-1058, <https://doi.org/10.1016/j.ejor.2023.07.018>.
- OECD (2014). Factsheet on how competition policy affects macro-economic outcomes. [https://www.oecd.org/content/dam/oecd/en/publications/reports/2014/10/factsheet-on-competition-and-macro-economic-outcomes\\_24994985/660b93ab-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2014/10/factsheet-on-competition-and-macro-economic-outcomes_24994985/660b93ab-en.pdf)
- OECD (2019). Business Models for the Circular Economy: Opportunities and Challenges for Policy, OECD Publishing, Paris, <https://doi.org/10.187/g2g9dd62-en>
- OECD (2020). Sustainability and Competition, OECD Competition Committee Discussion Paper, <http://www.oecd.org/daf/competition/sustainability-and-competition-2020.pdf>
- OECD (2023). Competition in the Circular Economy, OECD Competition Policy Roundtable Background Note, [www.oecd.org/daf/competition/competition-in-the-circular-economy-2023.pdf](http://www.oecd.org/daf/competition/competition-in-the-circular-economy-2023.pdf), pp.20.
- Rehman, F. U., Gyamfi, S., Rasool, S. F., Akbar, F., Hussain, K., & Prokop, V. (2023). The nexus between circular economy innovation, market competitiveness, and triple bottom lines efficiencies among SMEs: evidence from emerging economies. *Environmental Science and Pollution Research*, 30(58), 122274-122292.
- Sarkar, B., Seok, H., Kumar J. T., & Dey, K. B. (2023). Is the system reliability profitable for retailing and consumer service of a dynamical system under cross-price elasticity of demand? *Journal of Retailing and Consumer Services*, 75(C), 103439, <https://doi.org/10.1016/j.jretconser.2023.103439>.
- Serafimova, M., & Hörnig, J. (2023). Circular supply chains - Where the need for coordination meets competition law. *European Journal of Consumer Law*, 1, pp. 69-85.
- Sharma, A., Bryant, L., & Lee, E. (2022). Regenerative agriculture: farm policy for the 21st century. *Natural Resources Defense Council, Santa Monica, CA*, 61.
- Srisathan, A., W., & Naruetharadhol, P. (2025). Exploring moral hazard and adverse selection in the context of greenwashing and organic product consumption, *Journal of Retailing and Consumer Services*, 84, 104203, <https://doi.org/10.1016/j.jretconser.2024.104203>.
- Stoimenova, B. (2016). Knowledge and attitudes about green consumption in Bulgaria. *Economic Themes*, 54(4), 499-515.
- Yan, H., Xu, P., & Xiong, K. (2024). Competition policy and enterprise competitiveness: Catalyst or barrier? *Economic Analysis and Policy*, 84, 739-755. <https://doi.org/10.1016/j.eap.2024.09.022>.

**Acknowledgement:** Funded by the European Union, under the GA101136834 - CROSS-REIS. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

## VEZA IZMEĐU CIRKULARNE EKONOMIJE I POLITIKE KONKURENCIJE

**Apstrakt:** Konkurencija i održivost su međusobno zavisni koncepti koji kritički sagledavaju načine održavanja tržišne ekonomije bez ugrožavanja ciljeva održivog razvoja. Postoji nekoliko načina na koje politika konkurencije može promovirati cirkularnu ekonomiju. I jedan i drugi koncept podstiču kompanije da maksimiziraju vrednost inputa i sirovina, istovremeno unapređujući efikasnost korišćenja ograničenih resursa. S obzirom da efektivno trošenje prirodnih resursa i efikasnost proizvodnje idu ruku pod ruku, konkurencija je jedna od sila koja ubrzava tranziciju ka cirkularnoj ekonomiji. Kao rezultat toga, korišćenjem analitičkog okvira i konvencionalnih metoda, rad antimonopolskih organa može suštinski pomoći u prelasku na cirkularnu ekonomiju, čak i u slučajevima kada regulatorne mere možda nedostaju ili su nedovoljne. Naime, ova oblast nije dovoljno ispitana i daje nejasne nalaze o prirodi veze između pojmova. Ciljevi cirkularne ekonomije i konkurencije su značajno usklađeni, iako konkurencija sama po sebi ne podstiče uvek usvajanje cirkularnih poslovnih modela. Osnovni cilj rada je da se povežu cirkularna ekonomija i politika konkurencije, kao i da se utvrdi priroda i specifičnost ove veze.

**Ključne reči:** zagovaranje konkurencije, tržišta cirkularne ekonomije, ponašanje potrošača, tržišne greške, efikasnost, nekonkurentsko ponašanje.