Circular economy discourses in the Central and Eastern European countries

Boglárka VAJDA[*], Gabriela DRĂGAN[**]

Abstract

The practical implementation of a circular economy in the European Union poses significant challenges, notably for the EU-11 (Central and Eastern Europe) countries. The aim of this paper is to analyze the transition of the EU-11 countries toward a CE by examining existing circular strategies, national-level policies, as well as bottom-up initiatives, and on the other hand to explore the prevalent circularity discourses within the EU-11 countries. The study employs a discourse analysis method to comprehensively examine documents related to the CE aspects. This methodology integrates both quantitative categorization (codes and categories) and qualitative interpretation (reading and explanation) to support the understanding of circularity discourses. The results of this paper indicate that the countries within the EU-11 are actively advancing their efforts towards a CE. These countries are seen to be proactively developing a circular vision and setting ambitious objectives to facilitate a transition to a circular economic model.

Keywords: circular economy, circular discourse, Central and Eastern Europe

Introduction

Since the introduction of the Circular Economy Package by the European Commission in 2015, the concept of a circular economy (CE) has gained traction among EU Member States. However, implementing a circular economy poses a challenge, especially for EU-11 (comprising the Central and Eastern European countries). The transition to a circular economy requires adaptation to the specific situation of each country and region. As a response, the EU-11 countries have been implementing different policies to comply with EU requirements and facilitate the transition to a circular economy.

A prevailing emphasis on a technocentric or sector-oriented approach to the CE is evident in the current policy documents of the EU-11 countries. However, a significant challenge lies in the

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comprehensive implementation of a holistic concept of the circular economy. Effective systemic changes require integrating holistic approaches (European Union, 2020).

The European Environment Agency (EEA) report highlights that compliance with existing legislation represents the main driver of any action taken at the national level. Also, targets seem particularly effective in energizing policy development and guiding policy implementation (EEA, 2016).

The aim of this paper is twofold: to analyze the transition of the EU-11 countries toward a CE by examining existing circular strategies, national-level policies, as well as bottom-up initiatives, and on the other hand to explore the prevalent circularity discourses within the EU-11 countries. The central research question is: How do EU-11 countries envision their journey towards a circular economy? Or, in other words: Is the European Green Deal (European Commission, 2019) a motivational and inspirational compass for EU-11 countries or rather a set of formal targets and external requirements to comply with?

The paper is structured as follows: Section 1 provides an overview of the theoretical foundations of the circular economy, its stages of development, and the type of discourses, as well as the main strategies related to CE development within the EU-11. Section 2 outlines the methodology adopted for this research paper. Section 3 presents the main policy documents related to CE in the EU-11 countries as well as bottom-up initiatives that are active in promoting the concept of CE. Finally, Section 4 presents the main findings regarding the transition of the EU-11 countries toward a circular economy.

1. Theoretical framing

1.1 The concept of the circular economy

The circular economy has been defined in various ways by different researchers (Govindan & Hasanagic, 2018). Due to the abundance of CE conceptualization (Kirchherr *et al*., 2017), it remains an unclear and contested concept (Calisto Friant *et al*., 2020; Korhonen, Nuur, *et al*., 2018) with fundamental paradigmatic divides in conceptualization (Reike *et al*., 2018). Merli *et al*. (2018) emphasize that the CE is still evolving, requiring a consolidated definition.

Many scholars recognize the CE as a pivotal concept in advancing sustainable development (Murray *et al*., 2017), positioning it as a key approach to achieving sustainability (Geissdoerfer *et al*., 2017; Kirchherr *et al*., 2017).

The CE promotes a more effective and efficient use of resources to achieve a better balance of interplay between the economy, environment, and society (Ghisellini *et al*., 2015). Central to this

approach is the avoidance of unnecessary resource destruction (van Buren *et al*., 2016). The CE is a core component of the green economy, defined as an ecosystem where "environmental, economic and social policies and innovations enable society to use resources efficiently, thereby enhancing human well-being in inclusive manner while maintaining the natural systems that sustain us" (EEA, 2012). The CE represents an approach with the potential to revolutionize production and consumption patterns (Korhonen *et al*., 2018), contributing to sustainability and well-being (Ghisellini *et al*., 2015).

Developed from a multidisciplinary perspective, the CE draws insights from economics, ecology, engineering, design, and business. Emerging as an alternative to the currently dominant and traditional extract-make-use-dispose material and energy flow model (Korhonen, *et al*., 2018), the CE addresses the detrimental impacts of the linear throughput flow model, which include environmental degradation, resource depletion, pollution, and excessive waste generation (Korhonen *et al*., 2018).

The linear economy, which originated during the Industrial Revolution in the 17th century, and persists today, has led to the depletion of the Earth's resources. Characterized by its exploitative nature, it disregards environmental limits and ultimately inflicts long-term harm on society (Prieto-Sandoval *et al*., 2018). It is commonly accepted that this economic model cannot lead to sustainable development (Millar *et al*., 2019).

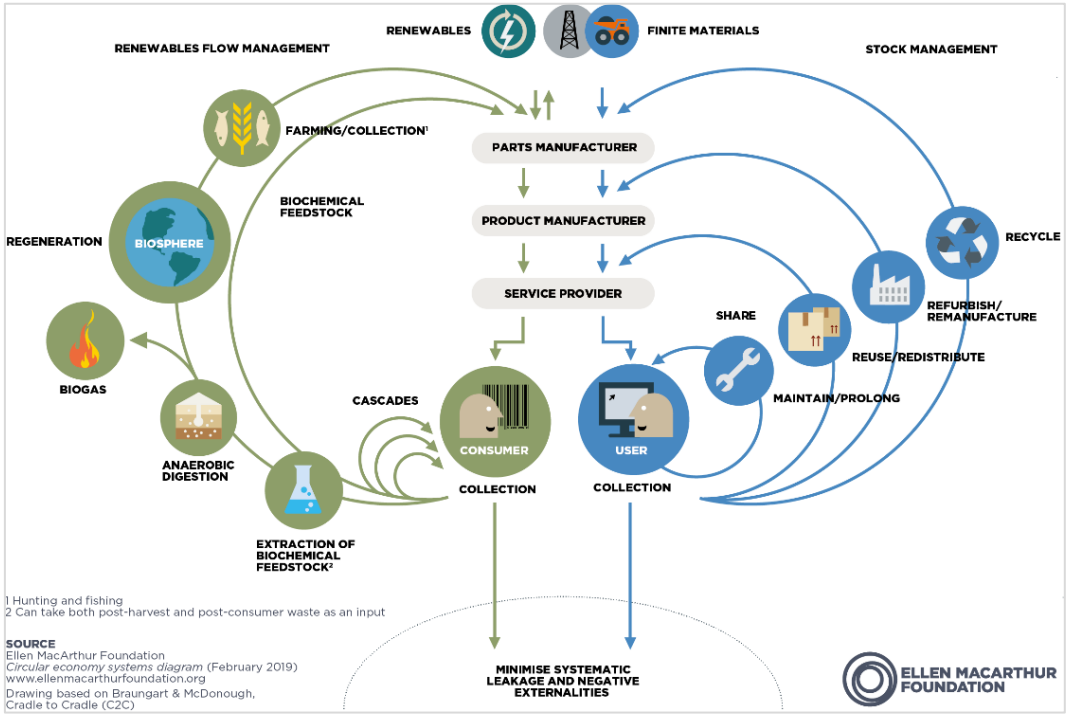
Circular economy, contrary to the linear economy, promotes a sustainable, regenerative and restorative economy, designed and intended to function in harmony with our ecosystems (Stahel *et al*., 2019). This paradigm shift requires fundamental changes in society's production and consumption practices (Korhonen *et al*., 2018; Prieto-Sandoval *et al*., 2018).

Based on the cradle-to-cradle principles and systems thinking, the concept of circular economy introduces a fundamental distinction between two different types of materials as illustrated in Figure 1. These categories comprise materials of biological origin, capable of returning to the biosphere as feedstock, and technical materials, which cannot biodegrade and become part of the biosphere (e.g. metals, plastics). According to this model, the circular economy aims to keep both material types at their highest utility and value through design, management and technological innovation (Govindan & Hasanagic, 2018; Millar *et al*., 2019).

In addition to promoting more sustainable production patterns and technological shifts, the CE must also place a greater attention to the societal level. Active engagement of consumers becomes paramount in the paradigm shift required to change the current unsustainable consumption culture and drive profound changes in consumer behavior (Korhonen *et al*., 2018; Merli *et al*., 2018). Failing to incorporate this societal dimension risks downgrading the CE to a mere technical tool, potentially

incapable of steering the trajectory away from the current take-make-dispose economic paradigm (Korhonen *et al*., 2018).

Figure 1. Circular economy systems diagram



Source: Ellen MacArthur Foundation, 2019

Viewing the CE only as an approach to refine waste management or as a combination of reduce, reuse, and recycle activities is a limited perspective (Kirchherr *et al*., 2017). On the other hand, Ghisellini *et al*. (2015) assert that such a narrow viewpoint overlooks its comprehensive scope. Similarly, Geissdoerfer *et al*. (2017) think that many authors oversimplify the CE to focus exclusively on resource input, waste and emission outputs and environmental considerations, rather than embracing its holistic approach across all three dimensions of sustainability.

Associating the CE only with waste management, waste minimization or waste management policies, risks diluting its main objective of catalyzing the essential societal changes required for a comprehensive global transition (Haupt & Zschokke, 2017).

However, the concept of the circular economy extends far beyond its surface implications. It involves a profound systemic transformation encompassing not only innovation and technological systems, but also policies, societal dynamics, business models, and financial frameworks (European Commission, 2015a). The CE should be viewed in its intricate complexity and recognized for its potential to facilitate a transition towards a more sustainable economic model (D'Amato, 2021). By

aligning itself with the inherent laws of nature, the CE emerge as a promising alternative to the prevailing economic growth paradigm (Ghisellini *et al*., 2015). Lieder *et al*. (2016) consider that CE offers a solution to reconcile aspirations for economic growth with imperatives for environmental protection. Similarly, Murray *et al*. (2017), EEA (2021), and EMF (2017) underscore that the ultimate objective of the CE is to decouple economic growth from environmental pressures and degradation.

Mapping a sustainable future for humanity requires more responsibility and a holistic mindset, that deeply involves society, environment, and economics (Murray *et al*., 2017). The pursuit of a circular economy implies a fundamental societal transition. Such a transition is complex and requires collective efforts, not only at regional and national level, but also on a European and global scale (van Buren *et al*., 2016).

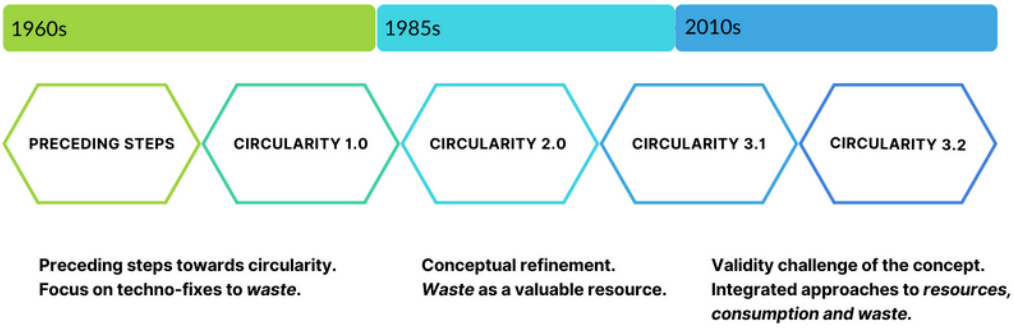
Although the CE is considered as a potential solution, there is an ongoing debate regarding its ability to drive economic growth while simultaneously avoiding environmental degradation (Millar *et al*., 2019; Velenturf & Purnell, 2021). Ghisellini *et al*. (2015) situate the theoretical background of the CE between neoclassical economics – focused on efficient allocation of resources in the market, but not addressing the finite and depletable nature of natural resources and steady-state economics – which emphasizes the necessity of conducting activities within the constraints imposed by nature. In essence, the question remains whether the circular economy can effectively function in a context of sustained economic expansion, casting doubts on its capacity to actively promote further economic growth (Calisto Friant *et al*., 2020; Ghisellini *et al*., 2015).

In conclusion, the CE requires a thorough consolidation of its theoretical foundations (Calisto Friant *et al*., 2020), along with a shared understanding of how it could effectively serve as a useful tool for achieving sustainability.

1.2. Stages of development of CE narratives

The origins of the CE are primarily rooted in ecological and environmental economics, as well as industrial ecology (Ghisellini *et al*., 2015; Blomsma and Brennan, 2017; Merli *et al*., 2018; Ashby *et al*., 2019). Various scholars have outlined the significant stages of the CE's evolution and its key theoretical influences, along with related concepts. These contributions are summarized in Figure 2, as detailed by Blomsma and Brennan, (2017), Reike *et al*. (2018), and Calisto *et al*.(2020).

Figure 2. Stages of development of CE



Source: authors' representation based on Blomsma and Brennan, 2017; Calisto Friant *et al*., 2020; Prieto-Sandoval *et al*., 2018; Reike *et al*., 2018

a) Preceding steps towards circularity

Prior to the 1960s, economic theories had largely overlooked environmental concerns. A pivotal moment came with Boulding's proposition in 1966, which introduced the idea of an economy that operates within environmental limits and produces minimal waste. This notion not only laid the foundation for the circular economy concept but also paved the way for other concepts like Planetary Boundaries. During the 60s and 70s, several scholars engaged in discussions about reducing natural resource extraction and waste generation, marking early steps towards CE principles (Velenturf and Purnell, 2021).

b) Circularity 1.0: Emergence and early concepts

In the 1980s, environmental movements gained momentum, focusing on the waste management and the detrimental impact of waste pollution. The "3R concept", comprising reduce, reuse, and recycling, began to gain increased attention to address these issues. Although knowledge about waste management, such as regulations for landfills and incineration, began to emerge during this period, a comprehensive systemic approach had yet to take shape (Reike *et al*., 2018).

Notable concepts that contributed to this early stage of circularity include waste-water treatment, solid waste management and recycling, energy recovery, and the notion of a closed-loop economy (Calisto *et al*., 2020). These concepts laid the groundwork for the subsequent development of circular economy principles.

c) Circularity 2.0: Transition and conceptual refinement

During this period, a significant shift occurred as waste was redefined from a liability to a valuable resource. The CE emerged as a comprehensive framework, articulated by Pearce and Turner in 1989. Also, a multitude of related concepts surfaced or gained renewed emphasis, including zero-waste, resource efficiency, extended producer responsibility, sustainable consumption and production, industrial ecology, and the green economy (Blomsma and Brennan, 2017).

Noteworthy concepts contributing to the Circularity 2.0 include industrial ecology, circular economy, cleaner production, eco-industrial parks and networks, biomimicry, extended producer responsibility, industrial symbiosis, closed-loop supply chain, and biobased economy / bioeconomy (Calisto *et al*., 2020)

d) Circularity 3.1: Challenges and refinement

After 2010, the CE entered a phase where it needed to prove its effectiveness, as pointed out by Blomsma and Brennan (2017) and Reike *et al*. (2018). This phase has been marked by efforts to address inconsistencies and conceptual challenges within the CE framework, aiming to establish a coherent understanding of its principles and potential. Key concepts that have come in attention during Circularity 3.1 include Cradle-to-CradleTM (Braungart and McDonough, 2018), the Performance Economy (Stahel, 2010), the Blue Economy (Pauli, 2010), and the Circular Economy (EMF, 2015). This phase represents a critical juncture in refining the CE framework and working towards a more unified and comprehensive understanding of its principles and practical implications.

e) Circularity 3.2: **Holistic Circular Society**

This stage represents a transition from solely emphasizing the CE to envisioning a broader concept, a Holistic Circular Society. In this evolved perspective, the circulation extends beyond material and energy resources to include wealth, power, knowledge, and technology. This circulation occurs in a profoundly democratic and redistributive way, marking a fundamental transformation of socio-economic structures (Calisto Friant, 2021).

1.3. Visions and discourses of the Circular Economy

Some scholars (Dryzek, 2013; Audet, 2016; Mann, 2018; Calisto Friant *et al*., 2020) have developed typologies of environmental discourses, describing and classifying stances on fundamental socio-ecological issues. These discourses pertaining to the environment and sustainability contribute to shaping social perceptions, motivations, and the debate around development, sustainability, and society's future.

Dryzek (2013) provides a comprehensive and a dynamic assessment of environmental discourses (see Table 2).

Table 1. Dryzek's classification of environmental discourses

	Reformist	**Radical**
Prosaic	Problem solving	Limits, boundaries, and survival
Imaginative	Sustainability	Green radicalism

Source: Dryzek, 2013

The reformist-prosaic discourse type, known as *Environmental Problem Solving*, recognizes the existence of ecological problems but considers them manageable within the existing framework of industrial society. The reformist-imaginative discourse, named *Sustainability*, seeks creative ways to reconcile the conflicts between environmental and economic values. Radical discourses have been classified as *Survivalism,* advocating comprehensive measures to prevent global disaster and *Green Radicalism*, which promotes a transformation in human consciousness, economics, and politics (Dryzek, 2013).

Mann (2018) presents an alternative discourse typology, distinguishing between the perspectives of Wizards, who perceive technology as the solution, and Prophets, who advocate behavioral change.

Audet (2016) introduces a transition discourse typology categorized into two broad categories, localism and technocentrism. These groups break down into more specific discourses such as 'grassroots' and 'policy change' within localism, and 'economic' and 'institutional' within technocentrism. Technocentrist transition discourses focus on scientific innovation, while localist discourses emphasize the bottom-up social transformation.

Calisto Friant *et al*. (2020) have identified four types of circular economy discourses, based on their stance regarding fundamental social, technological, political, and ecological issues (see Figure 3).

Figure 3. Typology of circularity discourses

Holistic - Optimist discourses	**Segmented – Optimist discourses**
- Propose a **mix of behavioural and technological change that led to** a prosperous, fair, democratic and sustainable future for all through a combination of technological breakthroughs, social innovations, and alternative business models. **- Social, economic, industrial, and environmental innovation** can lead to a sufficient level of eco-economic decoupling. - Social justice, socio-cultural change, new forms of public participation and inclusion are important aspects to be considered.	**- Technical innovations, p**ractical, applicable, implementable new technologies, innovations, business models can transform the industrial production system without having to change social-economic power relations. **- Green growth** and **technological advancements**, **circular innovations** will lead to absolute eco-economic decoupling.
Holistic – Sceptical discourses	**Segmented – Sceptical discourses**
- Seeks to completely reconfigure the current societal system and democratize and redistribute wealth and power so that humanity and nature might live in mutual harmony. It proposes the transformation of the entire socio-economic **system** (economic downscaling, sufficiency, a simpler, slower, more meaningful life. - Giving greater importance to **cooperative, collaborative** economic structures, direct **participation**, citizen **inclusion**, **bottom-up governance, open-innovations**, **eco-friendly technologies**.	- With a rational, unidealistic understanding of systemic conditions it aims to secure natural resources, economic prosperity, socio-ecological resilience and geopolitical power through top-down migration controls, technological innovations, and economic rationalism. - Innovative technologies and business models, rationalize resource use, impose sufficiency, population control, resource efficiency, crisis management from the **top-down.**

Source: authors' representation based on Calisto *et al*. (2020)

The first typological axis centers around the extent of consideration given to social, economic, environmental and political factors:

(a) Holistic discourses encompass a comprehensive integration of social, ecological, and political considerations within circularity, aiming for substantial socio-political and cultural transformation, like circular society visions.

(b) Segmented discourses, on the other hand, adopt a homogeneous perspective, focusing on the "technical, industrial and business components of circularity in order to improve resource efficiency" (Calisto Friant *et al.*, 2020).

The second typological axis evaluates the ability or inability of the current socio-economic system to prevent ecological collapse by decoupling economic growth from environmental degradation:

(a) Optimist discourses consider that "the socio-technical innovations can lead to eco-economic decoupling and thereby prevent an ecological collapse"

(b) Skeptical discourses, in contrast, harbor doubts about the feasibility of socio-technical innovations to prevent ecological collapse by decoupling economic growth from environmental exploitation.

1.4. Circular Economy in the European Union

Over the years, the EU institutions have been actively involved in promoting a circular economy that maximizes the efficient utilization of resources. It was the European Commission *Thematic Strategy on the sustainable use of natural resources* (2005) that set the basis for developing current circular economy strategies and roadmaps across the EU. This strategy highlighted the importance of measuring resource efficiency and established as main objective the decoupling economic growth from natural resource consumption. This objective aims to achieve a reduction in environmental impact while improving resource productivity (European Economic and Social Committee, 2019).

The Strategy was followed by the *Roadmap to a Resource Efficient Europe* (European Commission, 2011). This document integrated circular economy logic into EU-wide policy making and represented a call for a circular, resource-efficient, and resilient economy (European Commission, 2012).

In 2015, the European Commission adopted its first *Circular Economy Action Plan* (2015-2019) (European Commission, 2015). It included measures to facilitate Europe's transition towards a circular economy. The action plan established concrete and ambitious actions, with measures

covering every stage of the lifecycle: from production and consumption to waste management and the secondary raw materials market. Additionally, it featured a revised legislative proposal on waste.

A *Circular Economy Package* has been adopted by the European Commission in 2018. This package included multiple components, respectively: a monitoring framework for the circular economy, a report on critical raw materials, a strategy on plastics in the circular economy, an analysis and policy options to address the interface between chemicals, products and waste legislation. In the subsequent year, the Commission finalized the circular economy package, complemented by a Report on the implementation of the circular economy action plan and with a Staff Working Document on sustainable products in a circular economy.

One of the latest strategic initiative at the EU level is the newly *Circular Economy Action Plan* (European Commission, 2020), officially adopted by the Commission in March 2020. This Plan is one of the main building blocks of the European Green Deal (2019), Europe's new agenda for sustainable growth. It announces initiatives alongside the entirety of a product's life cycle. It targets product design methods and aims to promote the circular economy process, promote sustainable consumption, reduce waste generation and optimize the retention of resources within the EU economy. It includes new rules to make almost all physical goods on the EU market more friendly to the environment, circular, and energy efficient throughout their whole lifecycle from the design phase through to daily use, repurposing, and end-of-life.

In March 2022 a first package of measures has been adopted for implementing the circular economy action plan. This package includes: a Sustainable Products Initiative, including the proposal for the Eco-design for Sustainable Products Regulation, an EU strategy for sustainable and circular textiles, a proposal for a revised construction products regulation, and a proposal for empowering consumers in the green transition.

2. Methodology

The study employs the Critical Discourse Analysis (CDA) method to comprehensively examine documents related to the CE aspects. This methodology integrates both quantitative categorization (codes and categories) and qualitative interpretation (reading and explanation) to support the understanding of circularity discourses.

The methodology consists of four distinct steps designed to ensure a systematic and insightful analysis. In the **first step** of the methodology, a process of data selection and corpus creation was undertaken. The focus is on publicly available documents, respectively country assessment reports,

EU-level policy documents and CE related reports, as well as national CE strategies, action plans, roadmaps of EU-11 countries, complemented by research articles focusing on country-specific CE aspects. This phase is characterized by a focused CDA, reflecting a deliberate choice of documents/ countries for analysis.

Table 4. List of strategies or similar studies included in the content analysis

Country	**Strategy or similar**
Czech Republic	Circular Czechia 2040 (OECD, 2021)
Croatia	Circular Economy Approaches in Solid Waste Management: Diagnostic Analysis (World Bank, 2022)
Hungary	Towards a National Circular Economy Strategy for Hungary (OECD, 2023)
Slovenia	Roadmap towards the Circular Economy in Slovenia (Circular Change, 2018)
Slovakia	Closing the Loop in the Slovak Republic a Roadmap Towards Circularity for Competitiveness, Eco-Innovation and Sustainability (OECD, 2022)
Poland	Roadmap for Circular Economy Transition (Ministry of Development, 2019)
Romania	National Strategy for the Circular Economy (Romanian Government, 2022)

Source: authors

Table 5. List of strategies not included in the content analysis

Country	**Document title**
Bulgaria	The Strategy and Action Plan for the transition to a circular economy for the period 2022–2027 (2022) - only in Bulgarian
Latvia	Action plan for the transition to a circular economy 2020– 2027 (2020) - only in Latvian
Lithuania	National Action Plan for the Circular Economy for 2023–2035 (under development) - only in Lithuanian
Estonia	White Paper on the Circular Economy (2022) - only in Estonian

Source: authors

The **second step** involves the development of coding schema. Following the collection of relevant publications, a structured coding schema was created to identify empirical observations that pertain to validity claims and ascertain the frequency of specific arguments within the documents. Drawing inspiration from Cukier *et al* (2009), this schema serves as a framework for systematically

categorizing and labeling distinct sections of the text. To facilitate an organized and efficient analysis process, the study has employed the ATLAS.ti software for content analysis. This software has contributed to the systematic labeling, organization, and examination of coded segments of text.

Based on the typology of circularity discourses developed by Calisto Friant *et al*.(2020), the methodology of this study involves the definition of a number of *54 codes*, categorized into *four code categories*. These codes were established using dedicated software to ensure a structured and systematic analytical process.

Table 6. List of codes by categories

Code category	**Codes**
Holistic discourse	awareness, behaviour*, citizen, consumer, cooperat*, collaborat*, partner*, education, knowledge, skills, competences, employ*, job*, governance, health*, inclusive*, local value chain, participat*, social, society*, stakeholder*, well-being / wellbeing
Segmented discourse	"energy efficiency", "life cycle", "resource efficiency", "waste management", bioeconomy, compost*, durability, incinerat*, recyclab*, recycling, renewable*, repair*, reuse*
Optimistic discourse	AI / artificial intelligence, business*, competitiveness, industry, digitalization, efficien*, GDP / "gross domestic product", growth, innovation, productivity, R&D / "Research & development", technical, technolog*
Sceptical discourse	"critical raw materials", resilien*, risk*, crisis, secur*, migra*

Source: authors

In the **third step**, the process of reading and interpretation is engaged. This phase involves a comprehensive exploration of the **qualitative insights** derived from the documents. It is important to acknowledge that this interpretative process inherently carries a certain level of subjectivity, potentially introducing bias into the interpretation.

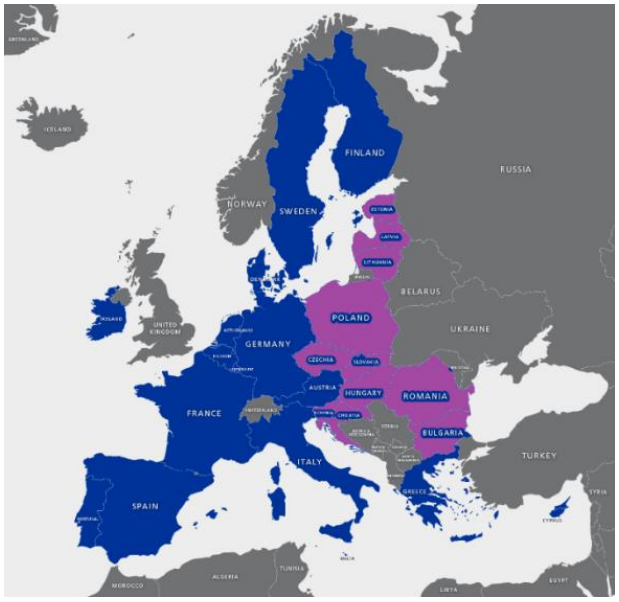
Moving to the **fourth step**, the focus shifts to elucidating the aggregate findings. Within this phase, the study highlights the prevailing perspectives that emerge from the extensive body of literature under scrutiny. This final step presents a comprehensive panorama of the prevailing discourses within the domain of circularity. In Step 4 the aggregate finding is explained, by highlighting the dominant perspectives found in the body of literature.

3. Circular economy in the EU-11 macro-region

3.1. The EU-11 macro-region

Following the collapse of Communism in 1989, the Central and Eastern European (CEE) countries expressed their willingness to join the EU. Since their accession, one of the central political objectives has been to close the economic gap between the new and the old member states (Popov, 2021).

Figure 3. Older and newer EU member states in Central and Eastern Europe



Source: authors' representation
Note: newer member states are displayed in pink.

When it comes to the speed of their green transition efforts, the CEE countries are facing difficulties in keeping pace with their counterparts in Western Europe. Establishing such a shift is a complex task demanding fundamental changes in culture, structure and practices in many subsystems of society (Vanner *et al*., 2014).

Table 7. General economic data of EU-11 countries

	Population (mil. people, 2022)	**GDP** (billion PPS, **2021)**	**GDP per inhabitant** PPS, EU =100 **(2021)**
Visegrad countries			
Czech Republic	10.51	316	91
Poland	37.65	953	77

Hungary	9.69	238	76
Slovakia	5.43	120	68
Baltic countries			
Estonia	1.33	37	87
Latvia	1.87	43	71
Lithuania	2.80	80	88
Ex-Yugoslav countries			
Croatia	3.87	88	70
Slovenia	2.10	61	90
South-Eastern countries			
Bulgaria	6.83	123	55
Romania	19.03	452	73

Source: Eurostat, 2022

Moving towards a circular economic model is a necessity for EU-11 countries. However, the approach to addressing various aspects of this transition varies based on the territorial context (European Economic and Social Committee, 2019) and the vision of each EU country.

3.2 National policy frameworks and bottom-up initiatives in the field of Circular Economy

Visegrad countries (V4)

V4 is a regional configuration within the EU composed of four former post-socialist countries, characterized by an energy and material intensive economy. The transition toward resource-efficient, low carbon and circular economy represents a common challenge for them (Pomázi and Szabó, 2020).

a) Czech Republic

The Czech Republic developed a national circular economy strategic framework towards 2040 (Circular Czechia 2040), that was adopted in December 2021 (EEA, 2022).

Circular Czechia 2040 defined its vision as follows: “In 2040, the circular economy brings significant environmental, economic, and social benefits to the Czech Republic. As part of the measures taken, the Czech Republic systematically supports the circular economy as a model for improving environmental protection, strengthening competitiveness and technological sophistication, creating new jobs, increasing raw material security, and acquiring new competencies of the citizens,” with a main goal of “Less waste and more value for the Czech Republic”.

As priority areas, Circular Czechia 2040 strategy puts emphasis on (a) a more circular consumption (changes in consumption patterns and consumption behaviour), (b) waste management and (c) circular production and design (OECD, 2021).

Three Action Plans, each for a six-year period are set to be developed, which will establish the implementation of the strategy.

The country has a well-developed and fairly complete policy and legal frameworks for waste and materials management; however it faces challenges related to high shares of direct landfilling, lack of cost-efficiency in waste management, insufficient measures to minimize the environmental impact of waste and materials management over their life-cycle, and inadequate waste prevention and "upcycling" of waste into higher-value products (OECD, 2021).

The Czech Republic also has an overarching sustainable development Strategic Framework 2030, a State Environmental Policy to 2030, a Waste Management Plan of the Czech Republic for the period 2015-2024, all including the notions of circular economy (EEA, 2022).

Relevant bottom-up initiatives, promoters of the circular economy concept: the Circular Economics Institute (INCIEN), the Czech Association of Circular Economy, Prague Circular Hub, The Union of Redistributors and Processors of Secondary Raw Materials (SVDS).

b) Poland

Poland already started in 2016 to prepare a Roadmap for Circular Economy Transition. Its main goal was the preparation of an action plan for increasing resource efficiency and waste reduction in Poland.

Four main avenues were proposed as follows: (I) Sustainable industrial production – aiming to highlight the important role of industry and opportunities for its development; (II)Sustainable consumption – showing how much potential exist is this; (III) Bioeconomy - dealing with the management of renewable, biological raw materials, with a great potential; and (IV) New business models – emphasizing the possibilities of reorganizing the way various market participants operate (Avdiushchenko, 2021), (EEA, 2022).

The roadmap development is the result of an intensive interdisciplinary and inter-sectoral work, more than 200 partner organizations participated in its preparation: the business sector, NGOs, the academic and research community, and local and regional authorities. The final version of the roadmap was presented at the end of 2018 and adopted in September 2019.

Deloitte consultancy company also carried out a report about possible ways of boosting CE development from a business and consumer perspective, as well as possible supporting actions on the side of the public administration (Avdiushchenko, 2021).

An essential role in disseminating and awareness raising of the CE concept is made by INNOWO and the Polish Circular Hotspot - a public cooperation platform based on networking among partners from various sectors for the purpose of introducing innovative, comprehensive, practical, and scalable solutions in all sectors of the economy.

c) Hungary

The national CE strategy of Hungary has been developed in cooperation with the Organization for Economic Co-operation and Development (OECD) and with the participation of relevant policy and economic actors (OECD, 2023).

The country has targeted that ”by 2040, Hungary will become a more competitive and sustainable economy, having adopted a holistic approach to the CE transition, focusing not only on waste management, but also on the industrial, agricultural and service sectors” (EEA, 2022). The National Circular Economy Strategy identified three main sectors with the highest circular potential: food/biomass; construction and plastics.

Beside the CE strategy 2040, other policy frameworks also include specific aspects of the CE – mainly regarding waste management (Waste Management Development Concept 2014- 2027, the National Waste Management Plan 2021-2027.

In Hungary, CE policies are primarily focused on raw materials, industry, agriculture and food, energy and climate, transportation, building, R&D&I, and digitalization (OECD, 2023). Resource efficiency in production, sustainable use of natural resources, creation of new business models and efficiency in waste management are key aspects within CE related policies.

In terms of CE networks, the Circular Point – established by Geonardo Ltd., and the Circular Economy Platform – developed by the Business Council for Sustainable Development in Hungary (BCSDH), are contributing to the development of circular economy related topics.

d) Slovakia

The core policies relevant to the circular economy in the Slovak Republic include the general frameworks: Slovakia 2030 and Envirostrategy 2030, the sectoral policy on raw materials related to

the technical cycle in a circular economy (Raw Materials Policy), and three waste management related policies (Waste Management Plan, Waste Prevention Programme, Food Waste Prevention Plan) (OECD, 2022).

The Greener Slovakia – Strategy of the Environmental Policy of the Slovak Republic until 2030 (2019) highlights waste management as one of the main environmental challenges. It also states the stagnation of the waste management system and emphasizes the need to transition to a circular economy. The Envirostrategy 2030 sets the vision "to achieve better environmental quality and sustainable circulation of the economy, which is based on rigorous protection of environmental compartments and using as little non-renewable natural resources and hazardous substances as possible, which will lead to an improvement in health of the population. Environmental protection and sustainable consumption will be part of the general awareness of citizens and policy makers."

A Circular Roadmap and implementation plan has been carried out by the Ministry of Environment of the Slovak Republic with the support of OECD and through a stakeholder dialogue process (OECD, 2022). The main objectives are to improve waste management, decrease the environmental footprint, use natural resources effectively, support innovation progress, and increase the competitiveness of the country.

Three areas have been prioritized: the sustainable consumption and production with a focus on economic instruments, the construction sector, and the food and bio-waste value chain (OECD, 2022).

A public-private partnership, named Circular Slovakia promotes and supports the circular economy. The platform's founding members are the Environment Ministry, the Dutch Embassy, the Slovak Business Agency, Pricewaterhouse Coopers Slovakia, the Circular Economy Institute - INCIEN, the Slovak Environment Agency and the Dutch Chamber of Commerce in Slovakia.

Baltic countries

a) Latvia

The country has adopted a designated CE strategy in 2020, called Action plan for the transition to a circular economy 2020– 2027. Seven initiatives have been proposed, such as (a) transition from waste management to resource management, (b) improving resource productivity in all sectors of the economy, (c) reuse of goods, (d) transition from the purchase of goods to services, (e) improve the management of materials, processes, and waste in priority sectors, (f) strengthen the role of municipalities and (g) engagement, information, and education of the public (EEA, 2022).

b) Estonia

Estonia introduced the White Paper on the Circular Economy in 2022, developed by the Ministry of the Environment (Parksepp and Piirsalu, 2023). The strategy has set an ambitious vision: "Estonia has a functioning circular system of production and consumption, and we are a smart country leading the transition to a circular economy" and it aims to support different stakeholders – the government, municipalities, entrepreneurs and individuals – in mainstreaming the principles of circularity in production, consumption, policies, lifestyle, culture and values (EEA, 2022).

With regards to circular economy related platforms, the Estonian Environmental Management Association established in 2018 a Circular Economy Forum, which now already counts several companies among its members and receives support from the national Ministry of Environment. The Circular Economy Forum is an open platform for communication and cooperation to raise business awareness of the circular economy and support wider application of circular business models.

c) Lithuania

The country supports the EU circular economy package and the shift to the circular economy in general, and a National Action Plan for the Circular Economy for 2023–2035 is currently under development. According to the country profile published by EEA (2022) the action plan will cover the circularity of industry, the bioeconomy, transport, construction, consumption, and new business models.

Lithuanian civil society is getting more involved in promoting circularity, with examples of fruitful cooperation with local authorities. For example, the 'Žiedinė ekonomika' (circular economy) non-profit organization networks local, national and European public authorities with companies to help develop circular business models in Lithuania and provides seminars on the circular economy.

South-Eastern countries

a) Romania

The National Strategy for the Circular Economy was developed under the coordination of the Department for Sustainable Development as part of the Prime Minister's Office, in partnership with the Ministry of Environment, Waters and Forests and the Ministry of Economy in the frame of the

Technical Support Instrument project funded by European Commission. The strategy has been adopted in 2022 (EEA, 2022).

The strategy will be accompanied by an Action Plan, planned to be in place by the third quarter of 2023.

The National strategy on circular economy identified the following sectors with the highest circular potential: agriculture and forestry, automotive, construction, consumer goods such as food and beverages, packaging, textiles and electrical and electronic equipment.

Circular economy related policy elements are also included in the legislation of waste management, in the Recovery and Resilience Plan as well as in the De minimis aid scheme for the transition to the CE (dedicated for industry) (EEA, 2022).

Platforms that actively promote CE and facilitate cross-sectoral dialogue are the Romanian Circular Economy Stakeholder Platform (ROCESP) launched at national level by the Ernest Lupan Institute for Research in Circular Economy and Environment (IRCEM) and CERC – the Circular Economy Coalition.

b) Bulgaria

The Strategy and Action Plan for the transition to a circular economy for the period 2022–2027 was approved by the interim government Council of Ministries in 2022 (Bulgarian News Agency, 2022). It aims to achieve resource efficiency through the implementation of the waste management hierarchy, preventing waste generation, promoting material and reuse through recycling, reducing landfilling and limiting the harmful impact of waste on the environment and human health (EEA, 2022).

The main National strategies and action plan tackling the circular economy is the National Waste Management Plan 2021-2028 (implemented by the Ministry of Environment and Water /MOEW/).

The country has the EU's lowest rate of resource productivity. Waste management, including separate collection, remains a challenge. While there was some progress in the closure and rehabilitation of non-compliant landfills, the process is still not completed and illegal landfilling remains an issue.

Circular and low-carbon economy is a priority of the National Development Programme Bulgaria 2030 (Council of Ministers, Bulgaria 2020). The main goal is to reduce the resource intensity of the country's economy and increase the efficiency of the materials used. Action will be taken to

increase resource productivity throughout their life-cycle and the rate of circular (secondary) use of materials in the economy, to stimulate product life extension, to reduce waste and control the need to extract new resources.

As promoter of the CE, the Bulgarian Association Circular Economy and Biotech - BACEB work towards transforming the linear business models into circular ones in the agricultural, food, and feed sectors in Bulgaria. BACEB works together with the state and European bodies in the direction of implementation and utilization of the opportunities of the circular economy for the Bulgarian business in order to increase the innovative performance of the country.

Ex-Yugoslav countries

a) Croatia

Croatia is lagging behind in transitioning to CE although the Government is trying to apply CE approaches in waste management policies and strategies. (World Bank, 2021). The current National Waste Management Plan 2017-2022 (NWMP) has not been implemented as planned, although Croatia invested substantial public money in the waste management system. Implementation proved to be the problem (Luttenberger, 2020).

The World Bank supports the Government of Croatia in improving waste management processes. The Government has identified the construction and demolition waste sector as a priority in its circular approach to waste management. The aim is to showcase and lead other sectors in Croatia in an effective application of circular economy principles, targeting waste reduction and—where waste generation cannot be avoided—recovering economic value from it while avoiding negative impacts on the environment and climate (World Bank, 2022).

The new NWMP (2023-2028) is intended to bring more advanced waste prevention measures, and detailed policy measures on sustainable products (World Bank, 2021).

In the report elaborated by the World Bank (2022), four sectors were proposed for priority action in the CE context: food, construction, plastics and textile. Out of the four sectors identified, the Ministry of Economy and Sustainable Development chose construction and demolition waste (CDW) as the priority sector for the development of a Circular Economy Action Plan.

b) Slovenia

Slovenia developed its Roadmap for circular economy beginning with 2016, in the framework of the project Partnership for Slovenia's Green Economy, taking place under the patronage of the

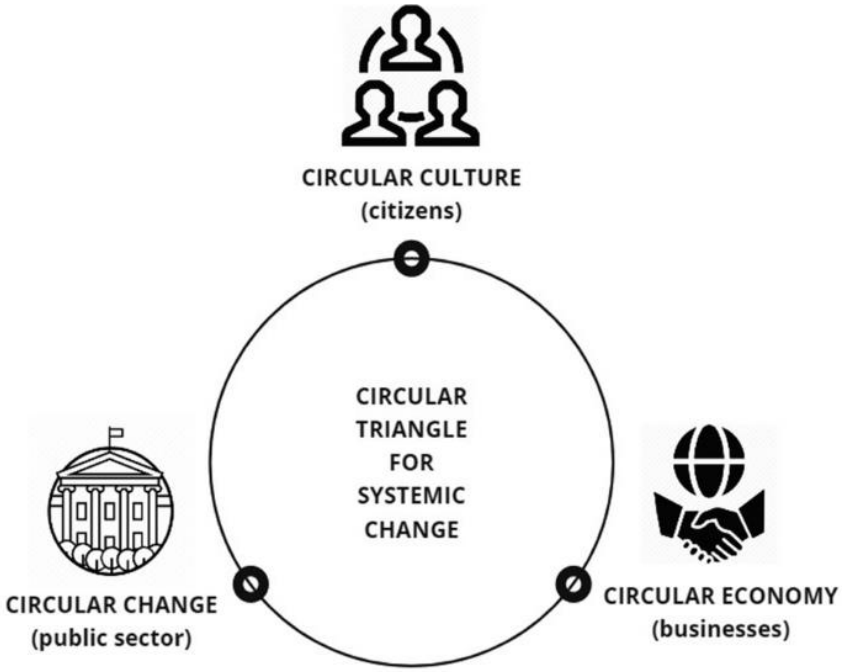
Prime Minister uniting over 3,000 partners. The roadmap represents a bottom-up driven initiative with the involvement of multiple stakeholders (Lavtizar *et al.*, 2021). The consortium of document authors was led by the Circular Change NGO platform (World Bank, 2021).

In the process of creating the roadmap, a number of guidelines were consulted, developed by Ellen MacArthur Foundation, the McKinsey and Systemiq Companies, the Circle Economy – The Circularity Gap Report, the Dutch, Finnish and Danish Roadmaps (Godina Košir, 2018).

The roadmap is based on the concept of the "Circular Triangle" (Circular Change, 2018), presented in Figure 4 (Godina Košir and Giacomelli 2018).

The triangle unites three interconnected elements – Circular Economy (represented by companies/businesses adopting circular business models), Circular Change (represented by public sector on international, national, regional, and local level, adopting policies that support the circular transition) and Circular Culture (represented by the citizens, who support the circular transition through their consumer habits, choice of products and services, by shifting to become a user of a service instead of an owner of the product, practice repairing of items instead of replacing with new ones, reducing waste, purchase high quality, eco-designed products, etc.).

Figure 4. Representation of the circular triangle



Source: adopted from Godina Košir and Giacomelli 2018) (Lavtizar Vesna *et al.*, 2021)

The systemic transition is complex and calls upon support, collaboration, and CE-supporting mindset from all—the government, businesses, and citizens. "Systemic change is only possible if all

three aspects are coordinated. The public sector, the business sector and the citizens form a circle of interdependent stakeholders of Circular Change"(Godina Košir, 2018)**.**

As what regards Slovenian cities, Maribor has an official Strategy for transition to circular economy, approved in 2018 and Ljubljana is implementing several CE projects which gained international visibility (Lavtizar *et al.*, 2021).

Additionally, in 2019 the EIT Climate-KIC (2019) selected Slovenia for a Deep Demonstration project. The implementation is taking place from 2021 to 2025. The programme is focused on three pillars and aims at applying a system-based approach to enable a process for decarbonizing Slovenia's socio-economic system through circular economy principles. The three pillars for National Circular Economy Transition that were defined are: 1. Smart and circular communities , 2. Circular green development and 3.Circular policy design and science (EIT Climate KIC, 2020).

The Deep Demonstration methodology was chosen due to the complexity associated with transforming whole systems (not only technical but also social systems). This mechanism aims to generate actionable intelligence for local policy and decision makers on how to manage system change in the current context of urgency, diversity and uncertainty (EIT Climate KIC, 2019).

Several networks and organizations fulfil promoting the circular economy principles in Slovenia.

Circular Change is a private non-profit organization with a strong international network serving as the best entry point for circular economy projects across Europe. It offers a range of services which enable its partners to design their own unique circular transition. Circular Change engages with small and large companies, government agencies, cities, non-profits, researchers, creatives and the media in collaborative projects to co-create Circular Economy solutions, projects, reports, events and more.

CER Sustainable Business Network Slovenia is a sustainable business network comprised of 90 members, mostly companies. Working to build a more sustainable economy in Slovenia, the network believes that a climate-neutral and circular economy is the only possible future and companies must adapt to the challenges and opportunities present.

The Strategic Research and Innovation Partnership – Networks for the transition into circular economy being a connection of Slovenian business subjects, educational and research institutions (RRI), non-governmental organizations and other interested parties, in collaboration with the state, into new value chains according to the economic principles of closed material flows. Its vision is to sustainably increase the efficiency and competitiveness of the domestic economy in the transition into circular economy.

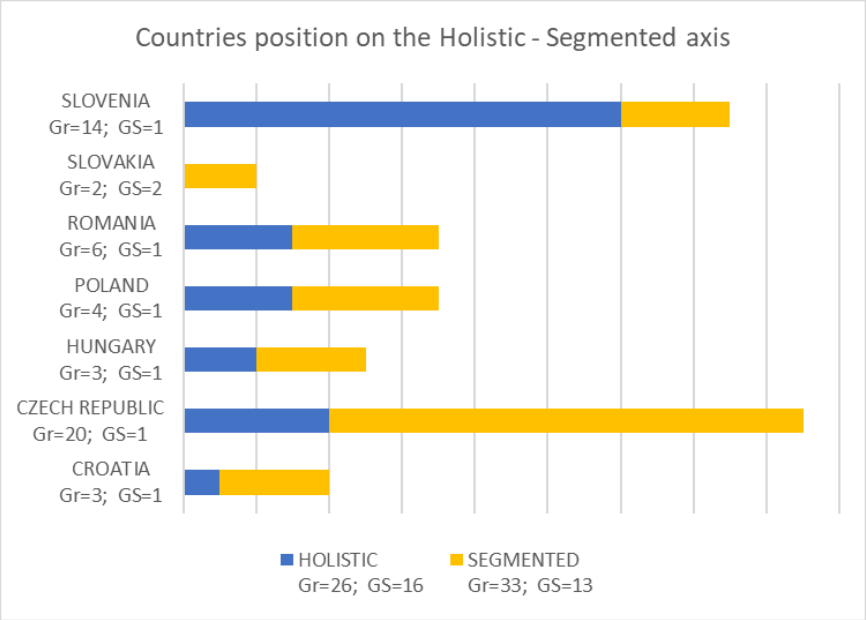
4. Discussions and findings

The aim of this paper was to analyze whether and how EU-11 is moving to a circular economy and to explore the type of circularity discourses in the EU-11 countries. Regarding the progress made, we can state that CEE countries are preoccupied in developing a circular vision and formulated ambitious objectives in transitioning to circular economy.

The strategies being pursued in the CEE countries follow various approaches, including ones with a more technocentric or sector-oriented focus, as well as those grounded in a holistic-reformist vision. Each of these options or a combination of them offers distinct advantages. The adoption of a sector-specific focus is likely to yield relatively prompt results, enabling the support of numerous initiatives and value chains. This process will facilitate a gradual shift towards a circular model. (European Economic and Social Committee, 2019).

The graph representing the first typological axis of "Holistic – Segmented discourses" shows that circularity discourses are predominantly segmented in the case of the Czech Republic, Slovakia, Croatia and Hungary.

Figure 5. Countries position of the Holistic – Segmented axis



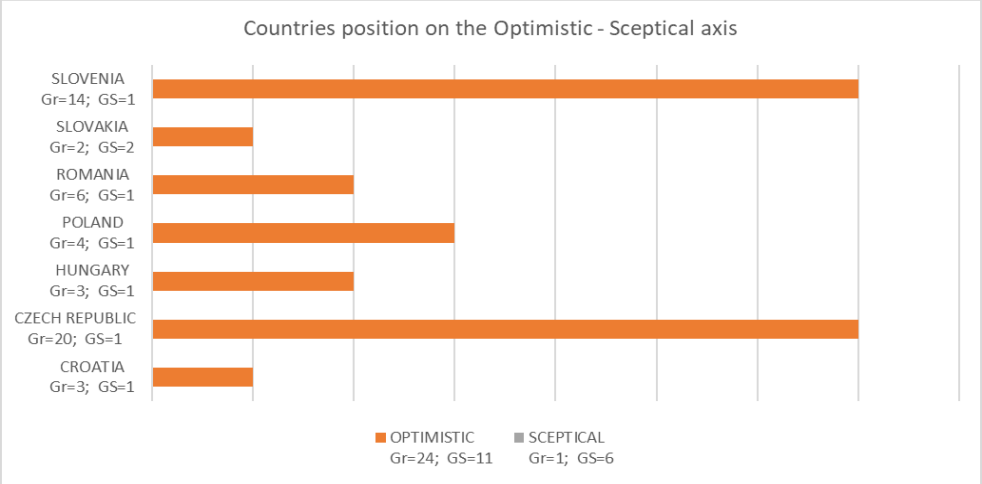
Source: authors' representation

Integrated or holistic approaches address the circular economy in its full complexity, aiming to foster circularity through partnership and mutual learning (European Economic and Social Committee, 2019). A predominantly holistic discourse might be identified in the case of Slovenia. In

the case of Romania and Poland, both elements of segmented and holistic discourses could be identified.

Regarding the second typological axis, "Optimistic – Sceptical discourses", all the analyzed countries fall under the quadrant of Optimistic discourses.

Figure 6. Countries position of the Optimistic – Sceptical axis



Source: authors' representation

It is important to note that this paper has limitations due to the chosen qualitative methodology. Qualitative content analysis is an interpretative technique and as such, the meaning that is extracted may be considered subjective to the researcher.

Therefore, a more in-depth analysis could be performed by analyzing more strategies, policy-related documents, implementation plans, in order to draw clear conclusions. Transitioning to the CE is an evolutive process – that needs to be carefully analyzed in future research works.

Conclusions

This study has examined the recent developments in Central and Eastern European countries related to circular economy policies and initiatives. The results of this paper indicate that the CEE countries within the EU-11 are actively advancing their efforts towards a CE. These countries are seen to be proactively developing a circular vision and setting forth ambitious objectives aimed at facilitating a transition to a circular economic model.

In terms of strategies being pursued, a range of approaches has been observed. These include strategies with a more technocentric or sector-oriented focus, as well as those characterized by a holistic-reformist vision. Each of these approaches, whether pursued individually or in combination,

offers unique advantages. In addition, active engagement in international cooperation and knowledge exchange alongside the implementation of demonstrative projects are of crucial importance in driving sustainability transitions and shaping a circular society.

Moreover, shaping CE strategies needs multistakeholder involvement: raising the awareness of the citizens and changing their behavioral patterns is one of the key factors in enacting change towards circular economy. The successful transition to a circular economy will require more than just a change in consumer and business behaviors and mindsets. It will also need political and economic responses, requiring close collaboration among all stakeholders: the government, businesses, civil society, academia, media, and citizens.

The research shows that countries like Poland and Slovenia have already carried out significant steps towards CE and took important steps in coordinating and mobilizing various stakeholders in developing their strategies. Public-private cooperation and bottom-up initiatives also contributed significantly in spreading the concept of CE in these countries. It is important that other Member States from the CEE region work on developing and implementing comprehensive Circular Economy strategies.

References

Ashby, A., Callegaro, A. M., Adeyeye, K., and Granados, M. (2019), The Spiral Economy: A Socially Progressive Circular Economy Model? *Greening of Industry Networks Studies*, 7, 67–94. https://doi.org/10.1007/978-3-030-15066-2_5

Audet, R. (2016), Transition as discourse, *International Journal of Sustainable Development*, 19(4). https://doi.org/10.1504/IJSD.2016.080512

Avdiushchenko, A. (2021), Circular Economy in Poland: Main Achievements and Future Prospects, *Green Energy and Technology*, 141–154. https://doi.org/10.1007/978-3-030-57764-3_10

Blomsma, F., and Brennan, G. (2017), The Emergence of Circular Economy: A New Framing Around Prolonging Resource Productivity, *Journal of Industrial Ecology*, 21(3), 603–614. https://doi.org/10.1111/jiec.12603

Braungart, M., and McDonough, W. (2018), *Cradle to cradle*. Vintage Classics.

Bulgarian News Agency (2022), *Cabinet Approves 2022-2027 Strategy, Action Plan on Bulgaria's Transition to Circular Economy*, 26 October, retrieved from https://www.bta.bg/en/news/bulgaria/350162

Calisto Friant, M. (2021), *The Circular Economy: Societal Transformation or Economic Fairtale?*, *Revolve 4.0*, retrieved from https://revolve.media/the-circular-economy-societal-transformation-or-economic-fairytale-2/

Calisto Friant, M., Vermeulen, W., Salomone, R., and Vermeulen, W. J. (2020), *A typology of circular economy discourses: Navigating the diverse visions of a contested paradigm*. https://doi.org/10.1016/j.resconrec.2020.104917ï

Circular Change (2018), *Circular transitioning: a multi-layer systemic transformation: Introducing the Circular Triangle*, retrieved from https://www.circularchange.com

Circular Change (2018), *Proposal for a uniform document on the potentials and opportunities for the transition to a circular economy in Slovenia. Roadmap towards a Circular Economy in Slovenia*, retrieved from https://circulareconomy.europa.eu/platform

Council of Ministers, Republic of Bulgaria (2020), *National Development Programme Bulgaria 2030*, retrieved from https://www.minfin.bg/en/1394

Cukier, W., Ngwenyama, O., Bauer, R., and Middleton, C. (2009), A critical analysis of media discourse on information technology: Preliminary results of a proposed method for critical discourse analysis, *Information Systems Journal*, 19(2), 175–196. https://doi.org/10.1111/j.1365-2575.2008.00296.x

D'Amato, D. (2021), Sustainability Narratives as Transformative Solution Pathways: Zooming in on the Circular Economy, *Circular Economy and Sustainability*, 1(1), 231–242. https://doi.org/10.1007/s43615-021-00008-1

Dryzek, J. S. (2013), *The Politics of the Earth: Environmental Discourses*, OUP Oxford. https://books.google.ro/books?id=EJM1OTeZ0sgC

EEA (2012), *Environmental indicator report 2012: Ecosystem resilience and resource efficiency in a green economy in Europe*, retrieved from https://www.eea.europa.eu/publications/environmental-indicator-report-2012/environmental-indicator-report-2012-ecosystem

EEA (2016), *More from less-material resource efficiency in Europe 2015 overview of policies, instruments and targets in 32 countries*, retrieved from https://www.eea.europa.eu/publications/more-from-less

EEA (2022), *Country profiles on Circular Economy in Europe*, ETC/CE Reports 2022/5: Circular economy country profiles, retrieved from https://www.eionet.europa.eu/etcs/etc-ce/products/etc-ce-reports-2022-5-circular-economy-country-profiles-a-set-of-30-country-profiles-that-summarise-policies-and-initiatives-in-the-area-of-circular-economy

EIT Climate KIC (2019), *Slovenia: Systems innovation for the transition to a circular, regenerative and low-carbon economy*, retrieved from https://www.climate-kic.org/circularslovenia-2/

EIT Climate KIC (2020), *Slovenia adopts EIT Climate-KIC Circular, Regenerative Economies Deep Demonstration*, retrieved from https://www.climate-kic.org/news

Ellen MacArthur Foundation (2015), *Towards a circular economy. Business rationale for an accelerated transition*, retrieved from https://kidv.nl/media/rapportages/towards_a_circular_economy.pdf?1.2.1

European Commission (2005), *Thematic Strategy on the sustainable use of natural resources*, retrieved from https://faolex.fao.org/docs/pdf/eur202547.pdf

European Commission (2011), *Roadmap to a Resource Efficient Europe*, COM(2011) 571, retrieved from http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0571

European Commission (2015), *Closing the loop - An EU action plan for the Circular Economy.* Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, retrieved from https://eur-lex.europa.eu/resource.html?uri=cellar:8a8ef5e8-99a0-11e5-b3b7-01aa75ed71a1.0012.02/DOC_1&format=PDF

European Commission (2019), *The European Green Deal*, COM(2019) retrieved from https://commission.europa.eu/document/daef3e5c-a456-4fbb-a067-8f1cbe8d9c78_en

European Commission (2020), *A new Circular Economy Action Plan For a cleaner and more competitive Europe*, retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN

European Economic and Social Committee (2019), *European Economic and Social Committee Circular economy strategies and roadmaps in Europe*: Identifying synergies and the potential for cooperation and alliance building STUDY. https://doi.org/10.2864/886410

European Union (2020), *The Local and Regional Dimension in the New Circular Economy Action Plan*. https://doi.org/10.2863/514606

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., Hultink, E. J. (2017), The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, pp. 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Ghisellini, P., Cialani, C., and Ulgiati, S. (2015), A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems, *Journal of Cleaner Production*, 114, 11–32. https://doi.org/10.1016/j.jclepro.2015.09.007

Godina Košir, L. (2018), *Roadmap towards the Circular Economy in Slovenia*, retrieved from http://www.svrk.gov.si/

Govindan, K., and Hasanagic, M. (2018), A systematic review on drivers, barriers, and practices towards circular economy: a supply chain perspective, *International Journal of Production Research*, 56(1–2), pp. 278–311. https://doi.org/10.1080/00207543.2017.1402141

Haupt, M., and Zschokke, M. (2017), How can LCA support the circular economy?—63rd discussion forum on life cycle assessment, Zurich, Switzerland, November 30, 2016, *International Journal of Life Cycle Assessment*, 22(5), 832–837. https://doi.org/10.1007/s11367-017-1267-1

Kirchherr, J., Reike, D., and Hekkert, M. (2017), Conceptualizing the circular economy: An analysis of 114 definitions, *Resources, Conservation and Recycling*, 127(April), 221–232. https://doi.org/10.1016/j.resconrec.2017.09.005

Korhonen, J., Honkasalo, A., and Seppälä, J. (2018), *Circular Economy: The Concept and its Limitations, Ecological Economics*, 143, 37–46. https://doi.org/10.1016/j.ecolecon. 2017.06.041

Korhonen, J., Nuur, C., Feldmann, A., and Birkie, S. E. (2018), Circular economy as an essentially contested concept, *Journal of Cleaner Production*, 175, 544–552. https://doi.org/10.1016/j.jclepro.2017.12.111

Lavtizar, V., Kos Igor, Godina Košir Ladeja, Bavcon Kralj Mojca, and Trebše Polonca. (2021), *Circular Economy: Recent Trends in Global Perspective. In Circular Economy: Recent Trends in Global Perspective*, Springer Singapore. https://doi.org/10.1007/978-981-16-0913-8

Lieder, M., and Rashid, A. (2016), Towards circular economy implementation: A comprehensive review in context of manufacturing industry, *Journal of Cleaner Production*, 115, pp. 36–51. https://doi.org/10.1016/j.jclepro.2015.12.042

Luttenberger, L. R. (2020), *Waste management challenges in transition to circular economy – Case of Croatia, Journal of Cleaner Production*, 256, 120495. https://doi.org/10.1016/j.jclepro. 2020.120495

Mann, C. C. (2018), *The Wizard and the Prophet: Two Remarkable Scientists and Their Dueling Visions to Shape Tomorrow's World*, Alfred A. Knopf. https://books.google.ro/books?id=0qZJDwAAQBAJ

Merli, R., Preziosi, M., and Acampora, A. (2018), How do scholars approach the circular economy? A systematic literature review, *Journal of Cleaner Production*, 178, pp. 703–722. https://doi.org/10.1016/j.jclepro.2017.12.112

Millar, N., McLaughlin, E., and Börger, T. (2019), *The Circular Economy: Swings and Roundabouts? Ecological Economics*, 158, pp. 11–19. https://doi.org/10.1016/j.ecolecon.2018.12.012

Ministry of Development (2019), *Roadmap Transformation towards a Circular Economy*, retrieved from https://circulareconomy.europa.eu/platform/sites/default/files/md_goz_final_en_r4_4.pdf

Ministry of Environment of the Slovak Republic (2019), *Strategy of the Environmental Policy of the Slovak Republic until 2030 Greener Slovakia*, retrieved from https://faolex.fao.org/docs/pdf/slo211277.pdf

Murray, A., Skene, K., and Haynes, K. (2017), *The Circular Economy: An interdisciplinary exploration of the concept and its application in a global context*. https://doi.org/10.1007/s10551-015-2693-2

OECD (2021), *Towards a national strategic framework for the circular economy in the Czech Republic: Analysis and a proposed set of key elements*, OECD Environment Policy Papers, No. 27, OECD Publishing, Paris. https://doi.org/10.1787/5d33734d-en

OECD (2022), *Closing the loop in the Slovak Republic: A roadmap towards circularity for competitiveness, eco-innovation and sustainability*, OECD Environment Policy Papers, No. 30, OECD Publishing, Paris. https://doi.org/10.1787/acadd43a-en

OECD (2023), *Towards a National Circular Economy Strategy for Hungary*, OECD Publishing, Paris. https://doi.org/10.1787/1178c379-en

Parksepp A., Piirsalu E. (2023), *Circular procurement lessons to be included in Estonian strategies*, retrieved from https://www.sei.org/featured/circular-procurement-in-estonian-strategies/

Pauli, G. (2010), *The Blue Economy: 10 Years, 100 Innovations, 100 Million Jobs*, Konvergenta Publishing UG, Berlin.

Pomázi, I., and Szabó, E. (2020), Circular economy policy-related national initiatives in Visegrad countries, *European Spatial Research and Policy*, 27(2), 131–154. https://doi.org/10.18778/1231-1952.27.2.09

Popov, J. (2021), The European Green Deal and the Risk of Widening the East-West Gap, *European Policy Analysis*, retrieved from https://www.sieps.se/

Prieto-Sandoval, V., Jaca, C., and Ormazabal, M. (2018), *Towards a consensus on the circular economy*, *Journal of Cleaner Production*, 179, 605–615. https://doi.org/10.1016/j.jclepro.2017.12.224

Reike, D., Vermeulen, W. J. V., and Witjes, S. (2018), *The* circular economy: New or Refurbished as CE 3.0? — Exploring Controversies in the Conceptualization of the Circular Economy through

a Focus on History and Resource Value Retention Options, *Resources, Conservation and Recycling*, 135, 246–264. https://doi.org/10.1016/j.resconrec.2017.08.027

Romanian Government (2022), *Strategia națională privind economia circulară (The Romanian Strategy for the Circular Economy)*, Department of Sustainable Development, retrieved from https://circulareconomy.europa.eu/platform/sites/default/files/national_strategy_for_the_circular_economy_in_romania.pdf

Soratto, J., Pires, D. E. P. de, and Friese, S. (2020), Thematic content analysis using ATLAS.ti software: Potentialities for research in health, *Revista Brasileira de Enfermagem*, 73(3), e20190250. https://doi.org/10.1590/0034-7167-2019-0250

Stahel, W.R. (2010), *The Performance Economy*, Palgrave Macmillan.

Stahel, W.R. (2019), *The Circular Economy: A User's Guide* (1st ed.). Routledge. https://doi.org/10.4324/9780429259203

van Buren, N., Demmers, M., van der Heijden, R., and Witlox, F. (2016), Towards a circular economy: The role of Dutch logistics industries and governments, *Sustainability*, 8(7). https://doi.org/10.3390/su8070647

Vanner, R., Bicket, M., Withana, S., ten Brink, P., Razzini, P., van Dijl, E., Watkins, E., Hestin, M., Tan, A., Guilcher, S., Hudson, C. (2014), *Scoping study to identify potential circular economy actions, priority sectors, material flows & value chains*, retrieved from https://www.ecologic.eu/sites/default/files/publication/2017/1750-44-final_report_main_circular_economy_incl_french_es.pdf

Velenturf, A. P. M., and Purnell, P. (2021), *Principles for a sustainable circular economy*. Sustainable Production and Consumption, 27, 1437–1457. https://doi.org/10.1016/j.spc.2021.02.018

World Bank (2021), *Croatia: Circular Economy Approaches in Solid Waste Management*, retrieved from https://www.worldbank.org/en/country/croatia

World Bank (2022), *Rethinking waste: How a circular economy can help Croatia achieve a more sustainable future*, retrieved from https://blogs.worldbank.org/