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A Comparative Analysis of the Circular Economy Strategies of the EU Member States

This paper focuses on the circular economy and, within this, on the strategies prepared by EU Member States to move towards a circular economy. The European Commission's 2014 Communication "Towards a Circular Economy: a Zero Waste Europe" launched the transition to a Circular Economy (CE) in EU Member States. Subsequently, not only has the EU issued a CE Action Plan and a number of documents over the last 9 years, but Member States have also developed their own national strategies for the transition to CE during this period. These strategies vary from country to country, not only being country-specific, but also very heterogeneous in their name, composition, form, objectives and timeframe. The main research question of this paper is what the EU Member States' circular strategies contain, and what the member states focus on within each of the categories I have chosen, what are the common points, and above all, the similarities and differences along the individual categories. To answer the "what" question, I used quantitative content analysis, while to answer the "what kind of" question, I used qualitative discourse analysis. The research is timely because by 2023, all EU countries without exception will finally have published their CE strategies. Previous studies that have looked at similar aspects only provide partial comparisons, as not all countries had a CE strategy.

Keywords: circular economy, content analysis, circular strategies, EU Member States

Introduction

In 2014, the European Commission issued a Communication "Towards a circular economy: a Zero Waste for Europe",² which launched the efforts to move towards a circular economy (CE). As the circular economy model offers many advantages for Europe to ensure a sustainable economy, the EU countries started to implement this effort by preparing a framework in 2015.³ Since then, the EU has published more than 20 documents

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² European Commission 2014.

³ ULMANN 2015.

aiming at the transition to a circular economy. Since 2015, the European Commission has continuously published decisions, reports and drafts on the transition to a circular economy, starting with the 2015 Action Plan.⁴ More than 20 documents have CE in their titles.⁵ In addition, the European Parliament has also adopted several initiatives since 2015,⁶ and Eurostat is also monitoring the situation of EU Member States on the circular economy with up-to-date statistics according to a now established framework.⁷ The primary objective of these documents is to help European countries to make the transition to a circular economy and to accelerate progress.

The transition to a circular economy is a wide-ranging activity that depends on the actions of all economic actors, from consumers to businesses to governments. It is precisely for this reason that we are facing an extremely lengthy process, which will require a great deal of research by future generations. There is no single, universal practice for the transition to a circular economy, and different countries and sectors will have to implement it in different ways,⁸ depending on the situation in each country, the economic actors, the type of products and the behaviour.

Theoretical background

In recent years, there has been a surge in the literature on this topic, with an increasing number of experts exploring the issue. However, it is clear that there is still a gap between the theoretical approaches and research on the circular economy, EU ambitions and the practical implementation. EU countries have developed national strategies for the transition to a circular economy, each with a country-specific vision, a framework, with appropriate objectives, measures and sometimes indicators to monitor progress. I agree with the idea expressed in the Circular Czechia Strategy that the circular economy is a means to an end, which helps to minimise negative environmental impacts and maximise economic circularity.⁹ With this, there is a need for measurement and strategies, which will be discussed later in my paper. In addition, the number of studies that provide a comparative analysis of the CE progress of EU Member States has increased in the last 5 years. Marino-Pariso (2020) presents a comparative analysis of the CE transition in the 28 EU Member States. The analysis shows that the transition is very heterogeneous, each country progressing at its own pace, but at the same time, countries with higher GDPs have better recycling efforts.¹⁰

Cramer (2022) examined the extent to which a government can contribute to the effective implementation of CE. He argues that receptiveness to network governance on the part of members of society and the active participation of stakeholders are essential for the transition. This includes the attitude of civil society, as well as that of businesses.

⁴ European Commission 2015.

⁵ European Commission 2015, 2017, 2018, 2019, 2020, 2021, 2022, 2023a, 2023b.

⁶ European Parliament 2015, 2018, 2021.

⁷ Eurostat 2023.

⁸ RITZÉN-SANDSTRÖM, 2017.

⁹ Government of the Czech Republic 2021.

¹⁰ MARINO-PARISO 2020.



Today, the competitive advantage of large companies may also depend on their embeddedness in the CE approach. In addition, financial support is essential to acquire CE skills and to enhance business development.

The study, which compares 16 countries, divides governmental attitudes towards the development of CE activities into 4 groups:

- Strong government leadership, medium/high level of stakeholder involvement (industry) and receptiveness to network governance is present in the country (the most favourable case)
- Lack of strong government leadership, but medium/high involvement of economic actors (industry), progress from the bottom, willingness to cooperate
- There is strong government leadership, but involvement of actors (especially industry) and receptiveness to network governance is top-down
- Countries where there is no strong governance, low levels of stakeholder involvement and no collaboration. Low receptivity to network governance prevails

The implementation of CE requires a change that is challenging for countries, and this requires awareness raising and education, the creation of a CE platform, the existence of CE experts.¹¹

According to Mazur (2021), there is a so-called “two-speed Europe”, where EU Member States can be divided into two broad groups in terms of the degree of CE progress. There is a group of leading (economically advanced) countries and a second pole, which includes countries that are making slower progress (countries in Central and Eastern Europe and Southern Europe).¹² Similar results are shown in another study, which suggests that for the time being, EU Member States can be classified into two clusters in terms of CE progress.¹³ Mazur (2021) also notes, however, that the different degrees of progress towards CE in some countries may depend on the timing of the adoption of different development strategies for the transition to a circular economy adopted by each country, which will be discussed later in this research. The author stresses in his article that only a few of the CE development strategies are considered to be truly adequate for the transition to a circular economy.¹⁴

In his study, Smol (2021) examined the national circular strategies of EU Member States and the indicators contained in these strategies.¹⁵ He concludes that the use of the already developed CE monitoring framework is recommended for a coherent transformation at European level, as it contains CE indicators that provide a holistic picture of each country. It also allows, of course, to compare countries according to a single set of indicators.

There is no doubt that in order to measure progress towards the CE, EU Member States need to set targets, which in fact justifies the need for national strategies. Lacko et al. (2021) also stress in their study that in order to make progress in the transition

¹¹ CRAMER 2022.

¹² MAZUR 2021.

¹³ GYÖRGY-TÓTH 2023.

¹⁴ MAZUR 2021.

¹⁵ SMOL 2021.



to a circular economy, a roadmap is needed for the long term.¹⁶ In other words, the country-specific situation analyses must be prepared, the objectives to be achieved must be formulated, and the associated follow-up and measurement methodology must be established. In the following I will examine the CE strategies in the Member States.

The national circular strategies can be found on the website of the country office that produced the document, which varies from country to country, or on the website of the European Union

Circular Economy Stakeholder Platform,¹⁷ a joint initiative of the European Commission and the European Economic and Social Committee. There are generally two approaches to the preparation of CE strategies: a horizontal approach and a sectoral approach.¹⁸ The horizontal approach is in fact an integrated/holistic approach, focusing on the full complexity of the circular economy (aiming at bottom-up initiatives). The sectoral approach pays attention on specific value chains, focusing on specific sectors linked to a territory.

Depending on which method the strategy uses, there are 4 types of EU national strategies (or roadmaps):¹⁹

- integrated strategies without a specific sectoral focus: these are likely to have been applied where the concept of a circular economy is relatively new, still in the process of being introduced. These strategies are often policy-driven, usually top-down, with the main aim of introducing the concept and bringing together different stakeholders, laws and regulations. Value chains are also sometimes indirectly reflected in these strategies
- strategies with a sectoral focus
- comprehensive strategies with clear priorities, which focus on all areas and link sectors
- National Action Plans, where the focus is not on setting vision and goals, but mainly on policy measures and a concrete agenda

But it's not just the structure of the strategies that varies from country to country, but also which agency is responsible for which. In addition, the strategies differ in their name, composition, form, objective, timeframe, all of which make up a very heterogeneous picture of the whole of the country. As Smol (2021) writes in his study, the strategies depend on the socio-economic situation of the member country.²⁰ In addition, in my opinion, it also depends on when the strategy was written, as there is a difference of almost 10 years, with some countries adopting their national strategy in 2014 and others only in 2023. This almost 10 years is in fact the golden age of literature and research on CE, so the more recent strategies are much more comprehensive, concrete and clear. Nevertheless, the earliest strategies were the pioneers in this field, and as a result, those countries are well ahead in the transition to CE.

¹⁶ LACKO et al. 2021.

¹⁷ See: <https://circulareconomy.europa.eu/platform/en/>

¹⁸ European Economic and Social Committee 2019.

¹⁹ European Economic and Social Committee 2019.

²⁰ SMOL 2021.



In his study, Smol (2021), analysing the strategies, concludes that these national strategies can actually be divided into three types.²¹ There are integrated national (or regional) strategies that focus on policy, there are strategies that focus on specific sectors, and there are comprehensive strategies that clearly define priorities. The CE strategies of each EU Member State differ greatly, with different key sectors in each strategy. It is important to note that although key sectors are identified in the strategies of almost all Member States, not all EU strategies have adequate indicators. In addition, there is no consensus yet on the best way to monitor the different CE activities.²²

What is common to the strategies of the Member States, however, is their sense of the need to move to CE and the need to achieve this transformation through indicators based on national capabilities and intrinsic characteristics. The strategies aim at long-term planning and most of them contain a vision, objectives, key areas or key CE implementation areas and the measures to be taken in this respect.

Methodology

The methodology I chose for my research is mixed content analysis, which I will explain in more detail below. Nowadays, a mixed (quantitative content analysis and qualitative discourse analysis) methodological approach is common in social sciences.²³ The application of mixed text analysis methodology in the study of economic and social phenomena results in a deeper and clearer analysis of the topic. In my case, the main research question is what are the circular strategies of the EU Member States and what are the main points of emphasis within each of the categories I have chosen, what are the common points, especially the similarities as well as the differences along each category. To answer the “what” question I used quantitative content analysis, while to answer the “what kind of” question I used qualitative discourse analysis. The methodological mix used in this research²⁴ provides an opportunity to get a general idea of the strategies that were developed and the form they took, as well as the methodology chosen. While qualitative discourse analysis provides insights into which factors are considered important by which countries in terms of the transition to a circular economy.

In line with the methodology used, my research work went through the following phases:

- First, the general research question was formulated.
- This was followed by a double reading of the strategies (26 Member States' strategies, with the exception of Croatia, which is in the process of publishing its CE strategy), with the aim of reviewing the documents to gain insight into the relevant sections and passages, which contain findings that are relevant and relevant to the topic.

²¹ SMOL 2021.

²² CADER et al. 2024.

²³ GERING 2017.

²⁴ CRESWELL 2009.



- The next stage was to select the main categories. The purpose of categorisation is to select the most important elements from a large number. This simplification has made the text more transparent and the analysis more focused.
- Then came the text analysis part, which did not have predefined subcategories, but looked at the most frequently occurring elements within each theme and coded them accordingly. Only those words that were actually manifested in the texts could be coded, which could then be converted into measurable units. The aim was to find out which terms and topics were the most frequent within each category. In other words, how many countries mention the same things within a category in the strategies, i.e. how often do they refer to certain characteristics (e.g. main objectives).
- Finally, the last phase was the phase of interpretation, in which I tried to shed light on and draw conclusions about the regularities in the text on the basis of the tendency-like co-occurrences, since the content appearing in large quantities and with high frequency suggests that those themes are more important and more dominant than the content appearing in smaller quantities.

On this basis, my quantitative analysis examined 26 strategies according to the following 12 categories (in some cases, whether these categories exist in the strategy): type of strategy, scope, year of publication, period covered, page number, type of title chosen, vision, main objective, objectives, priority sectors, actions, priority areas. Of these categories, the last 6 were coded and frequency analysed. Coding and content analysis were carried out using the online software Taguette (<https://app.taguette.org/>).

Results

I will first present the results of the quantitative content analysis. Figure 1 shows very clearly that the strategy type most frequently chosen by EU Member States is the comprehensive strategy form, which has in common a horizontal approach, with objectives, specific goals, vision, priorities and actions. Some also include priority sectors, but most are documents with a cross-sectoral approach.

Overarching strategy documents can be very different, in that there are documents that talk about the institutional framework, the funding sources, the conditions for successful implementation, the monitoring plan and even the action plan, but there are also documents that only mention some of these. The second most popular choice is the Integrated Strategy, which takes a holistic approach and focuses on principles, operational conditions, description of the regulatory system and mapping of stakeholders. There are also identified priorities, development directions and sector-specific elements.



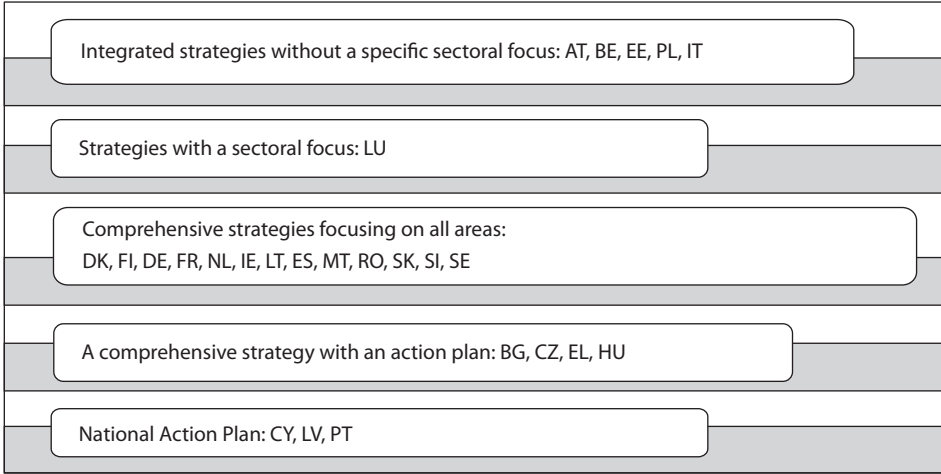


Figure 1: CE strategies by type in EU Member States*

Source: compiled by the author based on national strategies.

* The author used the official abbreviations of the member countries.

Table 1: Terms used in the CE national documents in the titles

Terms used in the name of the document...	Country	Number of countries
Roadmap (Roadmap)	FI, FR, DE, LT, PL, SI, SK	7 countries
Strategy (Strategy)	DK, EL, HU, IE, LU, SE, ES, RO	8 countries
National Strategic Framework (NSF)	IT, CZ	2 countries
National Action Plan (NAP)	BG, CY, LV, PT	4 countries
Towards circularity (Towards to circularity)	AT, BE, MT, NL	4 countries
White Paper (White Paper)	EE	1 country

Source: compiled by the author based on national strategies.

If we look at the terms chosen in the title of the strategy document (Table 1), we find that the terms strategy and roadmap top the ranking, but we also find the terms framework, action plan and white paper. It can be concluded that there is basically no correlation between the form of the strategy document and the term in the title, with the exception of the form of the action plan, which is also used in the name.



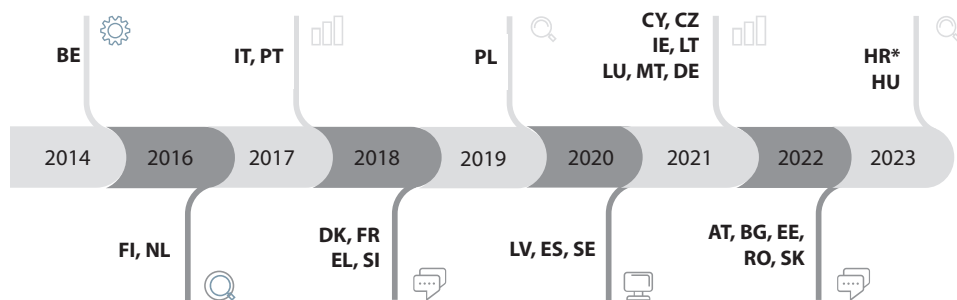


Figure 2: In which year was the EU Member State's CE strategy adopted?

Source: compiled by the author based on national strategies.

* Expected to be published in 2023.

If we look at when the strategies of the member countries were drawn up, we can clearly see in Figure 2 that the period during which the circular strategies were drawn up covers a period of almost 10 years. This in fact also explains the differences in form and objectives. During this period, a number of new regulations and communications on the circular economy were published in the European Union. More than 20 documents were produced, including the EU Action Plan for the Circular Economy. This means that leading countries such as Belgium, the Netherlands and Finland published and adopted their first circular economy strategies before the majority of EU documents existed or before the first action plan was completed.²⁵ As a result, the strategies produced later are more complex, holistic and comprehensive than those adopted in the early period.

As far as the scope of the strategies is concerned, the table below shows (Table 2) that there is also a diversity in the scope of the strategies prepared, obviously depending on whether it is an integrated strategy or just a targeted action plan.

Table 2: Scope of CE strategies adopted by EU Member States

Length of strategy document (number of pages)	Countries
20–40	BE, CY, DK, EE, EL, PL, MT, SE
41–60	FI, FR, LV, IT, SI
61–80	BG, NL, LU, PT, RO, ES
81–100	AT, IE
101–200	DE, LT, SK, CZ
> 200	EN
n. d.	HR

Source: compiled by the author based on national strategies.

As regards the timeframe of the strategies, this also shows the diversity of the strategies, as they target a varied timeframe. Most countries have set 2030 as the target period in their strategy (9 countries: DK, EL, MT, IT, PT, RO, ES, SE, SI) and 2050 (6 countries: AT,

²⁵ European Commission 2015.



BE, NL, LT, LU, DE). For the other countries, the target period varies widely, from 2023 to 2040. The table below (Table 3) summarises the categories for which I have carried out a qualitative analysis.

Table 3: Presence of selected categories in countries' CE strategies

Selected categories of analysis	How many countries' strategies	Countries
Vision	In every country's strategy	
Target	In every country's strategy	
Strategic goals/objectives	In every country's strategy	
Priority areas	19	BG, CZ, FI, FR, DE, EL, HU, IE, IT, LV, MT, NL, PL, PT, RO, ES, SK, SI, SE
Measures	In every country's strategy	
Highlighted sectors	15	AT, CY, CZ, DE, HU, IE, LT, LU, MT, NL, PT, RO, ES, SK, SE

Source: compiled by the author based on national strategies.

In the second part of the analysis, qualitative discourse analysis will provide insights into which countries consider which factors within the categories I have chosen to be important in the transition to a circular economy. For the 6 categories, I have tried to code them according to which factors appeared most often within each category. Firstly, the table below (Table 4) shows the visions set out in the CE strategies, for which I have not given codes, as I realised that in this case it is worth observing the terms used by each member country in particular.

Table 4: The vision of EU Member States in the CE strategies

AT	Reforming the Austrian economy
BE	Belgium wants to be one of the main European <i>pioneers</i> in developing a circular economy by 2030
BG	In Bulgaria will be a <i>green and competitive</i> economy, less waste and more resource- and consumer-friendly economy
CY	<i>Systemic change, reform, recovery and stability</i> in Cyprus
CZ	The circular economy brings significant environmental, economic and social benefits to the Czech Republic
DK	Danish becoming the <i>state of green</i>
EE	Estonia is a smart country leading in the transition to circular economy, aims to become a <i>competitive, knowledge-based</i> society and economy by 2050
ES	<i>Decarbonisation</i> in Spain
FI	Make Finland a <i>leader</i> in environmental performance and become a global circular economy leader by 2025
FR	<i>Successful transition</i> towards a circular economy in France
DE	In 2030, Germany will be on its way to a <i>prosperous</i> circular economy



EL	Qualitative leap in the Greece economy, which will be equivalent to a growth transformation
HU	By 2040, Hungary will become a more <i>competitive and sustainable</i> economy
IE	To become a circular economy <i>leader</i> among our European peers
IT	The transition to a circular economy requires <i>structural change</i> : rethinking the way we produce and consume, developing new business models and transformation
LV	Implementation and development of the circular economy in Latvia, creating a <i>competitive, inclusive and sustainable</i> national economy
LT	Think and go circular – the <i>industrial transformation</i> towards a circular economy
LU	Luxembourg will be the first circular country where <i>new business models</i> , based on the product-as-a-service principle, will become commonplace. All markets will be aligned to the circular economy
MT	The vision is to <i>divert economy from actual landfill practices</i> . Malta will be brought into line with the different waste, Framework Directive and other waste-related directives
NL	<i>Decoupling growth and material use</i> in the Netherlands and creating a system that in the sustainable extraction of raw materials and the preservation of natural capital is guaranteed
PL	Strategy for responsible development, to create conditions for the growth of income of the Polish population, while simultaneously increasing social, economic and territorial <i>cohesion</i>
PT	To <i>reorganise the economy</i> in a closed loop cycle, and to work towards 2050 objectives, such as a carbon neutral economy, innovation, resilience, and an inclusive society
RO	Romania's vision is to create a stable path to <i>prosperity</i> for society as a whole, ensuring economic growth and a sustainable environment for future generations
SK	By 2040, the Slovak Republic will have made <i>significant progress</i> in the transition to a circular economy and will have become a sustainable, <i>low-carbon economy</i>
SI	Slovenia's vision is to become a society that promotes " <i>quality of life for all</i> " by 2050 – in line with the Sustainable Development Goals
SE	To become a society in which <i>resources are used efficiently</i> in non-toxic circular flows, replacing virgin materials

Source: compiled by the author based on national strategies.

The majority of the visions expressed by member countries use a general but very catchy term that refers to the degree of progress in some form, such as: pioneering, leading, competitive, reform, successful transition, sustainability, green, stability, recovery, prosperous, qualitative transformation, structural change, cohesion. Among these, the most frequently used adjectives are competitive, in transition, stable and sustainable. In addition, some countries' strategies include specific action lines, such as waste management in Malta, new business models in Luxembourg, resource efficiency in the Netherlands and Sweden, and decarbonisation in Spain and Slovakia. Closely linked to this vision are the key objectives chosen by the Member States. The table below (Table 5) summarises the focus of the main objectives of the Member States. Most Member States have identified resource efficiency, but several countries focus on climate neutrality, environmental protection and extending product life. There are also countries with a focus on a number of areas, rather than a single area.



Table 5: The main objectives set by EU Member States in the CE strategies

Main objectives	Number of countries	Countries
Key objective focusing on resource efficiency	11	CY, FI, DE, HU, IE, LV, NL, PL, PT, RO, SK
A key objective focusing on climate neutrality	4	AT, EE, LT, SE
Main objective focusing on the environment	1	DK
Main objective focusing on extending the life of products	3	FR, MT, ES
The main objective focusing on creating more added value	1	BE
The main objective focusing on finding the right methods	1	LU
A key objective focusing on creating systemic change	1	SI
Formulation of a general, multi-faceted main objective	4	BG, CZ, EL, IT

Source: compiled by the author based on national strategies.

Although the majority of member countries' circular economy strategies focus on material use efficiency, research shows that it is not possible to approach efforts solely from a materials or product perspective.²⁶ There is a need to make progress holistically to minimise the risk of harmful or inappropriate action in any one area.

It is important to set out priority areas (Table 6) in a strategy in order to have a more transparent vision of priorities in the country. In total, 19 countries have a list of priority areas in their strategies. In these countries we find specific focus areas on a scale of 1 to 8. The most frequent focus areas are related to production, consumption, waste management, raw material use and food waste. But there are also countries where the focus areas are construction, mobility, plastics production, forest and water management, and last but not least the introduction of new business models. We will see these areas in the future, as they are in line with the measures set out.

Table 6: Priority areas chosen by EU countries in CE strategies

Priority areas	Number of countries
Better manufacturing and circular design	15
Better consumption and consumption	12
Waste management	10
Food system and bioeconomy	9
Circular use of raw materials	9

Source: compiled by the author based on national strategies.

²⁶ MARSH et al. 2022.



Areas for action can be found in the strategies of all Member States. The most common areas of action are summarised in Figure 3. It can be seen that education, awareness-raising and information are the most frequent themes in the strategies, which suggests that providing information to the public at large is a priority for the majority of Member States. Further measures are in line with the priority areas, as measures relating to product manufacturing, raw material use and waste management also appear in many places. In addition, it is worth noting that circular public procurement is also included in the actions of quite a number of countries, and research and innovation and the involvement of governance and policies in the circular economy are more frequent measures. Measures also include new business models, the introduction of economic incentives, the development of a regulatory environment, and the introduction of extended producer responsibility.

As regards the priority sectors in the strategies, there is a sectoral focus in 15 Member States. Most of these are construction (14) and agriculture and food (13), which are also in line with the waste management and raw material use objectives of the measures and priorities, as both sectors focus on waste and food waste reduction targets. At the same time, the plastics and packaging industry, the manufacturing sector in general and the much-vaunted textile industry, where a shift towards slow fashion would be justified, are given priority in the sectoral focus.

Education, awareness raising, information, communication, 15	Developing circular public procurement, 12	Policies, governance, administrative efforts, 10	Digitalisation and technological developments, 6	Economic instruments and market incentives, 6	Measures to reduce the use of raw materials, 6	
	Product life cycle measures, 11	Research development and innovation, 9	Introduction of an extended producer responsibility framework, 5	Action in the field of energy and renewable energy sources, 4	Changing consumer behaviour, 4	
			Promoting circular business models and encouraging entrepreneurship, 5	Developing a fiscal framework, 3	Promoting the bioeconomy, 3	
Waste management measures, 12	Efforts towards financing and financial frameworks, 10	Developing the regulatory and legal environment, 9	Encouraging cooperation at national/international level, 5	Fight against food waste, 2	Job creation, 2	Development of indicators and statistics, 2

Figure 3: Areas of action chosen by EU Member States in the CE strategies

Source: compiled by the author based on national strategies.



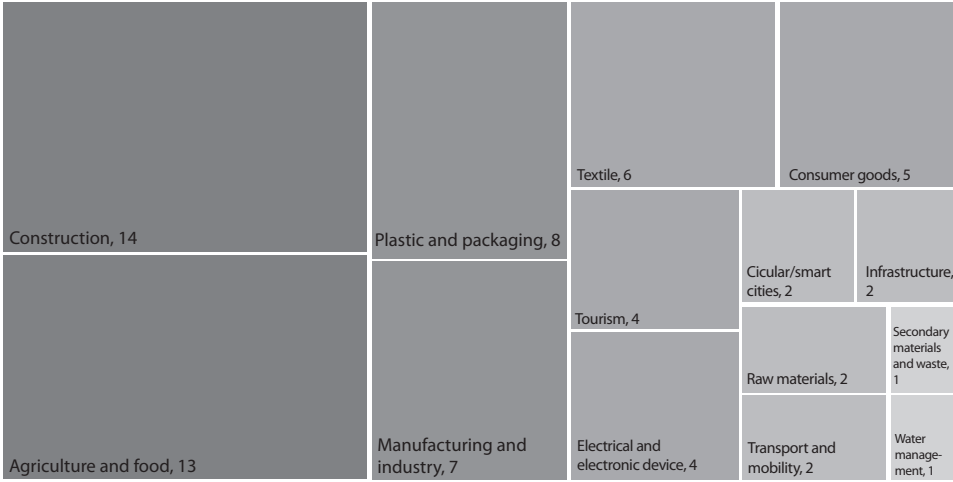


Figure 4: EU Member States' priority sectors in the CE strategies
 Source: compiled by the author based on national strategies.

Conclusions

In the current economic context, the pressures on the environment, which are due to its size and structure, require policy cooperation at the government level in order to make progress on circularity.²⁷ If the promotion of CE is important for all EU countries, and this has been demonstrated through the development of strategies, there is a clear need for coordinated cooperation between policy makers and industry and for monitoring this through appropriate indicators (the use of statistical data together for comparability). The need for EU Member States to prepare a circular strategy is not an issue, but the way in which they do this work differs in many ways. Despite the fact that there are many differences in both form and ideas in the strategies analysed, it is clear that when it comes to specifics, the strategies have common elements. These are mainly found at the level of priority areas, measures and sectoral concepts. The differences are most noticeable in the formal aspects, i.e. in the horizontal or sector-specific vision of the transition process. The analysis carried out reveals that the period of preparation of the Member States' strategies covers almost 9 years, during which the EU as an organisation has issued numerous documents. It is likely that the older strategies will need to be updated in the near future and aligned with the EU monitoring framework and the latest EU Action Plan 2020. As we have seen, the strategies of the EU Member States, as well as the countries' profile, differ widely, but as we have seen, the main orientations, priority sectors and ambitions are converging. A further research question will be how similar aspirations can produce similar results.

²⁷ MAYER et al. 2019.



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