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Aligning EU and Regional Policies on the Circular Economy: A case study of circular economy monitoring in Flanders, Belgium

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Tiivistelmä - Referat - Abstract

Kiertotalous on moninainen käsite, joka kattaa sekä kapeamman näkökulman, johon liittyy muun muassa materiaalien kierrätys, korjaaminen ja uudelleenkäyttö, että laajemman systeemisen näkökulman, jossa pyrkimyksenä on muuttaa nykyisiä yhteiskunnallisia ja talousjärjestelmiä, infrastruktuureja, liiketoimintamalleja sekä ajattelutapoja kohti kiertotalouteen perustuvia ja aineettomia lähtökohtia. Koska käsite on monimutkainen, sen ohjaaminen politiikkatoimenpiteiden avulla on haastavaa. Kiertotalous on hajautunut tällä hetkellä eri politiikkasektoreihin ja hallintotasoille, joilla saattaa olla erilainen tapa lähestyä kiertotalouden käsitettä, mikä vaikeuttaa siirtymää kiertotaloutta kohti. Koska kiertotaloussiirtymä liittyy globaalin talouden vuoksi myös ylirajaisiin kysymyksiin, se vaatisi onnistuakseen johdonmukaisuutta useilta hallintotasoilta globaalista paikalliseen tasoon, sekä siirtymän seurantaa uudenlaisilla menetelmillä, kuten monitorointijärjestelmillä.

Tässä maisterintutkielmassa tarkastelen, kuinka kiertotaloutta ohjataan ylikansallisella, kansallisella ja alueellisella tasolla, millaista politiikkakoherenssia näiden tasojen välillä esiintyy ja miten tätä tietoa voidaan hyödyntää alueellisen kiertotalousmonitoroinnin parantamisessa, jotta sitä voidaan hyödyntää paremmin politiikkatoimien kehittämisessä. Euroopan unioni (EU), Belgia ja belgialainen Flanderin alue toimivat tutkielmassa tapaustutkimuksen kohteena. Flanderissa kehitetään parhaillaan alueellista kiertotalousmonitoria, jonka avulla pyritään seuraamaan alueen siirtymää kiertotalouteen ja tarjoamaan alueen päättäjille tietoa politiikkatoimien arviointia ja kehittämistä varten. Tutkielman aihe on osa belgialaisen KU Leuven -yliopiston tutkimusryhmän työtä, sillä ryhmä osallistuu kyseisen monitorin kehittämiseen.

Tutkimustavoitteen saavuttamiseksi menetelminä toimivat dokumenttianalyysi ja teoriaohjaava sisällönanalyysi, joissa teoreettisena kehyksenä toimii politiikkakoherenssin viitekehys, sekä aineistona politiikkadokumentit ja asiantuntijahaastattelut. Tutkimustavoitteiden jäsentämiseksi asetin kaksi tutkimuskysymystä: (1) Mitä kiertotalouden elementtejä EU:n, Belgian ja Flanderin eri hallintotasot käsittelevät politiikkatoimissaan, ja kuinka johdonmukaisia ne ovat keskenään? ja (2) Mitä tulisi sisällyttää kiertotalousmonitoriin, jotta se tukisi päätöksentekoa ja alueellisen edistyksen seurantaa EU:n tavoitteiden mukaisesti, erityisesti Flanderissa?

Dokumenttianalyysin ja haastattelujen perusteella selvisi, että alueellisella ja kansallisella tasolla ollaan usein EU:n kiertotaloustavoitteita kunnianhimoisempia, ja koherenssia näkyy paremmin ylhäältä alas -, mutta ei aina alhaalta ylös -näkökulmasta. Epäjohdonmukaisuutta esiintyy esimerkiksi tilanteissa, joissa alue haluaisi lisätä tuotteiden korjaustoimintaa, mutta tuotepolitiikka EU-tasolla ei toistaiseksi tue tuotteiden korjattavuutta. Monitoroinnin kehittämisen suhteen uudet EU-tason suuntaukset, joissa painottuu kilpailukyky kiertotalouden keinoin, viestivät, että strategiseen omavaraisuuteen liittyvien sektoreiden sekä kestävien julkisten hankintojen kehityksen seuranta ovat tulevaisuudessa tärkeitä painopistealueita. Toisaalta laajemman, systeemisen siirtymän suhteen on tarvetta seurata paremmin kiertotalouden integroitumista ajattelutapoihin, jolloin muun muassa kiertotalousteemojen määrää koulutuksessa olisi myös olennaista monitoroida.

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Kiertotalous, politiikkakoherenssi, monitasoinen hallinta, Euroopan unioni, Belgia, Flanderi, monitorointi

Keywords

Circular economy, policy coherence, multi-level governance, European Union, Belgium, Flanders, monitoring

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Tiivistelmä - Referat - Abstract

Circular economy (CE) is a multifaceted concept, covering narrow perspectives of circular materials use through operations such as repairing, reusing and recycling, and systemic perspectives of transforming social and economic systems, infrastructures, business models and mindsets towards circular and non-materialistic approaches. Due to the complexity of the concept, its governance through policies has proven to be challenging. Circular economy is covered in different policy sectors, and different levels of governance can have varying approaches to the concept, complicating the overall transition to a more circular economy. As circular economy covers transboundary issues due to the global economy, it also requires coherence from multiple governance levels, from global to local, as well as tracking the transition to inform policy, through solutions such as circular economy monitoring.

This thesis examines how circular economy is governed at supra-national, national and regional levels, what policy coherence elements exist and how this information can be used to develop regional circular economy monitoring to strengthen its credibility in supporting policymaking. Here, the European Union (EU), Belgium and a Belgian region of Flanders function as a case study. The region of Flanders develops an online circular economy monitor to track the transition to a circular economy in the region, and to provide information that policymakers can use to evaluate and develop policies that support the transition. The thesis topic was provided by a research group at KU Leuven that contributes to the development of the circular economy monitor.

To approach the research aim, I used document analysis and an abductive content analysis as research methods, with EU's circular economy monitoring framework and policy coherence as theoretical frameworks, and policy documents and expert interviews as main sources of materials. Two research questions were formed to frame the broader aim: (1) What topics of the circular economy do the different governance levels of the EU, Belgium and Flanders cover in their policies, and how coherent are they across these levels? and (2) What should be included in a circular economy monitor to inform policymaking and track regional progress in alignment with EU objectives, specifically in Flanders?

The document analysis and interviews revealed that at regional and federal levels the EU's circular economy policy objectives are often exceeded, and coherence can be better seen from top-down, but not always from the bottom-up perspective. Incoherence in some policy objectives, such as increasing repairing activities at regional level would require similar objectives from upper levels to ensure that products are repairable to begin with. However, new developments at the EU-level regarding competitiveness through circularity can signal to lower levels that tracking sectors connected to strategic independency, such as critical raw material reuse, or monitoring green public procurement development to influence production policies at higher levels can be key sectors of focus in the future. From a systemic perspective, there is a need to better understand how circular economy could be integrated into mindsets, in which case it would also be essential to monitor, e.g. the number of CE themes in education.

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Kiertotalous, politiikkakoherenssi, monitasoinen hallinta, Euroopan unioni, Belgia, Flanderi, monitorointi

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Abbreviations

CCRI	Circular Cities and Regions Initiative
CE	Circular Economy
CEAP	Circular Economy Action Plan
CMUR	Circular Material Use Rate
COP	Conference of Parties
DMI	Direct Material Input
DPP	Digital Product Passport
EEE	Electrical and Electronic Equipment
ESPR	Eco-design for Sustainable Production Regulation
EU	European Union
EV	Electronic Vehicle
GHG	Greenhouse Gas
GPP	Green Public Procurement
IS	Information Systems
MLG	Multi-level Governance
MS	Member States
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
OJEU	Official Journal of the European Union
PaaS	Product as a Service
PCD	Policy Coherence for Development
QCA	Qualitative Content Analysis
RQ	Research Question
SMEs	Small and Medium-Sized Enterprises
WEEE	Waste of Electrical and Electronic Equipment

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1 INTRODUCTION

The current linear economic model puts much pressure on the Earth's natural carrying capacity, extracting more resources than the Earth can produce, and contributing to environmental crises such as biodiversity loss and climate change (Grabbe & Moffat, 2024; UNDP, 2023). Circular economy (CE) is a proposed concept to tackle these challenges, covering a new approach to a more sustainable economic system. In essence, it is about keeping primary natural resource consumption as low as possible by extending the life cycle of materials and keeping them at their highest possible value. In other words, products are kept in a cycle through actions such as reuse, maintenance and recycling, and reducing waste formation. (Ellen MacArthur Foundation, n.d.) Alongside the technical perspective, CE also refers to a systemic change, where mindsets about the need for materials in the first place are changed towards non-materialistic directions. Here, the CE extends to environmental, social and economic change, away from a consumption society and linear economic models. This systemic and transformational change requires more than a focus on resource flows; rather, it requires changes in business models, infrastructures, consumer activities, politics, governance, and regulations. (Kircherr, Reike & Hekkert, 2017; Iacovidou, Hahladakis & Purnell, 2021.)

When governing such complex and transboundary transition, a multi-level governance (MLG) approach is needed, as is the case with other transboundary environmental challenges, such as climate change (Mickwitz et al., 2009). Because of a globalized world system where resources are extracted and transported through global supply chains, transition to CE requires governing from multiple levels of governance, that is, inter- and supra-national entities, nations, regions and cities, to ensure a coherent approach to the transition. However, due to complexity of the concept, the current policies affecting the transition to CE are largely fragmented between policy areas, such as economic and social policies, or waste and energy policies, as well as different levels of governance (Milios, 2018; Losa, 2025). Here, the European Union, a supra-national entity attempting to establish a transition to CE in its operating area, provides a fruitful example for examining multi-level governance.

In a fragmented policy field like circular economy, monitoring change in relevant areas becomes essential. By identifying CE-relevant fields, which depends on the perspective to the circular economy, monitors allow the identification of which sectors or materials may be lagging behind, where inconsistencies exist and whether CE policies and initiatives are in fact moving toward desired outcomes. Flanders, a region in Belgium, is a forerunner of regional CE monitoring, with their online CE Monitor, measuring several CE-relevant sectors in the region. Therefore, the case of Flanders and Belgium provides an interesting case to explore in terms of circular economy in the EU, and the implications the EU-level has for regional CE monitoring.

Using Flanders as a case study, this thesis investigates how regional circular economy efforts can be better aligned with national and EU policies, and vice versa. It highlights the importance of policy coherence across different governance levels to ensure effective and unified progress of CE. The study also explores which practical aspects Flanders should focus on to enhance alignment with broader EU objectives and to strengthen the CE monitor's credibility in supporting policymaking. This research aim is approached by using two research questions (RQ):

> **RQ1.** What topics of the circular economy do the different governance levels of the EU, Belgium and Flanders cover in their policies, and how coherent are they across these levels?
>
> **RQ2.** What should be included in a circular economy monitor to inform policymaking and track regional progress in alignment with EU objectives, specifically in Flanders?

This thesis topic was provided to me by a research group in Katholieke Universteit Leuven (KU Leuven), Belgium. The group has been a part of the development of the CE monitor of Flanders. While the topic was provided by an external contributor, the thesis takes part in a larger research interest in terms of circular economy policies. As CE governance is typically fragmented across multiple administrative levels and policy sectors, it may hinder the development of coherent strategies, leading to inefficiencies. By clarifying how CE is approached at the EU, Belgian federal, and Flanders regional levels, as well as how these layers interact, the thesis provides a clearer understanding of the governance landscape and policy overlaps or gaps.

Additionally, using Flanders as a case study provides a concrete, real-world example of how CE is implemented at the regional level within quite a complex federal system. Belgium's federal structure with distinct responsibilities between the federal government and its regions (Business Belgium, n.d.) makes it an ideal case to explore multi-level governance challenges. Flanders' role, affected by both Belgian federal and EU policies, allows me to identify practical challenges and opportunities for alignment, with implications that could be relevant for other regions especially in similar, but also with simpler, governance contexts. By identifying which aspects of CE should be monitored and steered more effectively at the regional level, this thesis could ideally provide practical indicative guidelines for further regional CE development.

2 BACKGROUND

2.1 Circular Economy

Circular economy (CE) has multiple definitions and is interpreted differently depending on the practical context and whether it is viewed from a more narrow or broader perspective (Kirchherr, Reike & Hekkert, 2017). In its most basic meaning, it refers to a system where materials are constantly kept in the 'cycle' by reducing waste formation by maintaining, reusing and recycling products and components, through e.g. circular product design (Ellen MacArthur Foundation, n.d.; Eurostat, n.d.), with the aim of keeping the material as high value as possible. Essentially, CE refers to a new type of economy: where the current system functions linearly with a take-make-dispose -structure, the circular economy 'closes the loop'. This means that the material that is currently in use is not disposed of but rather used again in different forms. (Ellen MacArthur Foundation, n.d.). This way, the demand for primary natural resources, and the resulting pressure on the Earth's carrying capacity (EEB, 2024), is significantly reduced.

In their systematic study of the definition, Kirchherr, Reike and Hekkert (2017) found that the CE is often seen from materials perspective, without the consideration of linkage to larger transition to sustainability. For instance, the commonly used "R-strategies" refer to how a circular approach to materials and products can be achieved. Often, there is a 3R-strategy – "Reduce, Reuse, Recycle" – that gives the CE a hierarchical nature (Reike

et al., 2018). According to this approach, consumption of products, for instance consumer goods, should overall be reduced, but in case they come into use, they should be reused for their initial purpose as long as possible, keeping the product in use without reducing its value. When this becomes impossible, the material can be recycled into a different form; for instance, the plastic from an old plastic toy is recycled into plastic buckets. Even though the 3R-strategy has in some studies even expanded to a more comprehensive 10R-strategy, where the Rs refer to *Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Re-manufacture, Repurpose, Reycle, and Recove*r (Potting, 2017), the strategies still cover a very product-centered perspective for the CE.

The previously mentioned materials perspective is quite limited to merely the technical aspects of the CE: circular economy can and arguably should refer to a larger transition, where social, environmental and economic aspects are all considered and essentially affected by the CE (Schröder & Anggraeni, 2018). Indeed, Milios (2018) argues that circular economy is a mixture of the idea of resource efficiency, and a more novel idea of economic and social gains of it. This refers to, e.g., how jobs and services can be made more sustainable both socially and environmentally while still gaining economic advantage (European Commission, 2025c). Arguably, a systemic perspective is crucial to understanding the role and importance of circular economy in the transition to more sustainable societies (Chennak, Giannakas & Awada, 2024; Kirchherr, Reike & Hekkert, 2017).

In the frame of sustainable development, a concept referring to "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (International Institute for Sustainable Development, n.d.), the CE provides rather a means or the tools to achieve sustainability (see e.g., Schröder & Anggraeni, 2018; European Commission, 2023). For instance, at the European level the transition to circular economy is considered a strategic objective of the European Commission (European Commission, 2023). Moving towards a circular economy is in essence seen as a versatile possibility to improve the climate, conserve natural resources and biodiversity, create new jobs and innovations, and decrease dependency on raw materials that may contribute to geopolitical conflicts – in other words, it has potential to create win-win scenarios (Hartley et al., 2020, p. 2). However, in general the circular economy is not considered as something that is feasible to fully achieve (Férauge, 2024, p. 10). Rather, it

is more appropriate to discuss a transition to a *more* circular economy (European Commission, 2023), and this discursive approach is also used in this thesis to highlight that a circular economy is essentially a strategic means to reach sustainability in societies rather than a goal of its own. The next chapter covers the CE as a policy field, followed by more specific examples from Belgium on the challenges of implementing circular economy into policy practices.

2.2 Circular Economy as a Policy Field

As a policy field, the CE is quite complex. Because it is essentially a new way of looking at the economy, it covers multiple societal aspects from consumer behavior to product design, waste management, business models and finance policies, essentially challenging the basis of our current capitalistic system. The CE is considered a transitional concept that covers economic, environmental and social aspects (Alaerts et al., 2024; Chennak, Giannakas & Awada, 2024) and therefore makes it a complicated objective to steer with policies. Policies covering important areas of CE can be spread under different policy areas, such as energy or economic policies (Sitra, 2019). Especially the European union (EU), a supranational entity and one of the main areas of focus in this thesis, has faced criticism for having too fragmented and inconsistent policy mix addressing the CE, complicating the overall transition (Losa, 2025). Due to its transitional nature, the development of functional CE policies requires both knowledge of the current state of CE-relevant areas, such as food, consumer goods or mobility, as well as understanding of how the current state can be changed to meet future needs. Therefore, proper monitoring systems are needed for tracking CE and for making the concept more understandable for policymakers to advance the transition to a more circular economy (Reichel et al., 2016).

2.3 Monitoring Circular Economy at a Governmental Level

The Organization for Economic Co-operation and Development (OECD) provides a significant outlook to circular economy monitoring and the importance of it for governments in their report “Monitoring Progress towards a Resource-Efficient and Circular Economy” (2024). It highlights the importance of monitoring CE development, stating that policies addressing the CE have recently increased significantly at international, national and sub-national levels, and the need for information on progress has grown. The report

notes the complexity of the definition of CE, and states that it is one of the issues why CE development is often difficult to detect and calls for a unified definition for the concept. The report also calls for governments to monitor the policy responses that could drive the transition to CE and contribute to socio-economic developments, therefore going beyond simply monitoring, e.g., production or waste flows. The following sub-sections present how CE monitoring for governmental purposes is approached at the EU-level and Flanders.

2.3.1 EU's Circular Economy Monitoring Framework

The European Commission's report (2018) presents a comprehensive framework for Member States (MS) for monitoring CE progress. In the report, justification for the need for monitoring assumes that proper monitoring of relevant areas will provide information on the current state and progress of the CE, as well as give feedback to policymakers on whether different policies are working in fostering the transition (European Commission, 2018). The report also highlights the complexity of the CE as a policy sector: "The transition towards a circular economy is not limited to certain materials or sectors. It is a systemic change that affects the entire economy and involves all products and services." (European Commission, 2018, p. 1-2). Therefore, it presents several indicators which represent the most relevant sectors where the EU as a whole should specifically focus on when aiming for a more circular economy. The framework is thus meant to identify focal areas to intervene and highlight strategic hotspots.

Monitoring is a feedback-oriented means to address the CE transition, meaning that the collected data indicates to policymakers whether progress has been made or not (European Commission, 2018). The original framework (European Commission, 2018) has since been updated to cover more indicators and sectors in the light of new data on progress and changing policy priorities. The original framework covered four groups that were divided into ten indicators, whereas the updated framework (European Commission, 2023) covers five groups divided into 11 indicators. These groups and indicators are presented in Table 1. below to demonstrate the changes in EU-wide CE monitoring. A more comprehensive table is provided in Appendix 2.

Table 1. Main categories of the EU's Circular Economy Monitoring Framework (European Commission, 2018; European Commission, 2023)

	ORIGINAL FRAMEWORK (2018)	UPDATED FRAMEWORK (2023)
GROUP	**INDICATORS**	**INDICATORS**
1. Production and Consumption	EU self-sufficiency for raw materials	Material consumption
	Green public procurement	Green public procurement
	Waste generation	Waste generation
	Food waste	
2. Waste Management	Overall recycling rates	Overall recycling rates
	Recycling rates for specific waste streams	Recycling rates for specific waste streams
3. Secondary Raw Materials	Contribution of recycled materials to raw materials demand	Contribution of recycled materials to raw materials demand
	Trade in recyclable raw materials	Trade in recyclable raw materials
4. Competitiveness and Innovation	Private investments, jobs and gross value added	Private investments, jobs and gross value added
	Patents	Green innovation
5. Global sustainability and resilience	--	Global sustainability
	--	Resilience

The indicators shown in Table 1. are divided into more specific sections, e.g., waste generation considers total waste generation per capita and per GDP, as well as generation of municipal waste, packaging waste and plastic packaging waste per capita (see European Commission, 2018, p. 4; European Commission, 2023, pp. 4–5). These indicators are meant to give the MS *guidance* on the important sectors where policies should aim for – for instance, each member state should aim for decreasing their waste generation per capita to achieve the circular economy objectives set by the European Union (see e.g., European Commission, 2020). The updated indicators were added to the monitor based on previous findings on what should be focused on and improved. For instance, food waste was not removed but included in "Waste Generation" due to upcoming changes to the Waste Framework Directive (Euroopan Unionin Neuvosto, 2025), "Global sustainability and resilience" was added, as the impact of the EU to the planetary boundaries[1] is significant, and e.g. production emissions should be better monitored and decreased. Self-sufficiency was thus also moved to this group and renamed 'resilience', since materials-independence is connected to global material streams. (European Commission, 2023.) In

[1] Planetary boundaries are nine processes that largely affect the stability and resilience of the Earth and crossing them will have critical effects to the planet's natural systems. The boundaries include climate change, land-system change, biosphere integrity, freshwater change, biochemical flows, ocean acidification, atmospheric aerosol loading, stratospheric ozone depletion and novel entities. (Stockholm Resilience Centre, n.d.)

other words, while the framework itself does not take a stance on what should be practically done through policies, the sectors within which the progress is monitored are considered relevant for the European Union. The monitoring framework therefore complements the broader goals of the European Union by providing a tool to measure real progress and to provide data for further action.

2.3.2 Case of Circular Economy Monitoring in Flanders, Belgium

Cities and regions are considered potential forerunners in the transition to the CE, as they can test new CE customs, pilots and projects in practice more easily than bigger countries can. This is shown, for instance, in the ambitious EU "Circular Cities and Regions Initiative" (CCRI), which is funded by the EU and part of the EU's Circular Economy Action Plan (European Commission, n.d.; European Commission, 2020a). Moving towards a more circular economy has also been among the most important transitional objectives and an overarching policy focus in Flanders, the Flemish-speaking region of Northern Belgium[2] (Férauge et al., 2023). According to 'Circular Flanders', a network and expert forum aiming for circular transition in the area alongside the Public Waste Agency of Flanders (OVAM), the main goal is to "decouple the material footprint created by Flemish consumption from economic growth and reduce that footprint by 30 %". (European Commission, 2024.)

As stated in the description of the Circular Flanders' objectives (European Commission, 2024), circular economy is too large a concept for merely one or two policy departments or organizations to address. Rather, it is a multi-level transitional goal, where the public and private sectors must act collectively. Thus, Flanders has divided their objectives into six strategic agendas and seven levers. The agendas are circular construction, chemistry and plastics, water loops, bioeconomy, food chain and manufacturing. The levers are "financing, communication, research, jobs and skills, circular procurement, innovation and entrepreneurship, and policy instruments". (European Commission, 2024; Vlandeeren, n.d.) However, the main issue has thus far been how to monitor such a large and multifaceted transition, where many objectives are connected to both privately and publicly

[2] See Appendix 1.

managed sectors with the general public largely involved, such as food or mobility. Moreover, another issue regarding how to *use* the information from a CE monitor to develop effective policies targeted to circular transition, has recently underlined the issue of regional transition towards the CE.

To tackle regional CE transition issues, a Flemish research group working under KU Leuven has been coordinating the development of a regional circular economy monitor for the Flanders area as part of a Flemish circular economy policy research center (CE Center) (Alaerts et al., 2024). The online monitor, currently at its prototype stage, provides information on macro-, meso-, and micro-level phenomena related to circular economy (Circular Flanders, n.d.; Reich et al., 2023). Here, the macro-level refers to circularity in general (i.e. the r-strategies) and the effects on societal, environmental and economic levels. Meso-level monitors four systems that connect to societal needs: mobility, consumer goods, housing and construction, and food. These levels are shown in Table 2. below. Additionally, there is also a micro-level that monitors more specific services or product groups to represent daily consumption. (Alaerts et al., 2024; Circular Flanders, n.d.) A table with all the indicators of the current online prototype monitor can be found in Appendix 3. The sectors chosen to the prototype monitor are based on conversations with different stakeholders during five years of the online monitor development, and the relevance and practicability of the sectors were assessed with representatives from different societal groups in Flanders. These included policy and economic sectors, and knowledge-based and public organizations. (Alaerts et al., 2024).

Table 2. Indicators in the Prototype Online Circular Economy Monitor for Flanders (Circular Flanders, n.d)

MACRO-LEVEL	MESO-LEVEL
Circularity: Inflow, R-strategies, Outflow	**Mobility:** Market, Footprint, Lifestyle
Effects: Environment, Socio-economic, Materials	**Consumer goods:** (Re)use and recovery, Market, Footprint, Waste
	Housing and construction: Market, Footprint, Condition of Resources, Undesirable effects, Desired Changes
	Food: Use of Input, Loss of Input, Footprint, Consumption Pattern, Waste

2.3.3 The Challenges of Circular Economy Monitoring in Flanders

Monitoring systems are realizations of information systems, where one of the main objectives is being able to inform relevant stakeholders in taking action (Pauwels et al., 2024). As Burton-Jones and Grange (2013) state, "[i]nformation systems (IS) don't exist for their own sake but are always used to achieve a higher goal." While the current monitor in Flanders indeed collects information on the progress of circular economy, the research group has found significant difficulties in the *use* of the information among policymakers (Alaerts et al., 2024; Pauwels et al., 2024). The gap between receiving data and utilizing it in practice is therefore evident: CE monitors do not automatically help the CE transition (Alaerts et al., 2024, p. 6).

Pauwels et al. (2024) identified five main challenges in utilizing the circular economy monitor for practical policy purposes. These challenges were revealed through interviews with relevant stakeholders, as well as literature research (Pauwels et al., 2024). The five main challenges are: (1) Implications on short-term electoral cycles to long-term CE agenda, (2) Fragmented policy mix and incoordination, (3) Lack of focus on the higher R-strategies, (4) Challenges in implementing circular economy principles due to cross-sectional nature of the CE, and (5) The gap between "theoretical frameworks and practical policy tasks" (Pauwels et al., 2024, p. 171).

These challenges underline not only the complexity of the circular economy as a concept, but also the need regions have for action from higher policy levels, and on the other hand, the need to upscale their regional objectives and best practices to these higher governance levels (see e.g., OECD, 2025). What is meant here is that regions only have limited capacity and regulatory power to address the circular economy (e.g., consumption within the region can be better governed than the parts of production and consumption chains that take place outside the region (Férauge et al., 2023, p. 2), and therefore clearer agendas from higher levels, such as the national level or the EU-level is necessary to develop CE more comprehensively. For instance, regions benefit from the information on what the main points to focus on when developing circular economy are, and this information comes often, although not always, from higher policy levels, such as federal level or supranational entities. This information can then be implemented in practice on the lower levels, such as regions or cities.

Higher policy levels can better affect cross-border or even global activities, such as production: for example, the EU's stance and regulations can control production within the Member States and have a significant impact on production coming from outside the Union (Buzeti, 2024), and this can therefore enhance regions' ability to address consumption. However, this simultaneously requires coherence between policies and the overall CE agenda, and lower levels such as regions and their agendas can also show the path towards wanted directions through e.g. practices that have proven effective. This relationship and interaction between different policy levels are discussed from a theoretical perspective in the next chapter.

3 THEORETICAL FRAMEWORK

3.1 Multi-level Governance in Environmental Policy

Global environmental issues such as climate change or biodiversity loss are in essence transboundary phenomena. This is because, due to the contemporary globalized world, the starting point of an environmental issue is not necessarily the location where the concrete problem occurs, causing issues of injustice (Davitt, 2022) and governance challenges due to cross-border jurisdictional limitations (OECD, 2021). For instance, greenhouse gas (GHG) emissions causing climate change can be emitted in one specific location, region or country, but the consequences of the emissions, such as pollution, sea level rise or extreme weather conditions, may occur even on the other side of the world. Another example is the current globalized economy, where natural resources are first extracted and then exported from one country to another, where it continues as a refined product to yet another country and then is eventually disposed of. (Harris et al., 2023.) These events are causing major disruptions to the Earth's natural systems and cycles.

To tackle these essentially human-made transboundary issues through policies, a multi-level approach to environmental policy is required. For instance, Mickwitz et al. (2009) examine the concept of multi-level governance (MLG) in terms of more effective and integrated international policymaking. According to the authors, *multi-level* refers to interdependence between different societal levels (for instance, local, regional, national, supra-national, international, global), and *governance* suggests the interactions between

governmental and non-governmental actors in governing specific situation or phenomenon. (Mickwitz et al. 2009, p. 25.) In other words, the negotiations and decisions that traditionally have taken place inside defined territories, for example nation-states or cities, are now coordinated beyond boundaries and even horizontally between different policy areas and sectors (Daniell & Kay, 2017).

The European Union represents a good example of a supranational organization with a multi-level governance objective at its core. The EU aims to provide authority to its member states (MS) where different regulations are decided in the EU institutions but implemented in the member states – this also includes different societal levels within the member state, such as regions and localities, and different actors, such as non-governmental organizations (NGOs) or businesses. The EU aims to integrate its member states within the policy areas where it provides the governing authority, one of which is the environment, eventually aiming for as coherent policies as possible in its operating area. (Mickwitz et al., 2009, European Union, n.d. (a).)

In the multi-level governance and especially the EU context, implementation of policies at their most appropriate level is crucial. According to Mickwitz et al. (2009), this 'subsidiarity principle'

> "-- *states on the one hand that the EU should act where the objectives to be pursued can be better attained at the Community level, but stipulates on the other hand that it should not act if objectives can be satisfactorily attained by the Member States acting on their own. The principle is frequently extended to the regional and local levels as well, in support of the argument that action should be taken as close to the citizens as possible."* (p. 25)

Due to the nature of environmental issues, this principle is needed to take the most effective action in practice on the lower governance levels. However, the upper level (here, the EU) is also needed for taking action, as it provides the essential authority to govern large transboundary problems (Mickwitz et al., 2009) where single countries may not have sufficient power to act upon individually. The problems of multi-level governance, however, are especially seen when aiming for proper policy coherence between the different levels. This not only considers the EU's role in governing transboundary problems from a top-down manner, but also the opportunities of lower levels to have an impact on them through bottom-up practices. This is discussed in the next section, and it essentially

functions as the frame for this thesis focusing on the interconnections between regional circular economy monitoring and the EU in terms of the circular economy transition.

3.2 Policy Coherence

Nilsson et al. examine the concept of policy coherence in their article "*Understanding Policy Coherence: Analytical Framework and Examples of Sector-Environment Policy Interactions in the EU*" (2012) and provide a frame for analyzing policy coherence specifically in the European Union setting. In its essential definition, policy coherence is "an attribute of policy that systematically reduces conflicts and promotes synergies between and within different policy areas to achieve the outcomes associated with jointly agreed policy objectives." (Nilsson et al., 2012, p. 396). In other words, the objective of policy coherence is an objective of creating policies without conflicting goals or outcomes, and ones that are ideally even mutually reinforcing.

Policy coherence provides a framework for examining coherence in a certain policy sector, target group, or a geographic area (Mickwitz et al., 2009) and between different levels of governance. These levels refer to, for instance, international, supranational, national, regional and local levels. According to Kivimaa et al. (2024, p. 3), there are four forms of policy coherence: horizontal (between policy domains), vertical (between levels of governance, e.g., the EU and its member states), internal (coherence within a policy domain) and multilateral (coherence between international organizations). Policy coherence is often used as a synonym with policy integration or coordination, but for instance Mickwitz et al. (2009) state that integrating or coordinating policies are rather *means* to achieve coherence.

Moreover, the framework developed by Nilsson et al. (2012) provides a more specific look into policy coherence, where the concept is divided to and studied from three levels: policy objectives, instruments and implementation practices. This framework provides guidelines for policy analyses, where the researcher can examine whether the policies are aiming at the same target (level 1), or whether the instruments used to drive for these targets are perhaps conflicting (level 2). It also allows the researcher to look at the practical level (level 3), where the implementation practices refer to the arrangements where

the policies are put into action (Nilsson et al., 2012, p. 397). Table 3 below summarizes the three levels provided by Nilsson et al. (2012), with some practical examples to clarify the analytical framework.

Table 3. Three levels of policy coherence (Nilsson et al., 2012)

LEVEL	MEANING & EXAMPLES
Level 1. Policy Objectives	Different policies should share the same goal, e.g., abandoning fossil fuels.
Level 2. Policy Instruments	The tools and mechanisms to achieve objectives should align with the objectives (Level 1). E.g., ensuring that the use of fossil fuels is overall less attractive and less profitable.
Level 3. Implementation Practices	Implementation should promote objectives and planned instruments. Incoherence with implementation often leads to unwanted results. E.g., disagreements about whether to use taxes on fossil fuel companies, or total bans on fossil fuels.

Kivimaa et al. (2024) also state that policy coherence cannot only be seen as an attribute of policy, but also as a goal for the entire policy process: actions of pursuing policy coherence should include, for example, reducing inconsistencies and exploring how policies are practically implemented in a coherent manner. In other words, Mickwitz et al. (2009, p. 24) state that coherence is achieved when aims and means are defined such that "new win-win situations can be determined". For instance, differences in the understanding of an occurring problem can cause incoherence especially in multi-level governance: differences in the definitions of what is, e.g., circular economy or how we should reach it may lead to significant coherence issues. These differences should therefore be examined thoroughly throughout policy processes. Hence, an important aspect here is that policies developed at different societal levels, such as the EU or a nation state, should provide non-conflicting signals to the focus groups that are affected by the policies (Mickwitz et al., 2009).

While policy coherence analysis can indeed be a good tool to influence policies and decision-making processes, it has limitations, as stated in Ancapi et al. (2024): often, the constraints are connected to boundaries of different policy systems, meaning that it is difficult to define which policies should be included and which not. This is evidently the case in this thesis too, as the definition of circular economy is already quite vague. However, as Ancapi et al. (2024) also note, these limitations should not prevent the use of coherence analysis nor underestimate its role in supporting policymaking.

When looking at the EU-level, most studies have examined the vertical coherence between the EU laws and foreign policy (Nilsson et al., 2012, p. 396). For instance, this can be seen in the EU Commission's report on Policy Coherence for Development (2019), or *PCD*, which focuses on ensuring the EU's impact on improving the state of developing countries globally in the frame of sustainable development. The PCD is a comprehensive framework for guiding policymakers to make strategies and policies that do not conflict with global objectives but comply with or ideally reinforce them. However, when looking at the EU's competence, functionality and credibility as a union, policy coherence should also be examined between the EU policies and the policies within its member states. For instance, if common economic policies were incoherent between the EU MS, it could "--diminish the EU's domestic effectiveness and international leverage --" (European Parliament, 2020, p. 1). Additionally, without proper coherence within the EU, the impact of actions taken on sub-EU governance levels may also decrease. This thesis focuses on this EU's internal vertical policy coherence in the frame of CE policies, explained further in the section below.

3.2.1 Vertical Policy Coherence

The circular economy is a fruitful concept and policy area for examining policy coherence from a horizontal point of view because it essentially covers a wide range of policy areas with different strategies and goals. However, vertical policy coherence provides a more relevant approach to examine the actions taken on sub-EU levels, such as regions, and is therefore also a suitable theoretical lens for this specific thesis. Indeed, vertical policy coherence focuses on different levels of governance and allows the researcher to investigate how different policies interact between different policy levels. (Albrecht et al., 2024; Mickwitz et al., 2009.) Ideally, both perspectives would be interesting to examine, but due to the scope of this thesis, only vertical lens is considered. The horizontal approach could be included in future research.

As Nilsson et al. (2012, p. 398) state: "In vertical interplay, for example --, EU or national policy could be in conflict with local or regional policies." Because this thesis focuses on the interconnections between the EU and the Flemish region Flanders in Belgium, looking at CE policies through the lens of vertical policy coherence framework is justified; the

EU provides an 'authority' for the member states and their regions, and guides their policies either through so called "soft" or "hard" laws[3] which then affect the development of policies in regions themselves. On the other hand, the vertical lens also provides the means to examine how regional views on CE affect and interact with the higher policy levels: some practices on lower governance levels can be useful for the overall transition, but scaling up these practices can be challenging (Kalff-Lena, 2021). Lower levels may also struggle with developing their own practices if the support from others, in particular upper levels, is insufficient.

Additionally, the EU member states, and therefore regions within the MS too, have the power to have an impact on EU policy development due to the EU's democratic structure (European Union, n.d. (b)). The circular economy has been a policy area that, due to its relative novelty, has had unclear overall objectives and fragmented policy mixes (Milos 2018). This has an impact on how well the policies and overall goals between the EU and regions will eventually align. This framework allows me to gain a comprehensive look into the means on how the EU plans on advancing the CE in its area in the future, and how regions, such as Flanders, can utilize this to improve monitoring of their CE development. On the other hand, it allows me to examine the prospects of regional initiatives in terms of upper-level policies, and what synergies and conflicts may arise, for instance regarding where regional best-practices are overlooked, or where overarching EU-policies may hinder federal or regional ambition in CE development.

4 RESEARCH AIM AND QUESTIONS

The aim of the thesis is on the one hand to clarify the connections in circular economy policies at different governance levels of the EU, Belgium and Flanders, and what kinds of policy coherence elements exist between these levels. This is important, as the goals and mechanisms are spread across different policy areas and administrative levels, which

[3] Soft laws refer to non-legally binding or political instruments. This may include, e.g., declarations, decisions of Conference of Parties (COPs) or private standards that are meant to steer states or other entities to a desired direction without decreasing their fundamental sovereignty to act, for instance, by legally restricting certain actions. Hard laws refer to legally binding policies, such as laws and treaties. (Boyle, 2021.)

may affect the development of the CE in a unified direction. While Flanders is a case example in this thesis, it is essential to take the federal level (Belgium) to the analysis, as it influences Flanders' policies too.

On the other hand, I aim to clarify which practical aspects of the CE regions, in this case Flanders, should focus on; that is, what should be monitored to eventually inform policies to be more coherent with the overall goals of the EU, and what may be the points where the EU's support would be needed more. Thus, one of the objectives is to strengthen the credibility of the circular economy monitor, so it can better support policymaking. There is already work being done on the Belgian federal level to enhance the coherence of EU, Belgium and intra-Belgium actors, namely the regions, in the form of different networks and collaboration platforms (*Federaal actieplan circulaire economie 2021-2024*, 2021). However, the work towards policy coherence is mostly seen between the Belgian federal level and Belgian regions, and the EU's role in this policy chain should be further investigated. To scrutinize these research aims, I developed the following two research questions:

> **RQ1.** What topics of the circular economy do the different governance levels of the EU, Belgium and Flanders cover in their policies, and how coherent are they across these levels?
>
> **RQ2.** What should be included in a circular economy monitor to inform policymaking and track regional progress in alignment with EU objectives, specifically in Flanders?

RQ1 serves as the main question, whereas RQ2 complements the research to investigate the practical level of the research problem. This setting is also visible in the methodology which is presented in the next chapter.

5 MATERIALS AND METHODS

5.1 Multi-method Approach

This section focuses on the chosen research methods and materials. To answer my research questions, I am using data from two sources: (1) Policy documents to examine the approaches to circular economy in different governance levels, and (2) Semi-structured

interviews to gain more information on the opportunities of regions and specifically Flanders to participate in CE transition and align their monitoring of the CE with the agenda from the EU. Using two sources of data, as well as document analysis and qualitative abductive content analysis as methods, provides the research triangulation[4] and thus ultimately also enables a more comprehensive perspective to the thesis (Bowen, 2009).

The methods for analyzing the materials are qualitative document analysis and abductive, "theory-guided", content analysis, where I first analyze the content of the EU CE policy pipeline, and then scrutinize the interviews through abductive content analysis to provide a more practical outlook on the coherence between the EU-level and regional CE (monitoring) development. A similar methodological approach for coherence analysis has been used in for instance the research of Ancapi et al. (2024), where policy documents and semi-structured interviews were utilized to examine coherence of circular building policies in the Greater London area. The concept of "multi-methods" can be used when combining any different methods, whether qualitative or quantitative (Bowen, 2009; Hunter & Brewer, 2016). In other words, document analysis for the policy documents and abductive analysis for interviews are combined to study the same phenomenon, but the research stays qualitative. The next sections explain the materials and methodology used in this thesis more specifically.

5.2 Materials

5.2.1 Policy Documents

The first part of the analysis was focused on the policy documents from the different levels, with the aim of answering RQ1. Common for policy analysis, I used public policy documents provided by institutions (Alastalo & Vuori, 2021) from each examined policy level. The documents for the analysis were mainly found on official government websites, such as from the Official Journal of the European Union (OJEU) (EURLEX, n.d.), Belgian Government's and regional organizations' websites that mainly address environmental issues in the country or region. These included, for instance, the websites of Circular

[4] Triangulation is in most cases defined as a combination of different methods, researchers, data sources or theories in one research. Through triangulation, the research results – and the research itself – can include multiple perspectives of the same phenomenon. (Saaranen-Kauppinen & Puusniekka, 2009.)

Wallonia, Circular Flanders, and Health, Food, Safety and Environment -authority. From these platforms, I found relevant documents in their publication sections, as well as through the "snowball sampling", [5] where the selected documents revealed further relevant documents. While not all the documents mentioned specifically "circular economy" in their title, they were found under circular economy -themed publication section: for instance, the EU Official Journal and website have sections covering the theme "Circular Economy", under which relevant documents are published. This way I was able to find strategies, reports and other relevant documents.

5.2.2 Semi-structured Interviews

Interviews are a common means for gaining more in-depth and practical information of the occurring research problem, with the aim of producing knowledge for answering the research question (Hyvärinen, Suoninen & Vuori, 2021). Interviews allow the researcher to gain information from remarkably different perspectives, for instance, people's experiences, facts, feelings or cultural attitudes. Because interviews can provide information from very different angles, it is important that the interview method is chosen accordingly to the research question. Therefore, they are often divided into structured, semi-structured and non- (or slightly) structured interviews. (Hyvärinen, Suoninen & Vuori, 2021.)

Semi-structured interviews provide flexibility for both the interviewer and the interviewee to adjust to the specific interview. This is because the questions are always set beforehand, but the interviewee can answer them freely – and the interviewer can adjust the questions as the interview goes on, if they will. (Hyvärinen, Suoninen & Vuori, 2021; Adams, 2015.) For this thesis, I used semi-structured interviews, as for qualitative research and for my specific research interest, a more flexible interview was justified to gain more in-depth information from the interviewees, and to allow flexibility for the interviewee to answer the questions how they saw would be the best.

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[5] Snowball sampling refers to a means of data collection, where the initial data sample is relatively small, but from the selected small number of materials or other sources, it is possible to find more materials. Therefore, the number of samples grows like a rolling snowball that collects more snow on its way. (Alex, 2025).

The aim of the interviews was to gain a more in-depth and practical understanding of the current developments of circular economy in the EU and regions. The interviews were meant to be complementary to the document analysis, and I aimed to form the interview questions (Appendix 5) such that the interviewees could provide answers and insights to circular economy that the documents could not. The interviews mainly, therefore, contributed to answering the RQ2.

I interviewed a total of six experts, presented in Table 4. They were experts in either the EU's, Belgium's and/or Flanders' environmental policies, specifically focused on circular economy and other environmental or sustainability affairs in their work. I conducted interviews both in-person in Brussels, Belgium, and online via Microsoft Teams platform. The interviews took between 25-55 minutes and followed the questions outlined in Appendix 5. The indicative interview questions were formed as well as given to the interviewees before the session. After the interviews, I wrote transcripts of the recordings so that I could further analyze what had been said during the sessions.

Table 4. Interviewees

Interviewee No.	Position	Affiliation and Perspective
Interviewee 1	Policy Advisor	Advisory council for environment and nature (Flanders/Belgium perspectives)
Interviewee 2	Head of Advocacy	Network for European Cities (EU perspective)
Interviewee 3	Head of Programme	Think tank for EU-policies (EU perspective)
Interviewee 4	Counsellor for Environmental Affairs	Ministry of Environment (EU perspective)
Interviewee 5	Head of International Policy Unit (CE-policies)	Regional Waste Authority (Flanders/Belgium/EU perspectives)
Interviewee 6	Policy Officer	Regional Waste Authority (Flanders/Belgium/EU perspectives)

At the start of each interview, I informed participants on how their data would be used, emphasized that participation was voluntary, and that they could end the interview at any time without explanation. Two days prior, I sent a "Privacy Notice" and "Interview Consent" -form, however most participants opted to give oral consent at the beginning of their interview. The interviews focused on collecting expert insights into the circular economy rather than personal or sensitive information. However, given the political dimensions of the topic, I pseudonymized all interview data, excluding names and specific organizations, to allow inclusion of relevant political views while maintaining confidentiality.

Most participants, nevertheless, approached the topic from a rather objective viewpoint based on their professional expertise.

5.3 Methods

5.3.1 Qualitative Content Analysis

Qualitative content analysis (also referred to as *QCA*) is a commonly utilized method for analyzing research material, where the researcher can systematically find and describe meanings from various perspectives (Schreier, 2012b, p. 5). To put it another way, qualitative content analysis is a method for examining what types of topics or themes the material consists of and discusses – hence, it is used to precisely analyze the *content* of the material. Common for qualitative research in general, the goal of this method is to illuminate or understand the material, and the occurrence or phenomenon within it (Tuomi & Sarajärvi, 2018, p. 98).

For qualitative analysis, it is common that there is a lot of data to analyze. In QCA, the aim is to analyze the data from smaller perspectives, as keeping track of "everything all at once" is not only nearly impossible, but also irrelevant for the research goal. (Schreier, 2012a, p. 3.) Therefore, in qualitative content analysis it is common to utilize coding as a means of organizing the data and finding the relevant aspects from it (Schreier, 2012a, p. 1–4; Vuori, n.d.).

Coding refers to a process where main categories, i.e., the categories most relevant to the research goal or question, are separated from the material, and further organized into smaller sub-categories that allow the researcher to find more content about the main categories (Schreier, 2012a, p. 4). Coding is considered a basic tool for managing any written research data, and its core meaning is to decrease the data into the mentioned categories to then help the researcher in analyzing the materials in a relevant manner. Because it is common for the data of qualitative research to be large and include information from various perspectives, coding is an essential part of the research to find the relevant information in the context of the specific research. (Juhila, 2021.)

Generally, a qualitative analysis process follows the following pattern: (1) deciding what one is interested in regarding the data, (2) separating the interesting points from the data (that is, the coding), (3) classifying or arranging the data based on themes, and (4) conducting a conclusive analysis on the data. (Tuomi & Sarajärvi, 2018.) This pattern is also utilized in this thesis for document analysis and interviews.

5.3.2 Document Analysis as a Research Method

"The rationale for document analysis lies in its role in methodological and data triangulation, [and] the immense value of documents in case study research --:" (Bowen, 2009, p. 29). Document analysis is ultimately a form of (qualitative) content analysis that allows for a systematic review of the content of the selected documents (Bowen, 2009, p. 32) and can function as the basis for the other method or data source, such as interviews (p. 30). What for instance Bowen (2009) means by this is that the content of the documents can help the researcher to form more specific interview questions on the topic. This is what is done in this thesis: documents provide a more conceptual view for how the policy coherence currently appears between the different governance levels, and interviews complement this by providing more practical results of the same phenomenon.

The first research question addresses the examination of the current agendas, policies, strategies and other initiatives that the EU, Belgium and Flanders utilize to approach the circular economy transition. Here, policy documents play a key role as research material. Browne et al. (2018) state that for policy analysis, a combination of documents and interviews often provides a fruitful source. Due to the nature of my research questions, specifically RQ1, policy documents function as a good source for analyzing the different approaches to circular economy on different governance levels, and for forming a review on how coherent the approaches are. Understanding the approaches to the policy problem on different levels, and what different objectives, instruments and implementation plans there are, is the key to analyzing coherence between these levels. Here, the policy coherence framework by Nilsson et al. (2012) provides the theoretical basis for the analysis.

As previously mentioned, in qualitative document research it is common to combine policy documents with interviews as research materials to build a comprehensive look into

a certain research problem (Cardno, 2018; Bowen, 2009). Hence, I will also use interviews to gain a deeper understanding of how CE monitoring in Flanders could be improved through more coherent CE objectives with upper levels. The next sections will present interviews as research materials in this thesis and abductive content analysis as a method for managing the interview data.

5.3.3 Document Coding and Analysis

I started the document analysis by separating the interesting points from the data, i.e., coded the data, based on the Policy Coherence Framework by Nilsson et al. (2012) and the sectors of the renewed EU circular economy monitoring framework (European Commission, 2023). These frameworks allowed me to limit the scope of the analysis firstly to the relevant CE sectors defined by the EU, and secondly, to systematically review how these sectors are further defined to policy objectives, what instruments are used to reach these objectives, and what possible implementation practices are used or planned (Nilsson et al., 2012). Although the EU's CE monitoring categories are certainly not comprehensive nor fully align with EU's policies, they provide this thesis with a clearer structure for categorizing sectors based on the Union's current focus areas in the circular economy.

The documents consisted of strategies, roadmaps, agendas, plenary reports and documents on upcoming legislations covering the concept of circular economy in the EU, Belgium or Flanders. I aimed to search for documents as recent as possible, the oldest being from the end of 2019, as it covered a timeline for circular economy actions until the end of 2024 and was therefore relevant. Otherwise, the documents were from 2020 onwards as the EU's Circular Economy Action Plan (European Commission, 2020a), which is an important document to include to this thesis due to its overarching frame for CE action within the EU, was updated then. However, most of the documents were from 2023-2025. Because the thesis must be completed within a fixed timeframe, I limited the analysis to documents published up to February 2025, latest document being the so-called EU's "Competitiveness Compass" (European Commission, 2025a). Nonetheless, the interviews conducted after the document analysis provided even more current perspectives on the topic. The documents, their type and the level of governance they primarily covered are addressed in Appendix 4.

The coding process, following the guidelines presented by Nilsson et al. (2012) and sectors provided by the revised EU CE monitor (European Commission, 2023), went as follows: First, I identified the key CE sectors (*1. Production and Consumption, 2. Waste Management, 3. Secondary Raw Materials, 4. Competitiveness and Innovation, and 5. Global Sustainability and Resilience*) from the documents. Next, within these categories, I identified the main policy objectives, policy instruments used or planned to use to reach these objectives, and possible implementation practices. I coded the data on sentence-, phrase- or paragraph -basis, as the aim was to analyze content and find the relevant information, which is why word-based coding would not have been relevant. At the end, 974 relevant quotes were found from the materials.

To help me manage the coding process, I utilized Atlas.ti, a platform for qualitative data analysis. In Atlas.ti, I created folders for each governance level, and then for each document, and further for each CE sector. Within all the sectors, I identified quotes on the parts where policy objectives, instruments and implementation practices were mentioned. In other words, I used deductive coding method where the codes were predefined (Bingham, 2023) based on the policy coherence theory and the EU monitor's categories. This extensive categorization allowed me to analyze the differences and similarities in the governance levels' approaches to CE in the relevant sectors. To simplify, the list below summarizes the process:

1. Identify the key CE sector from the document
2. Identify policy objectives for this sector
3. Identify possible policy instruments to reach the objectives
4. Identify possible specific implementation practices for the instrument

I created a total of 15 codes, which were then utilized to each governance level. The codes are shown on Table 5 below. A table with examples for each code can be found in Appendix 6.

Table 5. Codes

1. Production & Consumption Objectives
2. Production & Consumption Instruments
3. Production & Consumption Implementation
4. Waste Management Objectives
5. Waste Management Instruments
6. Waste Management Implementation
7. Secondary Raw Materials Objectives
8. Secondary Raw Materials Instruments
9. Secondary Raw Materials Implementation
10. Competitiveness & Innovation Objectives
11. Competitiveness & Innovation Instruments
12. Competitiveness & Innovation Implementation
13. Global Sustainability & Resilience Objectives
14. Global Sustainability & Resilience Instruments
15. Global Sustainability & Resilience Implementation

After completing the coding process, I exported all coded groups to Excel sheets to make comparing the content of these different categories easier. I compared the different governance levels to develop an overview of how coherent policy objectives, instruments and implementation practices are between the levels. The analysis was based on the objectives and instruments at different levels and how similar they are, and whether some CE related aspects were not considered or only considered to a small extent on a certain governance level.

5.3.4 Abductive Content Analysis

In abductive content analysis, the main idea is to combine theory- and data-driven, i.e., inductive and deductive approaches. In this analysis method, the theory helps to *guide* the analysis, but the analysis is not solely based on a theory; rather, the material is coded in a data-driven manner, but the theory can simultaneously help with choosing the appropriate attributes or codes. In other words, while the previous knowledge and theory can be seen in the analysis, the point is not to test a theory but rather utilize it in providing ideas for the content analysis process. (Vuori, n.d.; Tuomi & Sarajärvi, 2018.) An abductive analysis essentially gives the researcher more liberties in analyzing the content.

In this thesis, using qualitative content analysis and more specifically the abductive analysis is justified, as the research material requires a systematic analytical approach with coding attributes provided from both the data itself as well as previous knowledge. When

reviewing the future directions that the EU is taking in terms of the CE using policy documents as the primary source, it is crucial to focus on a systematic content analysis method that enables the identification of processes and themes arising from the documents. Content analysis therefore allows focusing on the content of the EU policy pipeline instead of mere categorizing, as in for instance pure systematic review (Snyder, 2019), although there are also many similarities between these approaches. Similar qualitative approaches for mapping such complex EU policy areas have been utilized for instance in Puglia et al.'s (2024) paper that examines the EU policies for sustainable textiles industry, and Albrecht et al.'s (2024) paper on policy coherence between the EU water and marine policies in the Archipelago Sea.

Abductive content analysis was primarily used for the expert interviews. On the one hand, it enabled the utilization of previous knowledge gained from the policy document review and the theoretical framework, and on the other hand, it allowed new insights to arise from the interviews. Applying this method to the interview data allowed me to form a comprehensive look into how the Flemish CE monitoring development interacts with the EU level in terms of CE policies. For the interviews, a similar coding process was used as during the document analysis and in Table 5, but new insights also arose from the interviews, as common for abductive content analysis. The next chapter introduces the results of the document analysis and interviews.

6 RESULTS

6.1 Circular Economy and Multi-Level Policy Coherence

6.1.1 Production and Consumption

The policy document analysis revealed several differences between the scrutinized governance levels in terms of production and consumption in CE. Firstly, production was highly emphasized in the EU policy pipeline as a target for regulation to govern a circular economy transition. The EU policy documents highlighted that products that are designed to be durable and reliable, reusable and repairable without losing their value throughout the lifecycle are essentially the key to achieving material circularity and simultaneously addressing the higher levels of r-strategies, mainly in terms of reuse. In fact, as shown in

Table 6 below, the EU has at least planned several concrete policy instruments to achieve objectives related to specifically more sustainable production: digitalization was perhaps one of the most recent and emphasized means to govern production sustainability, mainly by creating "digital product passports" (DPP) and platforms where the production footprint and other relevant information can be tracked.

Table 6. Production & Consumption

	EU	BELGIUM	FLANDERS
Objectives	Only repairable and durable products entering the markets (e.g., electronic vehicles (EVs)); Increased recycled contents; Reducing premature obsolescence; Creating remunerative repair services; Utilizing digitalization in product transparency and reporting; Creating economically attractive environments for consumption so that purchases of new products are reduced	Decrease direct material input (DMI), and material consumption in Belgium; Support companies in circular innovations to decrease imports of materials; Increase product repairability and repair options for consumers; Contribute to making supply chains transparent to increase reliability that products comply with EU standards; Sustainable public procurement; Aim for only reusable, recyclable or biodegradable plastics entering Belgian markets	Reduction of the material footprint of Flemish consumption by 30% by 2030; 25% of construction projects should be circular by 2030; Removing regulatory barriers to enhance material recycling; Reducing Flanders' dependence on external supply chains; Collaboration between private and public sectors to achieve circular value chains; Creating space for industrial symbiosis; Achieving 8 kg of reuse per resident via the reuse centers; Targeting government activities (events etc.), hospitals, retail and other specific high-materiality sectors to reduce their material use
Instruments	**Regulatory Instruments**: -ESPR (requirements on product durability + liability for proof) -Digital Product Passport (DPP) -Direct bans on premature obsolescence and destruction of unsold products -Mandatory criteria for green public procurement **Economic Instruments** - Digital markets for consumption, strengthened repair markets - Increased incentives for developing new business models (and public-private partnerships) **Standards/Monitoring Instruments** -Standards for spare parts and tools -Stricter Ecolabel requirements -Legal framework for tracking material resource consumption with defined targets and indicators -Voluntary quality standards on repair services **Information and Voluntary Instruments** -Knowledge of repair rights and opportunities -Information for consumers on product durability (digital platforms) -Tools to support integration of SECAPS and CEAP in local levels -Awareness raising programs to increase repair culture	**Regulatory Instruments:** -Extended Producer Responsibility beyond recycling -Stricter (legal) punishments on breaking product standards -Surveilled claims for product standards **Economic and Financial Instruments** -New public-private investment funds **Innovation/Research Support Instruments** -Funding for research on ensuring material recovery in production **Information and Awareness Instruments** -Communication campaigns targeted to consumers on circular economy, repair opportunities etc. **Digital and Technological Instruments** -Close cooperation and financial support of the development of European level digital tools (Digital Product Passport etc.) **Voluntary and Cooperative Instruments** -Providing platforms for dialogue between government, producers and recyclers in Belgium	**Regulatory Instruments** -Bans on single-use plastics in governmental activities **Economic Instruments** -Investments in circular bioeconomy (especially in construction sector) -Incentivizing reuse centers **Information and Voluntary Instruments** -Circular hubs for knowledge-sharing and information flow (e.g., in plastics and chemicals sectors) -Raising awareness on circular building materials and practices -Green and Digital Procurement Strategy for eco-friendly and digital products -Government purchases from local suppliers Strategic Instruments -Roadmaps for specific areas of production and consumption, such as construction, where specific framework is established for certification and standardization of reuse of products
Implementation Practices	Concerted inspections and market surveillance; Providing concrete new production and recycling technologies to enhance product durability and recycled content in products; Directives (many to be implemented or updated in 2025 onwards) specifically targeted to product content and supply chain transparency, such as digital solutions (DPP) and ESPR	Focus on supply chains to reduce overall consumption and waste (especially food); Circular design support program for companies; Implementation of a repairability index in Belgium; Strategic Innovation Area (SIA), a platform for innovation and increasing of regional autonomy in CE decisions; National PaaS digital platforms	Living Labs that foster projects and innovations for more sustainable production; Financing targeted projects (such as Targeted Call for a Circular Food Chain) that practically aim for reducing material impact, CIRCU-RADAR as an educational tool for producers to learn about circular economy; Projects promoting resource efficiency, such as "Green Deal for Renting and Sharing"

While production was indeed highlighted in EU strategies, consumption was also addressed, specifically in terms of consumer empowerment and creation of sustainable consumption friendly environments. Here, the EU documents revealed objectives targeted to address more circular consumption *patterns*, including easier access to and increasing the attractiveness of repair services, providing access to product information, and creating (cross-border) markets for reuse. This was planned to be implemented through initiatives such as the Ecodesign for Sustainable Products Regulation (ESPR). In terms of consumption, many instruments were, however, still connected to awareness raising, education

and information campaigns instead of concrete more concrete or binding policy instruments, such as monetary incentives or bans on low-quality product purchases, to name a few. On the other hand, the EU's production and consumption policies are aimed to be interconnected: concrete policies targeted at production, such as mandatory product repair guarantees, DPPs, or bans on destroying unsold products, are instruments that simultaneously affect consumption and therefore, in theory, the overall reduction of materials.

At the Belgian federal level, objectives for more circular production were emphasized, namely in the context of the EU policies. While all documents covering the federal level mentioned how Belgium is highly dependent on product imports, instruments for increasing product circularity were addressed: for instance, bans on disposable products, even beyond the requirements of the EU, were planned, as well as creating knowledge hubs and incentivizing businesses that develop circular products. Product circularity was viewed from a design perspective, where emphasis was on how products can be designed to be repairable and easily recyclable at the end of their initial use, therefore sharing a similar view to the EU level. The federal documents also considered changing taxation to steer production and consumption to a more circular friendly direction, an instrument specifically relevant to a national level. However, a more specific implementation plan for new taxation was not found in the documents used for this analysis, indicating that these plans are still tentative.

The federal level focused on products relevant to the country, such as bicycles, and additionally mentioned many instruments to create services for these products ("product as a service", PaaS). These include, for instance, a federal legal framework for services of sharing bicycles or scooters. Production objectives and instruments were much in line with the EU's views, but implementation practices were more concrete, which is understandable given the EU's scope and limited power over member states' legislation. The federal level also has plans to financially support digital tools for tracking supply chains, which was one of the instruments targeted to cross-border production circularity development.

Flanders, on the other hand, had many more sections related to consumption in the analyzed documents. There were clear targets regarding consumption, such as a target that

residents would buy 8 kilograms of their products reused, specifically through reuse centers. This was seen in the instruments too: Flanders aims to invest in reuse activities, while also raising awareness among consumers about circular economy and consumption decisions. However, a significant objective for Flanders was also to enhance their local production to reduce dependence on external supply chains, i.e., those that Flanders cannot regulate. The region supports several initiatives fostering this approach, such as Living Labs and platforms for renting and sharing activities in the region. Compared to other levels covered in this analysis, Flanders had a more focused approach to production and consumption, and many of the objectives were aimed at specific sectors such as construction, food, circular water systems and so on. This is expected, as regions operate at a more localized level that allows them to focus on the sectors that are specifically relevant to the region.

Overall, there is strong synergy across the EU, Belgian federal, and Flanders levels in prioritizing repairability and sustainable supply chains, supported by tools like digitalization and green procurement strategies. All levels seem to emphasize objectives connected to innovation, public-private collaboration, and consumer engagement. However, tensions also arise from differing emphases: the EU and federal levels focus more on production and regulation, while Flanders emphasizes consumption-side targets and sector-specific goals, such as circular construction. Here, the EU's plans may, however, enhance Flanders' opportunities to foster, e.g., circular consumption, if the EU manages to create markets for circular construction products. So far, while plans exist, this is practically not visible at the EU level according to this analysis. Thus, although important for the region, Flanders' more localized and concrete implementation strategies, including measurable reuse targets and living labs, can create fragmentation if not well-coordinated with broader EU frameworks.

6.1.2 Waste Management

In terms of waste management, the EU level inspection revealed emphasis on policy objectives targeted to reducing packaging waste, addressing microplastics in waste management and on the other hand, creating overall effective systems for collection, sorting and preparation for reuse and recycling. These are presented in Table 7. Production plays a key role in the EU's views on waste management, as in terms of the r-strategies, the most

important aspect is to reduce overall material consumption and therefore also waste. The connection to production is also highlighted in waste management when it comes to new requirements for recycled content in new products: the EU aims to create waste management as such that as many materials can be saved from waste products as possible to use them further. Many of the proposed waste management instruments were connected to regulations such as the ESPR, where producers are obliged to report on their product content but also the number of discarded products that are unsold. The EU focuses specifically on key materials, such as construction materials, textiles, and batteries and technology products containing critical minerals. Instruments for waste management per se, meaning sorting, collection etc., were mainly mentioned in the form of "best practices", where the EU does not specifically require new waste management operations from MS, but rather gives out options that are proven successful. This puts more responsibility on lower governance levels, such as cities and regions, who are often at the end responsible for waste management, guided by national targets and legislation. However, the EU aims to increase funding for the development of recycling technologies to help recycling practices all over the Union.

Table 7. Waste Management

	EU	BELGIUM	FLANDERS
Objectives	Reuse and recycle minimum of 55 % of municipal (solid) waste for 2025 in Member States; Transforming markets to support recycled material intake for production, targeting key material sectors such as textiles, metals and construction materials, where collection, sorting, and preparation for reuse or recycling is ensured.	Overall waste prevention and reduction (through e.g. recyclable products and decreasing DMI); Reducing landfilling and incineration; Increasing sorting; Supporting regions in recycling innovations	Residual waste should be reduced to 100kg/capita by 2030; Absolute decoupling of waste generation from economic and population growth; Reduction of industrial and commercial waste by 30% by 2030; Special focus on preventing household and company waste; Selective collection target of 77,5% by 2030; Support for innovations on upcycling and reuse; Annual collection rates for WEEE
Instruments	**Regulations** -Extended producer responsibility schemes **Market and Economic Instruments** -Funding for recycling technology development -Creating markets for repair and reuse instead of disposal of products -Financial support for local and regional development of waste sorting and collection practices **Transparency & Information** -Obligations for producers to disclose the number of discarded unsold products (specifically textiles) -Providing information on product repair to consumers to avoid waste overall	**Economic Instruments** -Granting innovative logistics that enhance separate collection and sorting -Subsidies for cities implement 'zero waste' approach in their operations (instrument used in e.g., Wallonia, not at the federal level per se) **Regulation** -Control illegal waste management practices and shipping of waste to third countries -Ensuring control on eco-design and product standards -Updating legislation to support waste-to-resource operations **Voluntary and Capacity-Building Instruments** -Research on best recycling practices -(Voluntary) monitoring systems for quality of waste and products made of secondary-materials	**Regulatory Instruments**: -Extended producer responsibility scheme -Ban on distributing advertisement papers unless consumers have a "Yes"-sticker on the mailbox -Ban of destruction of unsold goods -Bans on single-use products **Economic Instruments:** -Deposit scheme to prevent litter -Support for municipalities to increase waste sorting -Investments in recycling facilities -Funding for recycling innovation **Voluntary/Information Instruments:** -Improving learning networks in the region -Establishing strategies for life extension of products to prevent waste generation
Implementation Practices	Indirectly, for instance, the ESPR. Implementation of waste management practices are mainly the responsibility of the MS, the Union acts as more of a guiding authority.	Federal level steers waste management in terms of objectives, implementation practices at regional or local levels.	Local Materials Plan that describes the obligations/tools for local level waste management; Deposit schemes for litter prevention; Nine projects on Circular Food Chains for analyzing waste streams; Improved biowaste, metals and plastic packaging collection (door-to-door collection etc.)

The EU's views were shared at the federal level, where waste *reduction* was highlighted, and development of effective recycling technologies and logistical sorting practices were

a large objective. However, waste management as a CE category was overall not much emphasized in the analyzed federal documents, as the regions and cities in Belgium take more responsibility in this. Federal government, nevertheless, funds waste management research and development in the regions, and most importantly, aims to create and update federal laws that promote waste-to-resource practices, by for instance changing the definition of "waste". While relevant to waste-to-resource practices in the EU, this type of specified or unified definition of 'waste' was missing from the EU-level documents.

As mentioned above, regions and cities are more responsible for waste management practices, therefore waste management was one of the most covered topics in Flanders' documents in terms of the analyzed categories. What was evident in Flanders was the focus on waste prevention; for instance, as shown in Table 7, a very specific practical example of a regulatory instrument and implementation practice arose from the documents: a ban on distributing advertisement materials to mailboxes unless there is specifically a "yes" -sticker, in contrast to a more common "No advertisement, please" -sticker. Flanders plans on using bans on many other products to prevent waste, such as single use products and the destruction of unsold products. Additionally, the region plans on using deposits to encourage consumers to recycle instead of littering and aims to financially support municipalities in waste sorting with practices such as door-to-door collection of biowaste.

Overall, Belgium's objectives and instruments aligned with the EU level, indicating that the EU acts as a strong authoritative guide in Belgium's waste management policies. Flanders' documents, however, revealed even more detailed and ambitious targets, instruments and planned implementation practices regarding waste management, with a similar approach to the EU-level but clearly going beyond the requirements of the Union, and being a forerunner also regarding other regions in Belgium, lifting the country's total waste recycling rate quite high up. Flanders' approach to waste management indicates that their good practices, such as their door-to-door collection system, would be good to upscale as they have allowed the region to get closer to EU's targets, which is not the case in even all the regions in Belgium, such as in the Brussels Capital Region. With waste management, incoherences were not visible as the EU provides rather a framework for the lower levels to act by their own capabilities. However, it is important to note that without proper EU-wide action such as single market for waste, the impact and meaning of ambitious regional waste management actions can decrease.

6.1.3 Secondary Raw Materials

Objectives and instruments to tackle issues of secondary raw materials and their use in products to decrease the use of primary natural resources were evident in the EU policy pipeline, as shown in Table 8. The EU has multiple individual targets and larger strategies to enhance the use of secondary resources, where for instance the regulation concerning batteries and waste batteries provides a good example. The main objectives concerning secondary raw materials were regarding value chains, where materials should be recycled but they should simultaneously keep their value. Generally, the EU's main objective is to create functioning markets for collecting and sorting materials and preparing them for recycling so that the recycled materials can be used in new products.

Table 8. Secondary Raw Materials

	EU	BELGIUM	FLANDERS
Objectives	Reducing resource use; Involving localities and regions in waste-to-resource development (specifically regarding critical raw materials); Managing value chains to keep the value of recycled materials high; Developing waste collection, sorting and recycling systems and technologies	Reach a minimum quantity of reused goods per capita by 2030 (e.g. in Wallonia to 8kg/person); Support development of reuse centers; Support research and use of secondary materials in construction; Support closed industrial symbiosis to enhance by-product use; Be leader in Europe in terms of high-quality recovery of materials	Aims to financially support projects that use waste to turn them into raw materials; In construction, support innovations in making harmful materials (asbestos) to harmless reusable materials; Ensuring quality of reused and recycled waste (upcycling as far as possible); Forming collaboration between partners (incl. public-private) to ensure value retention of recycled products; Permanent commitment to high-quality recycling and recovery of waste materials; Ensuring symbiosis between sectors (agricultural byproducts into new building materials etc.)
Instruments	**Regulatory Instruments:** -Required recycled material content in new products -Safety requirements for secondary materials entering markets (e.g., old waste materials) -Enlarged producer responsibility **Market and Economic Instruments:** -Incentives for companies to ensure that products are designed accordingly to CE (recycled materials, repairability etc.) -Designing product markets to support using secondary raw materials by making them economically more attractive	**Regulatory Instruments** -Quality requirements for secondary materials **Voluntary and Collaborative Instruments** -Monitoring of quality -Platforms for dialogue between stakeholders **Research and Capacity-Building** -Patents for secondary raw materials and recycling activities -Supporting professionalization and skill development in companies focused on producing products made of secondary materials	**Regulatory Instruments:** -Bans for products not produced with a certain amount of recycled materials **Economic Instruments:** -Investing (€10 million) in pilots/demonstration projects in circular construction field **Research/Capacity Building:** -Establishing logistics chains and "bio-hubs" for bringing (bio-)waste streams together for further utilization as a secondary material
Implementation Practices	For instance, Critical Raw Materials Regulation, Waste Framework Directive and Packaging and Packaging Waste Regulation target secondary raw materials. Implementation responsibility is on Members States.	Associations have so far mainly taken responsibility of implementing targets (*Repair Together Association, Network of Social Clause Facilitators and the Network of Sustainable and Circular Construction/Renovation Facilitators* etc.)	Intensive establishment of reuse and repair centers; Pioneering projects such as a recycling center in Port of Antwerp-Bruges; Biomass hubs for biowaste reuse and recycling

The main instruments that the EU considers effective are regulations on product content (e.g., percentage of recycled materials in a product, specifically regarding plastics, electronics, and textiles), and using incentives for companies to make recycled material use attractive. Therefore, it indicates that the EU plans to use a mixture of incentives and binding requirements to enhance the use of secondary materials. In contrast to the waste management -section, which in essence has quite similar content at the EU level, secondary raw material regulation focuses more on producers and markets, where waste management was focused on helping and guiding cities and other localities that oversee waste management.

A similar approach was taken at the federal level, where, for instance, the focus was on creating synergies between industries to enhance utilization of by-products. Belgium also puts a special focus on product *quality*, as shown in the instruments section of Table 8, where through research and innovation the country could become a leader in high-quality secondary materials. Additionally, Belgium had more focus on consumer side, and had targets to enhance not only reuse opportunities for consumers but also provide products that are already made by secondary materials, preferably in Belgium. However, regions seem to have more competence in providing more specific targets, instruments and implementation practices regarding secondary raw materials. Belgium plays nonetheless an important role in scaling up and sharing ideas and best practices arising from its regions to the EU level.

Flanders shared a similar approach to the federal level, while providing more specific targets to specific sectors: for instance, secondary material use in the construction section seemed to be a topic covered in many documents, and Flanders aims to promote the transition in this sector through intensively investing to pilots that enhance closed loops and synergies in the construction sector. The focused sectors were mainly the ones that the EU-level also targets. Regulatory instruments, such as bans for products not using a certain amount of recycled material were also mentioned. Flanders fosters multiple pioneering projects promoting secondary material use. One often mentioned example in the documents is the Port of Antwerp-Bruges, where circular economy is tested at a very local "living lab" level, with the target of promoting local circularity and closed-loop operations in capturing carbon dioxide emissions and using that as materials and giving end-of-life products new purposes through recycling center operations.

Overall, the EU, Belgium, and Flanders indeed share common objectives, e.g., regarding enhancing the use of secondary raw materials through recycling and innovation. While the EU sets broader regulatory frameworks and has preliminary plans for creating EU's internal markets for secondary raw materials, Belgium focuses on innovation and consumer engagement, and Flanders targets specific sectors like construction with local projects. However, conflicts can arise from differences in regulatory specifics, economic instruments, and reliance on associations for implementation. To improve coherence,

clearer guidelines from the EU could improve those regional initiatives aligned with EU goals, reducing inefficiencies across these governance levels.

6.1.4 Competitiveness and Innovation

At the EU level, objectives for increasing competitiveness and innovation were perhaps the most emphasized, quite cross-cutting, and connected to all previous themes. Overall, there is an evident and overarching turn towards simplification of sustainability regulation in general, shown in Table 9 below, with the aim of providing more space for European innovation and increasing global competitiveness. For this, the circular economy is considered a driver and a tool. Especially the new EU Competitiveness Compass (2025) entails that there will be a strong emphasis on creating a single market for, for instance, waste and secondary materials within the EU.

Table 9. Competitiveness & Innovation

	EU	BELGIUM	FLANDERS
Objectives	Simplification to create more space for innovations; Creating new circular business models; Boosting EU markets for sustainable and circular products (especially textiles and electronics); Empowering businesses and consumers for more sustainable purchasing decisions; Enhancing innovation development to find effective solutions for durable and repairable products	Creating taxation and wage systems that support circular business models and jobs; Collaborating with the EU level to promote eco-design standards and single market; Capitalize Belgian strengths in innovation with a focus specifically on closing material loops; One-on-One support to cities in developing circular practices; Sustainable Public Procurement; Become a leader in circular design innovations	Taking a mindset of SMEs when introducing regulations; Reducing administrative burdens for businesses; Creating flexible policies for SMEs to encourage innovation/growth; Creating financial framework for product-service combination; Develop circular procurement guidelines; Developing clearer investment policies; Focusing more on green and circular jobs and works
Instruments	**Regulatory Instruments:** -Simplification of legal packages -Minimum eco-design and information requirements for physical goods placed in the EU markets -Mandatory criteria for green public procurement **Transparency and Information Instruments:** -Digital Product Passports -Tagging, watermarks -Framework for product and production impact assessments **Market and Economic Instruments:** -Criteria for green public procurement -Incentives for consumers to repair -Incentives for R&D for durable and repairable products	**Regulatory Instruments** -Taxation (VAT, income tax, customs) that supports CE -Enhanced Consumer Protection laws (repair rights etc.) -Trade defense instruments to promote national production -Circular Public Procurement rules **Economic & Financial Instruments** -Investment in training of regional and local authorities -Supporting private investments -Financial incentives for low-carbon circular production **Voluntary, Strategic & Coordinating Instruments** -Enhancing federal-regional cooperation by developing a platform -Developing CE monitoring & feedback mechanisms -Industrial Symbiosis programs -Awareness campaigns for producers, cities and regions specifically	**Regulatory Instruments:** -Legislation on public circular procurement (planned) -Providing experimental places and regulatory-free zones for businesses to test their innovations -New Green and Digital Procurement Strategy **Economic and Financial Instruments** -Investing in the creation of social-circular hubs and other such initiatives in Flanders **Information/Capacity Building** -Information-sharing initiatives -Raising awareness of circularity in businesses -Embedding circularity in training programs for businesses (also a voluntary instrument) **Standards and Tools** -The Flemish and Dutch government's Sustainable Public Procurement criteria tool -Indicators and material footprint tools, specifically for circular construction
Implementation Practices	e.g., *Omnibus packages* (published in 2025*)*	Financing tools (used already in e.g. Wallonia), direct public subsidies for CE projects, awareness raising events held in Belgium, government's working groups to bring together stakeholders, Circular Ecosystem Digital tool (to be developed) to map CE initiatives	Knowledge sharing and capacity building to support businesses via projects/tools that offer tailored consulting and developing concrete roadmaps for circular integration (CIRCU-PLAN), and provide practical steps and guidance based on company-specific insights (e.g., CIRCU-WIJZER), using specific sustainable procurement criteria to steer investments

The main policy instruments to achieve competitive markets and innovations were monetary instruments; that is, incentivizing businesses to choose more sustainable materials for their products (meaning recycled materials or repairable parts) and simultaneously empowering consumers to make more sustainable decisions by regulating prices of repair services compared to buying a new product. The focus on strengthening the European

internal, Single Market was evident, and with the upcoming omnibus packages that aim to simplify current legislative setting, the focus seems to be even more on building a competitive European market by creating markets based on sustainability. However, it is critical to note that the simplification packages may also indicate that regulation considering corporate reporting is largely loosened, which may risk unsustainable practices in the markets. The lack of focus on reducing consumption of materials was also evident in the documents. Nevertheless, these are still merely signals of where the EU may be heading in terms of its competitive policies in CE, and the upcoming Circular Economy Act, planned to be published in 2026 (van Renssen, 2025), will play a key role in defining the exact policies targeted to competitiveness.

Incentives for research and innovation (R&D) were also mentioned several times in different contexts, but especially in terms of more circular product development where product parts are durable and, more importantly, standardized to ease product repair practices. Competitiveness and innovation objectives were strictly connected to EU's goals to have a bigger impact on global material and product markets, by providing examples of a connected economy where materials can circulate to different products through controlled production mechanisms, supply and value chain surveillance, waste management and consumer engagement. This topic was, however, quite connected to new production *systems innovations* instead of focusing on the overall reduction of material consumption, secondary or not. This, again, signals that the EU aims to keep up with global consumption-driven markets but attempts to form mechanisms that promote a more sustainable approach to products placed on the markets.

In Belgium, while the concrete practices of enhancing CE innovations are mainly the responsibility of Belgian regions and municipalities, the federal level has competence in steering competitiveness and innovation especially when it comes to taxation and incentives of practices. As one of the instruments, Belgium states changing their taxation system towards 'punishing' non-circular business practices, and on the other hand, towards favoring those who comply with CE targets. Belgium has a strong focus on creating business environment where circularity is supported by the government, and which supports job creation. Additionally, Belgium even has a tentative objective to change their wage formation system to support sustainable jobs, but this seemed to rather be a preliminary

objective, and no practical implementation plan was found during this research. The federal level sees the creation of a single European market to a more sustainable direction as an obligation to make Europe (and therefore Belgium too) more competitive, and increase possibilities for Belgium to import products that comply with sustainability and circularity standards:

> "*Since the markets for our circular products are inevitably also located outside the Belgian borders, Belgian policy must be part of the context of a Europe that aims to build a European circular economy --.*"[6] (Verbond van Belgische Ondernemingen, 2021)

To support national production and markets, Belgium targets especially industrial integration and wants to enhance knowledge on CE between different stakeholders by creating platforms and networks for collaboration. This way, the federal government enhances cooperation and knowledge-sharing between the regions that initially have the authority in making CE policies in Belgium.

According to the documents analyzed, Flanders sees the road to a more competitive economy through circular solutions in a quite similar manner to the EU level. There was a clear emphasis on simplifying current regulations to provide small and medium-sized enterprises (SMEs) better chances to develop and implement their circular innovations. Financial frameworks and criteria for sustainable procurement were seen crucial instruments to steer investments to circular activities. Knowledge and awareness raising were also viewed still as key points to enhance understanding of how circular activities can be beneficial to businesses. While simplification of regulation was evident in Flanders' plans, it was more focused on giving "space" for businesses to try out new innovations instead of larger loosening of reporting systems, such as at the EU level, exploring and experimenting novel circular business models. What all the governance levels seem to have strongly in common with each other is that circular economy requires a massive change in financial and investments systems.

[6] Translated to English from Dutch, partially using Artificial Intelligence (ChatGPT).

6.1.5 Global Sustainability and Resilience

Global sustainability and resilience were topics that were mainly only covered in the EU policy documents, but even then, quite discreetly. Mainly, in terms of the CE, the EU policy documents revealed policy objectives considering stopping the shipping of waste to third-world countries and providing binding regulation on the liability of the waste producer to take care of the waste management. These are presented in Table 10. The objectives therefore covered producers' responsibility in their global supply chains, but based on this document analysis, there were no specific instruments per se that would cover these objectives, besides the ban on waste shipment. Global sustainability objectives were however also visible in the broader goals of how policies targeted to products can have an impact on climate change – evidently a global phenomenon. Belgium, for instance, had only few mentions of objectives or instruments targeted to enhance global sustainability and resilience, but they were connected to decarbonization of production chains and development of more effective cross-border networks and platforms to address transparency and circularity of international value chains. Similar approaches were seen on Flanders' side, where significant emissions reductions from production (non-Emissions Trading Systems sectors) were mentioned, as well as the focus on the global supply chain responsibility of producers located in the region.

Table 10. Global Sustainability & Resilience

	EU	BELGIUM	FLANDERS
Objectives	Improving global supply-chains to more environmentally and socially sustainable directions; Identifying how circular economy affects climate change mitigation	Transition to renewable resources in production; Decarbonizing transport by promoting other means of mobility and circularity of mobility; Increase resource efficiency; Surveillance of imported products so that they meet EU and Belgian standards	Decrease Flanders' material footprint by 30% by 2030; Reduce non-ETS sector emissions by 40% by 2030 (compared to 2005); Reduce non-ETS sector emissions by 85% by 2050 (compared to 2005); Move towards full climate neutrality; Make strategies based on recognition that much of Flanders' environmental impact occurs outside its borders due to imported resources; Broaden the circular economy focus beyond domestic production activities
Instruments	**Regulation:** -Bans on shipping waste outside EU **Markets and Economic Instruments:** -Incentives for innovation on sustainable products that enhance climate change mitigation **Information and Innovations:** -Research on the effect of CE on climate change	**Strategic/Coordination Instruments** -Strategic cooperation between governments beyond Belgian borders to enhance sustainability of production chains and to increase transparency by creating platforms and networks	**Strategic/Coordination Instruments:** -Close collaboration between cross-border stakeholders -Fostering public-private partnerships -Develop strategies aiming for carbon-neutral circular practices

6.1.6 Summary of Synergies and Conflicts

Generally, the federal level in Belgium and especially Flanders go beyond the EU's CE objectives and use more specific instruments and practical implementation strategies to

reach these targets. This may imply that Belgium's and Flanders' policies are coherent in terms of the EU but perhaps not the other way around. Therefore, a common problem in multi-level governance arises, where smaller actors struggle to upscale their best practices and innovations to the upper levels. Additionally, what arose from the materials is that some parts, such as production policies, require more action from the EU level to allow the lower governance levels to develop circular economy in their area of influence. Examples of this dependence are the single market for secondary materials, and the need for unified classification in terms of, for instance, waste. These are especially crucial so that Member States and regions can ensure that the products entering their area are already sustainable and circular. For instance, repair practices, such as repair shops at local levels, will not have the needed impact if the products entering the markets are not repairable. This is, according to the analysis, changing through initiatives such as the ESPR that should include repairability requirements for the products in the EU. Therefore, coherence in this sense may improve in the future.

All in all, the EU's new directions in highlighting competitiveness may imply that the circular economy is in the future seen from the production side. Support for this side as well as recycling practices from the EU to lower levels may therefore increase, but the focus on the higher r-strategies, especially reducing material consumption, may on the other hand decrease. For Member States and regions, this may imply that promoting sustainable and circular consumption and addressing other higher r-strategies remains their responsibility. These results were also evident in the interviews, which provided more practical insights into the topics covered in the document analysis, and which are presented next.

6.2 Practical Insights into Multi-level Circular Economy Policies

The expert interviews revealed multiple prospects of the circular economy at the levels of EU, Belgium and Flanders that did not directly arise from the analyzed documents. The interviewees identified development points that the EU may take currently and during the next few years and mentioned critical points where nations and regions can contribute to these developments, while also pointing out that lower levels of governance should not

forget to keep advancing circular practices in their own areas of influence even beyond the EU's perspectives.

What arose from the interviews is the critical role circular economy plays in strategic independence – a topic especially relevant in 2025, when rapidly changing and unpredictable global political atmosphere, including a war started by Russia in Ukraine (Bourne & Rawnsley, 2025), and the protectionist economic policies the United States (Wang, 2025) have taken place. These shifts force Europe to take more action to reduce dependence on imports from other countries, and many interviewees mentioned that this is an important aspect and seems to be considered in the upcoming EU policies:

> "*At the end, circular economy, it's a way to foster strategic autonomy in Europe*" [Interviewee 2]

> "*Lately there's been a lot of focus on strategic independence [in the EU], which also led to the Critical Raw Materials Act, I do believe that's a right way to go -- all the businesses are going to start looking for new revenue streams, and different supply streams. So, everything's going to change massively."* [Interviewee 1]

> "*For now, the circular economy is still doing fine. Even our -- politicians in Flanders, they're all for circular economy, because they do see that strategic autonomy is more economical than blindly jumping into the closed model with virgin materials*." [Interviewee 1]

Every interviewee agreed that circular economy should be looked at holistically and not only through certain sectors, but the interviews indeed had a largely production-emphasized approach to the current directions of circular economy, due to the abovementioned global situation. This is where the role of the EU was highlighted as a critically important enabler of circular economy in its operating area, because it allows lower levels of governance, such as regions and cities, to ensure that products coming to their territories to be already sustainable.

> *"So, from the EU, there is a top-down approach to have. Because if you don't change the eco-design of our products and materials, you will never be able to support the repairability of the materials."* [Interviewee 2]

The interviews thus highlighted the top-down approach of CE policies. For instance, especially the Critical Raw Materials Act (Regulation 1252/2024) was seen as one critically important initiative for regions too to manage their critical raw materials by utilizing cir-

cular mindset. Indeed, critical materials were mentioned as one specific sector that regions (and cities) could start focusing on even more to contribute to EU's objectives. This perspective was perhaps taken because the critical raw materials are specifically an important part of resource independence since they are often imported from outside the EU, and through circularity there is now a possibility to reuse the critical materials we already have in our products within the EU. Regions and other sub-national levels, then, have the *practical* possibility of collecting and recycling these materials.

> "*I think [an important focus point for regions] is the recovery of materials from used products, so it's about them partaking in creating better recycling capacities in regions, and also coming together with other regions and municipalities, thinking about investment schemes --. Maybe the easiest and most attractive waste stream to consider is these kinds of valuable items, like electronics and batteries, cars as well, machines. Because that could potentially also be a source of income for regions, and that may be incentivized*." [Interviewee 3]

However, the EU's renewed emphasis on merely recycling was also viewed with a critical eye in most of the interviews:

> *"-- what we currently know about [the upcoming CE Act] is that the goal is to increase demand for recycled materials, and in a way, to establish a single internal market for both recycled products and waste. And there's quite a strong focus on critical raw materials, but that's just one part of the whole picture."* [Interviewee 4]

> *"There is always a level before recycling. -- you can already reuse things, repair things. And this is completely out of the [EU] legislation, I mean if you take the latest legislation on waste -- reusing and repair have disappeared and only recycling is there."* [Interviewee 2]

> *"And now in a way we are shifting our attention back to waste, because -- it became more apparent that we do not have a single market for waste. There are different end-of-waste criteria so one item is considered waste in other country and a by-product in another."* [Interviewee 3]

These answers highlight the complexity in multi-level governance and the need for a common approach to the concept of CE. When it came to how CE could be enhanced in the changed political environment, mere critical materials and strategic independence approaches did not arise as the key sectors in the long-term. Instead, the interviewees called for practical solutions from federal and regional levels to continue working towards a more comprehensive transition, considering not only economic or materials sides like the EU, but also more strongly including citizens in the process:

> *"-- it's difficult to draw conclusions regarding, for example, the effects of the VAT reduction on repair and maintenance services, if the majority of citizens aren't even aware that these services were subject to such a VAT discount."* [Interviewee 4]

> *"-- because circular models are not something we have in our society now, so the curriculums at universities are not made for circular economy. We need engineers, we need architects [that know about CE]. - - it's also about education of very young children, because still now the way that we educate our students is linear, everything is linear.*" [Interviewee 2]

> *"But regional and local municipalities, they can also have a role in that, to work with them, to nudge the consumers, to buy more sustainable products, to school, educational systems, awareness raising in general – campaigns, very important."* [Interviewee 3]

Here, the emphasis on the opportunities for a more systemic change is evident, which was not seen as the case at the EU level policies currently and therefore was considered a conflict in the multi-level system. One interviewee also highlighted that while these kinds of initiatives are crucial to federal and regional levels, there is a strong need to integrate them properly into governance systems. Another one also called for a binding target, like the EU climate law (Regulation 1119/2021), to achieve CE goals systematically and coherently.

> "*-- we don't have any vision for circular economy, we have some ambitions but they're very light, nothing is very binding. -- Just like the 2050 binding climate target in the [EU] climate law, we need something similar for resource use*." [Interviewee 6]

> *"I think what is the main issue for the moment is that [Flanders has] been -- working on circular economy since 2015-2016, and so far, we've been really on the field, experimenting, enabling actors on the field to try out things. But [there's a need to] really making the shift from this -- experimenting phase to upscaling."* [Interviewee 5]

In addition to calling for continuous work for systemic change, what all the interviewees strongly emphasized was that regions with ambitious CE goals such as Flanders could start taking stronger action when it comes to circular production policies. This was despite it being a policy area that is usually more strongly and effectively regulated by the EU. Here, green public procurement was stated as the most promising instrument to improve regions' opportunities to influence what products are entering the area.

> *"With the public procurement they have a huge leverage for even external producers. It's a powerful tool that should be used better --"* [Interviewee 2]

> *"- - what kinds of requirements will be set, for example, -- to what extent urban planning will emphasize the longevity of buildings, will there be any specific requirements for that,*

> *and to what extent, for example, adaptability and reparability will be required."* [Interviewee 4]
>
> *"If you say you only will buy furniture that is refurbished for offices --, you can actually create a huge demand at the municipal and regional level for this."* [Interviewee 3]

Instruments such as public procurement were indeed seen as the key for lower governance levels to not only improve their own state of circularity, but also to influence the directions for the federal and EU level. The interviews revealed that overall, the EU's policies are on the one hand supporting certain areas of action that regions can start better contributing to, such as critical materials management, but on the other hand indicating that the lower levels must take more responsibility on systemic CE development. These policy developments may cause incoherence between the governance levels, risking the overall transition. However, nations and regions, such as Flanders, could begin monitoring and developing not only the currently crucial sectors such as critical material use and recycling for competitiveness goals, but also the long term-relevant sectors such as the use of green public procurement or integration of CE to educational systems and consumer engagement. The next section concludes the results in a more comprehensive manner.

6.3 Overview of Results

During the analysis, I aimed to answer two research questions. For RQ1, it was evident that the EU takes a narrower, materials and competitiveness approach to circular economy, while the federal and regional levels continue to focus on more systemic perspectives. This dynamic arose from the interviews as well. However, the lower levels also had many ambitious production and economic related policy objectives and planned instruments, implying that in this sector there are synergies. It also indicates that these synergies may improve in the future as there is more support from the EU, and lower levels could better influence the upper levels by upscaling their good practices. However, in the other sectors, more conflicts may arise if some aspects (such as reducing the overall use of materials) are bypassed at the EU level, leading to less effective efforts from the lower levels in terms of the large transition. This may indicate that, e.g., regional efforts to reduce consumption may stay at that level or be redundant if there is a lack of support from the EU level, as in the example of repair services and repairable products.

In relation to answering the RQ2, while the need for EU-level authority was highly emphasized to increase coherence, there were multiple aspects that suggested that regional and federal levels can influence this as well. For instance, green public procurement can be used as a tool to increase demand for repairable products or products that contain certain amounts of recycled materials, and this in theory can affect how the EU arranges its production policies. At the same time, lower levels could focus on the practical applications these requirements, such as ensuring that repair services are available should more repairable products enter the market, education systems support the CE, and that waste management functions are so that enough secondary materials are on the markets to be used in products. Simultaneously, novel taxation practices could have a significant impact on whether secondary materials become preferred over primary materials.

To contribute to these changes, several sectors could be monitored to track the development: amount of recycled critical materials (beyond household waste), number of CE innovations and funding development for innovations; number of CE-related courses taught during e.g. compulsory education; number of green public procurement requirements in policies, product repair opportunities (such as shops) and number of products repaired; stock of recoverable materials (e.g., urban mining potential), and; price of second-hand products or secondary raw materials in relation to new products and materials. A table with the recommendations for monitoring in relation to wider policy objectives and recommendations can be found in Appendix 7.

7 DISCUSSION

This thesis provided an overview of the circular economy policy pipeline of the EU, Belgium and Flanders, how policy objectives and instruments for transitioning to a more circular economy interact with each other, and how CE monitoring could be modified to better align with the EU objectives, and to better inform policymaking.

The results underline challenges of multi-level governance in relation to the aim of vertical policy coherence. As Mickwitz et al. (2009) state, supra-national levels such as the EU are needed in steering transboundary environmental issues that go beyond the competence of individual countries or local authorities. The analysis revealed that this is also the case in terms of the CE: products that are exchanged in transboundary markets (even

between the EU member states) require steering from the level that has the competence to influence them (Ancapi et al., 2024), in accordance with the subsidiarity principle (Mickwitz et al., 2009). Here, incoherence between what different levels have on their CE agenda, such as whether the focus should be, e.g., on reducing consumption, increasing production based on secondary raw materials, or enhancing recycling, can hinder the overall transition.

Additionally, if the instruments on how CE is approached differ, it may lead to difficulties in reaching a common goal, which is included in Nilsson's (2012) policy coherence framework. For this, a practical example from this thesis is how the EU and Flanders aim to increase the use of recycled materials in products, but the EU has decided to reduce business reporting and standard requirements to increase the attractiveness of innovation, whereas Flanders has highlighted the importance of ensuring high quality of recycled products, which is an attribute that is often measured via strict standards. While these conflicts were identified, developing and fostering innovations that support high quality secondary products can be a means for Flanders to contribute to the EU's sustainable innovation and 'competitiveness' objectives. If effectively scaled up, which is not necessarily a simple task, such ambitious regional targets could thus bring out wider advantages, even if they are not clearly in line with the higher levels' trends.

Finally, the analysis contributes to the Flanders' monitoring systems (Circular Flanders, n.d.) that tracks CE-specific sectors. As the CE field changes in the EU, adding new indicators such as price developments on secondary materials in relation to primary materials, or the recycling rate of critical raw materials from beyond household waste could contribute to the contemporary information need. Also, collecting data on topics such as green public procurement can be valuable in terms of uncovering the needs of regions for the EU level, and indicating what types of products should be placed on the EU markets. As the CE Monitor of Flanders already covers a wide range of indicators that are specific to the region, the recommended new indicators (stated more in detail in Appendix 7) are rather complementary to the existing ones. The recommendations also indicate how regions could contribute to the EU's current views on CE. For instance, based on the priorities identified during this thesis, more focus could be put on tracking the economic perspectives, such as how monetary instruments work in steering the transition towards CE. However, the more systemic (i.e. social, environmental) perspectives of CE are also still

included in the recommendations, as that is where lower levels can have many possibilities to take concrete action.

7.1 Validity and Reliability

This research is based on the analysis of data specifically related to the concept of circular economy, as seen in the policy documents. While this narrower scope connects to the topic of the study, it also puts some limitations on its validity. Relevant legislation and strategies from sectors indirectly connected to CE, such as social, agriculture or economic policies, were not included comprehensively. A broader scope of documents could perhaps have offered more comprehensive insights into CE governance but was not feasible within the scope of a master's thesis.

Moreover, the timing of the research was challenging due to the EU's new 2024-2029 institutional cycle (González Campaña, 2024), including significant reforms aimed at simplifying and redesigning old legislative frameworks. New governments were also formed in Belgium and Flanders in 2024-25 (Lund Nielsen, 2025; Griera, 2024). These ongoing changes limit the conclusiveness of the study's findings. Although I aimed to examine the most recent situation possible through the latest policy documents, I had to limit my analysis timeline. Hence, the findings should be interpreted as a "snapshot" of a dynamic and evolving policy landscape rather than definitive conclusions.

However, reliability was partly strengthened through the inclusion of expert interviews, which provided valuable future-oriented perspectives. These insights helped reduce, though not completely remove, the uncertainty in analyzing a changing policy landscape. Still, the conclusions may not perhaps be directly applied to other regions or countries without caution, as policy coherence and implementation vary widely across governance contexts. The analysis can, nevertheless, provide some guidelines for other regions too.

Finally, the study raises broader questions about the role of subnational actors in CE policy. While the EU remains a central player in setting goals and frameworks, member states, regions, and cities hold practical knowledge and implementation power. This raises the question of whether EU-level policies could be more responsive to the needs of these

local actors. Empowering them through more flexible or bottom-up policymaking could enhance the effectiveness of CE transitions. Such an approach might also allow the best practices and local innovations to be scaled up and inform future EU-wide objectives or regulatory metrics. To conclude, these insights on limitations should be considered when interpreting the findings and their potential implications.

7.2 For Further Research

The findings of this thesis highlight a fragmentation of circular economy objectives across policy frameworks. Further studies could examine the horizontal coherence between CE strategies and other major policy areas, such as climate, energy, waste, economic, and social policy. Investigating these intersections would provide a more comprehensive view of whether CE is being supported in a truly integrated and systematic way across different domains of policymaking. Additionally, future research could explore the role of policy instruments not directly labeled as CE-related, but which may have substantial influence on circular outcomes. Additionally, exploring what political barriers exist to achieve coherence could offer deeper insights into the effectiveness of CE policy implementation and highlight areas for improved coordination.

8 CONCLUSIONS

This thesis examined the circular economy policy coherence in multi-level governance system, and its implications to regional CE monitoring. The circular economy offers a more sustainable alternative by minimizing primary resource use and extending the life cycle of materials via for example reuse, maintenance, and recycling. However, CE extends beyond technical solutions, involving a broader systemic shift toward less materialistic values and away from consumption-based economic models. Achieving this transformation requires fundamental changes in business models, infrastructure, consumer behavior, and governance. A multi-level governance approach is therefore essential to guide this complex and transboundary transition (Mickwitz et al., 2009), as policies remain fragmented across various policy sectors and levels of authority.

Using Flanders, a Belgian region as an example, I examined how regional efforts interact and align with national and EU-level circular economy policies. The Flanders Online CE Monitor (Circular Flanders, n.d.) provides insights into sector-specific progress, helping identify gaps and inconsistencies. The analysis revealed that while the EU approaches the CE primarily through a material efficiency and competitiveness lens, regional and federal levels often emphasize broader systemic change, leading to both synergies and potential conflicts depending on the sector. Although EU-level coherence is essential, regional and national actors can still influence policy through tools like green public procurement, taxation, and practical implementation efforts. To support alignment and progress, monitoring key sectors, such as repair rates, secondary material use, and innovation funding, can prove to be essential.

While Appendix 7 provides a more comprehensive look into the final recommendations for policy and monitoring, I end the conclusions with a list of a few general and indicative policy recommendations:

- **Improve support for systemic CE approaches and create more effective pathways for upscaling regional practices**, notably at EU-level;
- There is a need to **establish binding targets and laws at the EU-level**, like the EU Climate Law, to maintain a systematic and coherent approach to CE;
- **Mandate or incentivize green public procurement** from regional to EU-levels with CE criteria, as GPP can shift markets and indirectly influence EU-level production policies;
- **Introduce CE-focused taxation or subsidies**, as price incentives can drive market preference towards CE-aligned options;
- **Incentivize companies to promote and increase the supply of repair opportunities** instead of new products;
- **Improve monitoring of more systemic CE dynamics**, such as of education on CE, innovation funding and price developments between primary and secondary goods.

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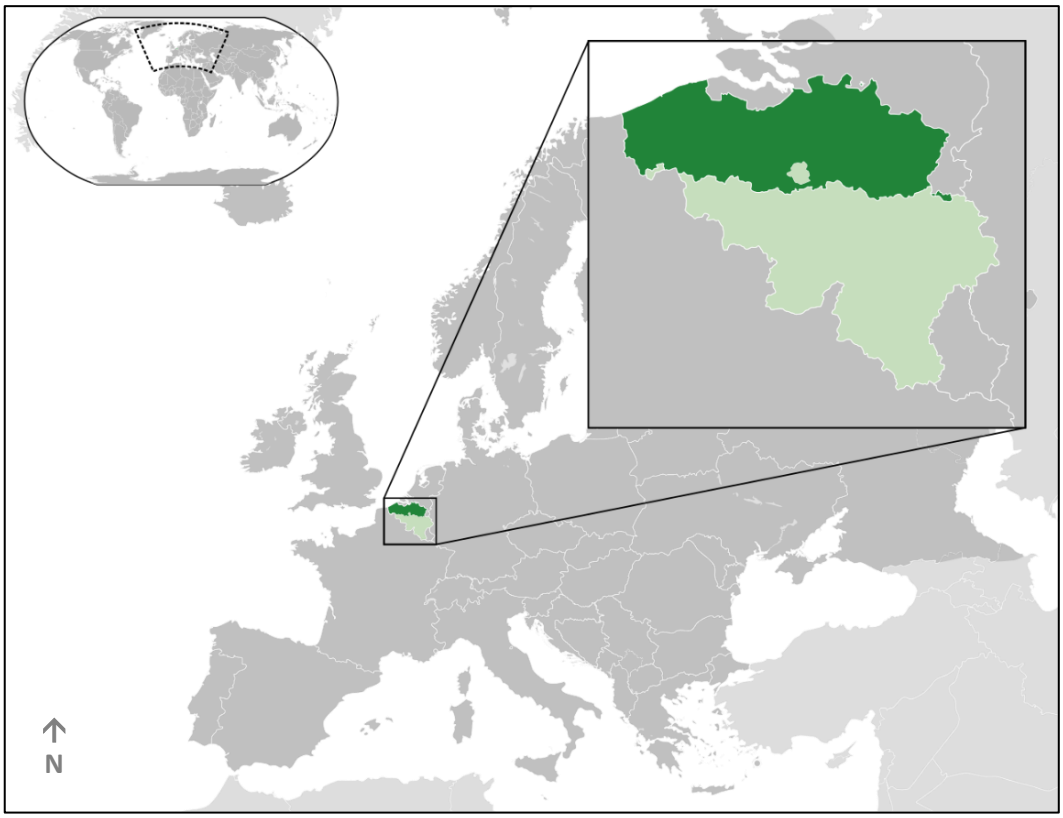
APPENDICES

APPENDIX 1

Map of Belgium and Flanders.
Flanders is marked with dark green.



Source: Blank map of Europe (with disputed regions). svg: CC BY-SA 3.0.
North arrow added.

APPENDIX 2

EU Revised Circular Economy Monitor (European Commission, 2023, p. 4-5)

No	Indicator	Relevance	Source
Production and consumption			
1a-b	**Material consumption** 1a Material footprint (tonnes per capita) 1b Resource productivity (EUR/kg)	Decreasing the consumption of materials indicates decoupling economic growth from resource use.	Eurostat
2	**Green public procurement***	Public procurement accounts for a large share of consumption and can drive the circular economy.	European Commission
3a-f	**Waste generation** 3a Total waste generation per capita (kg per capita) 3b Total waste generation (excluding major mineral waste) per GDP (kg per EUR) 3c Generation of municipal waste per capita 3d Food waste (kg per capita) 3e Generation of packaging waste per capita (kg per capita) 3f Generation of plastic packaging waste per capita (kg per capita)	In a circular economy, waste generation is minimised.	Eurostat
Waste management			
4a-b	**Overall recycling rates** 4a Recycling rate for municipal waste (%) 4b Recycling rate for all waste excluding major mineral waste (%)	Increasing recycling is part of the transition to a circular economy.	Eurostat
5a-c	**Recycling rates for specific waste streams** 5a Recycling rate for overall packaging waste (%) 5b Recycling rate for plastic packaging waste (%) 5c Recycling rate for electrical and electronic equipment waste that is separately collected (%)	Progress in recycling key waste streams is essential for sustainability and resilience.	Eurostat
Secondary raw materials			
6a-b	**Contribution of recycled materials to demand for raw materials** 6a Circular material use rate (%) 6b End-of-life recycling input rates (%)	In a circular economy, secondary raw materials are commonly used to make new products.	Eurostat, other European Commission services
7a-c	**Trade in recyclable raw materials** 7a Imports from outside the EU (tonnes) 7b Exports to outside the EU (tonnes) 7c Intra-EU trade (tonnes)	Trade in recyclables reflects the importance of the internal market and global participation in the circular economy.	Eurostat
Competitiveness and innovation			
8a-c	**Private investments, jobs and gross value added related to circular economy sectors** 8a Private investments (% GDP) 8b Employment (% employment) 8c Gross value added (% GDP)	The circular economy can contribute to the creation of jobs and growth.	Eurostat
9	**Green innovation** 9 Patents related to waste management and recycling (number and number per million inhabitants)	Innovative technologies related to the circular economy boost the EU's global competitiveness.	Joint Research Centre based on PATSTAT
Global sustainability and resilience			
10a-b	**Global sustainability** 10a Consumption footprint (index 2010=100 and times the planetary boundaries is transgressed) 10b GHG emissions from production activities (kg per capita)	Consumption footprint indicates the extent to which production and consumption systems are within planetary boundaries. The circular economy contributes to climate neutrality.	Joint Research Centre and Eurostat
11a-b	**Resilience** 11a Material import dependency (%) 11b EU self-sufficiency for raw materials (%)	The circular economy contributes to the security of supply of raw materials and helps to address supply risks, in particular for critical raw materials.	Eurostat, other European Commission services

* Indicator under development. CEAP2: circular-economy action plan 2 adopted in 2020.

APPENDIX 3

Indicators of the Circular Economy Monitor of Flanders (Circular Flanders, n.d.)

MACRO-LEVEL	**CIRCULARITY**	**1. Inflow**	Direct material input of Flemish economy; Domestic material consumption of Flemish economy; Water consumption
		2. R-strategies	Share of industrial waste getting a second life; Household waste recycling; Production of secondary materials; Reuse indicator; repair indicator; circular material use rate (CMUR)
		3. Outflow	Production of: Household waste, Residual waste, Primary industrial waste, Primary industrial residual waste; Incinerated, Co-incinerated and Landfill waste; Littering and fly-tipping cleaned up; Territorial emissions
	EFFECTS	**1. Environment**	Use of space; Carbon footprint of Flemish consumption; Global concentration of emissions; Soil contamination and remediation
		2. Socio-economic	Material productivity; Employment in the CE; Turnover in the CE; Turnover of approved reuse centers; Repair sector
		3. Materials	Raw material input of Flemish economy; Material footprint of Flemish consumption
MESO-LEVEL	**MOBILITY**	**1. Market**	Modal split in passenger kilometers; Number of passenger cars; Car use efficiency; Car sharing; Number of buses; Bus use intensity; Number of freight vehicles
		2. Footprint	Material footprint of mobility
		3. Lifestyle	New cars on the market; Mass of new cars on the market; Emissions and Eco-scores of new cars on the market; Emissions of road transport; Mileage of cars at end of life; Valorization of end-of-life cars via official demolition; Valorization of old tires
	CONSUMER GOODS	**1. (Re)use and recovery**	Reuse of: Consumer goods via reuse centers, Textiles via reuse centers, Furniture via reuse centers, Electrical and electronic equipment (EEE) via reuse centers
		2. Market	Household EEE put on the market; EEE in households; Use status of EEE in households
		3. Footprint	Material footprint of consumer goods
		4. Waste	Packaging and products in residual household waste; Composite products in bulky waste; Estimate of out-of-home waste; Processed household EEE waste; Processing of end-of-life textiles; Out-of-market/put-on-market ratio for household EEE
	HOUSING AND CONSTRUCTION	**1. Market**	Number of households; Number of companies; Living area of residential buildings
		2. Footprint	Material footprint of housing; Emissions from buildings and homes
		3. Condition of Resources	Built-up area; Raw material reserves; Open space
		4. Undesirable effects	Number of homeless people; Number of people affected by particulate matter; Number of people facing water scarcity
		5. Desired Changes	Average age of buildings; Living area use efficiency; Energy efficiency of buildings; Number of social housing units; Number of renovations; Recycling rate of building materials
	FOOD	**1. Use of Input**	Water consumption in the agricultural sector; Use of nitrogen in the agricultural sector; Use of phosphorus in the agricultural sector; Production and use of animal fertilizer; Energy consumption in the agricultural sector; Use of agricultural land; Use of raw materials for animal feed; Soil quality
		2. Loss of Input	GHG emissions from the agricultural sector; Acidifying emissions in the agricultural sector; Nitrate concentrations in surface water; Phosphate concentrations in surface water
		3. Footprint	Material footprint of food
		4. Consumption Pattern	Protein consumption; Household food waste; BMI evolution
		5. Waste	Food residues and food loss; Valorization of residual food streams; Processing of organic residual streams; Share of food waste in residual household waste; Collection and processing of organic residual waste

APPENDIX 4

Documents used in the document analysis

DOCUMENTS SELECTED	TYPE OF DOCUMENT	GOVERNANCE LEVEL
European Parliament (2025). *Legislative Train 1 A European Green Deal – Eco-Design for Sustainable Products.*	Report on Future Legislation	European Union
European Commission (2025a). *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: A Competitiveness Compass for the EU.*	Strategy	European Union
European Commission (2025b). *Communication From the Commission to The European Parliament, The Council, The European Economic and Social Committee and The Committee of The Regions, Commission work programme 2025 Moving forward together: A Bolder, Simpler, Faster Union.*	Legislative Work Programme	European Union
European Commission (2020a). *Communication From the Commission to The European Parliament, The Council, The European Economic and Social Committee and The Committee Of the Regions: a New Circular Economy Action Plan for A Cleaner and More Competitive Europe.*	Strategy	European Union
Committee of the Regions (2024). *Opinion of the Committee of the Regions – The role of local and regional authorities in the transition to a circular economy. C/2024/5365*	Commentary/Policy Recommendation	European Union
European Parliament (2023). *Empowering consumers for the green transition.*	Plenary Report	European Union
Draghi (2024). *The future of European competitiveness Part B - In-depth analysis and recommendations*	Report	European Union
European Commission (2020b). *Green Deal: Sustainable batteries for a circular and climate neutral economy.*	Press Release	European Union
European Commission (2023). *Communication From the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a revised monitoring framework for the circular economy*	Strategy	
European Parliament (2023). *Right to repair – Strenghtened consumer rights.*	Briefing – EU Legislation in Progress	European Union
European Parliament (2020). Sustainable Consumption – Helping customers make eco-friendly choices.	Briefing – EU Legislation in Progress	European Union
European Commission (2022b). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: EU Strategy for Sustainable and Circular Textiles.*	Strategy	European Union
European Commission (2022a). Communication *From The Commission To The European Parliament, The Council, The European Economic and Social Committee And The Committee Of The Regions On making sustainable products the norm.*	Strategy	European Union
European Environment Agency (2024). *Circular Economy Country Profile 2024 – Belgium*	Report	Belgium/ Flanders
European Environment Agency (2022*). Early warning assessment related to the 2025 targets for municipal waste and packaging waste – Belgium Country Profile.*	Report	Belgium/ Flanders
Verbond van Belgische Ondernemingen – Fédération des Enterprises de Belqique (2021). *Circulaire Economie – Visie 2030 Voor België*	Strategy	Belgium
Circular Wallonia (2024). *The circular economy deployment Strategy in Wallonia - 1st Review Period 2021-2023*	Report	Belgium
SPF Economie (2023). *Federaal actieplan circulaire economie 2021-2024.*	Action Plan/Strategy	Belgium
Férauge, S., Alaerts, L., Thomassen, G., Christis, M., Vercalsteren, A. & Van Acker, K. (2023). *Overview of existing targets for the circular economy in Flanders.*	Report	Flanders
OVAM (2021). *10 new messages about circular economy and climate. Version 2021.*	Report	Flanders
OVAM (2020). *A Lasting Legacy in Circular Economy.*	Report/Outreach Report	Flanders
OVAM (2025). *Local Materials Plan 2023-2030.*	Report	Flanders
Vlaamse Overheid (2019). *Vlaamse regering 2019-2024 Regeerakkoord.*	Action Plan / Governmental Agreement	Flanders
Circular Flanders (2023). *Circular Flanders 2023: Analysis, Collaboration, Action!*	Action Plan	Flanders

APPENDIX 5

Interview questions

The questions are indicative and may change during the interview.

BACKGROUND:

1. What is your current professional role?

2. How much would you say you work with the topic of circular economy?

CIRCULAR ECONOMY IN GENERAL:

3. From your own point of view, how would you define "circular economy"?

4. When thinking about a transition to a more circular economy in general, what would you consider the most relevant sectors to focus on?

5. What, in your opinion, are some of the most important policy instruments that could enable this transition? *You can choose a specific theme (waste management, consumption) or talk more about the bigger picture*.

MULTI-LEVEL APPROACH:

6. Considering the EU level, how do you see the future of circular economy (policies)?

5.1. What sectors is the EU focusing on, and do you think there is something more that should be focused on?

5.2. How do the new strategies, such as the Competitiveness Compass or the Omnibus package influence the transition to the circular economy at the EU level?

7. What part do you think EU Member States and regions within the states play in transition to the circular economy?

8. As regions (and other sub-national levels) tend to have a limited capacity to influence certain key areas of the circular economy, such as production, what are the key areas they should focus on to develop the region towards circularity?

8.1. Given the current developments this year at the EU level, do you think these key areas align with the EU's agenda?

8.2. What are the areas that should be focused on in (member states or) regions, given the current developments at the EU level?

8.2. Do you think regions within the EU currently have possibilities to scale up their circular innovations and best practices to the EU level?

APPENDIX 6

Document analysis codes and examples

Code	Example	Source Document
Production & Consumption Objectives	"*Prevent and stop the destruction of unsold consumer goods*"	European Commission (2022a). Communication *From The Commission To The European Parliament, The Council, The European Economic and Social Committee And The Committee Of The Regions On making sustainable products the norm.*
Production & Consumption Instruments	"*Obligation for producers to repair products' defects beyond the legal guarantee and the incentives for consumers to have their products repaired."*	European Parliament (2023). *Right to repair – Strenghtened consumer rights.*
Production & Consumption Implementation	"*CIRCU-RADAR: An introductory tool for entrepreneurs to quickly familiarise themselves with the basics of the circular economy and gain inspiration to get started with it by themselves."*	Circular Flanders (2023). *Circular Flanders 2023: Analysis, Collaboration, Action!*
Waste Management Objectives	"*A reduction in the amount of residual waste (up to 100 kg/capita of household residual waste by 2030*"	European Environment Agency (2024). *Circular Economy Country Profile 2024 – Belgium*
Waste Management Instruments	"*Finally, we will also continue to work on a number of new use bans for single-use products and ensure the availability of drinking water in public locations to avoid unnecessary beverage packaging waste."*	OVAM (2025). *Local Materials Plan 2023-2030.*
Waste Management Implementation	"*At the end of 2022, we were supporting 9 projects (Targeted Call for a Circular Food Chain) that worked on reducing food loss*"	Circular Flanders (2023). *Circular Flanders 2023: Analysis, Collaboration, Action!*
Secondary Raw Materials Objectives	"*However, it is important to ensure the quality of recovered materials as this affects the recycling potential and preference is given to high quality materials with a focus on upcycling*"	Férauge, S., Alaerts, L., Thomassen, G., Christis, M., Vercalsteren, A. & Van Acker, K. (2023). *Overview of existing targets for the circular economy in Flanders.*
Secondary Raw Materials Instruments	"*Requirements such as use of responsibly sourced materials with restricted use of hazardous substances, minimum content of recycled materials*"	European Commission (2020b). *Green Deal: Sustainable batteries for a circular and climate neutral economy.*
Secondary Raw Materials Implementation	"*in such a biomass hub, large quantities of fruits and vegetables, which due to a temporary oversupply do not get sold, could immediately be processed in large quantities into a diversity of products such as purees, soups and juices*"	Circular Flanders (2023). *Circular Flanders 2023: Analysis, Collaboration, Action!*
Competitiveness & Innovation Objectives	"*Reduce administrative burdens for businesses*."	Vlaamse Overheid (2019). *Vlaamse regering 2019-2024 Regeerakkoord.*
Competitiveness & Innovation Instruments	"*The government will actively encourage innovative businesses to test their solutions within designated regulation-free zones and experimental spaces to accelerate technological adoption."*	Vlaamse Overheid (2019). *Vlaamse regering 2019-2024 Regeerakkoord*
Competitiveness & Innovation Implementation	"*A self-assessment tool that allows SMEs to measure their progress towards this [circular] business model*"	SPF Economie (2023). *Federaal actieplan circulaire economie 2021-2024*
Global Sustainability & Resilence Objectives	"*A large proportion of the raw materials to meet our needs comes, however, from abroad so that the associated environmental impact is also situated outside Flanders. If Flemish policy wishes to promote the circular economy, the focus must be broadened to the Flemish environmental impact beyond production activities in Flanders.*"	OVAM (2021). *10 new messages about circular economy and climate. Version 2021.*
Global Sustainability & Resilience Instruments	"*public financial support for deployment projects -- could be made conditional to a minimum percentage of EU materials being used*"	SPF Economie (2023). *Federaal actieplan circulaire economie 2021-2024*
Global Sustainability & Resilience Implementation	"*Flemish Energy and Climate Plan 2021-2030 (update 2023)* "	European Environment Agency (2024). *Circular Economy Country Profile 2024 – Belgium*

APPENDIX 7.

Recommendations for policy and CE monitoring

POLICY OBJECTIVE	RECOMMENDED INDICATOR	EXPLANATION / POLICY RELEVANCE
Increase strategic autonomy regarding critical materials (i.e. reduce imports)	Amount of recycled critical materials beyond household waste	More comprehensive reuse/recycling of critical materials could ideally be a competitive advantage while simultaneously contributing to strategic independence objectives and sustainable use of critical raw materials.
Increase strategic autonomy through CE	Stock of recoverable materials (e.g., "urban mining potential")	Measuring/estimating the stock of recoverable materials can help with meeting material demand through recovery instead of imports.
Strengthen circular economy through innovations, increase competitiveness	Number of CE innovations and funding development for innovations	Tracking the CE-related innovation scene can provide information on where more research or funding for research is needed
Raise awareness on CE among public, embed circular economy in everyday behavior	Number of CE-related courses taught during e.g. compulsory education	To contribute to a systemic change, CE should be taught from early on to raise awareness.
Align public purchasing with circular goals, promote circular markets	Total public spending under green procurement schemes (e.g. €/year), or share of public procurement policies that include mandatory environmental or circular criteria	Green public procurement was highlighted as one of the most promising tools to increase demand for sustainably and circularly produced products and influence higher policy levels in their production policies.
Increase products' life cycle	Product repair opportunities (such as shops) and number of products repaired	Contributes to tracking systemic change regarding the extension products' life cycles. Can provide information on what extent repair opportunities are used.
Improve the market competitiveness of circular products and materials	Price of second-hand products or secondary raw materials in relation to new products and materials	Tracking price differences can inform policymakers on how economic policies work and/or could be adjusted to increase secondary materials/products on the markets.
Discourage practices that promote short product life cycles/linear economy	Share of products/services that are subject to environmental taxes	Tracking disincentives for wasteful/linear consumption can provide information on how taxation policies could be modified to promote more circular practices, and where there may be lack of economic steering.
Use monetary instruments to promote circular economy	Existence and/or scope of CE-focused taxes or subsidies (e.g. tax breaks for repair)	Like the objective above, tracking incentives given for e.g. businesses while simultaneously tracking e.g. repair opportunities/number of repaired products, can help with understanding whether monetary instruments can enhance circular (business) models.