

ENHANCING THE EU'S SUSTAINABLE TRANSITION THROUGH INTEGRATIVE FORMS OF GOVERNANCE

**A WHOLE-OF-GOVERNMENT APPROACH TO SUSTAINABLE
POLICY MAKING**

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ABSTRACT

Contemporarily, sustainability is one of the driving forces behind the operations of the European Union as a supranational body. The EU public apparatus has however been considered to be fragmented during the last couple of decades. Consequently, the literature has stated that the time of fragmenting measures within a NPM-paradigm are becoming outdated. This fragmentation has led to a lack of cross-cutting and holistic policy to be able to deal with complex environmental problems. Therefore, this master's thesis turns to more integrative forms of governance to facilitate the European sustainability transition. Interest in concepts such as climate and environmental policy integration is ever-growing, yet this growing interest has barely been reflected in the amount of policy practice across Europe. This thesis thus tries to determine what conditions may or may not lead to the implementation of policy integration in the EU. In order to do this, we identified eleven cases of integrative policy practice and conducted an exploratory fuzzy-set QCA on a resulting database of conditions leading to climate and environmental policy integration. We identified that the complex nature of the social phenomenon of policy integration is reflected in the number of conditions that can be combined to produce it. The most prominent conditions included a strong political narrative and commitment towards sustainable policy making and integrative governance reforms and the extent of actions taken to enhance a systemic and sustainable transition. Other combinations include the presence of procedural reporting and learning tools and the presence of stakeholder involvement and networks. The thesis concludes that a clear argument can be made for the potential enhancing power of integrative governance for the European sustainable transition.

Key words:

Climate and environmental policy integration • Policy coherence • Policy coordination • Integrative governance • European sustainability transition • Fuzzy-set Qualitative Comparative Analysis (fsQCA)

DUTCH ABSTRACT

Tegenwoordig is duurzaamheid een van de drijvende krachten achter het functioneren van de Europese Unie als supranationaal orgaan. Het overheidsapparaat van de EU wordt de laatste decennia echter als versnipperd aanzien. In de literatuur wordt dan ook gesteld dat de tijd van fragmenterende maatregelen door het NPM-paradigma achterhaald is. Deze versnippering heeft geleid tot een gebrek aan transversaal en holistisch beleid om complexe milieu- en klimaatproblemen aan te pakken. Daarom richt deze masterproef zich op meer integratieve vormen van governance om de Europese duurzaamheidstransitie te faciliteren. Concepten als integratie van klimaat- en milieubeleid winnen als maar meer aan belangstelling, maar deze groeiende interesse is nauwelijks terug te zien in de beleidspraktijk in Europa. Deze thesis probeert daarom vast te stellen welke voorwaarden al dan niet leiden tot de implementatie van beleidsintegratie in de EU. Om dit te doen hebben we elf cases van integratieve beleidspraktijk geïdentificeerd en een exploratieve fuzzy-set QCA uitgevoerd op een resulterende database van voorwaarden die leiden tot klimaat- en milieubeleidsintegratie. We hebben vastgesteld dat de complexe aard van het sociale fenomeen van beleidsintegratie tot uiting komt in het aantal voorwaarden dat kan worden gecombineerd om het tot stand te brengen. Tot de meest prominente voorwaarden behoorden een sterk politiek verhaal en engagement voor het ontwikkelen van duurzame beleidsvorming en integratieve bestuurshervormingen. Daarnaast behoort het bereik van de acties die zijn ondernomen om een systemische en duurzame overgang te bevorderen. Andere combinaties omvatten de aanwezigheid van procedurele rapportage- en leermiddelen en de betrokkenheid van belanghebbenden. Deze masterproef concludeert dat er een duidelijk argument kan worden aangevoerd voor de potentiële versterkende kracht van integratieve governance voor de Europese duurzame transitie.

Kernwoorden:

Klimaat- en milieubeleidsintegratie • Beleidscoherentie • Beleidscoördinatie • Integratieve governance • Europese duurzaamheidstransitie • Fuzzy-set Qualitative Comparative Analysis (fsQCA)

PREFACE

After three long, yet pleasant years of studying Public Administration and Management, we were excited to indulge in our final endeavour together, being the master's thesis in front of you. We saw this as an opportunity to meet a challenging undertaking to prove ourselves worthy of the degree that would be bestowed upon us at the end of this interesting, yet demanding journey. A first challenge we met was the topic of this thesis: whole-of-government policy making for the transition to sustainability. Both eager to write a thesis of great quality, we took a conceptually difficult topic despite such warnings of our promotor, Prof. Dr. Claire Dupont. We perceived such topic as an opportunity to combine and further develop our research competencies and started to indulge ourselves within the world of wicked problems, climate and environmental policy and the ideas of integrative governance.

If anything, this hard endeavour proved us to be quite resilient to externalities. For one, the ongoing COVID-measures undermined much of all our social contact and the availability of decent workspaces to collaborate and exchange ideas. Still, we deem ourselves lucky have always had each other's support and understanding through what may have been some of our hardest times as of yet. The constant sources of friendship, feedback and reciprocated support has helped us firmly throughout the process. Not only did it help to finish this thesis, but also to develop both our personal and analytical capacities. We also feel lucky to be supervised by a truly supportive promotor, Prof. Dr. Claire Dupont. She guided us throughout the process of puzzling the conceptual and methodological difficulties together. Therefore, we want to express our utmost gratitude for not only being a source of guidance, but also of motivation and inspiration. We can only aspire to follow in her footsteps to be of great relevance to the field of policy integration and sustainability transitions.

Finally, we would like to give our final thanks to our friends and family for the constant and unconditional source of support, motivation and advice which was very much needed toward the end of this journey. Especially, we want to thank Lorenz and Andreas for their close support and advice. Other special thanks go to Emre and Mohammed, and Jakob, Thomas, Mathijs and Brian.

We hope this thesis will be as insightful to the readers as it was to the authors.

Jonas Meuleman and Fadel Abou-Zeid

Ghent, 10 August 2021

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LIST OF ABBREVIATIONS

C/E	Climate and Environmental
CINEA	European Climate, Infrastructure and Environment Executive Agency
CPI	Climate Policy Integration
EAP	Environmental Action Programme
EC	European Commission
EEA	European Environment Agency
EPI	Environmental Policy Integration
EU	European Union
fsQCA	Fuzzy-set Qualitative Comparative Analysis
GCAP	German Climate Action Plan
IP	Integrated Project
JUG	Joined-Up Government
MFF	Multi-annual Financial Framework
MS	Member State(s)
NPG	New Public Governance
NPM	New Public Management
OECD	Organisation for Economic Cooperation and Development
PCOH	Policy Coherence
PCOO	Policy Coordination
PI	Policy Integration
QCA	Qualitative Comparative Analysis
RIA	Regulatory Impact Assessment
SCPF	Swedish Climate Policy Framework
SD	Sustainable Development
SIA	Sustainability Impact Assessment
SOER	State of the Environment Report
TPA	Traditional Public Administration
TTA	Truth Table Analysis
WOG	Whole-of-Government
WP	Wicked Problem(s)

PART 1 |

THEORETICAL AND
CONCEPTUAL FRAMEWORK

1. INTRODUCTION TO THE THESIS

“Sustainable development is the pathway to the future we want for all. It offers a framework to generate economic growth, achieve social justice, exercise environmental stewardship and strengthen governance.”

– Ban Ki-moon

sustainability.

/səˌsteɪnəˈbɪləti/ *noun*

-
1. the use of natural products and energy in a way that does not harm the environment
 2. the ability of something to continue for a long time at the same level

1.1. Sustainability in the EU: a driving force of the 21st century

Sustainability, as defined above by Oxford Dictionary and Macmillan Dictionary respectively, is one of the most discussed topics on the globe in the 21st century. The modern concept of sustainability finds its emergence in the second half of the 20th century, more specifically from the 1970s and 1980s on when the impact of environmental issues and climate change started to be more prolific. It is believed to be the Meadows et al. ‘Limits to Growth’ report of 1972 that brought mainstream attention to sustainability (Vos, 2007; Purvis, Mao, & Robinson, 2018). The report concluded that, in contrast to what was popularly believed until then, economic growth is in fact not indefinite and that there are actual limits to the growth. This also means that ‘being unsustainable’ will actually hamper the living conditions of future generations with the risk of deprivation of modern-day values (Vos, 2007).

As such, we arrive at the concept of ‘sustainable development’. In 1987, sustainable development was defined to be “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Whereas globally the concept is at times lacking or inadequately implemented, it is a driving force of contemporary European policy. Sustainability and thus sustainable development, though, encompass far-reaching and widespread concepts that impact all people, businesses, organisations and all governments. Following Kidd (1992), the scope of sustainability – because of its far-reaching nature – needs to be defined. This thesis is developed to be handling only the environmental and climate aspects within sustainability and their governance implications for the European Union.

The EU has fixated itself to become the “global leader” in sustainable development (EC, 2019; EESC, 2019). While the two terms ‘European’ and ‘leadership’ are often seen as an oxymoron (WEF, 2020[]), the EU has set a substantial step towards climate leadership with the European Green Deal, among other major initiatives. EU Treaties and discourses have long been promoting sustainability, yet this Green Deal is a marking point in European climate policy for its extensive ambition and the strong focus on actual implementation instead of merely providing legal principles.

1.2. A holistic focus on sustainable policy making in the EU

In the last five years, the discourse and policy practices on sustainable development have globally been dominated by the Sustainable Development Goals as adopted in 2015. Whereas EU policy, discourses and priorities from the European Commission and other institutions seem to now be primarily based on this SDG-framework from the United Nations (see EC, n.d.-a; EC, 2016a; EC, 2016b; etc.), sustainable development is not constrained to the still recently adopted SDGs. This thesis does not specifically focus on EU policy strategies nor the SDGs – at least not directly – but on the holistic approach the EU has moved or should move towards with the aim of improving sustainable governance and how this leads to climate and environmental policy implementation across its Member States.

This thesis will hence focus on this trend of holism and how this could improve EU governance vis-à-vis the sustainable transition. As such, we identified the literature (see later) pointing towards a lack of holism, leading to a fragmented EU public apparatus in the last decades. Decentralisation and deconcentration are related concepts that indicate the fragmentation the EU, to an extent, still knows today. In combination with the acknowledgement of the inherent complexity of multiple wicked issues related to climate change and the environment more generally, it could be stated that the public sector as it has mainly existed since the 1980s does not hold the capacity to cope with complexity. Therefore, in this thesis, we turn to *whole-of-government policy making for the transition to sustainability* as our topic of research. As we will elucidate on further in the thesis, “whole-of-government” is no clearly definable or unambiguous concept. While it is already a reaction to policy fragmentation, we will be diving deeper down the structural-instrumental dimension of whole-of-government. Hence, we opt to explore the more refined concept of policy integration and its related ideas.

1.3. Problem statement and significance

We put forth policy integration, which has been coupled mainly with wicked issues around the climate and environmental aspects, as one way to facilitate the transition to sustainability in the EU. We conduct this research from the idea that traditional forms of governance are not able to cope with the issues originating in sustainability. Sustainability, and thus its climate and environmental aspects, touches upon various policy sectors. This implies that these issues that are inherently complex of nature, increase in complexity due to the presence of a great deal of actors, policies, regulations, etc. Integrative forms of governance ought to mediate this formed complexity, by bringing together the multiple different elements from each sector. Policy integration has even been called the “Holy Grail of public policy” – among others – by Candel (2019) and others, and has known a tremendous increase of interest within the field (see later), implying that even after years of investigation, the concept is still as relevant as ever.

Policy integration and related concepts have been known, however, to either be insufficiently implemented or to have certain pitfalls or costs related to them (Candel, 2019; Jordan & Lenschow, 2010; Runhaar, Driessen, & Uittenbroek, 2014). Therefore, the question rises what may or may not cause the effective implementation of policy integration. As the literature struggles to explain the prevalence of the integrative phenomena, the relevance of this research is determined by the following research question it tries to elaborate on:

“What are the conditions determining the implementation of policy integration and climate and environmental policies in the European Union and its Member States?”

This research question is accompanied by the following three sub questions, aiming at facilitating the process of finding an answer to the main research question:

- i. What has been the main barrier to EU action on climate and environmental policy?
- ii. Which conditions or combinations of conditions drive the implementation of climate and environmental policy integration?

Using a clear and defined framework of concepts – thus in contrast with one of the pitfalls the literature on policy integration has known, as acknowledged by Trein et al. (2020) – and challenging the more conventional empirical analyses, we contribute to the literature by providing insights on the causal complexity the EU faces in its implementation of policy integration and the emergence of integrative governance structures around cross-cutting policy problems (Candel, Breeman & Termeer, 2015). As such, our research objective is three-fold. We aim at: developing knowledge to enhance policy decisions for the European transition to sustainability; mainly contributing to the literature on policy integration; and explaining why policy integration has or has not, as of yet, been fully integrated within the EU and how this has impacted the state of the environment.

1.4. An outline of the thesis

To facilitate resolving the research questions at hand, the thesis comprises three main parts. The first part includes an all-encompassing conceptual and theoretical framework where the different notions of sustainability, whole-of-government and policy integration are elaborated on. This consists mainly of what comes next in the thesis, i.e., a literary review. The focus here, however, lies in the notion of policy integration and its climate and environmental components. Prior to the actual empirical research, we demonstrate our methodology and as such the research design. Here, we describe the operationalisation of the literary review and justify the chosen research methods we will employ in order to successfully conduct the empirical research. These first two parts are hence an embedding of the research question into the reality it resides in, as the presence and occurrence of multiple different concepts does in fact the scope of an empirical research.

In the third and last part of the thesis, we conduct our actual empirical research. Here, insights from the literary review will be coupled with policy practices within the EU and its Member States. After a general introduction to the empirical research, we will analyse the different cases we selected and the potential causal patterns they bring forth for the (non-)implementation of policy integration. Lastly, we close off the thesis with how these patterns could be linked with the current state of the environment, as well as our conclusions and a discussion on the results.

2. LITERARY REVIEW

We start this thesis off with an overview of the relevant literature to get a grasp on the multiple different concepts at play in the field of sustainable policy making in the European Union. In order to establish a relationship between the implementation of Policy Integration and Climate and Environmental policies, these concepts have to be elucidated. However, the specific approach we take on the broad concept of “sustainability” must be defined first.

2.1. The notion of sustainability

The broadness of the concept of sustainability has already been defined in the introduction. Even though the concept finds its origins in the domains of biology and ecology, it has always been linked to both economic and social dimensions (Vos, 2007). These interlinkages are more than often presented in the form of a Venn diagram, as displayed in Figure 1. The linkages of the three dimensions will be reflected upon in this first section as it has become clear that the narrow scope of this approach is not anymore as applicable as it was originally thought to be.

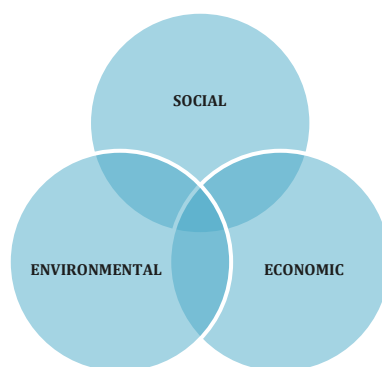


Figure 1 **The three dimensions of sustainability.**

Note. Adapted from “Three pillars of sustainability: in search of conceptual origins”, by B. Purvis, Y. Mao & D. Robinson, 2018, *Sustainability Science*, 14(3), p. 682.

This research will focus primarily on the environmental dimension within sustainable development, as it is predominantly caused by the economic endeavours that have been made. This economic dimension then proceeds to affect social issues and can be considered as their major cause. The reality, however, shows that all these dimensions alter each other. Nevertheless, we do consider this statement to be the strongest causal relationship between these dimensions.

This statement could be enforced by a study conducted by the Organisation for Economic Cooperation and Development (OECD) in 2001. The study affirms that sustainable development mainly attracted attention as the overall material welfare was increasing, coinciding with the need to address a scope of unfulfilled social and environmental needs. Hence, sustainable development is an important factor that, if lacked, could result in an economic growth that leads to exploitation of both natural and social resources. Finding the balance between the rising demand for natural resources while trying to maintain a decent economic growth has proven to be the main challenge for governments across the globe. This immediately demonstrates the need for sustainability.

2.1.1. Setting the scene: the scope of sustainability for this thesis

Since the definition of sustainability in the Brundtland report of 1987 (cited in Vos, 2007), sustainable policy making essentially used to be about reconciling the mentioned three dimensions. In this thesis though, we follow the statement that the economic dimension is the strongest causal factor between all three dimensions of sustainability. This is also clear when we reflect on European discourses, as the EU has primarily shed light on the economic dimension of sustainability. We also refer to the research of Huttmanová and Valentiny (2019) which concludes that the literature finds critique in the “excessive interest” in the economic part of sustainable development, supposedly leading to economic development more so than a sustainable one (Huttmanová & Valentiny, 2019, p. 296-297). Rather than following up on this critique, we will embrace and meet this primary focus on the economic dimension, as that is the reality in which the European Union operates in today.

In 2003, Lafferty and Hovden acknowledged a shift to this train of thought. As such, there were signs of both international and European directions to more integrative forms of governance such as environmental policy integration (EPI), instead of only focussing on balancing social and economic priorities to the environment (Lafferty & Hovden, 2003, p. 4). The primary focus of sustainable policy making in the European Union thus lays in the climate and environmental aspect of sustainability. This focus can be translated into goals that can mainly be achieved through influence in the economic sectors in the form of policies. It is by reaching a sustainable economic dimension that the European Union aspires to take on the leading environmental position and become the prime example of sustainability in the coming decade. According to one of the hypotheses of this research, the main tool to achieve this is through the implementation of policy integration. The link between sustainability and policy integration will become clear as this research develops. As such, sustainability will naturally be an ever-occurring concept throughout the endeavour towards policy integration. Furthermore, as we are going to further explore the concepts related to integrative forms of public governance, we intend to define a sort of competitive advantage towards other, more traditional forms of governance.

2.1.2. The need for sustainability

Sustainability and sustainable development are needed to confront the complex dynamics of the environmental issues we are now globally facing. In fact, the environmental issue in general is now one of the most prominent wicked problems (Endl, 2017). Hoppe (2010) defined wicked problems as one of four types of problems, as displayed in Table 1. This typology is based on two sources of substantive complexity and tells us that wicked problems are fundamentally complex of nature, due to both the little certainty on scientific knowledge and the little societal agreement on the formulation of the problem (Koppenjan & Klijn, 2015, p. 43).

Societal agreement on problem formulation	Certainty on scientific knowledge	
	Large	Little
Large	Technical problems	Untamed technical problems
Little	Political problems	Wicked problems

Table 1 Hoppe's (2010) four types of problems.

Note. Reprinted from “Governance Networks in the Public Sector”, by Koppenjan, J.F.M. & Klijn, E.H., 2005, p. 43, Abingdon, United Kingdom: Routledge.

2.1.3. The (un)wickedness of currently prominent sustainability issues

The complex nature of wicked problems has been recognised by multiple other scholars. Head (2008), for example, states that wicked problems are generally seen as “complex, open-ended, and intractable” (Head, 2008, p. 101). However, the classification of prominent climate and environmental issues as de facto wicked problems should be nuanced. The concept of ‘wicked problems’ in general holds a large and extensive body of literature, on which we will base our nuance on the actual wickedness of the environmental problems we face today.

When it comes to the conceptual framework of Duckett et al. (2016), the main climate and environmental issues we are facing today comply to at least four of six consolidated characteristics of WP. Herein we argue that C/E WP are as a matter of fact ambiguously bounded, temporally exacting, repercussive and morally consequential, what respectively entails that:

- i. Ambiguously bounded: WP are both inter- and intraconnected and are often considered to be symptoms of other problems, which indicated unstable and hard to define boundaries;
- ii. Temporally exacting: When WP are concerned, time is often running out, with frequently occurring disproportionate and unpredictable changes;
- iii. Repercussive: Proposed solutions to WP are often entangled with value conflicts and ideological/cultural constraints. Solutions are exhaustive and are in essence unverifiable;
- iv. Morally consequential: Action to resolve WP must show a great degree of resistance to change. WP environments are often uncontrollable, which entails risks for ones that undertake action. Furthermore, those attempting to solve the WP may also be causing it (Duckett, Feliciano, Martin-Ortega, & Munoz-Rojas, 2016, p. 46).

These concepts correspond to the much better known ten primary characteristics of WP, established by Rittel and Webber in 1973 (p. 160). As mentioned, the enumeration above withholds itself from two other elements related to WP, namely the ‘indefinable’ and ‘doubly hermeneutic’, in which the latter involves the aspect that the problem of a WP cannot be understood, unless the solution for it is formulated. This imposes the notion that the definition of the problem cannot be pinned down, as the two-way relationship problem analysis and its context challenges understandings of the problem (Duckett, Feliciano, Martin-Ortega, & Munoz-Rojas, 2016, p. 46).

These two cores (non-)characteristics enable us to nuance the wickedness of prominent climate and environmental issues. We would argue that both problems and solutions of current environmental problems have been defined throughout the last decades. Lots of scholars have contributed to both defining environmental problems and to finding practical solutions for them. Although, the heterogeneity in these solutions makes it hard to come to terms for a politically agreed on final solution, which in fact corresponds to the “no stopping-rule” characteristic of WP by Rittel and Webber (1973). Therefore, we acknowledge a variation of a typology of problems by Alford and Head (2017), on which we display the relevant position of most environmental problems of today in Figure 3. We would classify current environmental issues as ‘politically turbulent problems’, as these are characterised by the combination of a clear problem with an unclear solution, with an institutional context that consists of multiple parties with conflicting values or interests.

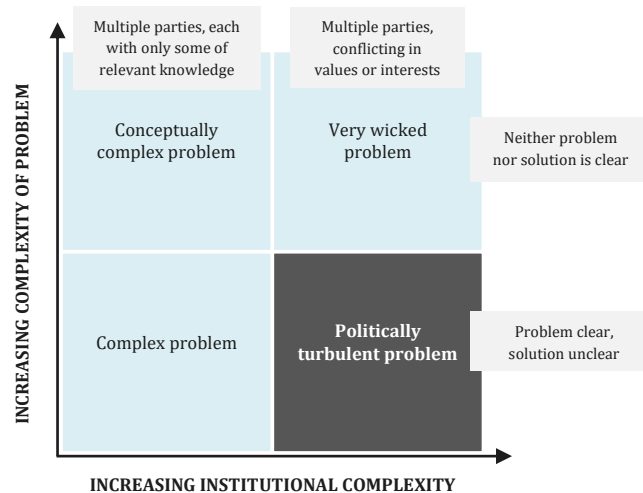


Figure 2 **Possible position of contemporary environmental issues on an alternative typology of problems.**

Note. Adapted from “Wicked and less wicked problems: a typology and a contingency framework”, by Alford, J. & Head, B.W., 2017, *Policy and Society*, 36(3), p. 401 – 404.

2.1.4. Governance of wicked problems and sustainability in the EU

The European Commission, the executive branch of the Union, has often been denounced for the way it has – or has not – dealt with the governance challenges that are accompanied with wicked problems, for which the reason lies in rigid jurisdictions and its dependency on other EU institutions, among others (Candel, Breeman, & Termeer, 2015). As we move on to the next part of this thesis, the notion of whole-of-government, the importance of the New Public Management (NPM) paradigm will become clear. In short, the Commission’s ability to cope with the governance of wicked problems has been questioned, due to the effects of NPM that resulted in siloisation, sectorisation and a limited coordination within the different EU institutions or institutional fragmentation (Candel, Breeman, & Termeer, 2015; Adelle & Russel, 2013).

Proceeding from the perspective that sustainability and hence prominent climate and environmental issues are in fact *wicked*, or at least to an undefined extent, they require a certain way of addressing them. Based on multiple insights gathered from the literature (Meadowcroft, 2007; Meuleman & Niestroy, 2015; Steurer, 2009) and the paragraphs above, it can thus be stated that governance for sustainability requires a multi-level interaction steering in order to address climate and environmental issues across all relevant policy sectors. Therefore, the classification as wicked has certain implications for the scope of governance for sustainability. It is stated in the literature that, among other, wickedness and social complexity are factors that undermine the effectiveness of traditional forms of governance and support the idea of more integrative ways of governance in a context of shared responsibility (van Zeijl-Rozema, Cörvers, Kemp, & Martens, 2008). It is, as such, broadly acknowledged for (wicked) sustainability problems to require cross-cutting and more integrated forms of governance. Consequently, this thesis puts forth the plausibility of environmental and climate policy integration as a way to enhance the sustainability transition of the European Union. Policy integration is then seen as a holistic mode of governance and policy making, fitting within the context of the notion of whole-of-government.

2.2. The notion of whole-of-government

2.2.1. WOG in a historical context

Whole-of-government (WOG) is a broad concept. In order to understand the WOG-phenomenon, one has to assess the historical context in which it was born. Similar to other administrative reform movements in the public sector, there are various reasons as to why public organisations may opt to change their approach. Christensen and Lægreid (2006) describe the first explanation to the arising of WOG as a reaction to the 'siloisation' of the public sector. These are typical repercussions of the New Public Management (NPM) movement, in which specialisation and single-purpose organisations prevailed. However, this may have fragmented the public sector and created self-obsessed organisations. Consequently, coordination between organisations or even between departments was lacking, which had a negative impact on their effectiveness and efficiency. WOG can then be seen as an efficiency measure, similarly to NPM that was originally implemented for efficiency reasons (Christensen & Lægreid, 2006; Tosun & Lang, 2017), which is why "*doing more with less*" is a well-known statement within NPM (Esteve, Schuster, Albareda & Losada, 2017).

A second explanation refers to the structural devolution which has taken place over the past decades in multiple countries. This process of fragmentation of government action, as a result of NPM, could also be described as "*deconcentration*". Deconcentration and decentralisation as such are commonly attributed as an effect of NPM. This process of deconcentration entails the transfer of central competences within hierarchically subsidiary agencies and public institutions (Christensen & Lægreid, 2006; Hope, 2001; Hondeghe, 2017; Kuhlmann & Wollmann, 2019). The previous explanations may have clarified the internal shortcomings of the public sector which enabled the setting of WOG. There are, however, external factors that played a huge role in this as well. Global pandemics, terrorism and wicked issues in general need a strong and unified government of which the underlying departments are aligned. However, this was not the case as governance outcomes were contradictory during these threats (Christensen & Lægreid, 2006).

2.2.2. Defining WOG

WOG does not have one clear conceptualisation. Christensen and Lægreid (2006) go as far to describe WOG as a fashionable slogan, rather than a scientific concept. Most descriptions in literature however do share similarities. WOG has been described as a reaction to NPM, a reform that seeks a holistic approach which includes both social sciences as well as economics. The WOG approach pursues to achieve horizontal and vertical coordination¹ to ensure that policies do not contradict each other. They paint the concept in words as an umbrella term that represents a group of solutions to the problem of segmentation had caused within the public sector and services. There is no dominant theory about WOG that possesses all of its key aspects, yet several frameworks offer perspectives about WOG. Christensen and Lægreid used these frameworks and explained WOG through a structural-instrumental, cultural-institutional and a myth-based perspective, which is summarized in Table 2.

¹ Vertical and horizontal coordination are both means of achieving policy integration. Therefore, definitions can be derived from vertical and horizontal PI, respectively: integration across levels of government and integration between departments within one level of government (Hogl & Nordbeck, 2012, p. 114).

	Structural-Instrumental		Cultural-Institutional	Myth
	Hierarchical	Negotiation		
Definitions	Reorganisation of public structures instigated by a homogenous leadership encouraging horizontal collaboration while vertically controlling the underlying institutions.	Reorganisation of public structures instigated by a heterogenous leadership through forms of negotiations.	An evolution that is influenced by internal and external pressure which results in the unique institutional norms and values.	The promotion of reform symbols and trends.
Features	<ol style="list-style-type: none"> 1. Horizontal collaboration 2. Vertical regulations 3. Homogenous leadership 4. Centralisation 5. Coordination 	<ol style="list-style-type: none"> 1. Heterogenous leadership 2. Compromises 3. Agreements 4. Coordination 5. Collaboration 6. Legitimacy 	<ol style="list-style-type: none"> 1. Evolution 2. Norms 3. Values 4. Identity 5. Cultural cohesion 	<ol style="list-style-type: none"> 1. Symbols 2. Trends 3. Buzzword 4. Concepts 5. Slogans 6. Metaphors
Targets	Subsidiary actors	Hierarchically equal actors	State actors	Central actors, citizens and media

Table 2 **Different perspectives to the whole-of-government approach.**

Note. Own elaboration of Christensen & Lægreid's (2006) perspectives.

The structural-instrumental perspective describes the WOG-approach as a reorganisational design. Political and administrative leaders will use the structural outline of public institutions as instruments to realise public goals. They will specifically see to it that public organisations will work closer together, which could be executed in either a hierarchical or a negotiation way (Christensen & Lægreid, 2006). The hierarchical way implies that the general political leadership agrees on the structural outline of public institutions. The governmental top influences policy by directly supervising the process design and structure of these institutions. They will develop facilitating structures to enhance shared frameworks. These facilitating structures could be considered as a hierarchical strengthening of the centre². This centre however is recreated and specialised in achieving an overarching goal through combining the programs and agencies individual goals. The assumption here is that while originally the NPM was created due to the lack of specialisation in the government. It only resulted in a so called "departmentalism" (Christensen & Lægreid, 2006; Cejudo & Michel 2017).

The WOG approach tried to solve this through the creation of a new specialised centre (see: Figure 3) that was brought to life in order to deal with a certain complex problem. The accent here lays on cutting across traditional boundaries through the establishment of coordinative structures within existing central structures. This can have a vertical and a horizontal dimension in which WOG is implemented. Horizontally, the main goal will be better alignment across sectors, whereas vertically the focus lies on stricter regulations on the subsidiary organs. In short, this idea involves a homogenous top that encourages collaboration, while strongly controlling the underlying establishments (Christensen & Lægreid, 2006).

² This "centre" can be perceived as the highest body of influence in the government.

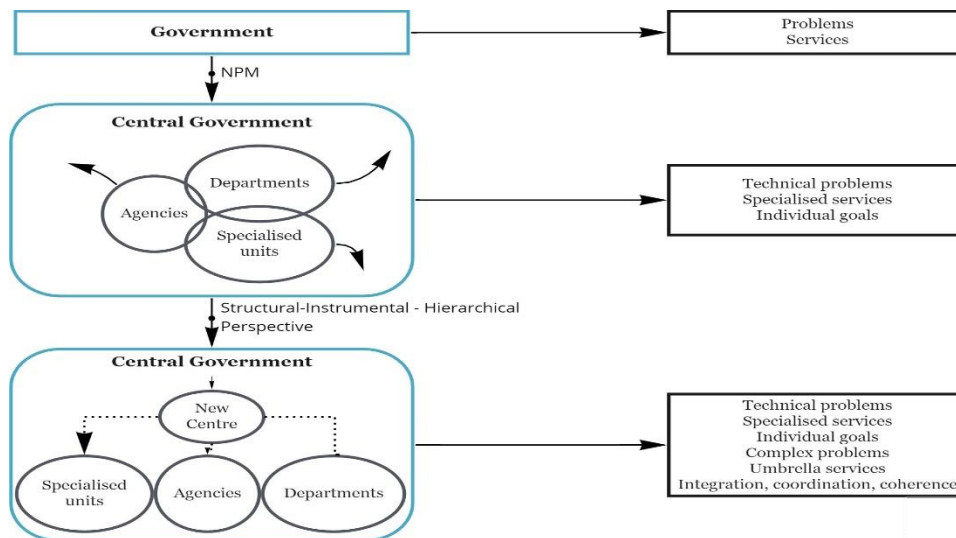


Figure 3 The reassertion of a new centre from a structural-instrumental perspective (hierarchical).

Homogenous leadership, however, is seldomly found. There are always players with different interests and perspectives, even when working towards a common goal. The negotiation way acknowledges these differences and describes the policy makers as heterogenous, as these are different actors on the same hierarchal level with different functions and interests. Actors could be very well in disharmony regarding public reforms. Negotiation processes will thus constantly be present in order to reach consensus. Decisions taken by these actors can be ambiguous, but will enjoy a greater legitimacy since it involves more participants and hence more interests (Christensen & Lægheid, 2006).

Generally, actors would prefer policy that resulted from a negotiation process to a hierarchical command in the form of public policy. Overall, this negotiation perspective focuses on horizontal alignment through the creation of a new unit in which collaboration and coordination between several bodies and functions are reinforced (see Figure 4). The main difference with the hierarchical perception is the fact that different units preserve their autonomy and put joined efforts in to reaching a specific goal. To recapitulate: WOG in a negotiation context is about working pragmatically together rather than formalized collaboration (Christensen and Lægheid, 2006).

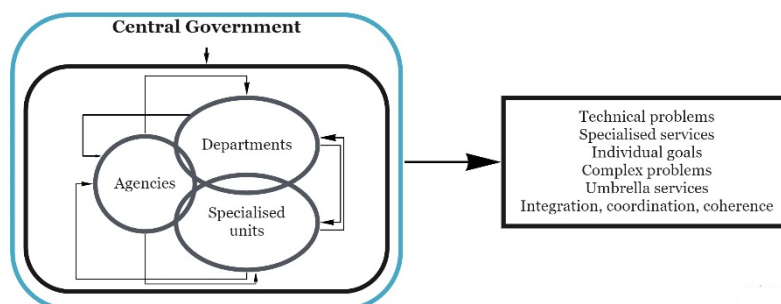


Figure 4 The reassertion of a new centre from a structural-instrumental perspective (negotiation).

2.3. Interchangeability of concepts

This thesis operates from the assumption that more integrative forms of governance may be able to answer the big questions. Yet, for that, conceptual clarity is needed, especially when it seems as if a lot of the related concepts are interchangeable. Therefore, this section discusses the origins of the concepts of WOG and policy integration and how both are related to each other.

2.3.1. Origins and literature presence of the concepts

A first remark in the interchangeability of concepts is the similarity in the origin of these concepts, discussed as the fragmentation of the public apparatus. This fragmentation is caused by the worldwide NPM movement most governments tried to implement and especially by the mindset that favoured a decentralised government with single-purpose organisations and specialised units. These had a hampering effect on the effectiveness of the government. Cejudo and Michel (2017) describe policy integration as an answer to the unfortunate consequences that fragmented government action brings along concerning public issues or services. WOG, as such, was used as the solution to that same phenomenon. Different governments around the world tried WOG as a solution to the fragmentation. It was however referred to as joined-up government (JUG). While the difference between these concepts can be discussed, we opt for the notion that these resemble the same ideas.

Several countries such as the UK, New Zealand and Australia have experimented with WOG approaches as a response to the NPM effects. Especially when dealing with complex problems specialized government intervention proved to fail in that endeavour. As described before complex problems are multifactorial and their origins can be traced back to several policy areas. One-dimensional problems can be solved through the approach of a single-purposed organisation while complex problems extensively need collective action legislated and controlled by a central unit. Different levels of government and departments having their own set of goals when facing a wicked issue proved to be detrimental to the output (Cejudo & Michel, 2017).

In a systematic review of the number of articles published since 1985 about policy integration related concepts, the evolution of the prevalence of these concepts has been plotted. It is clear that literature on policy integration associated concepts has consistently increased throughout the last decades, with a grand rise from 2009 onwards. Remarkably enough, literature on whole-of-government and joined-up government has stagnated from that point on (Trein, Meyer & Maggetti, 2019), which shows that policy integration really has gained a lot of momentum and academic interest the last decade, even though the concept was only first introduced in the '90s of the last century (Tosun & Lang, 2017). As mentioned, the literature on solutions including the integration and coordination of policies is quite extensive with multiple concepts being interchangeably used. As Cejudo and Michel (2017) raise in their research, policy integration and policy coherence are frequently seen as loose yet equivalent terms in order to enhance coordination among different policy domains objectives. Then again, an integrated policy contains a coherent cross-sectoral set of policies. On the other hand, these different concepts can also be perceived as different degrees of coordination, distinguishable by the degree of complexity and number of actors to achieve it. Finally, policy coherence and integration are often perceived as the outcome and direct consequence of coordination (Cejudo & Michel, 2017, p. 749).

2.3.2. Defining Policy Integration, Coherence and Coordination

Multiple scholars have underlined the vastness of the concept of policy integration, as well as the conceptual and semantic difficulties. The complexity of the matter also has its implications in practise, as this might wield a lot of extra pressure on policy makers, which could lead to inadequate capacity to deal with complex problems. Complexity inherently requires a greater grasp of control conceptual clarity (Christensen & Lægheid, 2011). For this, we combine insights and conceptual frameworks from multiple scholars (Cejudo & Michel, 2017; Tosun & Lang, 2017; Dupont, 2010, 2016; Worker, 2017; Candel & Biesbroek, 2016; Trein et al., 2020) that contributed to the literature to help clarifying the concepts and their practical use within the policy cycle (Maddison & Denniss, 2013). Policy coordination, coherence and integration have been defined to be substantively different concepts. Continuing from the idea of the essentiality of conceptual and semantic clarity, Table 3 provides a conceptual framework on policy integration, policy coherence and policy coordination.

	Governance-centred		Government-centred
	Policy coordination	Policy integration	Policy coherence
Objects / targets in policy cycle	Public organisations and institutions in the coordination process	Actors from different policy sectors in decision-making processes	Output of policy designs in different policy sectors across the policy cycle
Definitions	The process in which members of different organisations share information, allocate responsibilities and resources to improve the policy process, by ensuring coordination during negotiations and policy development, in and among policy sectors.	The process of making strategic and administrative decisions aimed at solving a complex problem and attaining a political goal that exceeds individual goals, by creating a unified policy and integrating policy concerns and objectives into one or more existing policies.	The process of creating a set of policies that, if properly implemented, enable synergies between policy objectives of different sectors for a harmonious final policy output in terms of goals, instruments and target populations, as a goal of policy integration.
Characteristics	<ul style="list-style-type: none"> Ensures minimal administrative redundancy/incoherence Clearly and formally defined rules and responsibilities 	<ul style="list-style-type: none"> Improves efficiency and effectiveness Takes both coordination and coherence Requires a decision-making body with sufficient capacity for deciding policy instruments 	<ul style="list-style-type: none"> Sectors interact to agree efficient and effective policies that produce combined results Difficult without having explicit coordination mechanisms in the policy process to improve efficiency
Degrees of the concepts	<p>High levels of coordination where overall government strategies are established for achieving a shared goal</p> <p>Low levels of coordination with independent decision-making, where own goals are achieved more efficiently</p>	<p>High levels of integration where the decision-making body has the capacity to use, modify, create or eliminate policy instruments</p> <p>Low levels of integration where the decision-making body's capacity is limited to modify the instrument's operational and design aspects</p>	<p>High levels of coherence where policies complement each other and could comprehensively address the complex problem</p> <p>Low levels of coherence where policies can operate simultaneously, but without contributing in a differentiated manner to the complex problem</p>

Table 3 **Conceptualisation of policy coherence, coordination and integration.**

Note. Adapted from “Addressing fragmented government action: coordination, coherence, and integration”, by Cejudo, G.M. & Michel, C.L., 2017, *Policy Sciences*, 50(4), p. 750.

2.3.3. Connection between WOG and PI

In the previous part of this thesis, the origins of whole-of-government and the problems it tried to solve were explained. The main problem entails the fragmentation of government action and the implied diffusion of power. Meadowcroft (2007, p. 303-304) raises the complications of diffused or distributed power of the political spheres in contemporary societies, both vertically and horizontally. Policy integration, coherence and coordination as methods of executing the whole-of-government approach seek to address this problem, which is critical in the process of defining policy integration as a concept. A specific feature in both WOG and Policy integration is the fact that both come in to place as a response to external pressure.

In their research, Cejudo and Michel (2017) continue to address how policy integration has been used by the United States for instance in order to achieve a better functioning security as one agency cannot attain that and therefore should coordinate. Homeland security in this case is a federal agency that was created to oversee the different functions and responsibilities of different agencies. An example closer to our topic are the National Environmental Quality Objectives that were implemented in Sweden which depends on 24 governmental agencies having their own objectives. Policy integration if looked at these examples show that it is mostly illustrated as the solution for solving complex problems (Cejudo & Michel, 2017, p. 749). Both policy integration and WOG have been used to address climate issues and implement environmental policies.

Not only does the utility and origin of these two concepts align, their methods and implementation in practice correspond as well. The major obstacle however in linking these concepts is the fact that JUG and with WOG were designed as political terms rather than scientific terms that could produce added value to the field of study. Furthermore, there is also the discussion that while policy integration is a governance-centred concept, WOG is a government-centred concept which means that the former mainly focuses on a macro perspective while the latter mainly deals with micro-management. Both concepts need a centralised institutional infrastructure and emphasises the importance of this in order to achieve the wicked issue at stake. With the aim of achieving policy integration or a WOG-reform, both policy approaches need a cultural shift which allows actors to work closely together. Finally, policy integration advocates the widening of policy actors in policy making which leads to more democratic and therefore legitimate decisions. This entirely coincides with the negotiation perspective that illuminates the more legitimate outcome when more actors are in play.

When the three concepts of policy integration, coordination and coherence are compared with WOG the resemblance between policy coherence and WOG is the most noticeable. Especially the negotiation dimension within WOG relates to a large extent with how literature has been describing policy coherence. As discussed before, policy coherence emphasises the importance of the interaction between sectors in order to reach an efficient and effective agreement which coincides with the consensus approach within that dimension. As the connection between policy coherence, coordination and integration is already established in the previous part, the natural conclusion is but the proper linkage between WOG and policy integration where PI is seen as a WOG approach (see Figure 5).

Assumptions that flow out of what has been stated so far is the fact that WOG approaches are the most suitable policy approaches when wicked issues are attended (Karré et al., 2012). This for the reason that these issues cross different policy sectors and thus need a holistic approach that supports and facilitates collaboration and coherent policy through frameworks that are the ultimate result of an agreement. Important is undoubtedly that this holistic approach is not simply stated or framed as a political solution. We thus concentrate on the WOG reforms and especially the structural-instrumental dimension of which we argue policy integration is part of. This instrumental approach is a necessity when sustainable policy making is examined.

Hence, we also assume that throughout the time concepts such as PI were increasingly used as solutions to wicked problems and more sustainable solutions in general. As thoroughly discussed before, environmental and climate issues are the most prominent wicked problems of this age (Endl, 2017) which resulted in the increased need of PI. Policy makers around the world use this concept to address environmental and climate issues. The European Union are now frontrunners in this field, or at least aspire to be, and are further directed at maintaining and enhancing its environmental and climate leadership (Delreux & Ohler, 2019; Dupont & Jordan, 2021). Henceforth, it is therefore that our focus on policy integration and policy implementation will lay within the European policy frameworks.

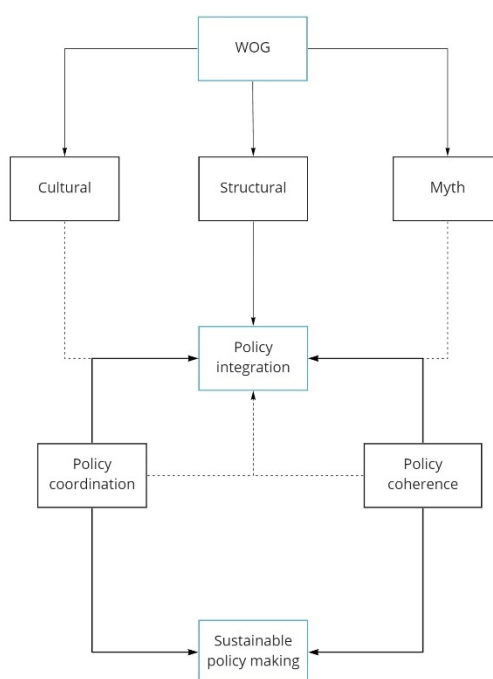


Figure 5 **Policy integration as a whole-of-government approach.**

2.4. Climate and Environmental Policy Integration

The subsequent paragraphs will integrally focus on two more specific forms of policy integration, which in part is an example of sustainable policy making. Both terms of climate and environmental policy integration, or climate and environmental policy 'mainstreaming', have gathered grand attention. This concerns both academically in the literature, as well as practically in policy and decision-making processes in the EU.

2.4.1. Environmental Policy Integration

Environmental policy integration (EPI) as a concept, as well as climate policy integration (CPI), relates closely to the notion of sustainability and sustainable development (SD) which was presented earlier (Ahmad, 2009). Ever since the emergence of the Brundtland Report of 1987, EPI has gained a great deal of literary attention (Dupont & Oberthür, 2012; Jordan & Lenschow, 2010), as EPI is considered to be a central principle within SD (Ahmad, 2009). The concept first appeared as a 'lagged' policy response to the need for integrating the social, environmental and economic dimensions (cf. supra) to ensure SD (Jordan & Lenschow, 2010, p. 147). Moreover, it seemed as if EPI developed because traditional sectoral environment policy failed to respond to environmental pressures. Though defining EPI is, just as any other of the previously elucidated concepts, not as straight forward as one would like it to be, this thesis will try to provide a relevant conceptual framework for it. Again, EPI is a broad and political concept, generating a big lack of agreement on what the concept actually entails (Dupont, 2011) and as big of an arena subject to interpretation.

Environmental policy integration can be considered a policy principle, process or output. Firstly, EPI is normatively seen as how interactions between the three dimensions of sustainability should look like. Therefore, the environmental aspect needs a "principled priority" over other policy sectors, which is exactly what is meant by inserting an adjective before 'policy integration' (Dupont, 2011; Jordan & Lenschow, 2010; Dupont & Oberthür, 2012, p. 230). This priority of the environment over other policy sectors is often justified by the acceptance of the treat of irreversible damage to life-support systems and the peripheral treatment the environment had received for too long. Therefore, environmental objectives righteously deserve the edge over other policy domains (Adelle & Russel, 2013, p. 3; Dupont, 2011, p. 390; Adelle & Nilsson, 2015). Following up on the principle of EPI, we discuss the process and the output it stipulates. According to numerous environmentalists, "principles are only principles and processes are only processes" (Jordan & Lenschow, 2010, p 154; Adelle & Russel, 2013, p. 7), which is why EPI is further conceptualised to be a policy output as well. It is important to note, though, that both process and output can co-exist and are hence not mutually exclusive (Dupont, 2011).

When it comes to EPI as a process, policy coordination seems to be an issue through communication and inter-sector relations (Dupont, 2011, p. 390). The processual aspect of EPI is also strongly tied to the political system in the case. Jordan & Lenschow (2010) consider three perspectives that influence the process in which EPI can occur. Institutionally, not many jurisdictions exist where policy integration is standardised into the process of coordinating across policy sectors and levels, as governments contemporarily are fragmented and decentralised. Politically, the focus lies more on the role of political will / commitment and leadership. Leadership is influenced by the ruling composition in government, but the behaviour of individual political leaders cannot be underestimated as well. A

third and last perspective lies in the cognitive frameworks wherein EPI finds itself in, which can be understood as the social, legal and administrative traditions of a country. This cognitive perspective explains that interests, ways of thinking and thus handling the process in the public sector is pre-structured within these frames of reference of certain traditions. Consequently, some jurisdictions and their cognitive frameworks are more lenient to and supportive of EPI, which lays a foundation for external pressures outside of the policy process to influence the policy output EPI can be defined as, as well (Jordan & Lenschow, 2010, p. 150-152).

When interpreting EPI as a policy output or outcome, we follow Dupont (2011) and Jordan and Lenschow (2010) in the fact that it is no simple matter to establish whether or not evidence of EPI has actually improved the environment, which is not helped by the relatively young age this field has been studied (Dupont, 2011; Jordan & Lenschow, 2010). Furthermore, the complexity of the environment and all the related factors, instruments, developments, etc. implies that causality between policy integration and the improvement of the environment. That being said, the effectiveness and even the underlying purposes of said instruments and policies have also been put into question. The literature sure lacks studies on the causality of the implementation of policy integration and their actual outcomes (Jordan & Lenschow, 2010).

Knowing all this, the conceptual clarity should help to establish a foundation on which the effectiveness of integrated policies and their outcomes can be researched. This is also what Nilsson and Persson (2003) determine as the reasons as to why EPI is necessary, at least from an organisational perspective. They see EPI as a source of more effectiveness in achieving environmental goals and making more rational policy, due to the earlier and more participatory stage of the policy cycle it brings in the implications of policy on the environment (Nilsson & Persson, 2003). This is the last piece of information that is needed to build a definition of EPI and build toward the conceptual clarity this concept needs to be researched. Based on the literature applied as of yet, we have found that all the foregoing, concludes to the commonly-used definition of EPI by Lafferty and Hovden (2003, p. 9). The definition consists of two dimensions:

- i. the incorporation of environmental objectives into all stages of policy making in non-environmental policy sectors, with a specific recognition of this goal as a guiding principle for the planning and execution of policy;
- ii. accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimise contradictions between environmental and sectoral policies by giving principled priority to the former over the latter.

Making environmental objectives the overarching ones, thus giving them a 'principled priority', is hence exactly what EPI stands for. Especially the second dimension of the definition establishes the importance of a sustainable principality of the environmental objective. Giving priority, though, is subject to a great deal of factors. As such it has been recognised that, ultimately, the implementation of EPI entails the trade-off between democratic norms and operationalising the goals of sustainable development (Lafferty & Hovden, 2003, p. 9; Nilsson & Persson, 2003, p. 335). To what extent this principality actually is the case today is also what can be further researched, as it is still unclear until today.

2.4.2. Climate Policy Integration

Within the environmental dimension of sustainability, the importance of complexity cannot be underestimated and climate change for that matter has brought up the emergence of yet another phrase within policy and scholarly discourses. Ahmad (2009) describes the formulation of complex climate policy to now be a full-on whole-of-government activity, with Climate policy integration or simply CPI as a new take on the niche of research on policy integration (Jordan & Lenschow, 2010, p. 149; Ahmad, 2009). Climate policy integration is now often defined as a component within EPI (Adelle & Russel, 2013; Adelle & Nilsson, 2015) or a sub-environmental policy area (Dupont, 2011) and resonates with the idea of economic development being a key driver of environmental and climate issues (Ahmad, 2009), as we stated earlier in this thesis. The status of CPI within the grip of EPI, although acknowledged, has not yet gained much ground which is why examining CPI as a distinct concept is so important. Furthermore, CPI seems to be having more success in the field than EPI, implementation-wise (Adelle & Russel, 2013).

The literature on CPI is quite fragmented and at the EU-level not too extensive (Ahmad, 2009; Dupont, 2012). Also drawing on the concepts of policy coordination and coherence, CPI can be linked to the aforementioned definition of EPI. Hence, following the ideas of Hovden & Lafferty (2003) and the elaboration of Dupont (2012), Adelle and Russel (2013) and Rietig (2013), we apply the strong version of CPI where it refers to “the promoting of climate policy objectives in the policy process and the output in non-environmental policy sectors to achieve the long-term policy objective of ensuring global temperature rise does not exceed 2°C” (Dupont, 2012, p. 3). Hereby, the hard standard of CPI and the linkage to the EPI definition would imply that the ‘principled priority’ that was mentioned in the previous part could also be applicable to CPI. Dupont (2011) though raises the important normative nuance that climate change, as a component within environmental areas, should only be given this priority over all non-environmental policy areas so environmental and sustainable development policies will not be harmed. This way, climate policy is not just a subdivision within the environment policies and the underlying differences are considered (Dupont, 2011; Rietig, 2013).

Apart from the normative perspective, researching the nature of CPI and how it is implemented further stems from two branches: the process of governance it is linked to and the outcomes it generates. When it comes to governance processes, we already talked about the sectorisation of the EU. Overcoming these sectoral silos then, requires (re-)integrative organisational structures and procedures, which parts of the literature are based on. As such, Adelle and Russel (2013) raise, among others, the fact that policy learning and technological innovation conceptualise CPI as an opportunity for innovation and new markets, new activities and ‘ecological modernisation’. For this, though, a cultural shift in values is required to step away from traditional sectoral policy objectives, enabling fundamental instead of incremental changes when vertical integration (within sectors) reduced the horizontal coordination. Concluding with ‘what really matters’ (Jordan & Lenschow, 2010, as cited in Adelle & Russel, 2013), it is stated that policy outcomes and thus the effectiveness of EPI is highly complex to measure due to the multitude of factors. CPI, on the other hand, is easier to measure as an outcome. This is due to the specificity of climate policy, in contrast to the wide environmental range. Hereby, CPI policy instruments are more often treated as policy outputs than bureaucratic procedures (Adelle & Russel, 2013, p. 5-8).

2.4.3. Approaches to Policy Integration in the EU

Now that PI and its related concepts are defined and conceptualised, approaches to achieve them in practice can be identified. The literature sets forth a plethora of instruments to achieve policy integration. Furthermore, Table 3 establishes that in order for PI to be achieved, both policy coordination and coherence are required (Dupont, 2016). Therefore, we claim PI approaches, tools and instruments to be inherently linked to approaches to policy coordination and coherence. First of all, the road to policy integration, as identified by Tosun and Lang (2017), knows two fundamental approaches as summarised in Figure 6. The first approach entails the creation and coordination of interdependencies between two or more policy sectors to attain the preferable degree of integration, ranging from independent to shared decision-making (Tosun & Lang, 2017). This horizontal alignment may be established through administrative structure coordination and/or cultural change. This internalises the objectives that ought to be integrated and the expression of political will at high-level (Worker, 2017). As such, the integrated instrument of a decision-making platform may be established (Cejudo & Michel, 2019). Doing so, indicators such as the organisational scope of decision-makers, the strength of sector-wide bodies and the presence of cross-sectoral arrangements are enabled to show the (non-)achievement of horizontal PI (Worker, 2017; Bolleyer, 2011).

The second approach views policy integration as a meta-level process involving the use of specific instruments for the integration of streams of thought, issues and stakeholders of the multiple included policy sectors. These are more of a procedural nature than they are of substantive one (Tosun & Lang, 2017). These procedural policy tools and instruments are deployed in order to attain policy integration by means of the coordination of the policy efforts of the concerned subsystems and the enforcement of a consistent instrument mix. Said policy instruments include the implementation of interdepartmental plans and working groups, task forces, regulatory impact assessments (RIAs), overarching funding processes, legislative standards, etc. (Tosun & Lang, 2017; Candel & Biesbroek, 2016). Moreover, instruments such as RIAs can be placed under the umbrella of policy appraisal. This instrument entails the systematic collection of evidence to analyse policy options on the basis of their costs and benefits, yet also their uncertainties to assist policy development. It is often acknowledged to introduce new actors and venues in public administration to develop new policy options (Tosun & Lang, 2017; OECD 2008). Policy appraisal used to mainly be an ex-ante instrument to achieve cross-cutting objectives (Hertin, Jacob, & Volkery, 2008).

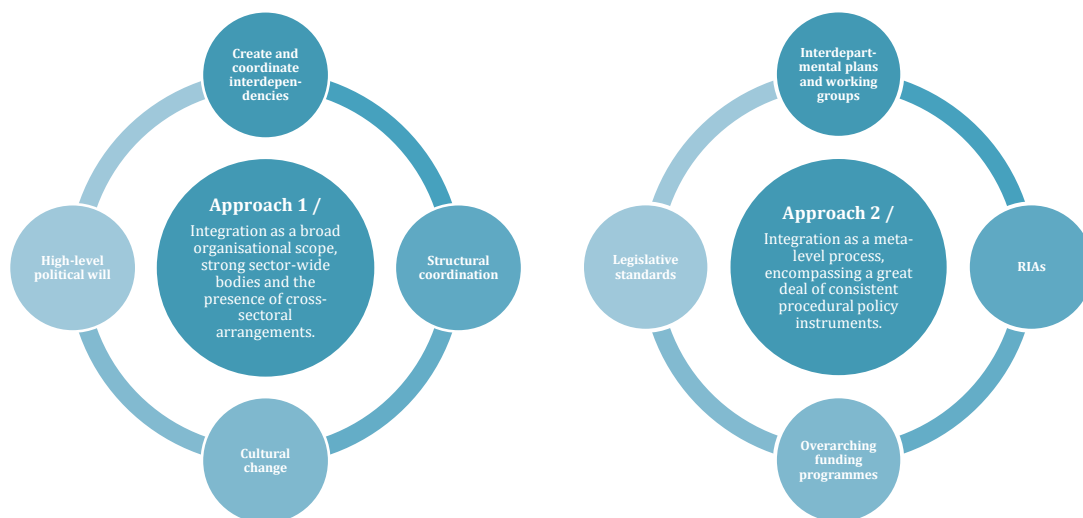


Figure 6 Approaches to Policy Integration and their implications.

Given the geographical constituent in the implementation of climate and environmental policy integration, the policy instruments to either attain or improve them should be explored further within the institutional setting of the EU. In the EU, C/EPI is recognised to be implemented mostly by means of climate policy mainstreaming³ (Worker, 2017). By the following means, within its level of competence, the EU systematically tries to lift C/E objectives to a higher priority level. This could be a result of the renewed interest and political narrative surrounding sustainable development within the EU leadership, accompanied by a great political will. Cejudo and Michel (2019, 2021) identified a political narrative as an integrated tool to generate a shared/common understanding of the relevant problem and each party's responsibilities in its solution. As such, European C/E policies are more easily embedded within the cognitive framework (Jordan & Lenschow, 2010) of the Union as an institution, lending itself more towards the feasibility of C/E policy integration.

For the previous Multiannual Financial Framework (MFF) of 2014-2020, the EC committed to – and succeeded in – spending 20% of EU expenditure towards climate-related activities. For the new MFF of 2021-2027, the EC raised its target to 25% while proposing most of this expenditure will be reflected in mainstreaming climate policy into other sectoral policies (D'Alfonso, 2019; EC, n.d.-b; Worker, 2017). The European Environment Agency (2019a) has stated that competences in the energy and transport policy areas are heavily dispersed across levels of governance, although this could be extended to most policy areas. Therefore, policy integration and achieving targets is challenging. Based on their State and Outlook of the European Environment (SOER), the EU primarily executes policy mainstreaming through integrating C/E objectives into key EU spending programmes. Herodes, Adelle and Pallemmaerts (2007) further identified environmental policy instruments that the EU still use, among which market-based instruments⁴, as additional ways of integrating environmental policy objectives into long term investment strategies, fiscal policy, etc. through financial measures.

Moreover, the European Commission has been recognised as one of the most prominent promoters of integrated policy appraisal. Policy appraisal can be seen here as (legally required) ex ante budgetary or impact evaluations. In the dawn of the new millennium, the EC implemented – to a certain extent – Sustainability Impact assessments within new impact assessment procedures for key and cross-cutting non-legislative proposals. The initial rollout in the early 2000s merely improved the path towards transparency and including new forms of knowledge (Hertin, Jacob, & Volkery, 2008). However, more recently, the EU has intended to create an 'evaluation culture' by cycling ex ante and ex post evaluations, also bringing about its related challenges (see: Smismans, 2015). This is reflected in the EEA's SOER, as well. Here, the agency states that policy integration and coherence have long been on the international agenda. As such, all proposed EU-level legislations are subject to an impact assessment in which all potential effects on the social, environmental and economic dimensions of sustainable development. However, the EEA does acknowledge the lack of systematic assessment of the societal interactions – trade-offs and synergies – in the outcomes of legislation (EEA, 2019a).

³ Mainstreaming is mainly applied in the context of the European Union. Environmental or climate policy mainstreaming then implies the integration of environmental and both adaptive and mitigative climate policy objectives into other policy areas within the usually more economically focused activity of the EU and its Member States. Mainstreaming thus closely resembles the notion of C/EPI (Jordan & Lenschow, 2010; Ahmad, 2009).

⁴ Market-based initiatives include tradeable permits (see: ETS), environmental taxes, subsidies, etc.

2.4.4. Systemic sustainable transitions and policy integration

As made clear before, this thesis is written from the assumption that the European sustainable transition would benefit from a whole-of-government/integrative approach to policy making. Christensen and Lægreid's (2006) structural-instrumental perspective present the importance of institutions in this process. Historical institutionalism, a branch within neo-institutionalism⁵, encompasses the concept of institutional inertia. These concepts depicts that historically entrenched institutions are often barriers or restrictions to change – or more specifically: the extent in which (WOG) administrative reforms are carried out (Kuhlmann & Wollmann, 2019; Munck Af Rosenschöld et al., 2014). From the notion of historical institutionalism, an administrative system can be perceived as a constellation of actors who decide based on path-dependent behaviours and interests (Kuhlmann & Wollmann, 2019). Therefore, change – i.e., moving towards a sustainable transition through integrative modes of governance – is subject to entrenched difficulties and hence incrementalism. For climate and environmental change pressures form a disruption to dominantly present policy paths, there will be certain conditions for such politico-administrative system to enable change.

2.4.4.1. Systems thinking

We argue that for change, or integrative governance for the sustainable transition, to be enabled within the context of a sustainable transition, a systems approach should be applied. Systemic change is considered to require a great and diverse deal of innovations. Leading from the assumption that sustainability does in fact benefit from integrative governance, this can here be seen as an innovation in governance leading towards better environmental performance (see: Loorbach, 2014, as cited in EEA, 2016, p. 24). Systems thinking and system approaches have received growing attention in the EU in order to design better informed and more effective policy (EEA, 2020, p. 6). These imply a holistic view on interconnections between variables, factors, disciplines, etc. They enable the management and understanding of complex problems through a shift from linear cause-effect interpretations towards a holistic interpretation of the context in which policy occurs and complex systems operate (Tan et al., 2019, p. 2; Hopkins et al., 2012). As such, system approaches move beyond the traditional hegemony of economic interpretations of sustainability and take into account a myriad of other disciplines, as can be distilled from the three dimensions of sustainable development in Figure 1 (Barbier & Burgess, 2017). Therefore, systemic change is about the co-evolution between system elements (EEA, 2021) and identifying interdependencies – managing synergies and trade-offs – between systemic links.

Solving complex problems effectively in synergy also entails a certain required capacity and authority for systems, or existing governance systems have to be able to change in order to build resilient SD-pathways (Cejudo & Michel, 2021). This implies another integrating policy instrument, besides policy frame or political narrative: the authority or capacity that decision-makers or institutions require to manage the process that is policy integration. Institutional capacity-building further determines the scope and the feasibility of policy integration (Cejudo & Michel, 2021) – thus a sustainable innovation.

⁵ Neo-institutionalist theories have gained great attention in comparative public administration research with institutions as crucial variables in related analyses. Historical institutionalism is one approach within the grand theory and is based on the idea that “existing structures and past decisions/actions lead to persistent ‘path-dependent’ institutions” (Kuhlmann & Wollmann, 2019).

2.4.4.2. Sustainability transitions

Sustainability transitions are long-term processes, in which niche innovations emerge in shorter-term time periods as a basis for systemic sustainable transitions (EEA, 2016, p. 22-24), which in turn are crucial to form a solution to wicked (or politically turbulent) climate and environmental problems. Sustainable transitions are increasingly linked with systems thinking and approaches. Moreover, a recent article of the EEA (2021) affirms that literature surrounding sustainability transitions clarified that “systematic, integrated and coherent policy responses” will be required to undergo further transformation of the Union. In fact, systemic transitions act on a macro-level perspective instead of purely microeconomic policy instruments. Therefore, aggregated inputs of each link in the chain need to be understood when it comes to systemic sustainable transitions (EEA, 2021).

Managing sustainable transitions predominantly includes a multi-level perspective in which regimes, niches and landscapes are intertwined. Here, a regime stabilises a socio-technical system through knowledge, policies, institutions and cognitive frameworks. However, this regime can be disrupted through emerging niche innovations or external pressures (e.g., global trends of change) in the long-enduring structures of a landscape (Loorbach et. al, 2017; EEA, 2016). In each of these components, multiple actors are involved. Meadowcroft (2011) identified politics to be inherently manifested in every part of the multi-level perspective. Therefore, political leadership exerts great influence on the encouragement or direction of innovation and the governance of the sustainable transitions, but also on the normative aspect of sustainable development (Meadowcroft, 2011, p. 71). This implies political leadership to be inherently dominant in processes surrounding priority-setting, policy making, but also in the policy’s evaluation. Furthermore, it is increasingly recognised that traditional styles of governance – more specifically Traditional Public Administration⁶ – are not sufficiently fit to manage sustainable transitions. Hence, stakeholders have an increased role in policy making through network approaches of governance and are perceived as necessary supportive actors for the development of policy (Loorbach, 2010).

⁶ Meuleman and Niestroy (2015) define three governance styles resembling the three paradigms of public administration, respectively: hierarchical, market and network governance – or Traditional Public Administration, New Public Management and New Public Governance.

3.2. Research Questions and Hypotheses

3.2.1. Research questions

The aggregation of our conceptual framework above is the visualisation of how we assume the research questions will be answered throughout the empirical research. It provides a continuous stream of thought, which includes all parts of the policy integration process as mentioned in the literary review. As already mentioned in the introduction of the thesis, this research will seek an answer to the main research question and its derivative sub questions. The main research question is the overarching question to capture the general goal of the research and generate the more specific sub questions to ponder about the particulars of the phenomena of policy integration (Agee, 2009). These open up the route towards the methodology of the research in the next chapter. This thesis will try to find an answer to the following questions:

“What are the conditions determining the implementation of climate and environmental policy integration in the European Union and its Member States?”

- iii. What has been the main barrier to EU action on climate and environmental policy?
- iv. Which conditions or combinations of conditions drive the implementation of climate and environmental policy integration?

3.2.2. Hypotheses

Furthermore, our modus operandi suggests a structure in which the main research question will be answered through the testing of three hypotheses. The following hypotheses are based on brought up concepts and ideas from the literary review and serve to test our assumptions of what results our methods might provide. Hence, they are aligned with what type of answers we can expect by using the methods as elaborated on in the next chapter.

H1.1 | A lack of systemic approaches in earlier policies or policies that have been conducted until now formed a barrier to climate and environmental policy.

As clarified in the literary review, we argue that in order for integrative governance to enhance a sustainable transition, a systemic approach is required. Integrative governance and its implications can be seen here as sustainable innovations, essential for bringing about systemic change and in result a better environmental performance (Loorbach, 2014, as cited in EEA, 2016, p. 24). Another stance originates in the idea that a system approach generally implies multiple interconnections between different and dynamic variables, factors and disciplines. Therefore, systemic change mainly focusses on the shift from linear cause-effect interpretations towards holistic interpretations within the context policy(-making) occurs and the complex politico-administrative system operates (Tan et al., 2019, p. 2; Hopkins et al., 2012). Hence, we assume that most policies conducted until recently have been caught in these linear cause-effects interpretations. In this first hypothesis, we thus argue that linear thinking has hampered the potential effects of C/EPI practices on the sustainable transition practices, both from a perspective of policy making and its execution. It is through breaking this traditional point of view that this barrier can be overcome, and a better environmental performance can be achieved.

H1.2 | Factors leading towards policy coordination and policy coherence, combined with the extent of a sustainable systemic transition within a case will drive the implementation of C/EPI.

The second part of the first hypothesis deals with the same reasoning as the first part but turns away from the time-related aspect of C/EPI. This hypothesis will test whether or not C/EPI can actually benefit from the presence of systems thinking within the sustainable transition. Here, we perceive policy integration as the result of both policy coordination and policy coherence (cf. Table 3). Therefore, the identification of an integrative nature within empirical evidence is based on the presence – or absence – of policy coordination and coherence.

H2.1 | The presence of a political narrative and commitment as an integrating instrument will be both necessary and sufficient to produce C/EPI, especially in combination with factors leading towards policy coordination and policy coherence.

This second hypothesis is established through Tosun and Lang's (2017) fundamental approaches to policy integration. Here, we especially point out the first approach and the notion of horizontal alignment. This highlights the coordination of administrative structure and cultural change, adopting objectives that ought to be integrated and the expression of high-level political will. This horizontal alignment is supposed to result in the creation of interdependencies between policy domains, through the establishment of decision-making platforms among others. However, we perceive all implications of such establishments and interdependencies to be the result of the expression of political commitment and an emerged political narrative. Moreover, contextual factors, among which political leadership and the cognitive frameworks that are present in the EU, all influence this political narrative. As such, the presence of such narratives is argued to facilitate the feasibility of C/EPI.

H2.2 | The presence of measures for reporting and learning as an integrating instrument will be both necessary and sufficient to produce C/EPI, in combination with the political narrative and commitment to enforce them.

This part of the second hypothesis is then centred around the second approach to policy integration of Tosun and Lang (2017) which highlights the procedural, meta-level process that is policy integration. This hypothesis will hence test the importance of reporting, monitoring and learning measures in the integrated policy appraisal process (cf. supra) for driving the extent of policy integration within the empirical evidence. Again, much of what surrounds reporting and how one incorporates learned lessons is dependent on the political and institutional context. Therefore, we argue that ideally both factors ought to be present to produce the outcome of C/EPI.

H3 | A whole-of-society approach to policy making (assigning a major role to stakeholder involvement) might be necessary, but not sufficient to producing C/EPI.

This third and final hypothesis is fixated on the question of how a whole-of-government approach could or could not be sufficient to enhancing the sustainable transition. Policy integration is a governance-centred concept (Tosun & Lang, 2017) and dominantly includes governmental bodies and actors. We thus argue that, within the process of political integration, politico-administrative aspects hold more value than aspects of stakeholder and third-party involvement. Nonetheless, this hypothesis does not bring into question the major role of a whole-of-society approach to sustainability transitions. However, as Meadowcroft (2011) acknowledged: here too, the political aspect is dominantly present.

PART 2 |

METHODOLOGICAL FRAMEWORK

4. RESEARCH DESIGN AND METHODOLOGY

In order to formulate an answer to the aforementioned research questions and hypotheses, we opted to conduct a primarily qualitative research. Our research question reflects our desire to heuristically develop knowledge around the drivers and barriers of the institutional phenomena of policy integration and related concepts within the EU and its Member States. Qualitative research analyses a certain situation, phenomenon, social action or interactions, etc. rather than to subject them to mathematical or ordinal classifications (Lindlof and Taylor, 2002, as cited in Chesebro & Borisoff, 2007, p. 6; Gabrielian, Yang & Spice, 2008, p. 142). Qualitative research ultimately aims at developing a sound knowledge of a phenomenon and new insights into explaining it (Smith, Bekker & Cheater, 2011). Consequently, this thesis focusses on the inductive development of knowledge around the field of policy integration in the EU and its Member States. From an interpretivist and constructivist epistemological perspective (Chesebro & Borisoff, 2007, p.7; Cepeda & Martin, 2005; Guest, Namey & Mitchell, 2013), this would imply the necessity of interpretative awareness and thus researchers acknowledging their potential subjective role in the qualitative research. Moreover, as such we perceive knowledge of reality as the construction of actors and their processes, applying equally to us as researchers. This research topic of policy integration and climate and environmental policies is much so subject to constellations of actors, institutions, politics and processes. Therefore, a qualitative research facilitates the open-ended questioning of the research and the viability of the research of the phenomenon as a whole.

This part of the thesis will provide a deepened emphasis on the multiple different methodological foci our research implies. Figure 8 displays the empirical research model of this thesis. Using a brief desk research and a Qualitative Comparative Analysis (QCA) as primarily qualitative research methods, we try to respectively validate and formulate substantive answers to our research questions and hypotheses. Both methods will result in an analysis based on text as a source of data, and as a 'proxy for experience' (Guest, Namey & Mitchell, 2013) by means of which the phenomena of policy integration will be analysed.

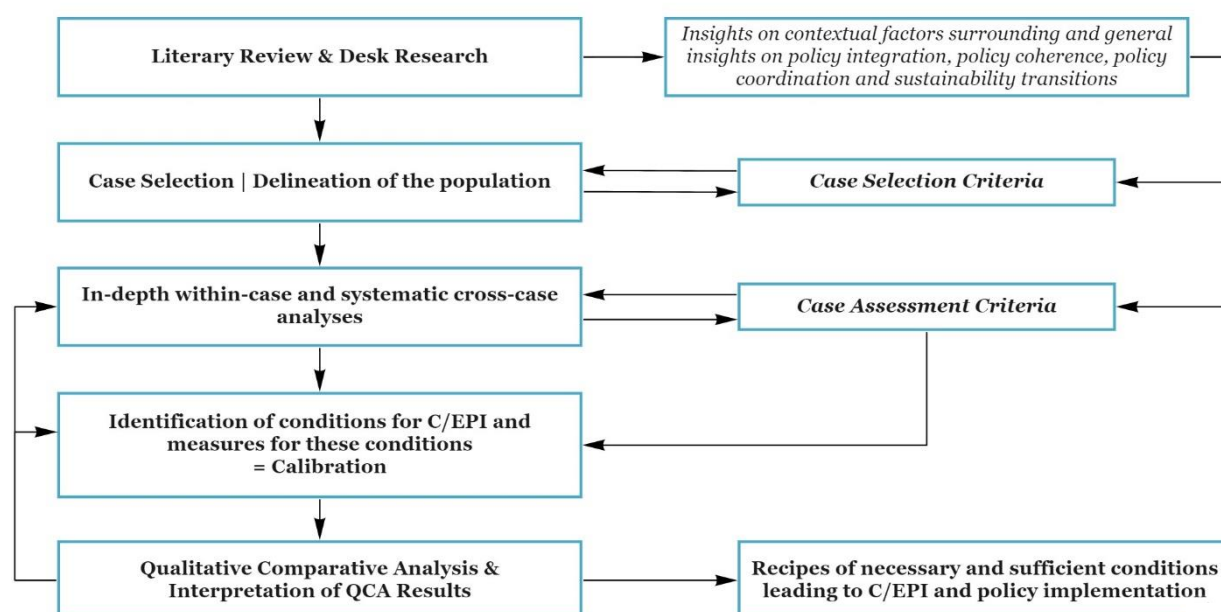


Figure 8 Visualisation of the empirical research model.

4.1. Desk Research

Aside from the literary review, this thesis will make use of a brief desk research to investigate the current state of policy integration in the European Union as an introduction to the empirical research. This desk research has a sole focus on the collection and synthesis of existing materials – secondary data and thus derived with a different original goal – making it a secondary research method (Goundar, 2012; Szabo & Strang, 1997; Van Thiel, 2015). Existing materials for this research could be defined to take the sole form of policy documents, which again implies a purely text-driven data analysis (cf. *supra*). For this thesis, the desk or secondary research has the function of validating our own research questions and hypotheses – or verifying the findings of the relevant secondary data – as a preliminary introduction to the actual empirical research and a preparation for the Qualitative Comparative Analysis (QCA). Consequently, we conduct an assorted secondary analysis (Heaton, 2008) in which we re-use the secondary data alongside a primary data analysis through a QCA.

Given the limited number of studies on the topic of policy integration, primarily based on policy practice and its drivers and barriers, we opted to use just one document for this secondary research. The 2019 report on “Sustainability transitions: policy and practice”, published by the European Environment Agency⁷ (EEA), serves as our sole existing source of data for this brief desk research. This single source can be justified by the empirical reality in which the research topic is situated. Firstly, one can judge that there is yet to be a great deal of policy practice surrounding policy integration. Secondly and subsequently, there are a limited number of studies on these policy practices. Therefore, we opt for the sole analysis of the EEA report, since this report is one of the few systematic analyses of policy integration and other sustainability transition practices throughout the EU. Hence, the report fits the purpose of our own research and is sufficient to the goal of this desk research. Finally, Johnston (2017) stated that the quality of secondary data cannot be evaluated without knowledge of the primary methodology. The report builds on insights from past EEA assessments and reports, linkages between transition experts and aims to go beyond theoretical discussions (EEA, 2019, p. 6). Given the status and expertise of the EEA, we evaluate the report to be sufficient to and consistent with our own research objectives through its extensive focus on the understanding and the measurement of policy integration and sustainability transition practices.

4.2. Qualitative Comparative Analysis

Where the role of the literary review and desk research were to develop the empirical research, both in knowledge and in necessity, a Qualitative Comparative Analysis or QCA will be conducted as primary research method. QCA is a set-theoretic and iterative method of data collection and analysis in which combinations of conditions are sought to determine the presence or absence of a certain outcome or phenomenon. The method thus builds on set-theoretic notions “by assuming there are necessary or sufficient conditions for the occurrence of a given phenomenon.” This further implies the possibility of multiple different factors to influence this phenomenon in conjunction, leading towards the notion of

⁷ The EEA is an established agency of the EU that aims to promote sustainable development by assisting in the achievement of substantial and measurable improvements in Europe's environment. The agency periodically reports (both qualitatively and quantitatively) on the environmental status of the Union and to which degree different approaches to tackling wicked issues are successful.

complex causality. A QCA de facto operates under the notion of complex causality, meaning causal factors can combine with other factors in different ways and factors can have opposing effects depending on their situational combination (Legewie, 2013, p. 3-5). For this thesis, we will investigate which conditions will be sufficient or necessary⁸ to produce the outcome of phenomena of climate and environmental policy integration and policy implementation.

QCA is often seen as a 'best of both worlds' multi-method approach to research, combining the strengths of both qualitative and quantitative methods. QCA thus integrates case-oriented approaches with variable-oriented approaches through a 'synthetic strategy' (Thomann, 2020; Marx, Rihoux & Ragin, 2013; Rihoux & Lobe, 2009). The combination of qualitative and quantitative components and the iterative nature of the method serve to facilitate a dialogue between theory and evidence from a medium-n to large-n population sample (Marx, Rihoux & Ragin, 2013; Krook, 2010). QCA offers this thesis an analytical edge to a solely qualitative method for assessing policy integration, since it is acknowledged that qualitative methods cannot investigate causality (cf. *infra*). However, neither can QCA, although it does provide a systematic and transparent way of research to reveal patterns in conditions which are subject to sense-making and interpretation through iteration (Legewie, 2013). Figure 8 (cf. *supra*) showed the research process of a QCA from the case selection on. Further details on QCA and its multi-method nature, and its applicability for this thesis will be explained and explored in the following subsections.

4.2.1. Data collection through a Multiple Case Study

As a Qualitative Comparative Analysis combines case-based and variable-based approaches to methodology, a first step in the QCA process is the multiple case study. This method is a qualitative method designed to investigate and explore multiple real-life 'contemporary bounded systems' – or cases – through the in-depth collection of multiple sources of information (Creswell, 2013, p. 97). Creswell (2013) identified a multiple case study to start off with the focus on a certain issue or phenomenon, here C/E policy integration and policy implementation, with multiple cases to illustrate the phenomenon. In this thesis, cases are of instrumental value, since they serve as cases to better understand the mentioned phenomena and how they are approached. However, these cases act as an intermediary method to be able to conduct a QCA, for the results of the QCA will be completely dependent on the case selection and the info we extract from them.

4.2.1.1. Case selection: the delineation of the population

As previously mentioned, QCA offers the possibility to reveal set-relational patterns in a population of cases (see, among others: Legewie, 2013; Schneider & Rohlfing, 2014). QCA operates under the key feature of the selection of causally homogeneous, yet equifinal cases⁹ (Schneider & Rohlfing, 2014; Fitzgerald, 2019). In this subsection, we explain our methodological process for the selection of these cases to fit within the approach and techniques, implied by a QCA.

⁸ Sufficiency and necessity are two terms that originate from the implications of QCA being a set-theoretic method. The data analysis subsection will delve deeper into these concepts.

⁹ Equifinality embraces the notion of different, yet equally successful paths towards an outcome (Befani, 2013, p. 274)

Before going onto the actual selection of a case, it is important to clarify the notion of a case. From a realist perspective (Ragin, 1992, as cited in Rihoux & Lobe, 2009), we identify cases as empirical units expressing a reality in which a certain phenomenon is (to an extent) displayed. These cases are ‘general’ in the sense that they exist prior to this research and we acknowledge them as ‘given’ (Rihoux & Lobe, 2009). Stewart (2012, p. 68) defined a case to enable an extensive study of a particular phenomenon and present high intrinsic value. Stake (as cited in Stewart, 2012, p. 69) acknowledges, though, that a case’s definition is dependent on the study’s purposes. This thesis is situated in a climate and environmental setting, which is primarily dominated by project-based governance. Therefore, here a case can simply be defined as a project in which an occurrence of C/EPI and/or C/E policy implementation takes place.

Qualitatively, cases are not selected on the basis of a sampling procedure, entailing those cases within the population are selected with a purpose. For this research, we selected meso- and macro-level cases that display the two core assumptions of QCA, complexity and diversity (Rihoux & Lobe, 2009, p. 228), in the sense that they are in accordance with the mentioned implications of causal complexity and equifinality. Moreover, we composed multiple different case selection criteria based on the current state of knowledge in the policy integration literature. All cases were selected based on the requirement to fulfil to these selection criteria, which are summarised in Table 4.

Case universe	We consider our case universe to be the entirety of the European Union. This means we observe the EU as a whole of 27 Member states, but also the implications of the supranational body it is.	
Academic or Practice	We opted to select cases solely based on policy practice. → Policy communications, policy documents, etc.	
Degree of EU competence	We selected cases based on policy areas where the EU, considering the principle of subsidiarity, holds a relatively great degree of competence.	
Time frame	We selected cases within the time frame of the last 5-10 years. → Recency and time accuracy as QCA does not allow for analysis over time. → Third generation of EU C/E legislations is the most integrative of nature (see: desk research later.)	
C/EPI strategies (Runhaar, Driessen & Uittenbroek, 2014)	<ul style="list-style-type: none"> ▪ EU C/E plans ▪ EU SD strategies ▪ Merging departments ▪ Greening departments ▪ C/E units within sectoral departments 	<ul style="list-style-type: none"> ▪ Green taxes ▪ Green budgeting ▪ C/E impact assessments ▪ Strategic C/E assessment ▪ C/E reporting obligations
Time in the policy cycle	Every stage of the policy cycle was considered for the selection of cases, as policy integration knows many different forms, no matter whether it appears in the policy formulation, implementation, evaluation stages, etc.	
Public administration tradition (Kuhlmann & Wollmann, 2019)	We have tried to select at least one country from the major public administration traditions in north-south nexus of the EU, so this gives us a justification for a basis for extrapolating our findings.	

Table 4 Case selection criteria.

4.2.1.2. C/E Policy Integration and C/E Policy Implementation in the EU and its Member States

Given that QCA works best in a medium-n to large-n case environment (cf. supra), the universe of cases should, too, be taken into account. We identified the European Union as a supranational body and thus as the collection of now 27 Member States as our case universe. Therefore, we chose to select eleven cases of C/EPI and policy implementation in accordance with the case selection criteria in Table 4, as well as the feasibility of this thesis in terms of time availability. Figure 9 displays the countries that made the case selection, as well as the relative share of the main C/E related policy sectors that are investigated.

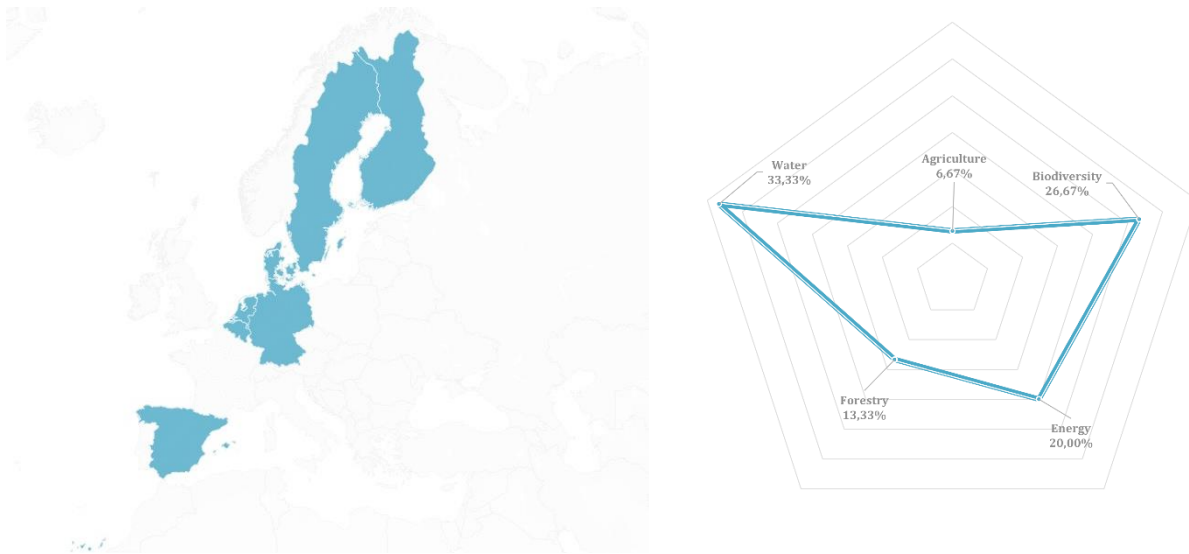


Figure 9 Mapping the case selection and most prominent policy sectors.

Hence, the data used to study the determining conditions on C/E PI and policy implementation stems from a selection of eleven cases in a north-south nexus as a basis for comparison across public administration traditions. Moreover, the empirical context and the availability of data and projects on policy integration limited us to investigate the sectors surrounding water, energy and biodiversity as primary climate and environmental related policy domains. However, since limited data availability led us to Integrated Projects of the LIFE Programme¹⁰ of the European Commission, the degree of EU competence in these domains is relatively high. This thesis investigates the following projects in the period between April and July of 2021 and will thus solely reflect the available knowledge in this period. All investigated projects are policy practice based and can be regarded as middle to long term projects. Yet, to be included, the project had to be close to a finishing or reapplication stage so potential results can be identified. All projects should, to a certain extent, resemble a balanced view of integrated projects across EU Member States for the above-mentioned policy sectors. Table 5 gives an overview of all the selected cases.

¹⁰ The LIFE Programme (contemporarily LIFE +) was created in 1992 as the EU's funding instrument for projects combatting environmental issues and for climate change adaptation and mitigation (CINEA, n.d.).

Case Member State	Case Name	Period	Targeted EU Legislation	Level
Belgium (BEL)	LIFE IP BELINI	2016 – 2026	Water ¹¹	Regional (Flanders Region)
Denmark (DEN)	LIFE IP C2C CC	2016 – 2022	Water ¹² , Floods ¹³ , Climate Adaptation ¹⁴ , Green Infrastructure ¹⁵	Regional (Central Denmark Region)
EU	EU LIFE + Natura 2000	1992 – 2001 –	Environment, Funding Biodiversity, Funding	Supranational (EU) Supranational (EU)
Finland (FIN)	LIFE IP FRESHABITAT	2016-2022	Biodiversity ¹⁶	National
Germany (GER)	German CAP	2016 –	Climate	National
The Netherlands (NL)	LIFE IP DELTA Nature Delta Programme	2016 – 2022 2011 –	Water ¹⁷ , Biodiversity ¹⁸ Water, Floods	National, Local National, Local
Spain (SP)	LIFE IP NAdapta	2017 – 2025	Climate Adaptation ¹⁹	Regional (Navarre Region), Local
	[LIFE URBAN] KLIMA 2050 [Strategy]	2019 – 2025	Energy ²⁰	
Sweden (SWE)	Swedish Climate Policy Framework	2017 –	Climate	National

Table 5 An overview of the multiple case study.

Figure 10 shows the distinction of policy sectors in each case Member State within the case study.

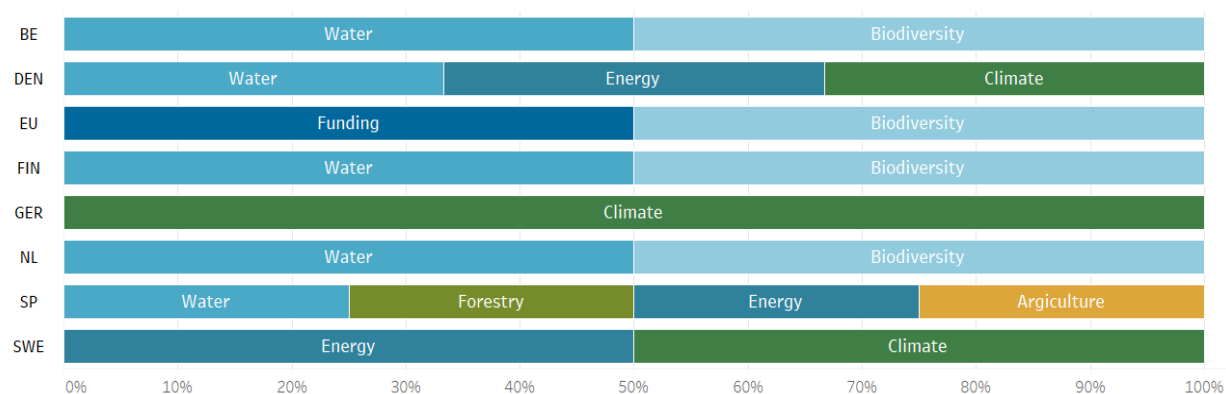


Figure 10 Relative share in % of identified C/E policy sectors in the cases.

- 11 COM(2012)673 - "A Blueprint to Safeguard Europe's Water Resources"
- 12 Directive 2000/60 - Framework for Community action in the field of water policy & COM(2012)673
- 13 Directive 2007/60 - Assessment and management of flood risks
- 14 COM(2013)216 - EU Strategy on adaptation to climate change
- 15 COM(2013)249 Communication from the Commission on Green Infrastructure (GI)
- 16 COM(2011)244 EU biodiversity strategy to 2020 & Directive 92/43 - Habitats Directive
- 17 Directive 2000/60
- 18 Directive 92/43, Directive 79/409 - Conservation of wild birds & COM(2011)244
- 19 COM(2013)216
- 20 COM(2011)885 - EU 2050 Energy Roadmap

Another methodological choice is reflected in how we assess policy integration. Table 6 offers a distinction in what we consider to be a policy enabler and policy implementation. The literary review clarified that policy integration is not a clear-cut concept, which is also reflected in its empirical reality. We learned in the data collection that cases of policy integration are both of limited availability and know a diverse nature. These vary from purely legislations, plans and strategies to actual actions and projects. Here, we consider the former to be the enablers of policy integration while the latter would be considered as the actual implementation of policy integration. Enablers are elements that *opt for* C/E policy integration or more policies but bring no direct implementation. Policy implementation is then, logically, about actual implementation. Both dimensions can be integrative or non-integrative. We will analyse both for two reasons: (1) As such, we can analyse what it takes to implement policy integration and thus drivers of integration; and (2) why policy would not be desirable to be integrative of nature and thus barriers of integration.

		Nature of the analysed element			
Territorial dimension		Policy enabler		Policy implementation	
		Integrative	Non-integrative	Integrative	Non-integrative
		Primary & Secondary EU Legislation / Strategies / Plans / etc.		Budgetary actions, control of Member States (through EUCJ)	
	Member States	C/E strategies, plans, etc.		Integrative policy implementation projects	Non-integrative policy implementation projects

Table 6 A typology for the analytical assessment of policy integration.

4.2.1.3. Inseparable data collection and analysis

Data analysis and data collection are stated to be inseparable by Merriam & Tisdell (2015), indicating that data analysis occurs simultaneously with its collection. We collect data from the cases which all consist of multiple different text-dominated project websites, policy documents, governance arrangements, etc. General data on the cases themselves will be reported in the empirical part to provide an empirical context in which the case is situated. However, our actual data analysis of the cases entails the data collection for the QCA.

Therefore, we identify conditions which could produce the respective outcome of climate and environmental policy integration and policy implementation. To facilitate this identification, we aggregated an extensive set of analytical assessment criteria, mainly based on the predominant literature (Dupont & Jordan, 2021; Dupont & Oberthür, 2012; Dupont, 2011; Rietig, 2013; Lafferty & Hovden, 2003; Persson, 2004; Nilsson & Persson, 2003; Russel, den Uyl & de Vito, 2018; Runhaar, Driessen & Uittenbroek, 2014; Cejudo & Michel, 2019, 2021; EEA, 2019). These assessment criteria, as displayed in Table 7, will guide us through the key documents that make our cases, in order to identify conditions and their measures. The criteria are categorised in groups, based on the differentiating between conceptual constellations and their nature in our conceptual framework (cf. supra).

<u>CONTEXTUAL / INSTITUTIONAL / NORMATIVE</u> <u>Contextual criteria & Political/Legal criteria ~ input / ex ante</u> <u>IMPLEMENTING</u> <u>Implementation criteria ~ process / ex durante</u> <u>EVALUATION</u> <u>Evaluation criteria ~ output and outcome / ex post</u>	1. Degree of EU competency 2. Society-wide transformative capacity 3. Institutional set-up and context 4. Nature of EU leadership 5. Inter- and intragenerational justice 6. High-level political will, commitment, ambition 7. Extent of C/E prioritisation 8. Presence of 1/ legal principles 2/ administrative tools 3/ political strategies 9. Presence of a political narrative 10. Enabler or Implementation	11. Role of stakeholder information and networks 12. Perceived wickedness 13. Cognitive framework: values, norms and traditions 14. Common understanding of SD & PI: conceptual clarity 15. Diversity of knowledge/information 16. Use of PI policy instruments 17. Aim of environmental protection (adaptation or mitigation) 18. Resources/tools for capacity-building and better decision-making
	1. Nature of the functional overlap (direct-indirect/synergistic-conflicting) 2. Use of policy instruments to deliver PI 3. Aggregation of inputs, using provided resources	4. Taking environmental costs into account 5. Organisational change of dynamics 6. Degree of / alignment with concepts in Table 3
	1. 'Greening' of policy sectors / impact on environment based on PI objective 2. Consistency in outputs 3. Reporting and learning 4. Presence of a clear metric as a basis for evaluation 5. Monitoring of impact / outcomes	6. (Changes in) drivers, barriers and pressures to PI / C/E policy 7. Policy debate or outcomes changing incrementally or fundamentally 8. Aggregate presumed environmental C/E consequences
<u>C/E POLICY INTEGRATION</u> <u>POLICY COORDINATION</u> <u>POLICY COHERENCE</u> <u>SUSTAINABLE TRANSITION ENABLERS</u>	1. Valid ongoing overarching funding / budgeting processes 2. Reporting obligations 3. C/E plans or strategies 4. Interdepartmental plans, working groups or task forces	5. C/E regulatory / strategic impact assessments 6. Organisational dynamics: merging departments / C/E units within departments 7. Presence of a decision-making platform
	1. Extent of information sharing between different actors/agencies/etc. 2. Extent of joint decision-making	3. Extent of the (clarity on) the distribution of responsibilities 4. Extent of the minimisation of red tape / administrative incoherence
	1. Coherence of policy instruments – components within a policy mix sharing objectives?	
	1. Support of different innovative activities 2. Knowledge diffusion 3. strengthen the role of cities 4. Knowledge systems 5. Clear direction for change	6. Policy alignment in different domains 7. Coherence of action 8. Monitoring of risk (ex-ante approach)

Table 7 Analytical assessment criteria as guideline throughout the case analysis.

The data analysis of the multiple case study is conducted in such a way that it facilitates the QCA analysis process. This entails that these assessment criteria are perceived to be potential initial conditions, which are sought for in the data analysis of the cases. After the identification of conditions within cases, there are a few subsequent steps to be followed. At first, these conditions have to be systematically sought across all cases, whilst similarly identifying new conditions and measures in the different cases. As such, these criteria are the directory of the QCA data collection. The cases themselves are analysed through a specific manner of coding²¹. We utilise a systematic framework (Table 8) that is based on open, axial and selective coding (Van Thiel, 2015).

CASE N.	CASE ID	CODE	INSTI-TUTION	CONDITION	MEASURE	MEMBER-SHIP	ANALYSIS
1	IPDELTA	IPD_2015/3	EC	Overarching / integrated sectoral objectives	Diffused sectoral interests	0.33	One coherent goal - each sector has their own objectives - no joint objectives
CODE	QUOTATION						
IPD_2015/3	Different sectoral interests are reflected in their management; responsibilities are divided between different stakeholders, each focusing on specific sectoral objectives rather than on jointly achieving all objectives.						

Table 8 Coding Framework – Example from IP DELTA Nature (The Netherlands).

In a first step, we analyse our cases individually through a document analysis to explore how the case operate concerning C/E policy integration and C/E policy implementation. This way, we bring in certain pieces of information in the “Quotations” column of the framework. In a second step we analyse the quotations axially, aimed at finding measures or indicators of C/E policy integration and C/E policy implementation in the case. A final selective coding step defines the conditions that may or may not lead to policy integration that eventually wind up in the QCA.

4.2.2. Data analysis: Qualitative Comparative Analysis

4.2.2.1. Calibration of conditions

The goal of a Qualitative Comparative Analysis is to identify conditions or combinations of conditions that produce a certain outcome through patterns of causality (Legewie, 2013). These conditions have to be identified through the data collection. However, the set-theoretic nature of the QCA-method implies that relations between different variables – social phenomena, conditions, etc. – are influenced by the notion of ‘membership’ (Warsen, 2021, p. 144). Membership means that there are qualitative differences between cases and to what degree the condition and its measures are present in the case. Therefore, cases are being considered either members or non-members of a set. To determine this membership score, it is important to make the distinction between a crisp-set (cs) and a fuzzy-set (fs) QCA. A csQCA defines membership values between 0 and 1 – with 0 and 1 respectively meaning that the variable is ‘fully out’ or ‘fully in’ of the set. A fsQCA is more complicated in the sense that it is a more continuous variable to indicate the degree of membership in a well-defined and specific set of conditions (Ragin, 2008, p. 30-31; Legewie, 2013).

²¹ The full database of codes and the resulting datasets can be downloaded online through [this link](#).

The calibration of conditions in fsQCA is a process of multiple steps, which starts at actually identifying conditions from the case analysis. Hence, during the case analysis, we actively seek for conditions that may produce the outcome of C/E policy integration or policy implementation respectively. Each of these conditions can have multiple measures by which the conditions can be recorded in the cases (Basurto & Speer, 2012), which are also being sought in the case analysis. These identified conditions and their measures are, however, at first preliminary and are thus subject to change throughout the calibration process based on potential new insights from further analysis. All these conditions and measures are simultaneously being recorded in the coding framework as displayed in Table 8 using Microsoft Excel. A next step entails the definition and the precision of the fuzzy-set values (Basurto & Speer, 2012), implying fuzzy-set values are defined for each of the identified measures of all conditions. These definitions are based on empirical information from the cases and are used to systematically assign membership scores to the conditions. They are, however, also subject to change throughout the iterative process of the case analysis. This is the process of aligning data with our concepts and making sure conditions and outcomes are represented by their measures with case evidence. Appendix 1 provides the full database of the fuzzy-set value definitions. A final step in the calibration is the aggregation of fuzzy-set values of all measures into their respective condition to create a summary (Basurto & Speer, 2012). This aggregation is based on a deep and extensive theoretical and substantive knowledge. It will be constructed by the assumption that all conditions are of limited substitutability, since we are trying to identify specific conditions leading to C/EPI. Therefore, we will be taking the “weakest-link” minimum fuzzy-set value of all measures within a certain condition in each case. (Ragin, 2008; Basurto & Speer, 2012; Goertz, 2006, p. 135-142).

4.2.2.2. Parameters of fit

Before indulging in the analysis part of a QCA, it is important to note the different measures a QCA provides to interpret results. QCA uses Boolean algebra to formally analyse the presence of certain conditions when an outcome occurs. Different parameters of fit come into play to analyse these set-theoretic relations. These parameters of fit are essential to identify *necessary* and *sufficient* conditions for the outcome (Legewie, 2013; Warsen, 2021) and are summarised in Table 9.

Necessity	Condition A is necessary for outcome Y if the occurrence of Y is not possible without the presence of A, yet A alone is not enough to produce Y.	$Y \leq A$
Sufficiency	Condition A or combination of conditions X is sufficient for outcome Y if Y will always occur if A is present, but other conditions beside A may also produce Y. Thus, all cases where A is present produce outcome Y.	$A \leq Y$ $X \leq Y$
Consistency	Consistency measures the degree to which a relation of necessity or sufficiency between a causal condition or combination of conditions and an outcome is met within the data set. → Equivalent of significance in statistical models → Values range from 0 (no consistency) to 1 (perfect consistency)	
Coverage	Coverage follows on consistency. Once a relation is deemed consistent with necessity or sufficiency, coverage provides a measure of empirical relevance. → Equivalent of R^2 or the explained variance of a variable in statistical models → Values range from 0 (no coverage) to 1 (perfect coverage)	

Table 9 An overview of QCA's parameters of fit.

Note. Source: Legewie (2013, p. 9-11)

4.2.2.3. Truth Table Analysis (TTA) and Minimisation

The calibration of results eventually results in the possibility to configure a data matrix in which diversity in cases is represented (Ragin, 2008; Legewie, 2013). Here, all case identifications are presented as rows and all conditions²² – and their respective assigned fuzzy set values – and the outcome are displayed as columns. Once configured, the data matrix is inputted into the specific fsQCA computer software which is then ready for analysis. The fsQCA software is able to produce a so-called truth table to represent cases as configurations of conditions. This truth table presents all logically possible configurations of a given set of conditions and shifts the focus from diversity between cases to similarities across cases. It has 2^k rows, with k being the number of conditions and each row is a statement of sufficiency. By looking at whether the case(s) assigned to a truth table row agree in displaying the outcome, we can assess whether a given configuration of conditions can be regarded as sufficient for the outcome (Legewie, 2013; Verweij, 2015).

In the TTA itself, the analysis of sufficiency, we seek out truth table rows with a high consistency score. In this process, truth table rows are compared to one another to identify rows that agree on the outcome and differ in conditions. Truth table rows can, and often will, however be covered by logically contradictory rows in which cases represent an opposite outcome, or by limited diversity. These logical contradictions are expressed by consistency (Verweij, 2015). The lowest permitted threshold value for consistency was defined to be 0.9 for the analysis of necessity (Rihoux & Ragin, 2009) and 0.75 for TTA (Schneider & Wagemann, 2012; Verweij, 2015). We will utilise a threshold of 0.8 so consistency is above the minimum and low enough so overlooked items in the TTA can still be considered to be valuable. Based on this threshold, the truth table either assigns the outcome to a case with the value of 1 or assigns the non-outcome with a value of 0. Another potential issue in TTA is that of limited diversity, which implies empty rows in the truth table or ‘logical remainders.’

In the analysis of a truth table, truth table minimisation is an essential step to developing results. Once we have decided which rows are consistent in presenting sufficiency and have thus dealt with the potential problems of contradictory rows or limited diversity, the truth table can be minimised to produce a solution formula. This solution shows which combinations of conditions produce the satisfactory outcome of policy integration in different cases (Verweij, 2015), i.e., the results of the QCA. There are three types of solutions: conservative, parsimonious and intermediate. The three can differ based on the use of simplifying assumptions²³, but are however all equally logical and non-contradictory (Ragin, 2008; Legewie, 2013). Conservative solutions allow for no use of simplifying assumptions, empty truth table rows are thus not induced into the results. A parsimonious solution formula will reduce the solution to the bare minimum of necessary conditions. Here, decisions on logical remainders are made automatically, regardless of substantive or theoretical arguments. The intermediary solution includes only simplifying assumptions that are consistent with theoretical or empirical knowledge (Legewie, 2013, p. 14).

²² To not oversaturate the QCA, a selection of up to six to eight conditions will be left in the data matrix.

²³ Using simplifying assumptions is a practice in which the researcher uses counterfactuals based on in-depth case and theoretical knowledge to assess if and how a given condition might be causally related to the outcome, in the truth table minimisation (Legewie, 2013; Ragin, 2008).

4.3. Ex ante assessment of the methodology

4.3.1. QCA: A quest of curiosity

As of 2021, the method and techniques that QCA offers are yet to be explored on a large scale in the (C/E) policy integration literature²⁴. With this master's thesis, we contribute to the literature by systematically focussing on necessary conditions for the outcome of C/EPI in eleven specific cases across the European Union and a multitude of policy domains. Moreover, given the exploratory stage of QCA in the field, we offer this 'quest of curiosity' new insights to the use of the method in this domain.

We already stated that QCA gives this thesis an edge analytically over other qualitative or even quantitative methods, but why is this? With this research, we try to identify complex causality or patterns of causality using strictly qualitative data from policy documents and project websites. This would not be viable through a purely qualitative inquiry, whereas QCA offers both an in-depth case-oriented approach in combination with the systematic and transparent way of working to be able to generalise findings to a certain cautious extent. QCA's versatility further is able to build up more cumulative knowledge in comparison to classic case studies. In comparison to purely quantitative research methods, QCA succeeds in actually identifying the extent to which a certain variable is important in the production of a certain social phenomenon. Quantitative methods such as regression analyses are then limited to investigating the influence a certain factor has on an independent variable, whereas QCA tries to identify the causal factors. Furthermore, policy integration has been claimed to be the new 'holy grail' to policy making for wicked issues (Candel, 2019). Here, QCA offers us both the systematic identification of policy integration within different cases and the identification of the drivers and barriers of policy integration. Inversely: what makes a wicked issue *wicked*.

4.3.2. Validity and reliability

Inducing theory from qualitative data is a non-linear and iterative process (Cepeda & Martin, 2005) in which researchers should be aware of their used methods and their role in it. Therefore, validity and reliability are two of the most important criteria of evaluating quality in a research. Decisions in the design of the research determine what knowledge can be created and how valid this knowledge is (Gabrielian, Yang & Spice, 2008). Following Guba and Lincoln (1994), for positivist cases, these concepts can be outlined into four variables: internal and external validity, reliability and objectivity²⁵. Therefore, in the following sections we will outline the implications of these concepts for our research. A general yet relevant remark consists of the fact that we did not conduct field research to control actual practices within the cases. Therefore, we will report results that are based on what is reported from the projects themselves since none of them are finished yet and are thus still subject to evaluation.

²⁴ Policy integration and QCA have been linked before in three recent academic journal articles. For reference, see van Geet, Verweij, Busscher and Arts (2021, June); Trein, Maggetti and Meyer (2020, July); and Baulenas and Sotirov (2020, September). The articles respectively tackle a csQCA on policy design for regional transport planning; an exploratory fsQCA, solely on the necessary conditions for policy integration and coordination reforms; and a fsQCA on policy integration instruments for the forest and water nexus.

²⁵ We are, however, aware of the conceptual difference in this matter between qualitative and quantitative research (Suter, 2012, p. 362-364). Given the unique qualitative position of a QCA we continue to use positivist terms, but from an interpretivist/qualitative light.

4.3.2.1. Internal validity

Internal validity – or approaching the concept of *credibility* – resembles the idea that a research measure what was aimed to be measured or to what extent evidence supports the claims of the research (Van Thiel, 2015; Gabrielian, Yang & Spice, 2008; Noble & Smith, 2015). In reference to the desk research, it is important to note the importance of secondary material as the data used for the analysis stems in its entirety from the mentioned EEA (2019) report. The use of secondary material confronts us with the ‘problem of data fit’ (Heaton, 2008; Van Thiel, 2015) or the fact that the secondary data was produced for a different purpose than that of this research. Nonetheless, these data tie into the issue this research addresses: the relation between policy and practice in the sustainable transitions– or the implementation of policy integration – in the EU. The limited selection of a sole source for secondary data can hence be motivated by this correspondence between the two research, yet also by the fact that the research topic is not yet much researched systematically across the EU. Moreover, the publication has been evaluated on quality based on its methodology and the legitimised status of the issuing institution. The use of this desk research could thus be considered as internally valid, however to a limited extent over the general research. The desk research acts more as a confirmation of the need of our research question rather than as part of its answer.

The QCA’s internal validity knows a different nuance, since we are collecting and analysing primary data. We do acknowledge a threat to the internal validity in the proneness to errors of a QCA. Inversely, one of the main strengths in QCA’s modus operandi is its focus on in-depth knowledge, which deals as an ex-ante minimiser of measurement errors (Thomann & Maggetti, 2017, p. 13). Warsen (2021) states that the need for strong iterative linkages between in-depth case knowledge and theoretical knowledge in the calibration process results in a strong content validity. This means that the QCA lends itself to an all-encompassing measurement in which all aspects of constructs or concepts are being considered. Moreover, as Thomann (2020, p. 257) mentions, this in-depth case knowledge that is implied when conducting a case oriented QCA helps to establish internal validity since it is perceived as the result of an intensive engagement with the qualitative data. This is the case because these forms of both theoretical and substantive knowledge can ex ante avoid errors in the truth table minimisation process or mitigate problems of limited diversity. Furthermore, in-depth knowledge facilitates the interpretation of the QCA results. Therefore, our medium-n case selection enhances the feasibility of an in-depth case knowledge which is also reflected in our systematic and transparent coding and calibration process (Pattyn, Molenveld & Befani, 2017). Moreover, we are ready to perform robustness tests (Thomann & Maggetti, 2017) in case limited diversity or contradictory rows imply a badly specified model, including utilising a different configuration of conditions. In conclusion, a QCA’s internal validity is certainly prone to threats. However, a deep case and theoretical knowledge should straighten some of these threats to a certain extent.

4.3.2.2. External validity

External validity – or transferability – refers to the argument of generalisation of research findings (Van Thiel, 2015; Gabrielian, Yang & Spice, 2008; Noble & Smith, 2015). Concerning the desk research, external validity is not too important since it does not present any primary research findings. However, the report’s systematic assessment across the EU is a basis for generalisation, which serves as an extra ground for its confirmative value for the appropriateness of this thesis.

Concerning the QCA, though, the classic trade-off between the depth and the empirical breadth of the research should be mentioned. A QCA's external validity is high when inferences about the case selection under scrutiny can be generalised beyond its boundaries (Thomann & Maggetti, 2017, p. 7-11). An inductive multiple medium-n case study has been conducted to be able to gather in-depth case knowledge, while still attempting to hold some middle-range generalisation value (Marx, Rihoux & Ragin, 2013; Thomann, 2020; Fischer & Maggetti, 2016). We had to consider the QCA's limits of comparable capacity in the sense that QCA can no longer be applied if there are so many cases that they become incomparable (Pattyn, Molenveld & Befani, 2017). Therefore, we stuck to a reasonable number of cases that are comparable because of their integrative nature, but vary in case location and the policy domains they cover. This allows for a cross-country and cross-sectoral at meso-level (Thomann, 2020), since we analyse certain organisations or projects within a country as nested within the multi-level system of the EU. However, the case selection is considered to be of medium size, yet only because it offers a view from some EU Member States. Hence, the generalisation capacities of these cases are rather limited.

Moreover, QCA's strength does not primarily lie in its generalisation capabilities. Its case-sensitivity and the contingencies they bring along usually make it rather impossible to generalise results for a certain population. Its capabilities do enable a 'limited' or 'contingent' generalisation and thus middle-range theory-development which needs further empirical testing. Furthermore, whereas QCA's sample size is limited, the ability to generalise also depends on the number of paths to an outcome that are covered by the findings and how many causal influences are considered. Finding complex explanations for a social phenomenon is then where purely statistical approaches lack. This makes our research somewhat transferable due to its refined and diverse findings (Thomann, 2020, p. 255-257; Befani, 2013; Fischer & Maggetti, 2016).

4.3.2.3. Reliability and objectivity

Reliability – or *dependability* – on the one hand and objectivity – or *confirmability* – on the other are secondary to validity and entail the consistency and replicability of the research, or to what extent the findings are actually derived from the available data instead of the researchers' imagination (Van Thiel, 2015; Gabrielian, Yang & Spice, 2008; Noble & Smith, 2015; Korstjens & Moser, 2017). These terms are primarily applicable on the systematic and transparent method that QCA embraces, which in turn de facto enhance both reliability and objectivity of the research. Following the neatly set up procedures of QCA, we enabled the replicability of the research. Moreover, its systematic process disables the threat of subjectivity to a high extent.

However, we acknowledge the big role we as researchers play in the coding and calibration processes and we have attempted to maximise objectivity by both using the same way of working and having multiple sessions to control our way of working both procedurally and substantively. Moreover, the limited amount of actual policy practices in the C/EPI field construe a challenge in defining what could be considered a barrier or a driver to the implementation of policy integration. Finally, as Runhaar et al. (2017) acknowledge, another challenge resides in defining what policy integration is supposed to achieve and thus to define when it is effective. These two challenges are hampering factors to the objectivity of the research, as the researchers are supposed to define own values based on acquired knowledge.

PART 3 |

EMPIRICAL RESEARCH

5. A PRELUDE TO THE EMPIRICAL RESEARCH

The methodology section has differed between the two methods this thesis uses to establish its findings. As a first component to the empirical research, we start with the brief desk research we conducted on the current state of climate and environmental policy integration in the European Union. This desk research acts as a prelude to the empirical research and is based in its entirety on the report on “Sustainability Transitions: Policy and Practice” from the European Environment Agency (2019b).

5.1. A desk research on the current state of the European sustainable transition

The mentioned report specifically discusses the relation between the sustainable transition and actual implementation of climate and environmental policies in the EU. This report takes former assessments into consideration and gives an overview of the current reality of the sustainable transition in the European union. This is rare as the relationship between policy and actual implementation in the field of sustainability is rather scarce, as mentioned in the report itself. As such, this report is tied closely to our field of research and its results can be used to strengthen our claims in our conceptual framework. On top of that, the report serves as a starting point in our empirical research that will put further inquiries into perspective (European Environment Agency, 2019b).

There have been different studies conducted on the relation between integrative policy approaches and an effective sustainable transition. Different EU policy documents have even shown a shift in policy approaches. In order to understand this evolution, it is equally important to understand the environmental issues that are currently plaguing the union. The report states a couple of things that support the assumptions of this research. The first statement in the report verifies the wickedness of Europe’s environmental issues. This wickedness results in a governance challenge as the intervening of the government in one sector can result in costs in other sectors. The report then proceeds to address the incapability of governments to deal with externalities as competitive and globalised markets do not allow that (European Environment Agency, 2019b).

5.2. Evolution in C/E policies in the EU

In the meantime, environmental pressures have been escalating and are still growing over time. This due to the growing global population and its “resource-intensive consumption”. As more areas in the world are developing, this consumption is growing at the same rate, if not faster. This consumption results in irrevocable and rapid environmental change, which contributes to the wickedness of the environmental and climate issues. The European Union has therefore acted through different policies which had crucial accomplishments in the last 40 years. The fact that integrated policy has been used more frequently throughout the last decades is due to the trial and error in policy approaches of the union which can be traced back to the early 1970’s. The report explains the evolution in policy approaches in the European Union in the environmental domain. These accomplishments however prove to be insufficient to achieve the EU’s 2050 vision and will therefore require fundamental transitions. Before going into further observations of the report, Table 10 provides an overview of the different perceptions of environmental challenges, policies and assessment approaches (European Environment Agency, 2019b).

Policy generation	Traits of key challenges	Key features	Policy approaches (examples)	Assessment approaches and tools (examples)	Examples	Success
First (1970s)	Specific	Linear cause-effect, point source, local	Targeted policies and single-use instruments	Data sets, indicators	The Waste Framework Directive	Inadequate to solve environmental problems
Second (2000s)	Diffuse	Cumulative causes	Policy integration, market-based instruments, raising public awareness	Data sets, indicators, environmental accounts, outlooks	Common Agricultural Policy (CAP), Common Fisheries Policy (CFP)	Inefficiently integrated
Third (2010s)	Systemic	Systemic causes	Policy coherence, systemic focus (e.g., mobility), multidimensional goals (e.g., SDGs)	Indicators, accounts, practice-based knowledge, systems assessment, stakeholder participation, foresight	Circular Economy Action Plan	-

Table 10 **Evolution of C/E policy approaches in the EU.**

Note. Adapted from “Sustainability transitions: policy and practice”, by European Environment Agency, 2019, p. 14.

A first observation that can be put forward is that policies in environmental domains mostly addressed individual issues that were based on a linear cause-effect principle. This can be perceived in the EU's first Environment Action Programmes (EAPs) that were running from 1972 till 1981. This first generation of environmental policy used regulatory interventions to deal with particular issues such as species protection, air quality and water quality. The Waste Framework Directive, for instance, used well-classified cause effect relationships to solve this problem. Since the 1970s, more than 500 directives, regulations and decisions have been accumulated that are now known as the “environmental acquis”, which are commonly used nowadays as environmental standards. This environmental acquis has had their positive impact as they lead to measurable and substantial enhancements in environmental preservation. The main accomplishments as confirmed by the EEA include the decrease of toxic emissions to soil, water and air; the formation of the world's biggest network of preserved areas under “Natura 2000”. In spite of the accomplishments, the policy approaches still proved inadequate to solve environmental problems that resulted from diffused pressures. An example of such a complex problem is the unsustainable use of natural resources, the environmental impacts of which the effects can be seen on human health among others and the biodiversity loss (European Environment Agency, 2019b).

The EEA calls the policies that arose as a solution to these complex problems as the second generation of policies. Most noticeable about the second generation and important to this study is the active pursuit of “*integrating environmental concerns into sectoral policies*.” Among these policies we find the EU’s 5th Environment Action Programme (EAP) in which “environmental integration” was introduced as a key mechanism. The sectors that were mostly targeted by this mechanism were tourism, agriculture, transport, energy and industry. Typical instruments that were used during this shift and that are considered as non-regulatory are financial instruments, market-based instruments, synchronisation with stakeholders and horizontal approaches.

Well-known policy frameworks are the Common Agricultural Policy (CAP), Common Fisheries Policy (CFP) and Cohesion Policy. These frameworks serve as examples to showcase how policy integration can be used to achieve advancement in the sustainable transition. The report of the EEA claims that while some progress was made in the fields of energy and climate policy, it still produces mixed results. This was due to the fact that in some cases the environmental concerns were inefficiently integrated into the sectoral policies. Next to the issues not being integrated, the policy instruments were not easy to implement as a clash between social, economic and environmental factors was inevitable and resulted in the necessary scale and speed not being met (European Environment Agency, 2019b).

The last decade, however, showed the surfacing of a “third generation” of policies that have a broader and more integrated long-term vision. Examples of this in the EU context would be the strategic framework of the Circular Economy Action Plan, the Energy Union and the ‘Europe on the move’ agenda. What is typical about these third-generation policies is the more systemic focus rather than the sectoral one. A more systemic approach entails a greater alignment and coherence. The focus lays furthermore on the transformation of the economy, the emergence of long-term framings and targets, multidimensional goals and the great emphasis on transition thinking or innovation in different policy areas. The report continues on to describe the emergence of these new frameworks as a result of governance’s challenges and the limitations that already existing policies showcase. This can be confirmed by the five-yearly report, the “State and Outlook of the European Environment” (SOER), which states that while environmental policies achieve successes in some areas, that success is always matched by enduring problems in other areas (European Environment Agency, 2019b).

Particular problems such as climate change, resource use and biodiversity loss prove to be increasing pressures to the ecological resilience. These issues are difficult because of their systemic nature and the dependency of the current lifestyle, technology, infrastructure and culture on these issues. These environmental impacts are attributed to the increase of living standards in developed regions. The region on which the EU is active is considered to be a developed region as well that with its growth in the 20th century was responsible for the disparate raises in environmental pressures. The resource use of well-developed countries alone exceeds the worldwide average biocapacity. Planetary boundaries have thus been crossed which can result in the “increased risk of irreversible and abrupt environmental change (European Environment Agency, 2019b).”

The emergence of integrated frameworks indicates the need for systemic change which, as earlier mentioned, focuses on the promotion of transformation and the broadening of the actors involved in the process. However, this will need the assistance of effective governance that in its turn will need the deployment of a broad range of policies and the coordination across governance scales and sectors.

The EEA states the importance that all actors should prioritise the sustainability transition in which cross-cutting policy agendas need to be furtherly developed. They also encourage to opt for more 'directionality and coherence' across policy fields and layers of governance (European Environment Agency, 2019b).

The EEA especially stresses the need for horizontal policy coordination in both sectoral and cross-cutting policies. As sectoral policies are crucial to solve environmental and climate related issues, the focus should also go to the cross-cutting policies that influence the sectors. Examples of cross-cutting policies are innovation policies, fiscal policies, industrial policies, etc. The latter, for example, shows a contradiction. As the use of new technological findings can stimulate the economy and result in a sustainable transition because of the diminished use of fossil fuels, it can simultaneously result in regions being forsaken and job losses for its population. The European Commission therefore thrives for equal evolution of all regions, which can technically slow down transitions. The Commission additionally advises policy makers to identify and correct existing policy misalignments. This advice flows from the many inconsistencies and incoherencies there are (European Environment Agency, 2019b).

The report however describes this as normal, as most sectors formulate their policies in their 'departmental silos'. Adding to that description is that every department has its own objectives and expertise which results in misalignments. This can occur in a department between the policy makers and the ones who will implement it. The misalignments can then happen in three stages: the policy goals, instruments and implementation. Correcting the misalignments between policies or to improve the coherence between them could be approached through two manners. The first one being redesigning the existing policy objectives and thus replacing the policy instruments. The second one opts for "patching up" the existing objectives by correcting the flaws or enable flexible adaptation. Patching up is the preferred strategy here as it is more realistic, and it is backed by empirical evidence (European Environment Agency, 2019b).

According to the report, a couple of things can hamper the implementation of policy. Aside from policy goals that need to be aligned, policy instruments will have to be aligned as well. Even when the last condition is being met there still needs to be a strong desire among the policy makers to engage in policy coordination, and by that, achieve policy coherence in the long run. Asides from the will of these policy makers, their capabilities will most of the time be limited by indecision and information asymmetry. These misalignments then result in the pursue of incoherent policy goals. In the report, environmental goals seldomly find political support, halting the policy prioritisation which may explain the relatively long policy evolution. To answer our specific research question: the report distinctly claims that solely integrating environmental claims across sectoral policies is not sufficient. As long as environmental commitments are not prioritised, they will always be undermined by 'broader policy aims' such as the pursue of economic growth (European Environment Agency, 2019b).

6. A QCA-ORIENTED CASE STUDY OF C/EPI IN THE EU

6.1. Identified conditions leading to C/EPI

The methodology section already discussed which cases were going to be analysed for this research. These eleven cases within Member States of the EU have been analysed through a deep QCA-oriented document analysis. All eleven cases either are integrative of nature or aspire to be throughout the execution of the project or strategy. The case study's objective is thus to investigate which causal conditions or combinations of conditions systematically appear to lead towards (a higher degree of) the outcome of C/E policy integration within these cases. As stated, the calibration of a fuzzy-set QCA relies on in-depth case and theoretical knowledge. Therefore, our assessment of the documents as provided by the cases targeted the inductive identification of these conditions. Table 11 provides an overview of all originally identified conditions and the measures by which they were identified.

Condition	Measures	
Clear metric for evaluation (CME)	Natura 2000 implementation targets	GHG and/or Renewable Energy targets
Consistency in outputs (CO)	Recent developments in projects	
Integrative nature (INT)	Extent of aimed integration	Extent of aimed coordination
	Extent of aimed coherence	Establishment of task forces
	Overarching funding strategies	Presence of a decision-making platform
	Coherence of different policy instruments	Change in organisational dynamics
	Coherence of projects, plans, programmes	Evolution in governance style
Implementing nature (IMP)	Joint sectoral interests/objectives	Extent of coordination between departments
	Extent of aimed implementation	Extent of actual implementation
Intermediary reporting and learning (IRL)	Enabling function	Aggregation of inputs
	Presence of reporting / learning tools and obligations	Extent of output used in further strategical planning
Perceived wickedness (PW)	Monitoring of risks	
	Necessity of climate adaptation/mitigation	Considered contingencies
Presence of political narrative and commitment (PNC)	Necessity of a systemic solution	Linkage between WP and governance
	Presence of overarching frameworks	Commitment and will of political leadership
	Desire to be exemplary	Coherence with international or European institutions/legislations
Role of stakeholder information and network (SIN)	Involvement of stakeholders	Importance of stakeholders
Society-wide transformative (SWT)	Presence / necessity of non-state actors	
Sustainable systemic transformation (SST)	Clear direction for change	Development of transformation pathways through support for innovative measures
	Long term goal clarity	Extent of knowledge diffusion
	Innovative vision	Extent of subsidiarity
	Extent of capacity-/resilience-building	Multi-disciplinary action
	Use of historical information	Extent of interdependency
Synergy of different sectors (SDS)	Cross-sectorality	Interdependency between sectors

Table 11 Originally identified conditions and their measures.

Note. Accents (in right border) are brought to the final remaining conditions (cf. infra).

6.2. Obtaining an aggregated dataset

6.2.1. Testing the robustness of the dataset

The resulting dataset from these identifications brought forth a very extensive configuration of eleven conditions. Appendix 2 shows the originally calibrated dataset as a result of the codebook in its entirety. However, this dataset also included a great deal of missing values, resembling missing conditions in cases. These are shaded in the table in Appendix 2. Legewie (2013) considered that missing values ought not to be included in a fsQCA data matrix, since these will not be available for analysis in the truth table. Therefore, logically considering conditions missing from cases have no membership within a case, we decided to assign a membership score of 0 to these missing values.

When we consider the empirically weaker conditions²⁶ such as “clear metric for evaluation (CME)”, “society-wide transformative (SWT)” and “perceived wickedness (PW)”, we see these cover little empirical data in the assembled codebook²⁷. Therefore, CME measures have been integrated within the condition of “political narrative and commitment (PNC)” since politics have inherently dominant presence within the process or regime (cf. supra) of goal setting and evaluation. The SWT measure has been integrated within the condition of “role of stakeholder information and network (SIN)” as both conditions are intertwined. Finally, PW measures have been integrated within the PNC condition since politics are dominantly present in priority-setting, policy making and governance. Furthermore, by running the fsQCA software we have been able to attain further knowledge on the need for a certain extent of recalibration of the data set. Appendix 3A shows the mean membership scores per condition as derived from the fsQCA software. Here, we identified the mean membership scores of conditions such as “consistency in outputs (CO)” and “synergy of different sectors (SDS)” to be exceptionally low. This implies that these conditions generally barely make part of the database. These thus resemble a limited presence and added value in the QCA which is reflected in the missing values they result in. Therefore, the CO measure has been integrated within the condition of “implementing nature (IMP)” since both conditions are again intertwined. SDS measures have been integrated within the condition of “integrative nature (INT)” since both conditions are intertwined and the condition of SDS provides very little added explanatory value to the QCA²⁸.

6.2.2. The final recalibrated dataset

This recalibration process showcases QCA’s iterative nature in practice. As can be viewed in Appendix 3A, mean membership scores remain largely constant with this recalibration. However, through reducing the number of conditions, a more concise database has been established. Therefore, accents have been brought into Table 11 to show the remaining conditions after recalibration. The dataset is stripped down to include just six conditions, making the QCA analysis less saturated and more manageable. Moreover, this operation has worked away 4/5th of initial missing values (from 45 to 9).

²⁶ We consider a condition to be empirically weaker when it covers less empirical data – and thus provides for more missing values – and/or the relevant conditions resemble low mean membership scores.

²⁷ Conditions CME, SWT and PW respectively cover 11, 5 and 28 records of 349 records in total.

²⁸ The SDS condition covered 8 of 349 records.

Incorporating all these changes, we obtain a final dataset in Table 12 with the six conditions and their aggregated fuzzy-set values. This dataset serves as the input for operating the fsQCA software.

Case IDs	Conditions						Outcome C/EPI
	IMP	INT	IRL	SST	PNC	SIN	
BELINI	1	0,67	0,33	0,67	0,67	1	1
C2CCC	0,33	0,67	1	0,33	0,67	0,67	0,33
LIFE	0	0,33	0	1	1	0	0,67
N2000	0,33	0,67	1	0,33	0,33	1	0,33
FRESHABITAT	0	0,33	0	0,67	0	1	0,33
GCAP	0	0,33	0,67	0,67	0,67	0,33	0,67
IPDELTA	0,67	0,33	0,67	0,67	0,67	1	1
DELTAPRO	0,67	0,67	0,67	0,67	1	0,67	1
NADAPTA	0,33	0,67	0,33	0,67	0,67	0,67	1
KLIMA2050	0,67	0,33	0	0,33	0,67	0,67	0,67
SCPF	0	0,33	1	0,67	0,67	0,67	1

Table 12 **Final fsQCA dataset, with shaded missing values.**

Note. IMP = implementing nature; INT = integrative nature; IRL = intermediary reporting and learning; SST = sustainable systemic transition; PNC = political narrative and commitment; SIN = role of stakeholder information and network

7. QUALITATIVE COMPARATIVE ANALYSIS RESULTS

This chapter encloses the results from a Qualitative Comparative Analysis on conditions leading towards the outcome of Climate and Environmental Policy Integration. Hence, sufficient and necessary conditions are sought. All analyses and findings are our own contribution and were performed using Charles Ragin and Sean Davey's fsQCA 3.0 software on the final dataset above.

7.1. The analysis of necessity

Prior to the main analysis of sufficiency in the truth table analysis, initial analyses will be conducted to explore set relations within the dataset. This includes the analysis of necessity, for conditions ought not only to be sufficient but also necessary to the outcome. A first analysis of necessity is conducted to investigate if the presence of – or the absence of – single conditions are necessary for the outcome of C/EPI. The consistency threshold for necessity was identified to be set at 0.9 by Rihoux and Ragin (2009). We use a threshold of 0.5 (Legewie, 2013) for the parameter of fit 'coverage', which indicates the empirical relevance. The results of this analysis of necessity can be viewed in Table 13.

Condition	Outcome	C/EPI		~C/EPI	
		Cons.	Cov.	Cons.	Cov.
Implementing nature IMP		0.500	1.000	0,330	0,248
Integrative nature INT		0.581	0.872	0,887	0,499
Intermediary reporting and learning IRL		0.541	0.764	0,557	0,295
Sustainable systemic transformation SST		<u>0.751</u>	0.900	0,773	0,347
Political narrative and commitment PNC		<u>0.794</u>	0.905	0,663	0,283
Stakeholder information and network SIN		<u>0.750</u>	0.781	0,890	0,348
Absence of an implementing nature ~IMP		0.624	0.713	1,000	0,429
Absence of an integrative nature ~INT		0.666	0.940	0,773	0,409
Absence of intermediary reporting and learning ~IRL		0.500	0.750	0,553	0,311
Absence of a sustainable systemic transformation ~SST		0.455	0.843	<u>0,777</u>	0,539
Absence of a political narrative and commitment ~PNC		0.371	0.746	<u>0,777</u>	0,585
Absence of stakeholder information and network ~SIN		0.374	0.901	0,440	0,398

Table 13 Initial analysis of necessity.

Table 13 shows that neither of the six conditions are consistent with necessity for the outcome of C/EPI – neither in presence nor in absence. Following Legewie (2013), this is not necessarily a bad thing. Finding a necessary condition is an empirically rare case and finding multiple might form a reasoning for recalibration, since multiple necessary conditions might indicate very low membership scores for the outcome variable (Legewie, 2013, p. 19). Hence, based on the results in Table 13 there is no theoretical need for further recalibration. Although no conditions are considered necessary, three conditions (SST, PNC and SIN – as underlined in the data) could be considered as “quasi-necessary” based on a lower consistency threshold of 0.75 instead of the high threshold of 0.9. Additionally, when the absence of C/EPI (~CEPI) is involved as outcome, little empirical evidence is manifested within the data. Quasi-necessary conditions for the absence of integration that do meet the coverage threshold include ~SST and ~PNC: inversely implying that both conditions are in fact quasi-necessary for C/EPI.

On the basis of these results, it would be interesting to combine the conditions of SST, PNC and IRL. Furthermore, building on theoretical knowledge, there is a basis for combining an integrative nature of a case with the presence of a sustainable systemic transformation and political narrative and commitment (INT+PNC+SST). Moreover, the combination of a political narrative, the enacting of reporting and learning tools – or the second approach to policy integration – and a systematic sustainable transformation (PNC+IRL+SST) might have beneficial impact on C/EPI. Additionally, C/EPI could benefit from the absence of an implementing nature and the presence of an integrative nature (~IMP+INT). Besides, given the whole-of-government nature of policy integration, the absence of a stakeholder network and the presence of a political narrative (~SIN+PNC) may as well drive policy integration. Therefore, we tested consistency in necessity for these combinations in Table 14.

	Outcome	C/EPI		~C/EPI
Conditions	Consist.	Cov.	Consist.	Cov.
SST+PNC+IRL	<u>0.876</u>	0.777	1.000	0.333
INT+PNC+SST	<u>0.835</u>	0.832	1.000	0.374
~IMP+INT	0.750	0.749	1.000	0.375
~SIN+PNC	0.794	0.905	0.663	0.283
INT+PNC	<u>0.835</u>	0.869	0.887	0.346
PNC + IRL	<u>0.835</u>	0.800	0.777	0.279

Table 14 **Further analysis of necessity.**

Note. Combinations of conditions operate under the set relation of ‘logical “OR”’, implying that the combinations are connected as alternative pathways to the outcome of (~)CEPI. E.g.: read “SST+PNC+IRL” as “SST or PNC or IRL”.

The above assumptions are partially confirmed through the analysis. The dataset still fails to identify empirically relevant combinations of conditions that are highly consistent with necessity. Nonetheless, the underlined consistency scores represent “barely inconsistent” necessary conditions. The highest consistency scores are again underlined in the table, each with high empirical relevance. As such, we find the following combinations to be barely inconsistent: SST+PNC+IRL; INT+PNC+SST, INT+PNC and PNC + IRL. These findings are still of great value, as they mainly indicate the importance and dominant presence of conditions SST, PNC and INT. These dominant conditions can be drawn on an XY-plot (see Figure 11) to further determine both necessity and sufficiency in set-relation to the outcome of C/EPI. These ambiguous two-dimensional plots show how SST and INT mainly indicate a relation of sufficiency, since their values are mainly positioned above the diagonal reference line. Contrarily, PNC on the other hand mainly indicates a relation of necessity (Legewie, 2013).

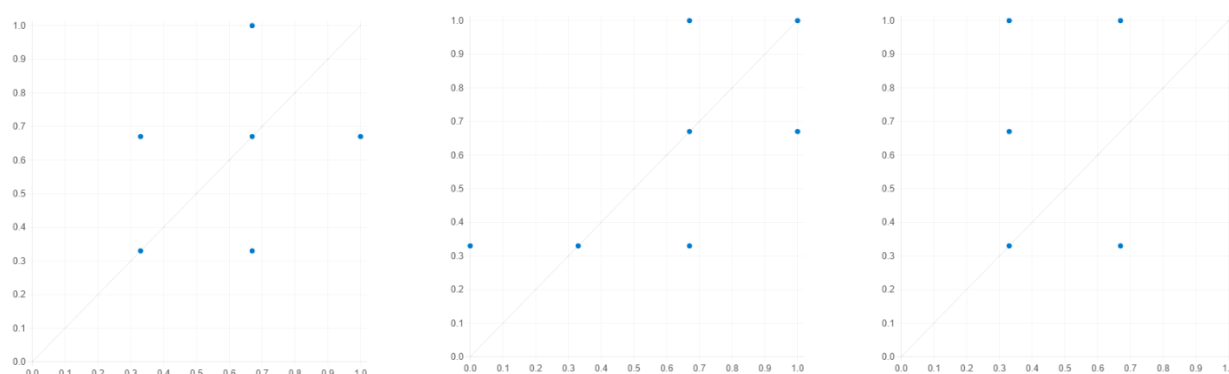


Figure 11 **XY Plots of conditions SST, PNC and INT (X-axes) in relation to outcome CEPI (Y-axes).**

7.2. The analysis of sufficiency

The next step of the QCA-analysis entails the analysis of sufficiency, for which we turn to generating a truth table. As elaborated on in the methodology, the truth table assigns each case to all configurations of logically possible combinations of conditions (Legewie, 2013; Verweij, 2015). We opt for a consistency threshold of 0.8 for the analysis of sufficiency. As such, the outcome of C/EPI will be assigned a score of “1” if it fulfils this requirement. Those configurations are then considered as sufficient for the outcome and will be included in the process of logical minimisation. Moreover, we operate this truth table with a limited number of cases. Therefore, the truth table’s design, we opted for a frequency threshold of 1 so a configuration must occur once before being eligible to be included in the minimisation. Table 15 displays both the truth table and the intermediate result for the drivers of C/EPI. No simplifying assumptions were made in the TTA, nor was it necessary to select prime implicants to further minimise the solution. A truth table was also set up for the absence of C/EPI or \sim CEPI (see Appendix 4), yet no conditions were sufficient and there were no solution terms available.

Conditions							Outcome	raw consist.	PRI consist.	EU MS
IMP	INT	IRL	SST	PNC	SIN	N	CEPI			Cases
0	0	0	1	1	0	1	1	1	1	EU1
0	0	1	1	1	0	1	1	1	1	GER
1	0	0	0	1	1	1	1	1	1	SP2
0	1	0	1	1	1	1	1	1	1	SP1
1	1	0	1	1	1	1	1	1	1	BEL
0	0	1	1	1	1	1	1	1	1	SWE
1	0	1	1	1	1	1	1	1	1	NL1
1	1	1	1	1	1	1	1	1	1	NL2
0	1	1	0	1	1	1	1	0.872	0.795	DEN
0	1	1	0	0	1	1	1	0.853	0.744	EU2
0	0	0	1	0	1	1	1	0.829	0.660	FIN
Intermediate solution term								raw cov.	unique cov.	cons.
\sim IMP* \sim INT*SST*PNC* \sim SIN								0.374	0.126	1.000
\sim IMP*INT*IRL* \sim SST*SIN								0.289	0.000	0.773
INT* \sim IRL*SST*PNC*SIN								0.333	0.085	1.000
\sim INT*IRL*SST*PNC*SIN								0.415	0.043	1.000
IMP*IRL*SST*PNC*SIN								0.333	0.043	1.000
\sim IMP* \sim INT* \sim IRL*SST* \sim PNC*SIN								0.206	0.041	0.829
IMP* \sim INT* \sim IRL* \sim SST*PNC*SIN								0.249	0.043	1.000
Solution coverage: 0.794										
Solution consistency: 0.862										

Table 15 Truth table for drivers of C/EPI and the intermediate solution term.

Note. Cases will be displayed in the truth table as the representation of the relevant EU Member State: **BELINI** = BEL – **C2CCC** = DEN – **LIFE** = EU1 – **N2000** = EU2 – **FRESHABITAT** = FIN – **GCAP** = GER – **IPDELTA** = NL1 – **DELTAPRO** = NL2 – **NADAPTA** = SP1 – **KLIMA2050** = SP2 – **SCPF** = SWE.

The intermediate solution term balances the parsimonious and the complex solution term (Ragin, 2008, p. 175). However, the TTA provided the same results for the complex solution term and no parsimonious solution term was given. Given the complex nature of the social phenomenon of policy integration, the solution term gives multiple combinations of conditions (or “causal recipes”) of which one is inconsistent with necessity. All other combinations of conditions are consistent with sufficiency and coverage scores are relatively high. To recapitulate these concepts: the raw coverage of a recipe contains the extent to which a recipe can explain the outcome. Unique coverage entails the proportion of cases the recipe uniquely covers. The solution coverage then reveals to what extent the membership in the outcome can be explained by membership of all cases in the recipes. The solution consistency then reveals the combined consistency of all causal recipes (Legewie, 2013, p. 19-21). Finally, all cases were identified as part of the minimisation process, meaning there are no deviant cases.

The solution term gives “**~IMP*~INT*SST*PNC*~SIN**” as the most optimal causal recipe, through a relatively high raw coverage of 0.374 and unique coverage of 0.126²⁹. The recipe’s higher unique coverage accompanies a higher empirical relevance as it provides evidence beyond the reach of the rest of the model. The cases with high membership scores (>.5) that were covered in this recipe were: LIFE and GCAP. This first recipe suggests that C/EPI can be produced through the combination of an integrative case nature and the presence of a political narrative and commitment, ideally enveloping a sustainable systemic transition. This finding is supported by 37.4% of the empirical case evidence, and 12.6% of this recipe is supported solely by the cases present within it. The next optimal causal recipes include the combinations of “**INT*~IRL*SST*PNC*SIN**” and “**~INT*IRL*SST*PNC*SIN.**” These respectively hold raw coverage values of 0.333 and 0.415, with unique coverage values of 0.085 and 0.043. The cases with high membership scores covered in this recipe were respectively: BELINI and NADAPTA; IPDELTA and SCPF. These values are lower, but still noteworthy to investigate these recipes within and across cases. These recipes clear up that, within the constraints of the dataset, most conditions are sufficient to the production of the outcome. It appears an implementing nature of a case is only sufficient for producing C/EPI in its absence, while sustainable systemic transformations and political narratives and commitments are always deemed sufficient in its presence.

7.3. Design sensitivity tests

A first sensitivity test could be run by lowering the consistency threshold of sufficiency to 0.75 for the inclusion of configurations in the TTA. However, this resulted in an identical truth table as for the original cut-off point. The second test involves a reflection on the updated dataset through which this truth table is generated. This set still includes two empirically weaker cases in LIFE and FRESHABITAT given the fact that these both incorporate three missing values. Moreover, both cases of N2000, FRESHABITAT and LIFE could be considered less empirically relevant since these account for a mere combined 43 records out of 349. Moreover, Appendix 3B shows how mean membership scores also generally increase when subtracting these cases from the equation. Therefore, it could be interesting to leave these three cases out of the dataset for generating new solution terms in Table 16.

²⁹ Unique coverage is not unusual to be rather low (< 0.150) (Legewie, 2013), implying that all output from the solution term are acceptable values.

Conditions	Raw coverage	Unique coverage	Consistency
$\sim\text{IMP}*\sim\text{INT}*\text{IRL}*\text{SST}*\text{PNC}$	0.399	0.102	1.000
$\text{INT}*\sim\text{IRL}*\text{SST}*\text{PNC}*\text{SIN}$	0.399	0.102	1.000
$\text{IMP}*\text{IRL}*\text{SST}*\text{PNC}*\text{SIN}$	0.349	0.102	1.000
$\text{IMP}*\sim\text{INT}*\sim\text{IRL}*\sim\text{SST}*\text{PNC}*\text{SIN}$	0.298	0.051	1.000
$\sim\text{IMP}*\text{INT}*\text{IRL}*\sim\text{SST}*\text{PNC}*\text{SIN}$	0.297	0.000	0.853
Solution coverage: 0.753			
Solution consistency: 0.937			

Table 16 **Intermediate solution term for a redesigned truth table (excluding FIN and EU).**

Through this analysis, a new causal recipe is discovered in “ $\sim\text{IMP}*\sim\text{INT}*\text{IRL}*\text{SST}*\text{PNC}$ ”, both fully consistent with sufficiency and holding relatively high raw and unique coverage scores (respectively 0.399 and 0.102). This recipe includes the following high-membership cases: GCAP and SCPF. This recipe entails an integrative nature and the presence of reporting tools and obligations. Moreover, it encompasses the presence of a political narrative and commitment, again ideally surrounding a sustainable systemic transition. The following recipes of “ $\text{INT}*\sim\text{IRL}*\text{SST}*\text{PNC}*\text{SIN}$ ” and “ $\text{IMP}*\text{IRL}*\text{SST}*\text{PNC}*\text{SIN}$ ” were previously revealed in the above solution. However, both are indulged in higher overall coverage and are still fully consistent with sufficiency. These recipes respectively include the following high-membership cases: BELINI and NADAPTA; and IPDELTA and DELTAPRO. Furthermore, where this solution term gives in in solution coverage, solution consistency has been increased. Hence, this solution explains less of the total variance across all cases included in the recipes, yet combined consistency and thus sufficiency is higher. On the one hand, this could however imply that the absence of the Finnish and European cases makes it easier for a condition or recipe of conditions to be sufficient, given the reduced empirical evidence. On the other hand, it could establish a certain weight on the other cases, who provide for more evidence in the complete dataset, for producing a more sufficient recipe of conditions.

8. DISCUSSION

Now both the brief desk research and the Qualitative Comparative Analysis have provided with results, this discussion acts as a liaison between the literary review and the empirical results to discuss the results and interpret them further to unroll our main findings. The ultimate goal of this discussion is to determine whether or not our preconceived hypotheses are confirmed and to give answers to our research sub questions. Before going into the discussion of the results and our findings, we would like to acknowledge some general remarks on the QCA we have conducted for this research.

8.1. General remarks on the QCA results

A first remark, which has already been partially covered in the discussion of our validity and reliability, comprises an inherent limitation of our research. The fact that we did not conduct any field research to control or evaluate actual case practices is reasonable, given the scope and the feasibility constraints of this master's thesis. Moreover, no case projects are finished yet and are thus still subject to external evaluation. Hence, this fact implies that we can only investigate what is reported by the project leadership themselves. As such, the picture that is drawn could well be a better picture than reality sees fit as projects can often be subject to desired or aspired outcomes. Tracing such remark back to the case selection, an argument can be made to select only finished and/or evaluated projects as cases. We do acknowledge this, yet the goal of this thesis was to investigate and map contemporary case practices of climate and environmental policy integration, i.e., policy practices of the third generation of European climate and environmental policy.

Moreover, it is important to note that the original dataset we derived from our first unedited codebook was deemed to be not good enough. The reasons therefore were, as discussed in chapter six, that the dataset reflected too much diversity in conditions and simply resulted in too much missing values. This implied both that there were too many conditions, and some conditions were rarely found in other cases than the one it was originally detected in. On the one hand, this limitation may find its origin in our manner of coding the empirical data, as it may have been conducted too incoherently among the cases. On the other hand, it could be led back to our case assessment criteria which may have been too excessive, which could in turn lead to the diverse amount of originally identified conditions.

It must be stated, though, that the new dataset was in fact more concise and provided for objectively clearer and improved results, both descriptively and in actual output. Through this reduction of the dataset, mean membership scores, consistency levels and coverage levels all increased in both the truth table and in its solution terms. Nevertheless, in the analysis of the truth tables, we did not encounter any "QCA-typical" problems that we have mentioned in the methodology section. We identified no logical remainders or empty rows, nor did we find any contradictory rows in which one configuration disproves another. Moreover, we did not have to conduct a counterfactual analysis as there was no need for using simplifying assumptions – nor did they make a difference in the solution terms. This might not sound as a limitation, although the results reflected a certain degree of constrained diversity since all conditions were once covered in the solution term. With six conditions being present in the dataset, such event seems improbable, yet not impossible given the complex nature of the social phenomenon we investigated. Complex problems are bound to be dealt with in a complex fashion. Therefore, complexity might be reflected through complex formulas of conditions.

8.2. Substantive interpretation of results

8.2.1. Linking the desk research to our hypotheses (H1.1)

The acknowledgement of these couple of main remarks does not revoke the fact that we have obtained several legitimate and authentically gathered results. Commencing with the recapitulation of the results of the brief desk research first, we are able to answer the first part of our first hypothesis (H1.1). This hypothesis embodies our assumption that a lack of systemic approaches in earlier policies or policies that have been conducted until now formed a barrier to the implementation of climate and environmental policy in the EU. The EEA (2019b) played a big role in providing the necessary information through a report called "Sustainable transitions: policy and practice." This report is of certain importance by studying the relation between sustainable transition and actual climate and environmental policy implementation. Such reports are scarce as the linkage between both concepts are something that is recently being researched in this field of study. The report was particularly useful in substantiating our assumptions and to provide an answer to the first hypothesis.

There were several assumptions mentioned throughout this research of which the wickedness of the matter at hand is the most important. We followed van Zeijl-Rozema et. al (2008) in their claim that wickedness and social complexity undermine the traditional forms of governance which implies the need for more innovative forms of governance. The report confirms through stating that wickedness brings forward governance challenges which needs a holistic approach as most of the member state governments are incapable to deal with the externalities of climate change and environmental issues. Most notably aside from the wickedness is the evolution of policies which the European Union apprehended to tackle the wicked issues.

A first note is the change of perception during the course of 50 years. We can say that the issues got increasingly perceived as wicked through time and the policies proved to be insufficient. This goes hand in hand with policy integration winning importance and becoming a separate goal within C/E policies rather than a mean to achieve the actual C/E goals. The final and most crucial to our hypothesis is the evolution towards a systemic approach, as policy integration on its own was not sufficient. The policies highlight the importance of indicators, knowledge systems and stakeholders among others and thus stresses the importance of a holistic approach. The report in its turn confirms the importance Tan et al. (2019) and Hopkins et al. (2012) have put forward by stressing out the urgency of a shift from linear cause-effect interpretations towards a holistic interpretation.

We perceive the evolution towards system thinking as evidence to the necessity of its presence in order to achieve a better policy integration. These policies are categorised as third generation policies and have taken place in the last decade. While the report confirms the first hypothesis, we cannot fully assume that a holistic approach is necessary. Neither can we fully assume that its lack formed a barrier to both policy integration and in its turn climate and environmental performance. This for the simple reason that the actual effect of these policies needs years to show their influence. To sum up everything that has been stated so far, a holistic approach is now being perceived as a driver to climate and environmental performance and a facilitator to policy integration to policy makers. This however is not an absolute truth holding in mind the evolution of policies in the report that show that policy makers are changing their approach as time is proceeding.

8.2.2. Linking conditions back to empirical evidence

This second part in the interpretation of results will guide us through the answering of the other part of the first hypothesis and the other two hypotheses (H1.2, H2.1, H2.2 and H3). Prior to that, we will take a more in-depth look at how our fsQCA results were established. Through the analyses, we found that none of our conditions were necessary for the outcome of C/EPI, not alone nor in combination with other conditions. We did find conditions that were quasi-consistent with necessity. These were SST, PNC and SIN as single conditions. The quasi-necessity of PNC and SST was proven again by the fact that their absence also preserved the absence of C/ECPI. However, such claims are bold without feeding back to empirical evidence and even so, these relations of necessity are hard to find empirically. From our case knowledge, an argument could be made that predominantly PNC and SST are of 'necessary nature' for facilitating C/EPI. Concerning SIN, it can be stated that there is no real basis for considering it as necessary for producing the outcome of C/EPI, suggesting the contrary of what the data foretold. The only case in which we identified a high actual stakeholder involvement was The Netherlands because of what the Dutch call "*poldering*," a coordinated and consensus-based process in which different actors sit together to come to an agreement. As such, The Netherlands holds our only cases in which measures are taken to highly involve actors from different sectors – both public and private. Other cases including Belgium, Denmark, Finland, Germany, Sweden and Spain temporarily cease to go farther than deeming stakeholder networks and their involvement as important. Nevertheless, specific actions are yet to be taken or reported in those cases.

As such, PNC on the one hand is highly present across the database in multiple ways. The political narrative is often shaped by international and/or European pressure. All cases are either directly affiliated to European legislation or fall under the EUs legislative powers through their membership within the Union. Moreover, mainly the alignment with the Paris Agreement of 2015 comes up as an international agreement as international pressure and this in the cases of Denmark (C2C CC), Germany (GCAP) and Sweden (SCPF). Furthermore, the narrative towards policy integration is also shaped by the perceived wickedness of the problem, primarily for the detrimental effects climate change will have or already has. All cases in Belgium (BELINI), Germany, The Netherlands (IPDELTA & DELTAPRO), Denmark, Sweden and Spain (NADAPTA & KLIMA2050) report of a high problem wickedness. The present political narrative also reflects in a high political commitment to solve complex issues, mainly on the EU-level (LIFE & N2000). This is a logical finding, as the EU merely enables policy and can therefore exert its influence through its committed political leadership. MS in which this was also recorded were Belgium, Germany and Sweden. Elements leading towards a SST on the other hand are the second most identified records in the database, with PNC ending at third place. Here, either the aspiration to or the effective action towards multi-disciplinary action is highly present in The Netherlands, Spain, Sweden and Germany. This was mainly recorded through the acknowledgement of the case projects that measures will affect a myriad of different sectors in different disciplines. Sustainable innovations were further recorded a lot in The Netherlands, the Spanish Basque region (KLIMA2050) and Germany. Further recordings in this condition entail the desire to enhance capacity-building (BEL, DEN, FIN and SP2), knowledge diffusion across government levels (BEL and NL), the extent of subsidiarity or downscaling of decision-making (DEN, SP and SWE).

Furthermore, the analysis of necessity also detected the combinations of SST+PNC+IRL, SST+PNC+INT, or INT+PNC to be quasi-necessary. The presence of INT is detected through factors leading to both policy coordination and policy coherence, in alignment with Table 3. Projects in Denmark and Finland (FRESHABITAT) fixated more on the coordinative aspect of policy integration, based on practices surrounding better governance and cooperation between actors and by expressing a need for cross-boundary cooperation to solve their complex problems. In the cases of The Netherlands, Belgium, Spain and Germany, we identified the establishment of decision-making platforms to enhance coordination and cooperation. Generally, in such platform both different levels of responsible governments, administrators of umbrella organisations, different departments and experts in their respective relevant fields were present. As such, we identified case practices of what Cejudo and Michel (2019) believed to be an important integrating instrument. In the Netherlands, a governance tool was created for the IPDELTA project: IGAN2000 or "*Integrated Governance Approach for Natura 2000*". This tool aims at ensuring maximal coordination between all parties involved. Changes in organisational dynamics were mainly found in the Navarre region (NADAPTA or SP1), Sweden and The Netherlands (DELTAPRO). Navarre mainly established a task force to form cooperation between the regional and local governments, but Environmental Climate units were established in each governmental department of the region. The Netherlands and Denmark both established advisory councils. Sweden established an independent Climate Policy Council to support the national government in its assessment if national climate policies are aligned with achieving the country's climate goals.

Following the desk research, the third generation of policy integration is fixated on policy coherence. Empirical evidence shows that three quarters of our integrative records in the database is connected to either aimed coherence or actions to enhance it. The Netherlands, for example, focus on the alignment with the Dutch Prioritised Action Framework, Natura 2000 objectives, other relevant Dutch initiatives and their respective relevant EU legislations or strategies. The Dutch also seek coherence between sectors to increase cross-sectorality (or sector coupling). The Belgian, Danish, Finnish and Spanish cases mainly focussed on coherence with EU legislations and intergovernmental policy coherence where necessary. The Swedish government primarily focussed on making a coherent climate policy in terms of common goal clarity, long term approaches and integrating climate objectives into all policies. When it comes to an overarching funding framework, the Dutch DELTA Programme came up as the only case within a Member State to fully implement such thing. The Delta Fund finances both necessary investments and organisational costs for each of the sub-programmes within DELTAPRO.

A final important condition includes IRL. The most prominently recorded (cases in Belgium, Denmark, The Netherlands, Sweden, Germany and the Navarre region) measure within this condition was the extent to which outputs were used in the development of further strategical planning. The presence of reporting and learning tools was mainly recorded in The Netherlands (IPDELTA) and the region of Navarre. These respectively used governance to learn of successes and failures of cooperation, and scorecards with clear evaluation criteria and monitoring objectives. The actual monitoring of risks was recorded in Denmark through the use of warning systems, The Netherlands (DELTAPRO) where risk is seen as a driving factor in taking policy measures, and the Navarre region which mainly uses risk assessments.

All the conditions that have been elaborated on thus far, were also mentioned in the solution of the analysis of sufficiency. However, all the most optimal causal recipes also included our last condition IMP, yet primarily in its absence. This implies that for C/EPI to be produced within these solution formulas, an implementing nature ought to be absent. Looking back at our empirical evidence, this could be led back to the fact that we defined policy implementation to be about actual implementation of climate and environmental policy. As such, it is not necessarily about integrative governance. Examples on the presence of IMP can be found in Belgium, where implementation was focussed on the creation of ecosystem through C/E measures. The Danish case then aimed at identifying resources and adaptive capacities. Other cases focus on the implementation of their respective overarching frameworks, without mention of how the frameworks came to be.

8.2.3. Linking QCA results back to our hypotheses (H1.2, H2.1, H2.2, H3)

When we link back to our QCA results, we are able to identify both necessary and sufficient combinations of conditions that produce the outcome of C/EPI. Therefore, this part will further handle our hypotheses. Firstly, Table 17 provides an all-round summary of relevant QCA results, i.e., all consistent and empirically relevant results to facilitate the hypothesis discussion.

Relevant (recipes of) conditions	Consistency	Raw Cov.	Unique Cov.
Analysis of necessity			
→ SST	<u>0.751</u>	0.900	-
→ PNC	<u>0.794</u>	0.905	-
→ SIN	<u>0.750</u>	0.781	-
→ SST+PNC+IRL	<u>0.876</u>	0.777	-
→ INT+PNC+SST	<u>0.835</u>	0.832	-
→ INT+PNC	<u>0.835</u>	0.869	-
→ PNC + IRL	<u>0.835</u>	0.800	-
Analysis of sufficiency [FULL]			
→ ~IMP*~INT*SST*PNC*~SIN	1.000	0.374	0.126
→ INT*~IRL*SST*PNC*SIN	1.000	0.333	0.085
→ ~INT*IRL*SST*PNC*SIN	1.000	0.415	0.043
Analysis of sufficiency [REDESIGNED]			
→ ~IMP*~INT*IRL*SST*PNC	1.000	0.399	0.102
→ INT*~IRL*SST*PNC*SIN	1.000	0.399	0.102
→ IMP*IRL*SST*PNC*SIN	1.000	0.349	0.102

Table 17 Summary of relevant QCA results for the outcome of CEPI.

8.2.3.1. Hypothesis 1.2 | INT + SST → C/EPI

The second part of the first hypothesis represents our assumption that factors leading towards policy coordination and policy coherence, combined with the extent of a sustainable systemic transition within a case will drive the implementation of C/EPI. In QCA terms, this can now be translated as “INT + SST → C/EPI.” For this part of the hypothesis, we turn to the results from the truth table which have the highest coverage values. On the one hand, as can be seen in Table 16, the original TTA projected one single recipe of causal conditions in which the presence of INT actually was consistent with sufficiency. The other two recipes that consisted of high empirical relevance values predicted these

factors leading to integrative policy making to be valuable to the production of C/EPI, yet only in their absence. It goes without saying that this finding is relatively improbable, given that policy integration takes both policy coordination and coherence (Dupont, 2016, as cited in Table 3). Considering a redesigned TTA, however, one has to consider that the absence of INT causes C/EPI within the dataset as much as it would in its presence in another causal recipe. On the other hand, each causal recipe acknowledged the presence of SST to be sufficient for producing C/EPI, in both TTAs.

Consequently, we argue that this second part to the first hypothesis can be partially confirmed. To a certain extent, it is proven that the presences of INT and SST do in fact drive the production of C/EPI as an outcome. However, there are two aspects left to discuss in this situation. Firstly, it is interesting to investigate why factors leading to integrative governance would serve as a barrier to produce the outcome of policy integration in the dataset. Moreover, the consistency score of 1 implies that no cases deviate from this pattern and the high coverage scores imply they are empirically relevant. This could be traced back towards our value definitions for the calibration of the outcome CEPI. When there are more records within a certain case in the database, it is easier to find the weakest link to be of a rather low membership score in the database. In cases with more integrative-minded records, lower membership scores could have resulted in a lower degree of either coordination and/or coherence. Otherwise, this could all represent a higher value to the importance of SST in the dataset. Especially given the fact that systems thinking has gained ground in the field of sustainability transitions (EEA, 2021). Concerning SST, secondly, it is important to note that these two variables or conditions do in fact drive C/EPI, yet in congruence with the other mentioned conditions. As such, it can be perceived that SST drives the outcome in combination with the presence of PNC. Other possibilities include that SST drives policy integration in combination with the absence – or presence – of SIN or in combination with the absence – or presence – of IRL. Finally, IMP is also primarily recognised to be a valuable factor in its absence. As such, there are many possibilities in how SST can drive the implementation of C/EPI, which counts as well for INT. Therefore, this hypothesis is in fact partially confirmed.

8.2.3.2. Hypothesis 2 | PNC + INT / IRL \rightarrow C/EPI

Our second hypothesis encompasses the assumption that the presence of a political narrative and commitment will benefit the production of C/EPI, either in combination with the presence of factors leading towards policy coordination and policy coherence or with the presence of measures for reporting and learning. Again, in QCA terms this can be translated to “PNC + INT \rightarrow C/EPI” and “PNC + IRL \rightarrow C/EPI.” For this hypothesis handles both necessity and sufficiency, both results in Table 16 are essential. When it comes to necessity, it can be stated that neither PNC, INT, nor IRL are individually consistent with necessity for the outcome of C/EPI to be produced. However, in combination, PNC+IRL and PNC+INT are both barely inconsistent with necessity (0.835 consistency). For the analysis of sufficiency, PNC is mentioned in each recipe, which is no unlikely events considering the importance of horizontal alignment and a cultural shift to adapt to a big high-level political will when approaching policy integration (Worker, 2017). Concerning IRL, the original results suggest that the presence of the condition is covered more by empirical data than its absence, although both are fully consistent in their respective recipes of conditions. This result was expected, following Tosun and Lang’s (2017) second approach to policy integration that entails the umbrella of policy appraisals that entails RIAs. They highlight the systematic collection of evidence to analyse policy options on the basis of their costs and

benefits, yet also their uncertainties to assist policy development. In the redesigned TTA, IRL mainly produces the outcome in its presence, however among other conditions. Concerning INT, the same reflections count as in the discussion of Hypothesis 1.2. As such, this second hypothesis can again be partially confirmed, due to the ambiguity of the absence or presence of both INT and IRL and to the fact that causal recipes include other conditions as well to produce the outcome of C/EPI.

8.2.3.3. Hypothesis 3 | SIN as an insufficient condition

Our third and final hypothesis encompasses our assumption that a whole-of-society approach to policy making (assigning a major role to stakeholder involvement and networks – SIN) might be necessary, but not sufficient to producing C/EPI. When it comes to the analysis of necessity, we have already identified that SIN as a single condition is only quasi-necessary at a consistency level of 0.750 for the outcome of C/EPI. Through the results of the analysis of sufficiency, it can be seen that the condition of SIN is present in every configuration of the original solution formula. However, in the recipe that is most empirically relevant – with a raw coverage value of 0.415 – SIN is predicted to be present in the production of the outcome, while in the second most empirically relevant recipe it is supposed to be absent. Moreover, without consideration of the empirically weakest cases in the redesigned TTA, SIN is always considered as consistent with sufficiency in its presence. Nonetheless, as presented before, it has become clear that only the Dutch seem to be heavily stakeholder-minded within our selection of cases. Other cases merely deem stakeholder involvement important, however it could still be too early for reports on these actions to emerge. It can thus be stated that despite the fact that SIN is clearly a subset of the outcome in the database, its value within the solution formulas can be undermined through empirical evidence.

We thus acknowledge this third hypothesis to be confirmed, as SIN is both deemed inconsistent with necessity and insufficient to produce C/EPI alone nor in its empirical presence as a part of a solution formula. This is a likely outcome, as the focus of this thesis was to investigate policy integration from a structural-instrumental perspective (Christensen & Lægreid, 2006), which is primarily a government- and governance-centred point of view to policy integration. Moreover, through this whole-of-government perspective to policy integration, we mainly focussed on organisational and government-centred ideas. However, this does not take away from the fact that high stakeholder involvement was rarely recorded in the case analysis, leading logically to a low engagement of SIN in the final solution formulas.

9. CONCLUSIONS

9.1. General conclusions

This thesis has investigated what conditions could determine the implementation of climate and environmental policy integration within the European Union and its Member States. Here, two sub questions were raised. The first of which examined the main barrier to EU action on climate and environmental policy. The second fixated on conditions by actively researching which combinations specifically have a stimulating effect on climate and environmental policy integration (C/EPI). It is through these research questions that we have scrutinised the current state of whole-of-government policy making and how it could enhance the European sustainable transition as a feasible solution to wicked problems.

The literary review revealed a growing consensus that complex problems require a more integrative way of governance than what is still prevalent among EU Member States. Through a structural-instrumental perspective to whole-of-government, we discovered a close connection to policy integration. From there, we were able to explore climate and environmental policy through an integrative point of view as a whole-of-government approach. Policy integration and its related concepts have known a vast increase of interest, yet policy practices and implementation of the concept are still largely lacking. However, the European Union has taken the lead in applying climate and environmental policies, and in policy integration in that regard. In order to answer the research questions, the literary review enabled us to establish several hypotheses. These could be substantiated at the hand of a brief desk research and a thorough Qualitative Comparative Analysis. The aforementioned research methods allowed us to congregate empirical evidence on policy practices of climate and environmental policy integration in eleven cases across the European Union. The empirical evidence enabled to test the hypotheses to a certain degree, if not partially, and in turn offer an answer to the research questions. The five hypotheses however had a major role in guiding the actual research.

In the first hypothesis, it is claimed that the lack of systemic approach in earlier policy formed a barrier to climate and environmental policy. This could be substantiated in the performed desk research of which the results proclaimed systemic approaches as a driver to climate and environmental policy and a facilitator to policy integration. This however cannot fully answer the first sub question, holding in mind the evolution of policies that show how volatile policy makers are in changing their approach or perception as time proceeds. A second part of this hypothesis tests the relations of sufficiency between factors leading to integrative governance and the extent of a sustainable systemic transformation. Here, we concluded that both conditions were in fact drivers of climate and environmental policy integration. Yet, the QCA's solution formulas were too ambiguous to fully confirm this hypothesis. The second hypothesis partially confirmed that the presence of a political narrative is in fact one of the sufficient conditions driving policy integration, especially in combination with either present reporting and learning tools or factors leading to integrative governance. However, here too were the solution formulas too ambiguous to fully confirm the hypothesis. Finally, our third hypothesis was confirmed in the sense that stakeholder involvement is an insufficient condition to produce the outcome of policy integration. This condition was perceived to be rather absent within the dataset and therefore its empirical relevance disputed the QCA's suggestions that the condition was in fact sufficient.

Through the data analysis, we learned that more conditions ended up in the solution terms than expected. This resulted in only partially confirmed hypotheses through the fact that the solution is more ambiguous than the inclusion of just two or three conditions. Therefore, our established hypotheses form only a part of the full answer to our main research question. Whereas the hypotheses partially provide combinations of conditions, the actual solution formulas as generated by the truth table analysis give a broader answer. Hence, we can conclude through the answering of our main research question. We conclude that the optimal causal recipes for the production of climate and environmental policy integration will include the presence of (1) factors leading towards integrative governance; (2) a strong political narrative and commitment towards sustainable development and climate and environmental policy; (3) actions leading towards systemic sustainable transitions; and (4) procedural reporting tools to facilitate policy learning. We also recognised that, within our dataset, (5) the implementation of climate and environmental policies and (6) the presence of stakeholder information sharing practices and networks were merely secondary conditions in the production of climate and environmental policy integration. This could, however, be due to the structural-instrumental focus this thesis embraces.

In alignment with our research questions and the methods that were used to answer them, we are finally able to conclude on the implications of this research on the EUs sustainability transition. On the one hand, we discovered that a lack of comprehensive and systemic approaches to policy making has long been a main barrier to climate and environmental policy implementation. On the other hand, through the literary review we learned that systems approaches, and sustainability are increasingly and inextricably linked to one another. This was also reflected within and across empirical evidence of the cases. Here, a substantial interest in systemic policy making was recorded in pursuance of a sustainable transition. This, in turn, demonstrated how it can improve climate and environmental policy integration through the power of a strong political narrative to reform and improve relevant politico-administrative systems to be able to cope with a changing environment. As such, systemic sustainable transformations seem to play a big role in both aspirations and practices surrounding the notion of integrative governance. In conclusion, a clear argument can be made for the potential enhancing power of policy integration for the European sustainable transition.

9.2. Avenues for further research

We perceive our methodology was well aligned with our research objective; however, it is important to note the limited generalisability of our research. We investigated multiple cases among the European Member States, but these are not necessarily representative for other policy integration practices within their respective country. More so, these results have proven the complex nature of policy integration and how it can be influenced by a myriad of different factors. Therefore, the results pertain to our studies cases primarily. Our case selection does enable a certain extent of modest generalisability, yet this would merely be practical for the specific policy sectors that were examined in their respective cases – and thus in similar empirical contexts. The impermanence of policy practices may also deceive these results, as – just like the different generations of environmental policy – they might change rather quickly, for the better or for worse. Therefore, we can add to the research agenda surrounding the field of policy integration with the following recommendations to further research.

- i. Our first recommendation entails the replication of a similar QCA study, yet on a larger scale by moving beyond a small to medium-n case study to enhance the generalisability of findings. This generalisability could be enhanced through more systematic research throughout the European union. Such enhanced systematic research could then result in both a better and more robust selection of cases, and an improved framework for QCA calibration.
- ii. Throughout the research, we also mentioned the lack of field research, which renders the results of this research to be less reliable. Our research method was predominantly based on the documentation and the framing of policy makers. The reality, however, could very well be a different story to that which is displayed to the outside world. That is why observation and evaluation in the field could be deemed as a useful expansion of similar research in the future.
- iii. This can also be linked to the fact that policy integration – as a complex social phenomenon – is undoubtedly hard to measure on its own. Its measurement relies on certain performance indicators, either developed through performance indicators of the relevant policies themselves, or through multiple gathered assessment criteria – e.g., through the development of this research. Therefore, we would propose to examine future policies on their actual achievement and link that to the tangible impact of policy integration.
- iv. Policy integration is further often subject to framing within a certain political and/or institutional context to be an effective as the solution to wicked problems. To investigate whether or not this is actually the case can be performed through conducting a framing analysis, coupled to above-mentioned well-composed metrics of success. Such innovations in research could bring more clarity into the field of policy integration.
- v. Finally, it could be interesting to try another way to investigating which conditions lead to the outcome of the implementation of policy integration. Such endeavours could also be facilitated by the use of an extensive process-tracing or discourse analysis-oriented study. Such studies gain ground on methods such as QCA because of their openness to contingencies, such as different time frames, broader perspectives of political processes, etc.

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APPENDICES

APPENDIX 1 | fsQCA Value definitions

Condition	Measure	Fuzzy-set value definitions
Implementing nature of the case (IMP)	Extent of the aimed implementation	0: The project(s)' aim is limited to implementing one framework/strategy/legislation.
		0.33: The project(s) aim at implementing multiple frameworks/strategies/legislations, but focusses on one without actions
		0.67: The project(s) aim at implementing multiple frameworks/strategies/legislations, but are yet to take actions.
		1: The project(s) aim at implementing multiple frameworks/strategies/legislations, and take actions to implement them
	Extent of actual implementation	0: Project is coherent or present, but not yet in implementation
		0.33: Project is present, but lack implementation from main actors due to barriers or insufficient knowledge
0.67: Project is present, implementation has made significant progress		
1: Project is in full effect and is being implemented in a coherent manner		
Enabling function	0: The project is a directly implementing plan, there is no intermediary plan	
	0.33: The project focusses on implementing, but allows for other projects to be implemented on its basis	
	0.67: The project focusses on enabling other implementing projects, yet has a basis for implementation itself	
	1: The project is a direct enabler for the implementation of other projects	
Aggregation of inputs	0: Policies/instruments/etc. are barely connected to the project's targets	
	0.33: Implementation policies/instruments/etc. are connected to its targets, yet are loosely connected to each other	
	0.67: Implementation policies/instruments/etc. are fully connected, but responsibilities are unclear	
	1: Implementation policies/instruments/etc. are fully coherent, responsibilities are clear and bring about an aggregated input for implementation	
Recent developments in projects		0: There are no results, nor developments within the projects
		0.33: $\leq 25\%$ of projects have gathered recent results or developments
		0.67: Between 25% and 50% of the projects have gathered recent results or developments
		1: More than half of the projects have gathered recent results or developments
		0: The project has not delivered any results or recent developments as of yet
		0.33: The project has had difficulties in its implementation, so developments are limited
		0.67: The project has had difficulties in its implementation, but the first milestones have been accomplished
		1: The project has delivered various accomplishments in its core activities
Integrative nature of the case (INT)	Extent of the aimed integration	0: The project(s) do not aim at the cross-sector realisation of policies/instruments/etc.
		0.33: The project(s) acknowledge the role of integrative governance, but take little action towards it
		0.67: The project(s) have other main objectives, other than integrative governance
		1: The project(s) are primarily directed at cross-sector alignment, capacity-building, coherent action, etc.

Extent of the aimed coordination	<p>0: The project(s) do not aim at the effective coordination between different involved actors</p> <p>0.33: Coordination and its importance are acknowledged, but is no real priority</p> <p>0.67: Coordination is a main objective of the project(s), but is either organised in an unstructured manner or linkages are still under investigation</p> <p>1: Coordination is one of the main objectives of the project(s), and is organised in a structural way and/or is processed through governance tools</p>
Extent of the aimed coherence	<p>0: The project/plan/strategy does not aim at the effective coherence between different related plans/legislations/programmes/etc.</p> <p>0.33: Policy coherence and its importance are acknowledged, but is no real priority</p> <p>0.67: Coherence is an objective of the plan, but specific actions are lacking</p> <p>1: Coherence is one of the main objectives of the plan, and specific actions are taken to the end of reviewing and gatekeeping it</p>
Overarching funding strategy	<p>0: Each sub-activity/-project of the project has a separate fund/budget</p> <p>0.33: The project has a non-structured or non-officially coordinated budget/fund</p> <p>0.67: The project has an official overarching budget, but sub-activities budgets still weigh more than the overarching budget</p> <p>1: The project/plan either has an officially separate fund for the whole project or constitutes itself an overarching funding strategy to other projects</p>
Establishment of task forces	<p>0: No task forces are established, nor is the need for it expressed</p> <p>0.33: Task forces are expressed to be needed, but seem to not be established</p> <p>0.67: Task forces are established, yet have a small role in decision-making or implementation</p> <p>1: Task forces are established and have a grand role in the project/plan/etc.</p>
Presence of a decision-making platform	<p>0: No decision-making platforms are established, nor is the need for it expressed</p> <p>0.33: Decision-making platforms are needed, but are not established</p> <p>0.67: Decision-making platforms are established, yet have a small or unexpressed role in decision-making or implementation</p> <p>1: Decision-making platforms are established and have a grand role in the project/plan/etc.</p>
Change in organisational dynamics	<p>0: Policy integration is not being implemented through change in the organisation's structure/dynamics</p> <p>0.33: Policy integration is being implemented through interdepartmental plans or task forces</p> <p>0.67: Policy integration is being implemented through the merging or greening of existing departments</p> <p>1: Policy integration is being implemented through the establishment of a new centre (specialised units within or outside departments or new agencies)</p>
Evolution in governance style	<p>0: The project is a textbook example of the traditional public administration (TPA) governance style</p> <p>0.33: The project is an example of how NPM has been integrated within a TPA governance style</p> <p>0.67: Both TPA, NPM and New Public Governance (NPG) or network governance can be found within the project, however TPA holds a dominant position</p> <p>1: The project evolves towards a sole NPG or network governance style</p>
Extent of coordination between departments	<p>0: Different departments within a government act separately from each other</p> <p>0.33: Different departments know of other departments' tasks, but do not collaborate</p> <p>0.67: Different departments collaborate to execute tasks</p> <p>1: Departments collaborate in a systematic and coordinated way</p>

	Coherence of different policy instruments	0: The project utilises policy instruments completely incoherently 0.33: The project utilises policy instruments through coordination measures of, e.g., a strategy 0.67: The project aims at utilising policy instruments in a rather coherent manner 1: The project utilises policy instruments in a fully coherent and synergistic manner
	Coherence of projects, plans, programmes, instruments	0: The project/plan stands on its own 0.33: The project/plan is part of a greater whole, yet shows little affiliation with the relevant overarching programme 0.67: The project/plan is part of a greater whole, yet only by affiliation or linkages are being investigated 1: The project/plan is part of a greater whole, overarching programmes are present and the project is coherent with the programme
	Joint sectoral interests/objectives	0: Sectors have disconnected objectives, reflecting in dividedly managed interests 0.33: Sectors have disconnected objectives, but facilitate each other indirectly 0.67: There are cross-sectoral agreements, yet stakeholders are still focussing on own objectives 1: Stakeholders have shared cross-sectoral, joint objectives and responsibilities
	Cross-sectorality	0: There are clear boundaries in implementation between policy sectors which cannot be worked away 0.33: Different involved sectors pressure each other through trade-offs where neither sectors win 0.67: Sectors make binding decisions in coherence, are still distant to each other 1: Sectors make coherent binding decisions, boundaries between them are faded
	Interdependency between sectors	0: Linkages between different sectors are (almost) non-existent 0.33: Linkages between sectors are barely acknowledged and form no trouble 0.67: The linkages between different sectors are acknowledged but not acted upon 1: Linkages between different sectors are inevitable and over different levels of governance and a balance is sought by researching it
Intermediary reporting and learning (IRL)	Presence of reporting / learning tools and obligations	0: There are no reporting obligations, nor tools to report or learn from 0.33: There are no reporting obligations, but there are tools to report that can voluntarily be used 0.67: There are no reporting obligations, tools to report are objectively used in a structural manner 1: There are reporting obligations, tools to report and learn are objectively used in a structural manner and lessons learned are used to improve governance
	Extent of output used in further strategical planning	0: Output is not being monitored, useable data is thus not being collected 0.33: Output/gathered data are collected and stored, but seem to not be used 0.67: Output/gathered data are collected and stored, but are only used for current implementation 1: Output/gathered data are collected and stored, and are or will be used for further planning
	Monitoring of risks	0: Risks are neither deemed important to be assessed, nor being monitored 0.33: Risks are deemed important, but there is no system for assessment or yet to be created. 0.67: A monitoring framework is in place, but is not yet into full effect 1: A monitoring framework is used in full effect as reference to monitor risks
Sustainable systemic transformation (SST)	Clear direction for change	0: The project(s) have no real intention to change a current situation 0.33: The project(s) are transformative without intention/direction 0.67: The project(s) are meant to be transformative of nature, but take no actions 1: The project(s) have clear goals and real transformative intention and take actions

Long term goal clarity	0: The project takes actions but seems to not have clear goal-setting 0.33: The project takes actions based on short term goal-setting 0.67: The project aims at taking actions based on long term goal-setting 1: The project actually takes actions based on long term goal-setting
Development of transformation pathways through support for innovative measures	0: The project is an example of traditional governance with traditional measures, without room for innovative measures 0.33: The project acknowledges the desire to be innovative, but does not yet implement/develop innovative measures 0.67: The project includes innovative measures as an addition to traditional governance 1: The project primarily uses innovative measures in all aspects of the process
Innovative vision	0: The project(s) have no intentions of being transformative 0.33: The project(s) use traditional visions on transformation and try to manage nature 0.67: The project(s) use transformative visions on transformation, but do not execute them 1: The project(s) use transformative visions on transformation, and act on them by managing conditions instead of managing nature
Extent of knowledge diffusion	0: The project is very inclusive of nature, little to none information is shared with outsiders 0.33: The project is inclusive of nature and information is shared with outsiders or other departments internally. 0.67: The project perceives knowledge sharing and its diffusion as a priority for system innovation, but seems to barely encourage knowledge spreading 1: The project perceives knowledge sharing and its diffusion as a main priority for system innovation and actively works to spread knowledge
Extent of subsidiarity	0: Decision-making is a matter reserved to the highest relevant level of government 0.33: Decision-making stays reserved to the highest level, but lower levels of government can be consulted in the process, in a non-binding way 0.67: Decision-making is a joint (supportive) process between all relevant levels of government 1: Decision-making is a process at the lowest levels of government, key stakeholders and citizens
Multi-disciplinary action	0: Issues are being tackled from a single point of view 0.33: Issues are being tackled from a single point of view, yet other disciplines can have an advisory role 0.67: Issues are being tackled through multiple disciplines 1: Issues are being tackled in a multi-disciplinary and systematic way in which all relevant points of view are considered
Downscaling of decision-making / Extent of subsidiarity	0: Decision-making is a matter reserved to the highest relevant level of government 0.33: Decision-making stays reserved to the highest level, but lower levels of government can be consulted in the process, in a non-binding way 0.67: Decision-making is a joint process between all relevant levels of government 1: Decision-making is a joint process between all relevant levels of government, key stakeholders and citizens
Extent of capacity-building	0: Capacity-building does not hold any priority or is not needed 0.33: Capacity-building is being linked to the solution of a wicked issue 0.67: Capacity-building is seen as a priority, but is not being implemented 1: Capacity-building is a priority and action is taken towards it
Extent of resilience-building	0: Resilience-building does not hold any priority or is not needed 0.33: Resilience-building is being linked to the solution of a wicked issue 0.67: Resilience-building is seen as a priority, but is not being implemented

			1: Resilience-building is a main priority and action is taken towards it
Presence of political narrative and commitment (PNC)	Extent of interdependency		0: The issue seems to be exempted from any type of interdependent link to other issues, actors, elements 0.33: The issue is part of an interdependent chain of issues, actors, elements, yet does not act upon it 0.67: The issue is part of an interdependent chain of issues, actors, elements, and the project recognises its part within the chain 1: The issue is part of an interdependent chain of issues, actors, elements, and the project takes specific action to enable a systemic approach to solving the issue
	Use of historical information		0: Historical information holds no added value to the project 0.33: Historical information is acknowledged to be of potential added value, but is not yet being used 0.67: Historical information is seen as an added value and is being used as a basis for policy making 1: Historical information is seen as an added value and is being used as a basis for policy making and the systematic identification of transformation pathways
	Presence of overarching frameworks	Presence of	0: The project/plan stands on its own 0.33: The project/plan is part of a greater whole, yet has little affiliation with the relevant overarching framework 0.67: The project/plan is part of a greater whole, yet only by affiliation 1: The project/plan is part of a greater whole, overarching frameworks are present and are coherent with each other to the extent that both refer to each other
	Commitment and will of political leadership		0: Political leadership does not take any initiative to show its responsibility in either policy formation or policy implementation 0.33: Political leadership takes up responsibilities, but seem to not act upon them 0.67: Political leadership takes up responsibilities, but is not actively involved 1: Political leadership takes up many responsibilities and is committed to fulfilling them, both in policy formation and implementation
	Clear metric for evaluation		0: No sense of need for implementing relevant targets or metrics, nor evaluation 0.33: Minor attention to relevant targets or metrics for evaluation 0.67: Attention to relevant targets or metrics but no specific targets are set out 1: Clear relevant targets are being set out for evaluation
	Desire to be exemplary		0: There is no mention of a political desire to form an example for other regions 0.33: Political leadership aspires to be exemplary, but actions are yet to be taken 0.67: Political leadership is devoted to take actions towards being an example 1: Political leadership is committed to developing an exemplary model of C/E policy (integration) for other regions through clear actions and innovative measures
	Coherence with international or European institutions/plans/legislations		0: The related government acts alone within its domestic boundaries 0.33: The related government acts alone within its domestic boundaries, yet follows measures from international institutions 0.67: The related government acts as part of an international institution, but not fully aligned 1: The related government and its plan are fully aligned with the international institutions
	Necessity of climate adaptation/mitigation		0: The problem the project is trying to resolve is not being perceived as wicked or needed to be adapted/mitigated 0.33: The project acknowledges wickedness of the problem, but there is no mentioning of either adaptation nor mitigation 0.67: The project acknowledges both the wickedness of the problem and the necessity to adapt and/or mitigate, but action is not urgent 1: The project acknowledges both the wickedness of the problem and the necessity to adapt and/or mitigate, and action is deemed to be urgent

	Necessity of a systemic solution	0: The problem the project is trying to resolve is not being perceived as wicked or needed to have systemic approaches 0.33: The project acknowledges wickedness of the problem, but there is no mentioning of systemic approaches 0.67: The project acknowledges both the wickedness of the problem and the necessity of systemic solutions, but there seems to be no action upon it yet 1: The project acknowledges both the wickedness of the problem and the necessity of systemic solutions, and action is aligned with this necessity
	Considered contingencies	0: The project does not consider the impact of external factors in its policy making 0.33: The project is aware of externalities, but does not consider them 0.67: The project is aware of externalities and considers its potential impact 1: Externalities are acknowledged as a major influence to the executive branch of the project and actions are taken accordingly
	Linkage between WP and governance	0: There is no mention of the problem the project tackles to be a WP, therefore it has no effect on governance styles 0.33: The project tackles a WP, but does not adapt its governance style to it 0.67: The project tackles a WP, but does not prioritise the utilisation of a different governance style 1: The project tackles a WP and changes its governance style accordingly
Role of stakeholder information and network (SIN)	Involvement of stakeholders	0: Key stakeholders are not involved at all, in dialogue nor implementation 0.33: Insufficient involvement of key stakeholders is a barrier to implementation 0.67: Stakeholders are being involved, but through unknown instruments 1: Key stakeholders are being involved heavily and carry a strong voice in policy dialogue and the process of implementation
	Importance of stakeholders	0: Stakeholders are deemed non-important, or are not involved 0.33: Stakeholders are acknowledged, but seem not important to the authority 0.67: Stakeholders are acknowledged and deemed important by the authority 1: Stakeholders are deemed important and are given high involvement
	Presence / necessity of non-state actors	0: The project(s) keep an internal focus and refrain from including new/external actors 0.33: New/external actors are considered to be included in the project(s), but have little influence 0.67: New/external actors are valued and unilaterally share knowledge and give input to the project(s) 1: New/external actors and internal actors are valued and reciprocally share and diffuse knowledge, based on learnt lessons
	Outcome	
Fuzzy-set value definitions		
The extent of C/E Policy Integration		0: Based on the conducted case analysis, C/EPI is deemed to either barely be present within the presented case, or not present at all 0.33: Based on the conducted case analysis, C/EPI is deemed present through a mainly present influence of policy coordination 0.67: Based on the conducted case analysis, C/EPI is deemed present through a mainly present influence of policy coherence 1: Based on the conducted case analysis, C/EPI is deemed present through the present influence of both policy coherence and coordination

Table 18 Full database of fsQCA value definitions.

Note. This table shows the final version of the value definitions, i.e., the final configuration of conditions and measures.

APPENDIX 2 | Full original fsQCA dataset

Case ID	Conditions											Outcome C/EPI
	CME	CO	IMP	INT	IRL	SWT	SST	SDS	PNC	SIN	PW	
BELINI	0	0	1	0.67	0.33	0	0.67	0	0.67	1	0.33	1
C2CCC	0	0	0.33	0.67	1	0	0.33	0	0.67	0.67	0	0.33
LIFE	0	0	0	0.33	0	0	1	0	1	0	0	0.67
N2000	0	0.33	0.33	0.67	1	0	0.33	0	0	1	0.33	0.33
FRESH	0	0	0	0.33	0	0	0.67	0	0	1	0	0.33
GCAP	0.67	0	0	0.33	0.67	0	0.67	0	1	0.33	0	0.67
IPDELTA	0.67	0.67	0.67	0	0.67	0.67	0.67	0.33	0	1	0	1
DELTAPRO	1	1	0.67	0.67	0.67	1	0.67	0	1	0.67	0.67	1
NADAPTA	0	0	0.33	0.67	0.33	1	0.67	0	0.67	0.67	1	1
KLIMA2050	1	0.67	0.67	0.33	0	1	0.33	0.67	0.67	0.67	1	0.67
SCPF	1	0	0	0.33	1	0	0.67	0	0.67	0.67	0.67	1

Table 19 **Original fsQCA dataset, including all initial conditions and shaded missing values.**

Note. CME = clear metric for evaluation; CO = consistency in outputs; IMP = implementing nature; INT = integrative nature; IRL = intermediary reporting and learning; SWT = society-wide transformative; SST = sustainable systemic transition; SDS = synergy of different sectors; PNC = political narrative and commitment; SIN = role of stakeholder information and network

APPENDIX 3 | Mean membership scores per condition

3A. Mean membership score evolution through the deduction of empirically weak cases – in the original dataset.

Variable	Mean	Mean ~FRESH	Mean ~FRESH,LIFE	Mean ~ FRESH, N2000	Mean ~FRESH,LIFE, N2000
CME	0.3945455	0.434	0.4822222	0.4822222	0.5425
CO	0.2427273	0.267	0.2966667	0.26	0.2925
IMP	0.3636364	0.4	0.4444445	0.4077778	0.45875
INT	0.4545455	0.467	0.4822222	0.4444445	0.45875
IRL	0.5154546	0.567	0.63	0.5188889	0.58375
SWT	0.3336364	0.367	0.4077778	0.4077778	0.45875
SST	0.6072727	0.601	0.5566667	0.6311111	0.585
SDS	0.09090909	0.1	0.1111111	0.1111111	0.125
PNC	0.5772727	0.635	0.5944445	0.7055556	0.66875
SIN	0.6981818	0.668	0.7422222	0.6311111	0.71
PW	0.3636364	0.4	0.4444445	0.4077778	0.45875
CEPI	0.7272727	0.767	0.7777778	0.8155556	0.83375

3B. Mean membership score evolution through the deduction of empirically weak cases – in the new and updated dataset.

Variable	Mean	Mean ~FRESH	Mean ~FRESH,LIFE	Mean ~ FRESH, N2000	Mean ~FRESH,LIFE, N2000
IMP	0.3636364	0.4	0.4444445	0.4077778	0.45875
INT	0.4845455	0.5	0.5188889	0.4811111	0.5
IRL	0.5154546	0.567	0.63	0.5188889	0.58375
SST	0.6072727	0.601	0.5566667	0.6311111	0.585
PNC	0.6381818	0.702	0.6688889	0.7433333	0.71125
SIN	0.6981818	0.668	0.7422222	0.6311111	0.71
CEPI	0.7272727	0.767	0.7777778	0.8155556	0.83375

Table 20 Evolution of mean membership scores in the reduction of weak cases.

APPENDIX 4 | Truth table and solution terms for ~CEPI

Conditions							Outcome	raw consist.	PRI consist.	EU MS
IMP	INT	IRL	SST	PNC	SIN	N	~CEPI			Cases
0	0	0	1	0	1	1	0	0.668	0.340	FIN
0	1	1	0	0	1	1	0	0.573	0.256	EU2
0	1	1	0	1	1	1	0	0.502	0.205	DEN
0	0	0	1	1	0	1	0	0.497	0.000	EU1
0	0	1	1	1	1	1	0	0.374	0.000	SWE
0	0	1	1	1	0	1	0	0.332	0.000	GER
0	1	0	1	1	1	1	0	0.332	0.000	SP1
1	0	1	1	1	1	1	0	0.284	0.000	NL1
1	1	1	1	1	1	1	0	0.284	0.000	NL2
1	0	0	0	1	1	1	0	0.166	0.000	SP2
1	1	0	1	1	1	1	0	0.166	0.000	BEL
Parsimonious solution term								raw cov.	unique cov.	cons.
~PNC*~SIN								0.330	0.000	0.600
~SST*~SIN								0.330	0.000	0.500
IMP*~SIN								0.220	0.000	0.500
IMP*~PNC								0.330	0.000	0.500
INT*~SIN								0.440	0.110	0.571
~IRL*~SST*~PNC								0.330	0.000	0.500
~INT*~SST*~PNC								0.550	0.000	0.556
~IMP*~IRL*~SST								0.330	0.000	0.500
~IMP*~INT*~SST								0.550	0.000	0.556
INT*~IRL*~PNC								0.330	0.000	0.500
INT*~IRL*~SST								0.330	0.000	0.429
~INT*IRL*~PNC								0.330	0.000	0.429
~INT*IRL*~SST								0.330	0.000	0.375
IMP*INT*~SST								0.330	0.000	0.429
IMP*IRL*~SST								0.220	0.000	0.333
INT*SST*~PNC								0.550	0.000	0.556
IRL*SST*~PNC								0.330	0.000	0.429
IMP*~INT*~IRL*SST								0.110	0.000	0.200
~IMP*INT*IRL*SST								0.330	0.000	0.429
~IMP*~INT*~IRL*PNC*SIN								0.220	0.000	0.400
~INT*~IRL*SST*PNC*SIN								0.220	0.000	0.333
Solution coverage: 0.660										
Solution consistency: 0.545										

Table 21 Truth table for barriers of C/EPI and the parsimonious solution term (only available).

Note. Cases are displayed in the truth table as the representation of the relevant EU Member State: **BELINI** = BEL – **C2CCC** = DEN – **LIFE** = EU1 – **N2000** = EU2 – **FRESHABITAT** = FIN – **GCAP** = GER – **IPDELTA** = NL1 – **DELTAPRO** = NL2 – **NADAPTA** = SP1 – **KLIMA2050** = SP2 – **SCPF** = SWE.

Note 2. All prime implicant suggestions were selected for the TTA to enhance maximal coverage. Yet still no cases with greater than 0.5 membership were identified.



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