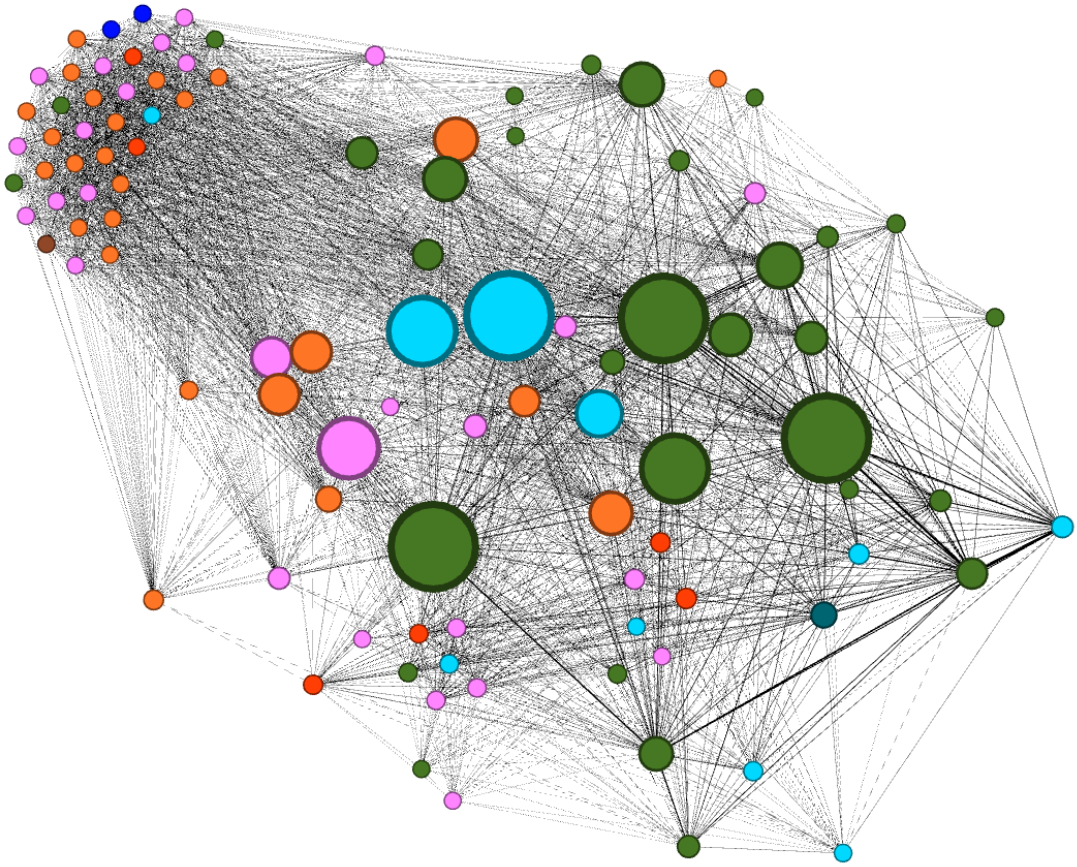
Issue Control in Intermediary Networks:

The role of expert networks in EU Raw Materials Policy



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Abstract

Global state and non-state actors are increasingly formulating and implementing policies to meet the challenges of the climate crisis. In this context, the European Commission has proposed a Green Deal Industrial Plan, that contains a proposal for a Critical Raw Materials (CRM) Act. The CRM Act aims to ensure a secure supply of raw materials to help the European market build the technologies needed for the energy transition.

Previous research has identified that the Commission is highly reliant on expertise and that its Expert Groups are a key strategy to access information that it lacks internally. The Commission has three Expert Groups dedicated to raw materials policy, with a variety of actors participating. Taking the case of raw materials policy as its point of departure, this thesis sets out to answer the research question: *How do organizations in expert networks influence the formulation of EU green industrial policy?*

To answer this question, a mixed-methods approach is taken, consisting of a social network analysis of member organizations in the Expert Groups on raw materials and semi-structured interviews with 11 of these organizations. We analyze the results through the application of a theoretical framework combining theory on orchestration, theories of social networks and issue control, and theories of expertise. We show that the link between orchestration theory and network theory is credible and highly relevant for understanding the Commission's policymaking. Through this approach, we contribute to the development of a key concept that links these theoretical perspectives, namely 'intermediary networks'.

We show how the European Commission orchestrates an intermediary network, within which organizations coordinate and compete for issue control. In turn, the intermediary network is able to influence the policy outcome. Within the intermediary network, some actors have an outsize ability to shape the policy outcome, with particularly the largest industry associations that represent the mining companies in Europe standing out. To our surprise, we find that the Expert Groups are in fact not the main center of expertise drawn on by the Commission, nor the main forum for interaction between organizations in the intermediary network. Rather, other forums, particularly the Industrial Alliance ERMA, figure as relatively more dominant. These findings call for increased scholarly attention to the governance of EU raw materials policy, as well as more specifically the role of the Industrial Alliances launched by DG GROW.

Table of Contents

Abbreviations

ACEA	European Automobile Manufacturers' Association
COD	Ordinary legislative procedure
COEEIP	Commission operational expert group of the European Innovation Partnership on Raw Materials (E03392) (Commission Expert Group)
COM	European Commission
Commission	European Commission
CRM	Critical raw materials
DG ENV	Directorate-General, Environment
DG GROW	Directorate-General, Internal Market, Industry, Entrepreneurship and SMEs
DG JRC	Directorate-General Joint Research Centre
DG TRADE	Directorate-General, Trade
DG	Directorate-General
EEB	European Environmental Bureau
EIP	European Innovation Partnerships
EIPSG	EIP Sherpa group (subgroup to Commission Expert Group E03391)
EIT	European Institute of Innovation and Technology
ERMA	European Raw Materials Alliance
ETRMA	European Tyre & Rubber Manufacturers' Association
EU	European Union
HLSGEIP	High level steering group of the European Innovation Partnership on Raw Materials (E03391) (Commission Expert Group)
IMA	Industrial Minerals Europe
IPCC	Intergovernmental Panel on Climate Change
IPE	International Political Economy
IRA	Inflation Reduction Act
MS	Member state
NGO	Non-governmental organization
NTNU	Norwegian University of Science and Technology
NZIA	Net Zero Industry Act
O-I-T	orchestrator-intermediary-target
RMSG	Raw Materials Supply Group (E01353) (Commission Expert Group)
SCRREEN	Solutions for Critical Raw Materials – a European Expert Network
SDG	Sustainable Development Goals
SNA	Social Network Analysis
SNT	Social Network Theory
UEPG	European Aggregates Association
U.S.	United States of America
VITO	Vlaamse Instelling voor Technologisch Onderzoek
WGDCRM	Working Group "Defining Critical Raw Materials" (subgroup to Commission Expert Group E01353)
WGLU	Working Group "Exchanging best practices on land use planning, permitting and geological knowledge" (subgroup to Commission Expert Group E01353)

1. Introduction

Climate change has the potential to change the entire global economy. During the last twenty years, the predominant narrative has changed from emphasizing the need to reduce greenhouse gas emissions by about 80%, to the fifth IPCC report stating in 2014 that the global economy would need to reach net zero emissions by 2050 to avert the worst scenarios. The scale of the challenge to reach net zero has led political economist Matthew Paterson to argue that the global economy can transform or collapse and is likely to do a bit of both at the same time (Paterson, 2020). It is within this context that global state and non-state actors are increasingly talking about, creating, and enacting strategies for rapid transitions, of which the energy transition is an important one (Newell & Simms, 2020).

Building the technologies needed for the energy transition, such as solar panels, wind turbines, and batteries, will require significantly more mineral resources than fossil-fuel technologies (International Energy Agency, 2022). For example, the International Energy Agency estimates that an electrical car will require six times more mineral inputs than a conventional car, and building an onshore wind power plant requires nine times that of a gas-fired power plant. Consequently, global markets for key minerals are growing rapidly (International Energy Agency, 2022), and European Union (EU) demand is expected to increase dramatically (COM(2023) 160).

As part of the Green Deal Industrial Plan, the European Commission (henceforth the Commission) presented in March 2023 for the first time a draft regulation on securing raw materials, defined as "non-energy, non-agricultural raw materials", the Critical Raw Materials (CRM) Act (COM(2023) 160). Within the EU, there has been an increased focus on CRMs, from the very top, with Commission President Ursula von der Leyen stating in her most recent State of the Union, "Lithium and rare earths are already replacing gas and oil at the heart of our economy. We have to avoid falling into the same dependencies" (European Commission, 2022a). The CRM Act sets out to increase extraction, processing, and recycling capacities. In other words, more mining, refining, and processing plants in Europe. It also sets out to diversify the supply of raw materials to the European market. The formulation of raw material policy is the focus of this thesis.

The EU, and especially the Commission, is frequently identified in the literature as being heavily reliant on expertise and information from a variety of actors. There are consequently many access points to the Commission for societal actors to provide this information (Metz, 2013), with Commission Expert Groups frequently referenced as the most

important mode of consultation (Gornitzka & Sverdrup, 2008). For raw materials policy, the Commission has three Expert Groups, with a combined total of 114 member organizations, that include industry representatives and civil society actors from the relevant policy area, to advise and consult with the Commission.

Given the increased importance attributed to raw materials policy in the EU, in the context of the ongoing transitions and green industrial policies as a response, it is key to understand how this policy area is governed. Therefore, with the Expert Groups on raw materials as the starting point, we will answer the following research question: *How do organizations in expert networks influence the formulation of EU green industrial policy?*

To investigate this research question, this thesis takes its point of departure in transnational governance literature, which understands there to be a network of state and non-state actors who interact to govern the global economy (Abbott & Snidal, 2010; Cohen, 2007; Seabrooke & Henriksen, 2017). More specifically, literature on orchestration emphasizes the ability of international organizations to actively engage and enable a variety of actors to govern specific issues (Abbott et al., 2015; Abbott & Snidal, 2010; Blauberger & Rittberger, 2015; Brès et al., 2019). Theories about networks and issue control (Burt, 1992; Seabrooke & Henriksen, 2017; Godet & Orsini, 2021; Haas, 1992; Borgatti & Halgin, 2014) will be incorporated to understand who the main actors are and how they coordinate and compete for influence. Additionally, we will make considerations about the types and functions of expertise that actors within the network lay claim to (Boswell, 2008; Radaelli, 1999; Moodie, 2016; Gornitzka & Sverdrup, 2008, 2015). We construct a theoretical framework that links these theories and use it in our analysis to contribute to the nascent literature on 'intermediary networks' (Broek & Klingler-Vidra, 2022).

This thesis makes use of a mixed-methods approach. First, a social network analysis (SNA) is conducted using co-affiliations of organizations that are members of the Commission's three Expert Groups on raw materials and three subgroups, to identify central actors which may influence the raw materials policy agenda. Through the application of betweenness and eigenvector centrality measures, the 20 most influential organizations are identified. To supplement this outside-in view, interviews with representatives from organizations in the network are conducted as a second method. Through these interviews we seek to gain a deeper understanding of the role of these Expert Groups in the perception of the participants, and how the organizations who participate in them contribute to the policy formulation.

In sum, we explore how the Commission orchestrates an intermediary network, within which organizations coordinate and compete for issue control, and which in turn can influence the policy outcome. Within the intermediary network, some actors have an outsize ability to shape the policy outcome. To our surprise, in analyzing the intermediary network, we find that the Expert Groups are not the main center of expertise drawn on by the Commission, nor the main forum for interaction between organizations in the intermediary network. Rather, other forums, particularly an Industrial Alliance, namely the European Raw Material Alliance (ERMA), figures as relatively more dominant. These findings call for increased scholarly attention to the governance of EU raw materials policy, as well as more specifically the role of the Industrial Alliances launched by the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW).

This thesis will proceed according to the following. Firstly, we will discuss the theoretical underpinnings of the study with a literature review of orchestration theory, network theories, and theories on expertise in the EU. Secondly, the details of the case will be presented, including background information on raw materials policy in the EU. This will be followed by an explanation of the methodology for this thesis. Then we will explain and analyze the main findings in reference to the theories, and lastly, our Discussion will explore the wider implications of our findings for transnational governance theory and the future of EU policymaking.

2. The Empirical Case

This section introduces the empirical case and the necessary background for reading the thesis. First, it presents background on industrial policy in the EU. The CRM Act is part of the EU's Green Deal Industrial Plan, and we briefly consider what this means for the Act. Then it describes raw materials policy in the EU, including policy actions leading up to the publication of the CRM Act. This is followed by a description of the CRM Act and its most important elements. Finally, we provide some background on the Commission's Expert Groups on raw materials, as they are mandated with advising the Commission on the formulation and implementation of raw materials policy in the EU, and the subject of study of this thesis.

2.1 The EU Green Deal Industrial Plan

The world's largest economies are adopting industrial policies as part of their strategies to respond to climate change and remain competitive in facing the ongoing transitions. Industrial policies are public policy interventions that aim to foster the growth of certain industries or steer markets in a desired direction (Rodrik, 2014). The purpose of green industrial

policies is to ensure that investments in green technologies occur at a scale that meets the needs of a transition to net-zero emissions (Rodrik, 2014). The Commission published the proposal for the Green Deal Industrial Plan in February 2023 (COM(2023) 62). The policy proposals within the Plan have been framed as an extensive response to the climate crisis, while analysts have also framed it as a response to the Inflation Reduction Act (IRA) in the US (The Economist, 2023), which is another example of industrial policy aimed at incentivizing investments in green technologies (Tooze, 2022).

The CRM Act was presented as part of the EU Green Industrial Plan. The four pillars of the Green Industrial Plan are 1) a predictable and simplified regulatory environment, 2) faster access to funding, 3) enhancing skills, 4) and open trade for a resilient supply change. The CRM Act is specifically under the first pillar, together with the 'Net Zero Industry Act' (NZIA) and a 'Reform of the electricity market design'. In the Communication presenting the Green Deal Industrial Plan (COM(2023) 62), the CRM Act follows the Net-Zero Industry Act with the argument that, "the manufacturing of EU net-zero technologies is only possible if access to relevant critical raw materials is ensured, including by diversifying sourcing and by recycling raw materials to lower the EU's dependence on highly concentrated supplies from third countries and boost quality jobs and growth in the circular economy." In other words, the CRM Act is key to support the necessary increase in manufacture of net-zero technologies to achieve the EU's climate commitments, according to the Commission.

2.2 Raw materials as a policy area in the EU

In November 2008, the Commission released the communication, "The raw materials initiative – meeting our critical needs for growth and jobs in Europe" (COM(2008) 699). This launched raw materials, defined as non-energy minerals, as an explicit focus for EU policymaking. While not specifying which materials were significant, the communication stated that some minerals were CRMs because they live up to three criteria: they are of economic importance to key sectors, the EU was facing supply risks on the mineral due to high import dependence, and they were not substitutable by a different material. Following the release of the Raw materials initiative, the Commission Expert Group the Raw Materials Supply Group (RMSG) was launched under DG GROW (European Commission, 2023a). In 2009, the Commission established the mandate for an ad-hoc working group on defining critical raw materials, as a sub-group to the RMSG. In 2010, this sub-group conducted, in collaboration with the Commission, the study (European Commission, 2010) that resulted in the first raw materials report (COM(2011) 25), which included a list of specific materials

designated as 'critical'. The Commission also determined that the list would be updated every three years. To date, the list of CRMs has been updated every three years and the number of materials has been growing in every assessment.

The Commission has also been publishing foresight reports and strategies on CRMs throughout this period of time. Latest, in 2020 the Action Plan on Critical Raw Materials was published in the Communication for the 2020 list of CRMs (COM(2020) 474). This action plan amongst other things announced the launch of the ERMA. ERMA is one of nine Industrial Alliances under DG GROW, covering different policy areas within energy, technology and circular economy. ERMA convenes relevant stakeholders including Member States (MS), industry, investors, civil society, academia and others (European Commission, n.d.-a). The Commission writes that the Industrial Alliances are "a tool to facilitate stronger cooperation and joint action between all interested partners", "but that are not involved in decision making on policy, regulation or financing" (European Commission, n.d.-a). We refer to these DG GROW alliances as Industrial Alliances, to not confuse the term with the general notion of an alliance of industrial actors.

2.3 Critical Raw Materials Act of March 2023

On March 16, 2023, the European Commission published the anticipated CRM Act. The CRM Act is purposed with ensuring access to "a secure and sustainable supply of critical raw materials, enabling Europe to meet its 2030 climate and digital objective", largely by increasing domestic capacities and diversifying supply chains (European Commission, 2023b). The Commission phrases the Act as a response to the challenges of dramatically increasing demands coupled with high dependencies on single countries and vulnerable supply chains. The 2023 framework for the first time comprises a regulation, signifying the increasing importance of the raw materials agenda. This stands in contrast to earlier publications of the reports and lists of CRMs described above, which have been non-legislative.

The act consists of a Regulation and a Communication which were published together with a number of supporting studies. Table 1 provides an overview of the documents published together with the Act on March 16th by the Commission. The proposed Regulation lays out a regulatory framework for supporting the development of domestic capacities and strengthening sustainability and circularity of the critical raw materials supply chains in the EU (European Commission, 2023b). It codifies the list of CRMs as well as the methodology for identifying these, and delegates the powers to update the list every four years to the Commission. Being a regulation, it will have to be voted on in all three legislative EU institutions, i.e., in addition to

the Commission, also the European Parliament and European Council. The regulatory proposal follows the ordinary legislative procedure (COD), the standard decision-making procedure in the EU. The COD entails, that once the Commission has submitted the proposal, the European Parliament and European Council can adopt or amend the proposal. If there are amendments, interinstitutional negotiations, also known as trilogues, are initiated between the three institutions (European Parliament, n.d.). The Communication is focused on external geopolitical actions and proposes measures to diversify supply chains through new international partnerships and through maximizing the contribution of EU trade agreements (European Commission, 2023b).

Table 1: 2023 CRM Act and supporting documents

Document	Reference
European Critical Raw Materials Regulation	COM(2023) 160
European Critical Raw Materials Regulation Annexes	COM(2023) 160 ANNEX 1 to 6
Communication[1]	COM(2023) 165
Subsidiarity grid accompanying the proposal	SWD(2023) 160
Impact assessment accompanying the Proposal	SWD(2023) 161
Foresight study	(Carrara et al., 2023)
Study on the Critical Raw Materials for the EU 2023	(European Commission, 2023a)

In addition to presenting a new list of CRMs, the CRM Act designates some materials on the list as strategic raw materials (SRMs). A categorization which has not been used before. CRMs are those that pass a specific threshold based on an assessment of the supply risk and economic importance of 80+ minerals in the past five years. The method for defining CRMs is thus largely quantitative and backward-looking. However, the Act states that in addition to identifying CRMs, a complementary approach is needed "to ensure a more dynamic perspective on expected global demand and supply developments." Thus, the sub-categorization of SRMs is created, with the aim of identifying the raw materials needed to "achieve the EU's twin transition and defence and aerospace objectives." (COM(2023) 160, p.

[1] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS A secure and sustainable supply of critical raw materials in support of the twin transition

14). The twin transition refers to the green and digital transition. The identification of SRMs shall be based on an analysis of "future challenges and key dependencies in the supply of these raw materials" (COM(2023) 160, p. 14). SRMs are intended to reflect this forward-looking approach, which the Commission calls a qualitative assessment.

Table 2: EU Critical Raw Materials lists. Bold materials are also Strategic Raw Materials.

2011	2014	2017	2020	2023
Antimony	Antimony	Antimony	Antimony	Antimony
				Arsenic
			Bauxite	Bauxite
		Baryte	Baryte	Baryte
Beryllium	Beryllium	Beryllium	Beryllium	Beryllium
		Bismuth	Bismuth	**Bismuth**
	Borates	Borates	Borates	Boron
	Chromium			
Cobalt	Cobalt	Cobalt	Cobalt	**Cobalt**
	Coking coal			Coking coal
				Copper
				Feldspar
Fluorspar	Fluorspar	Fluorspar	Fluorspar	Fluorspar
Gallium	Gallium	Gallium	Gallium	**Gallium**
Germanium	Germanium	Germanium	Germanium	**Germanium**
Graphite				
		Hafnium	Hafnium	Hafnium
		Helium		Helium
Indium	Indium	Indium	Indium	
			Lithium	**Lithium**
	Magnesite			
Magnesium	Magnesium	Magnesium	Magnesium	**Magnesium**
				Manganese
	Natural graphite	Natural graphite	Natural graphite	**Natural graphite**
		Natural rubber	Natural rubber	
				Nickel - battery grade
Niobium	Niobium	Niobium	Niobium	Niobium
	Phosphate rock	Phosphate rock	Phosphate rock	Phosphate rock
		Phosphorus	Phosphorus	Phosphorus
Platinum group metals	Platinum group metals	Platinum group metals	Platinum group metals	**Platinum group metals**
Rare earths	Heavy rare earth elements	Heavy rare earth elements	Heavy rare earth elements	**Heavy rare earth elements**
	Light rare earth elements	Light rare earth elements	Light rare earth elements	Light rare earth elements
		Scandium	Scandium	Scandium
	Silicon metal	Silicon metal	Silicon metal	**Silicon metal**
			Strontium	Strontium
Tantalum		Tantalum	Tantalum	Tantalum
			Titanium	**Titanium metal**
Tungsten	Tungsten	Tungsten	Tungsten	**Tungsten**
		Vanadium	Vanadium	Vanadium

In addition to the CRM and SRM lists, the CRM Act Communication sets specific benchmarks for increasing capacities for extraction, processing and recycling across the EU market and a diversification of supply. The benchmarks set for strategic raw materials are that "at least 10% of domestic SRMs demand for mining and extraction (where EU's reserves allow for this), at least 40% for processing and refining, and at least 15% for recycling" (COM(2023) 165, p. 3). Furthermore, the overall goal with the benchmarks is to achieve diversification of supply in each strategic raw material such that, by 2030, the Union's annual consumption of any SRM at any stage does not exceed 65% supply from a single country (COM(2023) 165).

2.4 European Commission Expert Groups

This thesis takes its starting point in the activities in and around the Commission's three Expert Groups on raw materials, and their three subgroups. Table 3 provides an overview of these Expert Groups. We denote these Commission Expert Groups with capital letters to avoid confusion with the general notion of a group of experts. The RMSG was already mentioned in the section above. The other two Expert Groups are related to the European Innovation Partnership (EIP) on Raw Materials. The EIPs are partnerships set up by the European Commission to better coordinate existing financial instruments and initiatives. There are six EIPs today on a variety of different topics. The EIP on raw materials is set up to bring together representatives from industry, public services, academia and non-governmental organizations (NGOs). It is set up to provide high-level guidance to the Commission, EU countries and private actors on innovative approaches to the challenges related to raw materials (European Commission, n.d.-b).

Table 3: Commission Expert Groups on raw materials

Expert Groups name	Abbreviation in this thesis
Raw Materials Supply Group (E01353)	RMSG
Working Group "Defining Critical Raw Materials" (subgroup to E01353)	WGDCRM
Working Group "Exchanging best practices on land use planning, permitting and geological knowledge" (subgroup to E01353)	WGLU
High level steering group of the European Innovation Partnership on Raw Materials (E03391I	HLSGEIP
EIP Sherpa group (subgroup to E03391)	EIPSG
Commission operational Expert Group of the European Innovation Partnership on Raw Materials (E03392)	COEEIP

The official tasks of the three Expert Groups in scope for this thesis is to "Assist the Commission in relation to the implementation of existing Union legislation, programmes and policies", "Assist the Commission in the preparation of legislative proposals and policy initiatives", "Coordinate with Member States, exchange of views" and "Provide expertise to the Commission when preparing implementing measures" (European Commission, 2022b, 2022c, 2022d).

Commission Expert Groups are currently governed by a 2016 Commission decision on the creation and operation of Expert Groups (C(2016) 3301) and are defined as consultative

bodies set up by the Commission or its departments to provide advice or expertise, and which are expected to meet more than once. Expert Groups are 'formal' if they have been set up by a decision of the Commission and 'informal' if they are set up by a Commission department. Expert Group membership can consist of individuals in their personal capacity or representing a common interest, organizations, MS authorities, or other public entities. Regarding the selection process, members who are not national authorities or other public entities are selected following a public call for applications. Additionally, only private entities that are listed in the Transparency Register can be selected. Hence, the Commission has final formal control of the membership in its Expert Groups (C(2016) 3301).

To begin with, the Commission's use of Expert Groups was unregulated. However, with time there have been significant criticisms of the form and use of Commission Expert Groups, which have led to reforms. The Register of Commission Expert Groups was created in 2005, in response to a criticism from the European Parliament about a lack of transparency regarding the use of Expert Groups. The Commission committed to maintaining this public register (Gornitzka & Sverdrup, 2008). In November 2011, the Parliament placed a moratorium on further funding for Commission Expert Groups, requiring the Commission to implement 'democratic' reforms. The specific conditions the Commission was to address were more balanced Expert Groups, more open calls for membership, and greater transparency regarding members and discussion held within the groups. In response to these criticisms, the Commission has since made the open calls for membership standard and made available the specific criteria that are the basis for each group. The Commission did maintain, however, that it would not create standard rules for size and composition of its Expert Groups, citing the need for individual groups to reflect the needs of the policy area (Moodie, 2016).

The Register of Commission Expert Groups currently lists 646 active Expert Groups. This number does not include all the sub-groups that Expert Groups have. The number is, however, a firm indicator of the very broad use of this form within the Commission, although there has been a decrease in the number over time. Before the creation of the Register in 2005, researchers estimated that there were over 1,000 active Expert Groups, and a 2007 study cited 1,237 active groups (Gornitzka & Sverdrup, 2008). The decrease over the years since can be partially attributed to improvements in monitoring, cleaning, and deleting inactive groups, that may only have existed on paper (Metz, 2013). In addition to listing the individual groups and their members, the Register of Expert Groups also provides activity reports and meeting summaries, although it was unclear from the outset of this thesis, how often these are updated.

According to the Register, none of the relevant raw materials Expert Groups have met since 2021 but are all listed as 'Active' (European Commission, 2022b, 2022c, 2022d). This research will seek to understand how these groups work, how the organizations interact, and whether their expertise has contributed to the recent CRM Act.

2. Theory

This thesis sets out to understand the processes surrounding the formulation of raw materials policy at the EU level. The theoretical framework that we use takes its point of departure in orchestration theory but incorporates perspectives on networks in transnational governance to consider how the Commission orchestrates an intermediary network of interlinked organizations.

To do this, we initially ground our research within the modern traditions of international political economy (IPE), that emphasize the transnational character of issues and the importance of interactions between state and non-state actors in shaping them. Secondly, we consider the orchestration literature, which describes the role of international organizations as managers of transnational governance, by engaging a variety of other actors to help achieve their policy goals. Thirdly, we explore perspectives on social networks and issue control in transnational governance, which we see as complementary to the orchestration literature. This is followed by a review of the literature on the types and functions of expertise that the Commission typically draws on to develop policy. Lastly, we include an opposing perspective to transnational governance, namely that on the 'shadow of hierarchy'.

2.1 IPE and transnationalism

The academic discipline of IPE originated in the 1970s as an attempt to bridge the divide between political and economic analyses at the international level. Susan Strange was one of the first to point out this gap and propose a new way of thinking that would be multidisciplinary, beyond traditional academic boundaries. Additionally, early IPE scholars emphasized that states and state jurisdictions as the primary unit of analysis, was an outdated and narrow view. Nye and Keohane introduced the concepts of transnationalism and complex interdependence to address the growing phenomenon of actors who could control resources across states and thus shape political realities (Cohen, 2007).

Recent literature in IPE has focused on the transnational character of issue areas, involving a variety of different types of actors working to govern them (Seabrooke & Henriksen, 2017). In essence, these analyses seek to go beyond traditional frameworks that

focus primarily on the state. This thesis aims to follow the tradition in IPE, moving away from the focus on the state, and emphasizing relationships and interactions between a variety of actors in the governance of transnational issues. However, we recognize that there are critiques of this emphasis on transnational governance and new modes of governance, that argue for the enduring and overarching importance of public actors. We pick up on this criticism under the section on 'shadow of hierarchies'.

2.2 New Governance & Orchestration

A key development in the transnational governance literature has been work regarding new forms of governance. This research has investigated the various ways that actors arrive at governance outcomes, particularly how they create rules and standards (Seabrooke & Henriksen, 2017). These perspectives draw attention to the power of nonstate actors, as they work through a variation of arrangements that differ to the power derived through the traditional focus on the state (Seabrooke & Henriksen, 2017). Private governance and private authority have been the subject of debate, partly due to the proliferation of private standards and standard-setting bodies, with researchers often seeing this as complimentary to or in competition with governance by public authorities (Cashore et al., 2021). Multi-stakeholder governance and business-driven programs, for example, have been typologized as types of private governance arrangements (Fransen, 2012). Work on hybrid governance has sought to typologize governance arrangements that involve private and public actors to achieve shared governance objectives (Andonova et al., 2009). The scholarship on orchestration has argued that some organizations in global governance act as enablers between different organizations (Seabrooke & Henriksen, 2017). Orchestration has also been seen as a tool frequently used by international organizations (Abbott et al., 2015; Abbott & Snidal, 2010). This thesis takes a point of departure in the European Commission as an IO and non-state public actor. As such, orchestration literature, which has attempted to address 'transnational new governance' by international organizations (Abbott & Snidal, 2010), is a highly relevant theoretical starting point.

Orchestration literature takes its point of departure in an attempt to understand the many ways that IOs operate. According to Abbott and Snidal (2010), international organizations are traditionally seen as inefficient, because scholars are assessing their performance based on traditional state-based mechanisms, such as writing treaties and settling disputes between states. They argue that, by taking into account that international organization also "enhance their own performance by reaching out to private actors and institutions, collaborating with

them, and supporting and shaping their activities," that scholars can gain a better understanding of IO performance (Abbott & Snidal, 2010, p. 316). This point is illustrated through the "governance triangle" (Figure 1), where they depict global regulatory standards schemes according to the level of participation by three categories of actors. State and/or international organizations are depicted at the top, with firms and NGOs in the right and left corners, respectively (Abbott & Snidal, 2010, p. 319). They use this to demonstrate 'transnational new governance', through which there is "an intricate global network of public, private and mixed institutions and norms" parts of which are orchestrated by international organizations and states (Abbott & Snidal, 2010).

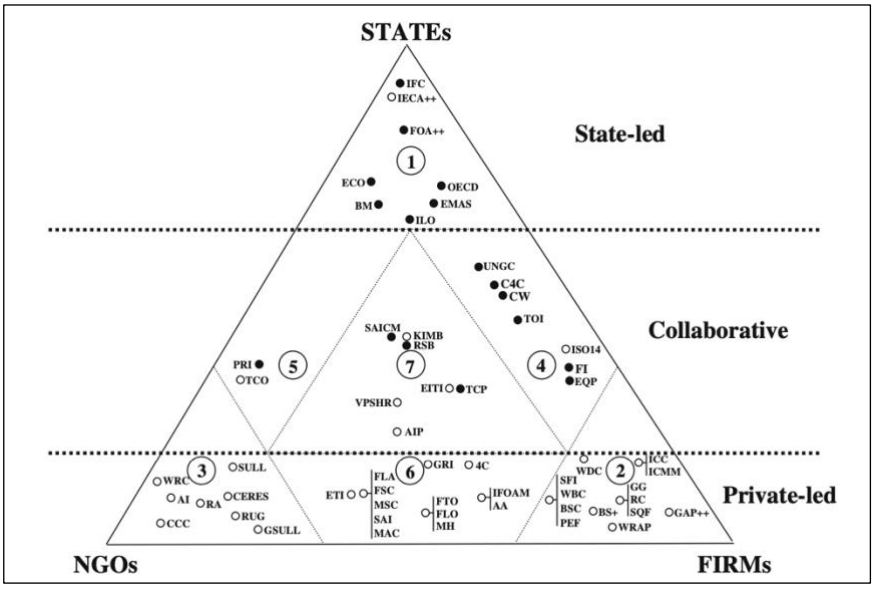

Figure 1: Regulatory standard schemes in the governance triangle. (Abbott & Snidal, 2010 p. 319)

2.2.1 The O-I-T model

Orchestration is an indirect and soft mode of governance, where an international organization makes use of intermediary actors to help reach its targets, also described as the O-I-T model (orchestrator-intermediary-target) (Abbott et al., 2015). In other words, an orchestrator works through its intermediaries. Some of the techniques used by international organizations in orchestrating other organizations are convening, agenda-setting, providing assistance, endorsing them or their activities, and coordinating their activities.

Figure 2: Indirect governance through orchestration. (Abbott et al., 2015 p. 4)

Interestingly for this thesis, the OIT model has been used to describe a key feature of the European Commission. Due to its relative inability to directly enforce legislation, the Commission often acts as an orchestrator, engaging networks of regulatory agencies to coordinate, consult on, and implement legislation, for example, in the areas of competition policy and in the telecommunications field (Blauberger & Rittberger, 2015). Beyond national regulatory agencies, intermediaries could also be e.g., civil society organizations, business organizations, or other international organizations (Abbott et al., 2015). In another study of the EU, (Serban, 2021) has described a shift in EU development policy interpretation and facilitation, moving from directly developing and implementing projects, towards indirect governance through orchestration, where developing countries and local actors are engaged to achieve international development objectives.

Orchestration theory stresses that intermediaries participate in an area of governance voluntarily, making it relevant to consider how and why they do so. Brés et al. (2019) have categorized intermediation types according to the degree of formalization and officialization. The officialization dimension relates to the extent to which intermediation is endorsed or even legislated by an actor with a legitimate authority over the policy area, or if it occurs outside of established channels. Formalization relates to the processes in the intermediation and how well they are codified (Brès et al., 2019). This is important, according to Brés et al. (2019), as the more tacit procedures are, the more room there is for intermediaries to make their own interpretations.

Brés et al. (2019) conceptualizes four types of intermediation. In formal intermediation, which is official and formalized, an orchestrator has endorsed intermediaries, and then delegates key tasks in a manner that is explicit and codified. Examples of these intermediaries are auditors or other monitors of compliance. Official and unformalized intermediation is interpretive intermediation, where the intermediaries have been endorsed, but guidance regarding their role is less explicit. With alternative intermediation, intermediaries may work to obstruct the policy aims of the orchestrator, as they participate in an unofficial capacity, but their role is still formal. Examples of this can be found in tobacco or alcohol policy, where companies have a formal role in the policy area but are not participating with an official endorsement (Brès et al., 2019). This is an interesting contribution to the literature, as Abbott et al. assume that the intermediaries seek to achieve their own goals and they are correlated to those of the orchestrator (Abbott et al., 2015). However, the extent of alignment between the goals of the orchestrator and the intermediary may depend on the type of intermediation. Lastly,

emergent intermediation, which is unofficial and unformalized, draws attention to the "unexpected and unforeseen" intermediaries who can nonetheless act between rule-makers and rule-takers. This addition is valuable, as it indicates that the intermediaries are not necessarily engaged by "some powerful and sovereign actors" (Brès et al., 2019, p. 135) and suggests that the process is more dynamic and shaped by interactions between actors.

We apply orchestration literature to understand the role of the Commission as an orchestrator, and the participants in the Expert Groups as intermediaries. It will be relevant to understand if orchestration techniques can be identified in relation to the functioning of the Expert Groups, as well as how the intermediaries' roles are characterized, both by themselves and by the Commission.

2.3 Networks & Issue Control

2.2.1 Social Network Theory

In social network theory, social outcomes are explained as the result of relations between actors (Godet & Orsini, 2021). The use of social network theory in the social sciences has increased in prominence in the last several decades (Borgatti & Halgin, 2014). The essential assumptions of social network theory are that networks are made up of nodes, where the links between them signify relationships that enable transfers of information, resources, or ideas. The combination of links and nodes build a structure that shapes the behavior of nodes (Godet & Orsini, 2021). The application of social network theory has resulted in a number of key concepts and theoretical perspectives that researchers operationalize to understand the structure of networks and identify significant actors.

The two most well-known network theories are Granovetter's theory on the 'strength of weak ties' and Burt's work on 'structural holes' (Borgatti & Halgin, 2011). The strength of weak ties proposes that strong ties are unlikely to be a source of new information. The reason for this being that actors are more likely to have stronger ties with other actors that are quite like themselves. Thus, 'bridging ties' or links to actors outside of their closest network of ties are more likely to provide new information, allowing this actor to be influential (Borgatti & Halgin, 2011). Structural holes, as coined by Burt (1992), are made up of "missing relationships between nodes in a network" (Seabrooke 2014, p. 51). Seabrooke (2014) argues that transnational networks are often thin or not so dense compared to other networks. This makes transnational networks more prone to have 'structural holes'. In the presence of structural holes, which inhibit information flows, organizations or professionals can exploit this by engaging in epistemic arbitrage and acting as gatekeepers (Seabrooke 2014, p. 51).

2.2.2 Expert networks as actors

Some theorists have argued that networks can be understood as an organizational form, where the network itself functions as an actor with the ability to influence global governance (Godet & Orsini, 2021). These perspectives emphasize the roles played by expertise and knowledge in the formation of networks.

Epistemic communities were first coined by Peter Haas in his study of an expert network, and its influence on an example of environmental policy, namely the Montreal Protocol and debates about the ozone layer (Godet & Orsini, 2021). Epistemic communities are defined as "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge" (Haas, 1992, p. 6). Within these networks, knowledge and expertise is developed that can influence policymakers. The epistemic communities also develop a shared view on the objects of study, common methods, and common normative ideas about the consequences of a policy (Haas, 1992). In this framework, it is particularly when a policy area is characterized by uncertainty, that an epistemic community can shape policy outcomes. Recent studies have also found that nascent policy areas, characterized by highly technical discussions, can be avenues for epistemic communities to have influence, particularly in targeting the Commission (Zito, 2001).

Drawing on (Haas, 1992)' concept of epistemic communities, the role of expertise and expert networks has been a focus of study within the EU context. Radaelli (1999) has argued that the role of expertise is particularly important in the study of EU public policy. The Commission is of particular interest, as a 'policy entrepreneur' that uses knowledge as its main resource and source of legitimacy. Radaeli (1999) addresses a critique of EU governance, namely that experts and epistemic communities have too much influence, suggesting that expertise can "have a dark side" when it is unaccountable and separate from democratic processes (Radaelli, 1999). For Radaelli (1999), epistemic communities are common in areas of uncertainty because they frame the dimensions of an issue, through which different actors can deduce their own interests.

For our research, these perspectives of expert networks raise questions about the extent to which networks can or should be analyzed as a more-or-less singular actor with interests and expertise that it can use strategically to seek influence.

2.2.3 Transnational networks as process and two-level nexus

In the theory on transnational governance established by Seabrooke & Henriksen (2017), which they name 'issue control', organizations and issue professionals are interlinked to shape how transnational issues are governed. They define transnational governance as "a process of coordination and competition among professionals and organizations to control issues". This perspective emphasizes that the contested nature of transnational issues allows for professionals to use their networks across organizations to shape how they are governed. Professionals are defined as individuals with a higher level of learning, skill, and knowledge. Through the formal and informal ties between professionals and organizations, there are flows of information and knowledge. This is illustrated in a 'two-level network', which adapts the governance triangle from the orchestration literature (Seabrooke & Henriksen, 2017). See Figure 3.

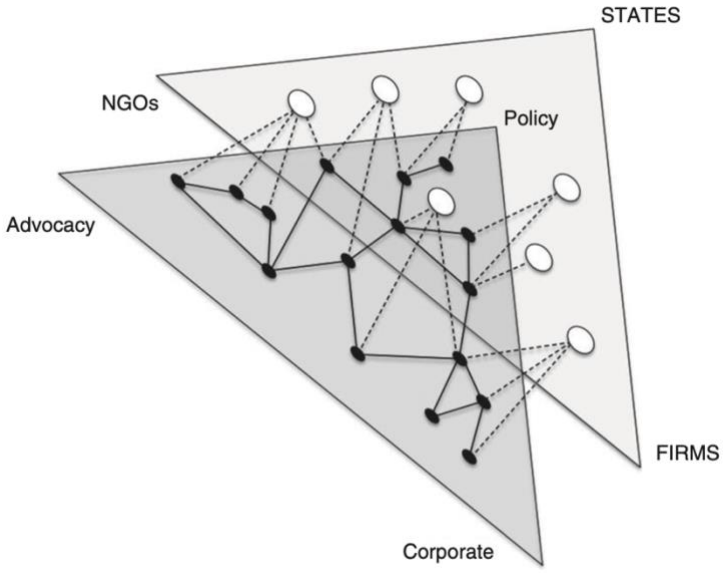

Figure 3: Professional and Organizational Networks across Governance Triangles (Seabrooke & Henriksen, 2017 p. 14)

Hence, Seabrooke & Henriksen (2017) argue that it is less important for issue governance, which organization has formal authority over an issue, but how professionals and organizations are seeking opportunities to influence it. The theory of two-level networks and issue control introduces a critique of previous perspectives on transnational governance. Traditional perspectives have implied that organizations make claims to authority to engage in governance, being defined as 'rules and standards making'. This perspective of 'issue control' has strong connections to sociology and constructivism, the meanings attributed to issues and

how they can or should be treated. These are continuously constructed within networks comprised of individual professionals (Seabrooke & Henriksen, 2017).

We study these networks to understand transnational governance as a continuous process of competition and coordination. Seabrooke & Henriksen (2017) do not aim to imply that structure does not matter, or that networks are flat. To the contrary, they reiterate that networks contain power asymmetries and that studying these illuminates where specific actors are constrained or can find opportunities to influence issue treatment. While we will be maintaining a primary focus on the top level of the two-level network in this thesis, the importance of knowledge flows across networks in shaping transnational governance will be key to the analysis.

2.4 Expertise and Expert Groups in the European Commission

For the Commission specifically, knowledge is a resource that theorists have identified as key to the formulation and implementation of policy (Boswell, 2008; Moodie, 2016; Radaelli, 1999). In an attempt to theorize the functions of expertise, Boswell (2008) describes the potential for symbolic uses of knowledge, in addition to its functional uses. Boswell argues that the structure of the Commissions leads the Commission to value knowledge as "a source of legitimation and substantiation" (2008, p. 472), given that it is not headed by democratically elected representatives, and it is fairly distant from the effects of its policies. According to Moodie (2016), the European Commission has become increasingly reliant on expertise in the formulation and implementation of policy. In fact, "nowhere is this more prevalent than in the structure of EU committees and particularly in the set of Expert Groups under the Commission" (Gornitzka & Sverdrup, 2015, p. 401). There are many systemic reasons for EU policy makers to seek outside expertise including the high complexity and scope of EU regulation, while at the same time the fragmented and open institutional system provides many "access points" for external actors (Metz, 2013). The Commission is also thought of by many as notoriously understaffed, also leading it to rely on external actors (Chalmers, 2014; Gornitzka & Sverdrup, 2015; Metz, 2015).

To attain the expertise the Commission relies on, scholars have argued that Expert Groups play a significant role in EU policy making (Chalmers, 2014; Gornitzka & Sverdrup, 2008, 2015; Metz, 2013). According to Gornitzka & Sverdrup (2008, p. 11), Expert Groups are "by far the mode of consultation most frequently used by the European Commission". Several diverging views on the role of the Expert Groups exist, nonetheless (Tørnblad, 2017). The debate over the use of Expert Groups is central to persistent normative debates on the role of

the Commission as a technocratic body (Metz, 2015). Scholars have nonetheless argued that the use of Expert Groups by the European Commission is under-researched (Chalmers, 2014), particularly regarding the groups' role in policy making (Metz, 2013).

Metz (2013, 2015) attempts to fill a literature gap between, on the one hand, the general use of expertise in EU politics as for instance theorized by Boswell (2008), Radaelli (1999) and Moodie & Holst (2014a), and, on the other hand, the specific uses of Expert Groups by the Commission. Through a quantitative and qualitative study of Expert Groups used by the Commission, covering analyses of 48 processes of legislative drafting over a ten-year period, Metz (2013) finds both a political and a technocratic use of Expert Groups, making them influential not only as a provider of expertise but also in the preparatory policy work. Based on her study she argues that "committees are often created as technocratic bodies but are nonetheless involved in the political decision-making process" (Metz, 2015, p. 8). Thus, Metz argues, perceiving Expert Groups as solely technocratic bodies risks neglecting their possible influence on policy content and politics (Metz, 2015).

Several scholars have found that the use of Expert Groups by the Commissions varies remarkably between different policy areas (Gornitzka & Sverdrup, 2015; Metz, 2013, 2015). Metz (2013, 2015) finds that the Commissions use of Expert Groups is not entirely a determination of the Commission itself. Instead, it is to a higher extent a result of environmental dependencies constraining the Commission, including the cultural influences and habits of the respective DGs. The study found that the use of expertise was more likely in very complex technical policy areas (Metz, 2013). "Across all cases a problem-solving use of Expert Groups in the EU Commission appeared most often if a DG had to elaborate technical details of a proposal and did not have sufficient in-house expertise" (Metz, 2013, p. 275). Metz (2015) also finds that the DGs strive for stability, incentivizing them to work with experts that they already know.

Similarly, Gornitzka & Sverdrup (2008) observe that Expert Groups are very unevenly distributed across different policy domains, and that these sectoral differences are "accentuated by weak horizontal coordination between the Directorates-General." (Gornitzka & Sverdrup, 2008, p. 725). They argue that these differences are affected by the organizational traits of the Commission, variations in the tasks and policy fields that confront the Commission, and the types of environments that it operates within (Gornitzka & Sverdrup, 2015). The uneven distribution is a result of different legal and administrative capabilities as well as different routines and norms among the DGs (Gornitzka & Sverdrup, 2008). The latter element also

suggests that differences may also be less a result of strategic calculation by the Commission rather than institutionalized habits (Gornitzka & Sverdrup, 2015).

Gornitzka & Sverdrup (2008) identify three types of expertise-use by the Commission: science-oriented, society-oriented, and government-oriented expertise. The rationality for using the different types of expertise differs and are grounded in different assumptions about what "bolsters the autonomy and authority of bureaucracies" (Gornitzka & Sverdrup, 2015, p. 405). The actors associated with the three types possess different types of resources, information, responsibilities, and experience. The assumptions behind using science-based expertise are that a bureaucracy derives its legitimacy from fostering and governing based on specialized and enlightened expertise. The autonomy and influence of a bureaucratic body is based on being able to appear neutral, and knowledgeable (Gornitzka & Sverdrup, 2015). Radaelli (1999) argus that the role of scientific arguments and expertise has increased in the EU with the increased complexity and 'technical' uncertainty in governing modern societies. The society-based expertise-use is based on the assumption that the Commission derives its authority and legitimacy from "opening up to, channeling, and mediating different political forces, that is, it reflects deference to principles of input legitimacy, representation of societal interests, and attention to experience-based expertise." (Gornitzka & Sverdrup, 2015, p. 406). This is also important for securing a stable environment and for strengthening the positioning vis-a-vis the other legislative institutions. Finally, the government-based expertise-use entails involving national authorities to develop and promote connections and networks which can facilitate administrative interaction and integration (Gornitzka & Sverdrup, 2015, p. 406). In addition, this might be beneficial in promoting the political outcomes in the European Council.

Some have argued for a view on Expert Groups as 'lobbying fora' providing participants with privileged access to decision makers (van Schendelen, 2002). Critics have also suggested that the Expert Groups are used to present 'pre-approved' proposals which favor powerful interests (Chalmers, 2014). In other words, some argue that Expert Groups, "provide a privileged channel of access for interest organisations to the EU legislative process" (Chalmers, 2014). Some have also argued that certain interests figure more prominently, for example that large parts of the Expert Groups have been captured by industrial interests (Gornitzka & Sverdrup, 2008). A quantitative study addressing the correlation between types of organizations and Expert Group memberships found that relatively more seats in Experts Groups tend to filles by interest organizations with European-level interests as well as superior resources in terms of finances and staff and strong ties to EU decision-makers (Chalmers,

2014). Case studies have shown examples where the Commission has been accused of using biased advice from Expert Groups (see e.g., Vos, 2000).

2.5 The Shadow of Hierarchy

Alternatively to the transnational governance literature, a perspective that de-emphasizes the importance of networks is that on the 'shadow of hierarchy'. Héritier & Lehmkuhl (Héritier & Lehmkuhl, 2008), proposed that new modes of governance may be helped or hampered by the 'shadow of hierarchy', which they define as legislative and executive decisions by state actors. In her analysis of European governance, Börzel (2010) has argued that hard regulation, or the threat of it from public actors still matters and "casts a shadow" over other forms of governance. While recognizing that 'negotiation systems' of mutual influence between actors and 'competition systems' of mutual adjustment between market actors exist, what matters most for the formulation and enforcement of policy is governmental actors and political competition between them. For example, in a study of European migration policy, Servent (2019) found that the 'shadow of hierarchy' may be sufficient for policy failure. In an attempt to reform the asylum system, deadlock between states led the European Council to intervene, despite policy proposals from the Commission and the existence of a unified position within the European Parliament (EP). In the end, the reform "became subordinate to the wishes of member states" (Servent, 2019, p. 306). Furthermore, Börzel (2010) argues that network governance is 'hard to find' in the European context, because EU policies are primarily formulated and implemented by public actors.

We include this perspective in our thesis, as it provides a valuable opposing view to the transnational governance perspectives that emphasize interactions between a variety of actors. The perspectives on the 'shadow of hierarchy' also have links to studies of the role of expertise and particularly the Commission as a policy entrepreneur, because these have conceded that political competition and the existence of veto points can limit the importance of network governance (Radaelli, 1999). However, the policy proposal that is being analyzed in this thesis has not yet been through the approval process in the European Parliament and the European Council, where the veto points and the 'shadow of hierarchy' are arguably most important.

2.6 Our Theoretical Framework

Orchestration is seen in this thesis as being complementary to theories about network governance. In combining the two perspectives on global governance, orchestration is a conceptualization of the role that international organizations often play within transnational networks. This view of orchestration theory is not without precedent, as Broek & Klinger-Vidra

(2022) have used it to study the 'intermediary networks' engaged by institutions of the UN, where the intermediary network in turn provides meaning to the diffusion of the Sustainable Development Goals. This view of orchestration will be used to evaluate the role of the Commission vis-a-vis the other actors the Commission has engaged within raw materials.

On the one hand, this thesis investigates the role of the Commission as an orchestrator through an analysis of which organizations it chooses to include as participants in the formulation of the agenda raw materials. On the other hand, this thesis investigates the interests of those organizations through a network analysis and potentially adds to the orchestration literature, by considering how an orchestrator may create a network of interlinked organizations. Within this network, some will potentially have an outsize ability to influence the others, and thus on the overall governance of the issue. Thereby, this study may contribute to literature that attempts to bridge literature on orchestration and social networks, applying the concept of 'intermediary networks'.

The Commission's Expert Groups are the network of organizations that will be of focus in this thesis. This choice is informed by previous literature on expertise in the EU and the identification that Expert Groups are the most used forums for the Commission to obtain the expertise it lacks. This research will also draw on the literature regarding the typical functions and types of expertise sought by the Commission, to understand the role of the Expert Groups in the policy formulation, and how the organizations within them contribute with expertise to influence the policy discussions. The critiques that Expert Groups also serve as lobbying forums, where certain types of organizations tend to be more present, will be of interest to consider through the lens of social network theory and the concept of 'intermediary networks'. To the best of our knowledge, almost no scholarly articles have studied the use of Expert Groups within raw materials policy in the EU. We have only come across Vassalo (2013)'s brief reference to CRMs. This thesis is thus also addressing the concern that not enough scholarly research has addressed the Commission's Expert Groups (Chalmers, 2014), and, particularly, it emphasizes the need for scholarly focus on the material topic of raw materials.

4. Methodology

This section describes and discusses the methodological considerations applied in this thesis. First, it describes the research design of the single case study approach utilized, including considerations on case selection and quality of the case study, in terms of reliability and validity. The implications of the unit of analysis being an intermediary network are discussed by placing the case study within a universe of cases. Hereafter, we go on to describe

and discuss the mixed-methods approach of Social Network Analysis and semi-structured interviews. The selection, collection, and treatment of data in both methods is discussed, as are the strengths and weaknesses of the methods. In sum, we begin by conducting an SNA of the co-affiliations between member organizations of the Commission's three formal Expert Groups and three subgroups on raw materials, based on a mapping of their memberships in other Expert Groups as well as memberships in other associations, industry groups and similar. This analysis provides a view of the structure of the network, from which we can identify specific actors which are best positioned to be key holders of information in the network, and who likely have an ability to influence how the issue is treated in the policy formulation and implementation. To supplement and test this outside-in perspective, we conduct 11 semi-structured interviews with representatives from organizations who participate in the Expert Groups, giving us a much more in-depth understanding of the activities and network dynamics in and around the Expert Groups.

4.1 Research design

This study is of a single case, namely the development of the raw materials policy area within the EU. A case study can be defined as "an intensive study of a single unit for the purpose of understanding a larger class of similar units" (Gerring, 2004, p. 342). In Gerring's typology, there are three main types of case studies. Case studies can examine variation in a single unit over time, the sub-units of a case at a single point in time, or the sub-units of a case over time (Gerring, 2004). The single unit here is raw materials policy within the EU, more specifically the policy formulation of the 2023 CRM Act, that is being studied for the purpose of understanding the broader phenomenon of Expert Groups and expertise in EU policymaking in green industrial policy. The unit of analysis in this thesis is an intermediary network, which was defined and discussed in the theory section. The Expert Groups involved in the policy area and the role of the organizations within them can be considered sub-units of this case. Hence, this case study is of the second type in Gerring's typology. It is not a comparative case, so we do not compare the case with intermediary networks in other policy areas. Nonetheless, comparative cases could be of intermediary networks in other policy fields in the EU, such as the other proposals in the Green Deal Industrial Plan.

In case study research, it is also relevant to consider the case selection strategy. At the outset of this research, the case of raw materials policy was considered to be an index case. An index case is one that seeks to explain the first instance of a phenomenon (Gerring & Seawright,

2022). For this research, a legislative proposal at the EU level addressing the supply of raw materials is a new outcome. Given the lack of historical precedent regarding legislation in this policy area, the process of developing the regulation is worthy of study. The data collection illuminated that this might also be a deviant case, when considering the role of Expert Groups in EU policy. A deviant case is one that deviates from an expected pattern, or a general framework of causal relations (Gerring & Seawright, 2022). The existing literature on the role of Expert Groups in the Commission's policymaking suggested that they typically play a significant role in the formulation of policy proposals. Furthermore, literature pointed to the Commission's tendency to rely heavily on expertise (Boswell, 2009; Moodie & Holst, 2014; Radaelli, 1999). However, this case deviated from these trends, in that the Expert Groups had a decreased role, up to the release of the regulation.

The quality of a research methodology should be assessed according to recognized criteria. According to Bryman (2012), the most frequently used criteria are validity and reliability. The reliability criterion relates to whether the results of a study are repeatable. In other words, a study is reliable if another researcher pursuing the same methodology would achieve similar results (Bryman, 2012). A study has internal validity if the causal relationship in the study is credible, or if the independent variable has a credible effect on variation in the dependent variable (Bryman, 2012). External validity relates to the generalizability of a study, or the extent to which the conclusions can be applied to a wider universe of cases (Bryman, 2012). The validity criteria are typically of concern in relation to single case-study designs, particularly the question of generalizability (Bryman, 2012). According to Gerring (2004), an advantage of a case study design is it allows the researcher to make descriptive inferences about the specific phenomenon of focus. Additionally, case-studies are good for describing causal mechanisms, rather than causal effects (Gerring, 2004). Gerring (2004) also argues that the exploratory nature of a case-study means that it is often used for theory-building, rather than theory-testing. Thus, the external validity of this research design will come from our ability to develop concepts and make additions to theory that can be applied and tested in other cases. This is sometimes called analytical generalizability by researchers (Bryman, 2012). Further limitations and methodological concerns are discussed throughout the next sections.

Case-study designs often follow an inductive tradition, due to the emphasis on analytical generalizability, but the approach taken here is abductive. An abductive approach to analysis requires deep engagement on the part of the researcher with theory and research

evidence (Earl Rinehart, 2021). In contrast to an inductive approach, this recognizes that the researcher cannot entirely separate themselves from knowledge of existing research and theory, nor can they avoid making active choices regarding the use of evidence in a deductive study (Earl Rinehart, 2021). Abduction is thus, neither strictly theory-testing, nor theory-building. In this research, the choice to focus on the dynamics between organizations in the Commission's raw materials Expert Groups is motivated by theoretical considerations from ideas about orchestration, social networks, issue-control, and expertise. The data collected through interviews, however, pointed to other forums being as important or more important than the traditional formal Expert Groups. One of the values of the abductive method is allowing researchers to be surprised in relation to existing theory, beliefs, or worldviews (Earl Rinehart, 2021). It also requires the researchers to continuously look at research evidence, while continuously returning to theory and making new considerations (Earl Rinehart, 2021). The use of the abductive approach allowed us to be surprised by our findings about the Expert Groups and then return to the key concepts and adjust our approach to the research, making new theoretical considerations.

4.2 Methods

This thesis uses a mixed-methods strategy in its research design. The methods used are SNA and semi-structured interviews. The interviews are coded with a qualitative content analysis. The strategy combines a quantitative and a qualitative method. There are several different reasons for combining quantitative and qualitative methods as well as benefits. In the first place, this is done, because the two methods complement each other by shedding light on different insights, increasing the completeness of the research, as phrased by Bryman (2012). The SNA maps the connections between actors in the network in a way which would have been practically impossible by only conducting interviews. To get a good overview of the structure of the network, its integration and density, for instance, would have required interviewing a much larger sample of organizations. Additionally, combining the methods increases the validity of the research, by being able to corroborate results and offsets some of the weaknesses of one another (Bryman, 2012). A weakness of only interviewing was just mentioned, and a weakness of only applying the SNA is that the method is an outside-in perspective which does not say anything about the strengths of the ties mapped. In sum, the quantitative method provides a view of structures of the network relationships while the qualitative method is used more to reveal processes and meanings attached to the relationships by the interviewees who are also members of the network (Bryman, 2012).

4.2.1 Social Network Analysis

The first method used in this thesis is an SNA. The social network studied is an affiliation network of the member organizations in the European Commission's Expert Groups on raw materials. This section will begin by introducing SNA and its core concepts and application, whereafter the SNA applied in this thesis will be described.

4.2.1.1 SNA as a method

SNA is occupied with relations between actors and the structures or patterns of those relations (Marin & Wellman, 2014). It has its roots in sociological traditions and has been used in many different academic disciplines including social psychology and anthropology but also in the natural sciences (Scott & Carrington, 2014). Social network theorists consider networks to be the building blocks of the social world, making the SNA a distinct way of studying the social world from for examples those approaches that study individuals or apply attribute-based perspectives (Marin & Wellman, 2014). SNA is occupied with how connections are formed and how the patterns of these connections can impact the way that information and ideas can travel across groups of actors (Marin & Wellman, 2014).

Social networks are made up of nodes, which are the network members, that are connected through one or more types of relations, called edges or ties (Marin & Wellman, 2014). See Figure 4 for an illustration. The nodes can consist of many different types of actors, such as individuals, organizations, states or institutions.

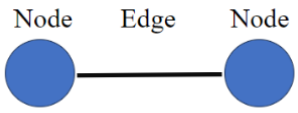

Figure 4: Illustration of nodes and edges

Social networks can be studied in various forms. They are most frequently studied as single mode networks, which are made up of only one type of nodes and their connections (Scott & Carrington, 2014). See Figure 5. This could for instance be a mapping of friendships. The nodes are connected by who is friends with who.

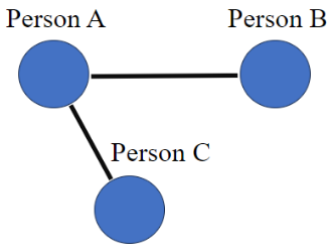

Figure 5: Illustration of a simple single mode undirected network

However, networks can also have two or more modes. In a two-mode network, relations consist of two distinct classes of nodes. The edges in a two-mode network are exclusively made up of links between nodes from one class to the other class, and never within classes, making it bipartite (Borgatti & Halgin, 2014). This is also called an affiliation network and often consists of actors and their co-membership or participation in events, organizations or similar. Figure 6 is an illustration of this.

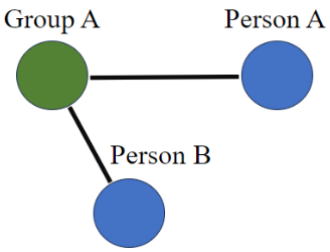

Figure 6: Illustration of a simple bipartite two-mode network

Edges between nodes can be both directed and undirected. A direction between two nodes could be that one node provides information to another node, but not the other way around (Marin & Wellman, 2014). In a two-mode network where ties are only between the node classes and not within, directionality is not applicable. Edges can also have weights or strengths assigned to them, which could for instance be an indicator of how close friends are (Scott & Carrington, 2014).

When collecting data for a network, one must make decisions regarding data collection strategy (sampling), definition of ties and boundaries of the network (Borgatti & Halgin, 2014). In defining these parameters, it is the researcher that defines the studied network, and this is an important aspect to have in mind (Borgatti & Halgin, 2014). This relates to the ontological question of what a network actually is. The naturalist would argue that "true" networks exist, which the researcher tries to uncover, and a more constructivist view would suggest that

networks are a product of the perspective of the researcher and the researched. Borgatti & Halgin (2014) argue that these data decisions should generally not be guided by the empirics, but rather by the research question and the explanatory strategy.

Deciding on how to define the ties is an essential part of designing the SNA (Borgatti & Halgin, 2014). Ties can generally be categorized in two different ways: as states or events. Whereas state ties have continuity over time, such as for example parenthood, event ties have a discrete and transitory nature. Defining the boundaries of the group is essentially deciding who is an insider and who is an outsider and can have important consequences for the analytical results. Most networks do not have a natural boundary (Borgatti & Halgin, 2014).

4.2.1.2 Analysis in SNA

Analyzing networks data can be done through visualization of the network as well as through the calculation of a variety of different measures. The visual representation of the network can be used to give a first look at some of the most important features around, for instance, whether the nodes are connected, whether there are many ties between nodes, whether there are subgroups or clusters, and whether some actors have many connections (Hanneman & Riddle, 2014a).

A network can be described and analyzed using many different attributes, such as size (number of nodes), density, centrality, and structural holes (Hanneman & Riddle, 2014b). Density is the proportion of the number of possible ties that are present (Hanneman & Riddle, 2014b). In an undirected two-mode network, the number of possible ties is the number of nodes in one class of nodes times the number of nodes in the other class. I.e., if all nodes were directly connected to one another, the density would be 100 percent. Density can be used to say something about the speed at which information can travel in the network (Hanneman & Riddle, 2014b). Low-density networks are more prone to have ‘structural holes’, which can be exploited by actors who become key gatekeepers (Seabrooke, 2014). More important than the size and density is the “texture” of the network. This is a question of how the network is structured and the patterns present in the network (Hanneman & Riddle, 2014b). The network population can be described by identifying local clusters in the network. Clusters are subgroups of the network where the density is higher than the average (Hanneman & Riddle, 2014b).

To investigate the influence of actors in the network, centrality measures can be applied. Centrality says something about the position of actors in the network and their connections to other actors. Centrality is often taken as an indicator of power and influence (Hanneman &

Riddle, 2014b; Scott & Carrington, 2014). However, centrality can be measured in many ways, each with potentially different outcomes. A basic measure of centrality is degree centrality, which measures the number of nodes in the other class of nodes an actor is connected to. Having many ties can be seen as having a high prestige or prominence. One criticism of degree centrality is that it only takes into account the immediate ties of actors and ignores whether those ties are also actors with many ties or on the contrary disconnected actors. Closeness centrality measures the overall closeness of actors to all other actors (Hanneman & Riddle, 2014b).

Another important dimension of relative power can be betweenness centrality. Betweenness centrality is measured based on the extent to which a node is positioned between other nodes. It measures the number of shortest paths through the individual nodes. It is based on the notion that being positioned between two actors gives an actor power. If other actors depend on an actor to reach other actors, this puts the actor in question in a favored position (Hanneman & Riddle, 2014b). However, if those actors are also connected through other indirect links, that power is decreased (Hanneman & Riddle, 2014b). Being between actors can hence make an actor a broker or a gatekeeper (Hanneman & Riddle, 2014b).

Finally, eigenvector centrality takes into account not only whether actors are connected to other actors, but also whether those connections are influential, i.e., well connected. It is a transitive measure which measures through an algorithm the centrality of an actor by calculating the centrality of the actors that the actor is connected to (Golbeck, 2013). Being connected to many actors may not be of great value if those actors are actors without influence.

4.2.1.3 Application of SNA in this thesis

The social network in this thesis is a two-mode network, made up of two distinct classes of nodes. The two classes of nodes are: 1) organizations which are members of Commission Expert Groups on raw materials. We denote these nodes as *organizations*. And 2) membership of those organizations in other Commission Expert Groups together with associations/(con)federations/networks or other bodies that these organizations are members of. We denote this second category of nodes as *groups*.

Including subgroups there are six Commision Expert Groups on raw materials. These are E01353 Raw Materials Supply Group; Working Group "Defining Critical Raw Materials" (subgroup to E01353); Working Group "Exchanging best practices on land use planning,

permitting and geological knowledge" (subgroup to E01353); E03391 High level steering group of the European Innovation Partnership on Raw Materials; EIP Sherpa group (subgroup to E03391); and E03392 Commission operational Expert Group of the European Innovation Partnership on Raw Materials.

Table 4: Commission Expert Groups on raw materials

Expert Groups name	Abbreviation in this thesis
Raw Materials Supply Group (E01353)	RMSG
Working Group "Defining Critical Raw Materials" (subgroup to E01353)	WGDCRM
Working Group "Exchanging best practices on land use planning, permitting and geological knowledge" (subgroup to E01353)	WGLU
High level steering group of the European Innovation Partnership on Raw Materials (E03391I	HLSGEIP
EIP Sherpa group (subgroup to E03391)	EIPSG
Commission operational Expert Group of the European Innovation Partnership on Raw Materials (E03392)	COEEIP

This makes it an affiliation network where affiliations are mapped by memberships of the *organizations* in the *groups* (Hanneman & Riddle, 2014a). The edges in this network do not have a direction, making the network undirected (Scott & Carrington, 2014). Some organizations can be part of both the *organization* nodes and the *group* nodes, as the organizations have memberships in other organizations in some cases. E.g., with the case of Eurometaux. Those nodes are coded twice, with the group node coded as e.g., Eurometaux_grp, and the organization is coded as also being a member of its own group.

Data selection

We selected data on Commission Expert Groups, because this data relates directly to the case studied in this thesis. The formal mandate of the Expert Groups is to “Assist the Commission in relation to the implementation of existing Union legislation, programs and policies”, “Assist the Commission in the preparation of legislative proposals and policy initiatives”, “Coordinate with Member States, exchange of views” and “Provide expertise to the Commission when preparing implementing measures” (European Commission, 2022b, 2022c, 2022d; Moodie & Holst, 2014b). Over the past 10 years, there has been a rapid

expansion in the use of expertise-based bodies (Moodie & Holst, 2014b), and scholars have argued that Expert Groups play an important role in EU policy-making (Gornitzka & Sverdrup, 2008), making them a popular subject of study for academics. This was also discussed in the theory and literature review.

All data is collected from the Commission's Online Register of Commission Expert Groups and the EU's Transparency Register. The two registers provide access to very large amounts of data around the interest group participation in legislative work. The Expert Group Register was created in response to criticism from the European Parliament that the Commission's use of Expert Groups was excessive and untransparent (Moodie, 2016). The Commission is formally obliged to enter correct information and to update the register (Gornitzka & Sverdrup, 2008), making it an authoritative and formal source of data.

We use memberships in Expert Groups and associations as a proxy for social relations between organizations. This is based on an assumption that co-membership is an indicator of a possible underlying social tie (Borgatti & Halgin, 2014). We do not claim that the co-membership in all cases actually equals a social tie, but that co-membership can be seen as providing opportunities for forming social ties and which creates opportunity for the sharing of ideas (Borgatti & Halgin, 2014; Hanneman & Riddle, 2014b). Another justification for using co-membership as a proxy for a social tie, could actually be the opposite argument, which is that co-membership may be a consequence of an already existing tie (Borgatti & Halgin, 2014). I.e., the organizations may participate in a group because they have a relationship with other organizations who are also participating in the groups, and this may serve as an incentive or a facilitator. Both arguments support using co-membership as a proxy for a potential social tie.

The ties are state type ties, as we do not count the number of exchanges made between the organizations, such as number of times they participated in meetings together, or number of emails they exchanged. But rather an open-ended relationship through membership in the Expert Groups. Defining the boundaries in this network is relatively straight forward, as the Expert Groups have a set list of members. This boundary is not a natural boundary, however. The organizations might as well engage with other organizations who are not part of the Expert Groups, but who are central by other network boundary definitions. A different strategy could have been to use a snowball sampling method, in which we were guided by who members perceived to be central. We opted for the former strategy because we are studying specifically the Expert Groups and because this strategy eliminates the dilemma of where to draw the line.

Data collection

We collected the data in a matrix with organizations on one axis and groups on the other axis. We coded the membership with 1 and 0. We also logged a number of attributes of the organizations. The attributes consist of 'category' (e.g., 'NGOs' or 'Trade and business associations'), 'country/area represented', and 'member status' in each of the five Commission Expert Groups (member or observer). This is based on data registrations and categories defined in the EU's Transparency Register. We have only made changes where an organization has inconsistent categorizations in two different member groups. Then we selected the categorization we found most accurate.

We have had to make a number of decisions in collecting and treating the data. We do not include national authorities, which are members of the Expert Groups. There are two reasons for this. First of all, national authorities can be argued to wear two hats. They are officially there to represent national interests, but it can be assumed that they also act as experts. Secondly, there is a practical reason, which is that it is not possible to tell from the transparency register which other Expert Groups the specific national authority is represented in. Due to the latter reason, we also have not included 'International/Intergovernmental Organisations' and 'EU Institutions/Bodies'. All the three types of organizations could potentially have been important in the network but including them with this clearly very partial data would not have given a realistic picture anyway. Moreover, none of the interviewees pointed to these organizations/institutions as being important, as will be discussed later.

We remove groups in which only one of the organizations is a member, as this provides no interaction between organizations in the network. This reduces the number of nodes and edges significantly and changes the results of the network analysis. We began by conducting the analysis with all groups included and used the identification of central organizations in this analysis as the basis for requesting interviews with organizations. The implications of this are discussed further in section 4.2.2 about interviews. It could be argued that the groups could have been included, as the organizations who are the sole member from the network of a group could use this access to information as a basis for exchanging information on other topics with other organizations in the network. Nonetheless, we argue that the methodological argument for removing these groups is stronger than the argument for including them.

In cases where data is missing, we have opted to strictly use the data registered in the Transparency Register. This means that when there seemed to be data missing, we did not supplement this with data from other sources. It is not possible to know exactly where data is missing, so we deem that adding outside data is less systematic than relying strictly on the Transparency Register data. For instance, a few organizations had zero interest groups registered, which may not be correct. Moreover, some organizations were not registered in the Transparency Register, although this is a requirement for participating in the Expert Groups (C(2016) 3301). The observation that some registrations are missing, leads to a discussion of data quality. Others have also raised concerns about the data quality of the data published by the Commission, such as for instance Moodie (2016), who points out that the Commission is sometimes slow to update the Registers. These are potential weaknesses of the data used for the SNA. However, the analysis still allows us to identify member organizations with many connections and who are central in the network, and by supplementing the SNA with a second method, namely semi-structured interviews, we attempt to mitigate this weakness. The data we have collected also does not provide insights into, for instance, the number of times individual organizations have participated in Expert Group meetings.

Visualizing and analyzing the social network

The social network data is visualized and analyzed using the open-source software Gephi (version 0.10.1). For the visualization, the algorithm Force Atlas 2 is applied giving a layout which is more comprehendible than the original layout. Force Atlas 2 is a spatialization algorithm, which places nodes depending on other nodes and the connections between nodes. The algorithm optimizes for the full network, and the position of a node cannot be interpreted on its own. With this algorithm, proximity can be used to identify communities which appear as groups of nodes (Jacomy et al., 2014).

In order to analyze influence in the network we analyze the network data by applying centrality measures. We measure betweenness centrality and eigenvector centrality to identify actors which have the most potential for influence in the network. We apply betweenness centrality, because it allows for testing which actors are the most connected in the network in terms of direct and indirect connections. Actors with a high betweenness score are well positioned in terms of controlling the access of other members to each other and the transmission of information and ideas. However, to make the identification of influential actors more robust we also apply eigenvector centrality. Eigenvector centrality not only considers

whether actors are connected to many actors, but also whether those connections are also well connected, and i.e., influential. Hence it addresses the question of whether an actor is connected to the right people, i.e., other people who also have influence.

4.2.2 Interviews

To supplement the SNAs, eleven semi-structured interviews have been conducted for this thesis. The first part of this section discusses interviews as a method, while the second section describes the specific method selected and its application. Using this mixed-methods approach of conducting SNAs combined with interviews has already been discussed in the beginning of this section.

4.2.2.1 Interviewing as a method

Interviewing is one of the most popular methods in qualitative research (Bryman 2012). The method is attractive due to its flexibility. High-level, there are three types of interviewing styles, unstructured, semi-structured and structured. These are ideal type categories, and in practice, interviews do not necessarily fit perfectly with only one or another. While the structured interview leans towards being a quantitative method, both unstructured and semi-structured interviews are common in qualitative research. Qualitative interviewing is characterized by a big emphasis on the world view of the interviewee, and the interviewing style and preparation is shaped by this (Bryman, 2012).

The unstructured interview is very conversation like and often based on few questions or concepts for discussion. The unstructured interview is often utilized in early or exploratory stages of a research project, and it allows for keeping an open mind on what is important to the subject in question. It is also often used to completely avoid impacting the answers of the interviewee (Bryman, 2012). The semi-structured interview is suitable when the researcher has a more concrete idea about what they want to research. Nonetheless, in the semi-structured interview the interviewee is usually still given space to influence the interview and to raise additional and complementary issues for discussion that they find important. The interviewee is even often encouraged to “ramble” (Bryman, 2012).

The semi-structured interview is usually based on an interview guide, which is prepared ahead of the interview. The interview guide can, however, take many different forms and vary from a list of topics to be covered to a longer list of specific questions. The semi-structured interview guide is usually more structured than just a list of themes but can also vary. This

depends on the nature of the interview. The questions may vary slightly between interviews to be adjusted for the particular context, but overall, the questions and the question wording will be the same across interviews, and the interviewer does follow a script to some extent. It is common to revise and adjust the interview questions as experience is gained from the first interviews (Bryman, 2012). The interview questions are usually defined with the research question(s) as the starting point. The researcher will ask themselves what they need to know from the interview(s) in order to be able to answer the RQ. Generally, the questions should not be so specific or strict that they do not allow for alternative areas of inquiry. The questions should include open-ended questions and allow space for follow-up questions. Questions should not be leading. They should also avoid being too complex and including too much jargon (Bryman, 2012).

4.2.2.2 Semi-structured interviews in this thesis

For this thesis eleven semi-structured interviews have been conducted. Table 5 provides an overview. After having identified the most central actors through the network analysis, we requested interviews with the organizations we could find contact information on. For those we could not find email addresses for we tried to call the organization or reach out on LinkedIn. We followed up with most of the organizations who did not respond to our request. Hence the number of interviews was an outcome of the number or people who agreed to do an interview with us. In two of the interviews two representatives participated.

As was described in section 4.2.1.3, the SNA used as the basis for reaching out to the most central organizations is different from the SNA included in the final version of this thesis. Recall that this is a consequence of a later decision to remove groups in which only one of the network members (organizations) are members, as these forums do not provide interaction between organizations in the network. As outlined, the change to the data treatment method caused changes to the list of most central organizations. Many of the organizations identified as most central in the original analysis remain among the most central, but some of the organizations that we interviewed are no longer among the top 20 organizations. The organizations identified to be the most central in the original SNA are listed in Appendix 1.3. The results from the SNA used in this thesis are presented in the Analysis section. We do not find this to be a problem for the data results, as the organizations that we interviewed are all members of the Expert Groups and can still speak to the dynamics in and around the groups. It did potentially help us get access to the organizations that we interviewed, as they all found it

interesting that their organization had been identified among the most central. Nevertheless, we do not perceive this to be a significant problem for the data results either.

Table 5: Interviews conducted

Organization	Type of organization (COM category)
Euroalliages	Trade and business association
European Aggregates Association (UEPG)	Trade and business association
European Automobile Manufacturers' Association (ACEA)	Trade and business association
European Environmental Bureau (EEB)	NGO
European Tyre & Rubber Manufacturers' Association (ETRMA)	Trade and business associations
European Tyre & Rubber Manufacturers' Association (ETRMA), Secretary General until March 2023 (referred to as 'previous NGO')	Trade and business associations
Industrial Minerals Association (IMA)	Trade and business association
IndustriALL European Trade Union	Trade Union
Norwegian University of Science and Technology (NTNU)	Academia, Research Institute and Think Tanks
Consultant working for unnamed Environmental NGO (referred to as 'NGO consultant)	NGO
Vlaamse Instelling voor Technologisch Onderzoek (VITO)	Academia, Research Institute and Think Tanks

We have made several attempts to get an interview with the Commission, but with no luck. We have emailed the main authors of the reports published together with the CRM Act (see Table 1) and have asked interviewees if they could assist us with creating this contact. The reason for this may be that the Commission is not interested in being researched in this area, or it may simply be because the regulatory proposal only came out in March this year, and the staff simply do not have the time. An autoreply tipped us that one of the main authors of the Study on the Critical Raw Materials for the EU 2023 (European Commission, 2023a) was on holiday.

Interviews were conducted to strengthen the validity of research by adding another method in addition to the SNA. The SNA is a purely outside-in perspective, whereas the interviews were insider perspectives and provided a way to gain in-depth knowledge about the functioning of the Expert Groups and the dynamics around them.

Table 6: Interview guide.

Question
Could you tell us about your background and position in the organization?
Have you personally participated in the Expert Groups?
How is your organization involved in the (critical) raw materials agenda?
How do you think the CRM agenda in Europe has changed over the past 5 to 10 years? In terms of focus and actors.
What do you think are the weaknesses of the CRM Act or the EU's CRM agenda more broadly?
In what way does your organization participate in the Expert Groups?
What do you perceive the role of the Expert Group(s) on raw materials to be?
What is the value in participating in the Expert Group for your organization?
What kind of influence does the Expert Group have? Where in the policy process does the Expert Group have influence in your opinion? How does the COM make use of expertise through the Expert Groups?
What are the battlegrounds/topics of dispute in the Expert Groups?
What organizations or types of organizations in the Expert Groups do you perceive to have been most successful in influencing the political agenda? What would you say are their characteristics?
What (claims to) authority do the organizations that you perceive to be influential have in your view? / What makes them important?
In what way does your organization engage with the other organizations in the Expert Group? How about the other organizations identified as central?
What other forums or channels outside of the Expert Groups do you think are important in the policy making?
Why are these other forums more or less important vis-a-vis the Expert Groups?
Can you put us in contact with other members of the network?

All interviews were conducted as semi-structured interviews. This allowed us to get answers to specific questions, while allowing room for the interviewees to guide our attention to issues they found important. One general interview guide was developed to be used in all interviews. See Table 6. The interview guide was adapted after the first interviews based on the experience gained during these interviews. This was particularly related to the use of the word "influence". Several interviewees seemed to not like that word, or back slightly down from their statements when we used it. This is not so surprising, given that the organizations interviewed can be assumed to all be attempting to influence the legislative outcome, but may not be eager to portray themselves in this way due to a general negative popular perception of

private sector influence or in another word: lobbying. When asking the questions, we instead focused on the use of expertise, rather than influence. The questions prepared in the interview guide are guided by the theories applied in the thesis.

All interviews were conducted online over Teams and lasted between 35 and 75 minutes. We recorded some of the interviews, while we only took notes during other interviews. Appendix 3 therefore includes both full transcripts and notes from the interviews.

4.2.3 Qualitative content analysis

Coding is often the starting point for researchers conducting a qualitative analysis (Bryman, 2012). The practice of coding, which has also been called indexing (Bryman, 2012), can be qualitative or quantitative. A qualitative content analysis allows researchers to take a systematic approach to data analysis (Bryman, 2012). The overall purpose is to segment the data into useful sections and reduce the amount of material, aiming to focus on the parts that the researchers deem useful to answer the research question (Schreier, 2014). Despite the segmentation of data, context and latent meanings are still important in a qualitative content analysis. This is distinct from quantitative content analysis, which is often used as a means of data collection, and there is more emphasis on frequencies of terms and manifest meanings (Schreier, 2014). Thus, a qualitative content analysis is generally perceived to be a more flexible approach, due to the emphasis on contextual descriptions (Bryman, 2012). In this thesis, a qualitative content analysis was used precisely because it allowed for a segmentation of data, given the volume of interview transcripts, but also because of the flexibility afforded by the method.

The starting point for a qualitative content analysis is a coding scheme, made up of main categories and sub-categories. The main categories address the core interest of the researchers, to answer the research question, and sub-categories can come out of the data being analyzed (Schreier, 2014). In this way, the coding scheme is both concept-driven and data driven. While sections of text can contain data for several main categories, sub-categories should be mutually exclusive. When coding, segmentation can occur along the lines of formal sections, such as paragraphs or sentences in a legal text, or along the lines of themes (Schreier, 2014).

In this research project, there is a close relationship between the interview guide and the coding scheme. The questions for the interview guide were shaped by key concepts at the

outset and aimed to support an answer to the research question, although they were also adjusted over time. The coding scheme thus initially consisted of categories based on the interview guide, while sub-categories in each category came out of the transcripts. In this case, interview transcripts do not contain formal categories, and coding was done along the lines of segmentation between themes. This allowed for more flexibility in the approach, and for more in-depth evaluation of the context in which things were being said. Through the coding process, the sub-categories were constructed and re-constructed based on the actual transcripts or notes from the interviews. Additionally, transcripts and codes were reviewed several times by both researchers to ensure consistency and improve the reliability in this method. Reviewing the categories also served as a valuable frame for discussing the findings.

Table 7: Coding scheme

Main categories	Sub-categories
Purpose of Expert Groups	Advise the Commission
	Commission presenting information
	Uncertain, they are inactive
Value of participating in Expert Groups	You have to be everywhere relevant
	Receiving information/understanding the agenda
	Positioning as relevant/legitimate in the raw materials agenda
	Verifying the Commission's data
Other forums for influence	Bilaterals with national authorities
	Bilaterals with the Commission
	Bilaterals between organizations
	The European Parliament
	Public consultations
	Other events/conferences (including Raw Materials Week and Raw Materials Summit)
	Sectoral association dialogues
	Own networks/campaigns
	Other Commission Expert Groups
	ERMA
	SCRREEN
	Route-35
Value of participating in other forums	You have to be everywhere relevant
	Receiving information/understanding the agenda
	Promoting discussion of the importance of raw materials
	Finding partners for research
Organizations involved in the policy agenda	Non-energy extractive industry
	Downstream consumers
	Civil society and NGOs
	Research institutes (including geological surveys)

Reason for influence	Representing important materials
	Representing the social (the people/public opinion)
	Access to relevant data
	Representing many companies
	Issue selection/distinguishing themselves
	Education (skilling/reskilling/upskilling)
Changes in the policy agenda	Sustainability
	Geoeconomic/geopolitical concerns
	More contributors/interested parties
	Emphasis on batteries and electrification
Strengths and weaknesses of the current policy	Delivering on needed materials
	Environmental considerations
	Social considerations

6. Analysis

In this section, we present the findings from our methods in relation to the main theoretical concepts. Firstly, we present the SNA and evaluate the structure of the network and the actors we find to be most central. The second section analyzes the purpose of the expert groups based on the official statements of the Commission and the perspectives of the interviewees, in relation to orchestration and expertise. Thirdly, we analyze the competition and coordination within the intermediary network through the lens of the three main debates that the interviewees addressed. This is followed by an analysis of the various other forums that interviewees found to be important for discussing raw materials policy in the EU. Lastly, we summarize the main findings from the network analysis and the interviews, while considering orchestration, transnational networks, and expertise.

6.1. The raw materials Social Network in the EU

The first part of the analysis in this thesis consists of the SNA of the network formed around the Commission's Expert Groups on raw materials. This is an outside-in view on the organizations participating in the Expert Groups, and how they interact with each other in related as well as unrelated forums. We start by discussing the results of the SNA, after which we will couple these results with the results from the interviews.

Two SNAs are conducted on two subsets of the data. First, we conduct an SNA only based on memberships in Commission Expert Groups (SNA1). Then we conduct an SNA on the full dataset, i.e., including the memberships in other associations/(con)federations/networks or other bodies (SNA2). Recall that the bipartite affiliation networks are made up of two distinct classes of nodes, being 1) *organizations* which are members of Commission Expert Groups on

raw materials and 2) *groups* which are Commission Expert Groups (both raw materials and other Expert Groups) and associations/(con)federations/networks or other bodies.

6.1.1 The social network constructed by Commission Expert Group membership (SNA1)

By conducting a SNA purely based on memberships in Commission Expert Groups we identify the raw materials network as orchestrated by the Commission. Figure 7 shows a simple visualization of the SNA1 network. The only manipulations done to this visualization is the application of the algorithm Force Atlas 2 to improve the visualization. This visualization allows us to analyze the structure of the network and identify clusters of organizations (Jacomy et al., 2014). We have also color-coded the organizations and groups. The organizations are color-coded based on their organization category (e.g., NGOs). There are 163 nodes and 390 edges. The nodes consist of 103 organizations and 60 Expert Groups.

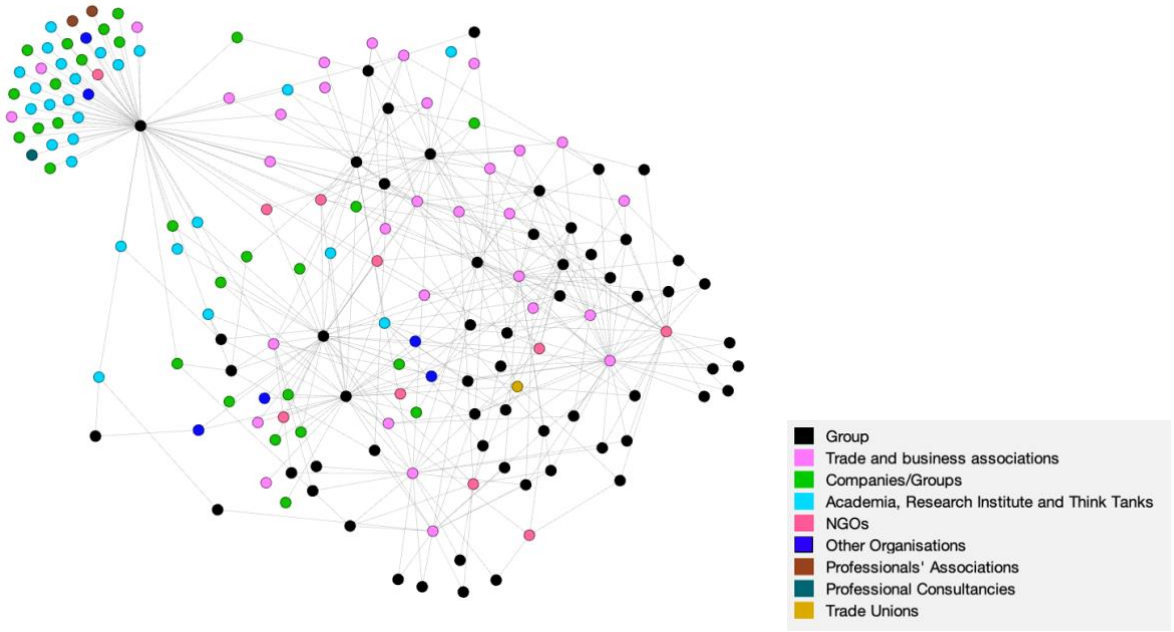

Figure 7: SNA 1: The EU's raw materials network based on Expert Group membership

By examining the visualization in Figure 7, we can tell that the network consists of a mix of actors in terms of organizational categories. The visualization illustrates that there is engagement across different types of organizations. I.e., the network is not made up of isolated groups of one category of organizations. Nevertheless, a pink cluster of 'trade and business associations' can be seen to the center-right in the figure. These trade and business associations are members of many Expert Groups, in which it is primarily other trade and business associations from the network who are also members. Moreover, a cluster of organizations is

only connected to one Expert Group in the network. The big "mushroom" of nodes in the upper left corner are all organizations which are only connected to the network by being members of the Commission operational Expert Group of the European Innovation Partnership on Raw Materials (COEEIP). This cluster is primarily made up of 'companies/groups' and 'academia, research institutions and think tanks'. Being able to bridge the connection between these organizations and the rest of the network would be a strong position for controlling the flow of information and influencing the network. Nonetheless, this cluster is connected to the network through many other organizations who are also members of the COEEIP. NGOs and the few other organizations in each of the remaining categories are more dispersed across the network. Other than the mushroom, there does not appear to be any other isolated clusters of organizations.

To analyze the SNA in more detail, centrality measures are applied to identify power dynamics in the network. Figures 8 and 9 show a different visualization of SNA1, in which nodes sizes are scaled in proportion to their betweenness centrality and eigenvector centrality respectively. Moreover, in Figure 8 and 9 the groups are removed, and edges are drawn directly between organizations based on instances of co-membership. This makes it a co-affiliation network (Borgatti & Halgin, 2014), whereas Figure 7 was an affiliation network. This is done because the objective is to analyze the interactions between the organizations, and to exclude the groups from the centrality measure calculations.

In this co-affiliation network, the density is 0.27. This quite a high density. This is a result of the way in which the network boundaries have been defined. As the network is defined by membership in six Expert Groups, and there is an overlap between members in all Expert Groups, all organizations in this SNA are connected to each other by very few links. Had a snowballing method or other more expansive network definitions been applied, the network density would most likely have been much lower. The high density makes the occurrence of structural holes unlikely, as the structural holes are a result of missing links between nodes (Seabrooke, 2014). The high density also diminishes the relative influence or power of the most central actors, as many network actors can connect and share information by other paths, reducing their potential to control flows of information. The density in the network will be discussed in more detail following the analysis of the interview results, where we see that the Expert Groups meet very infrequently and, in some cases, not at all, potentially indicating that Expert Group co-membership is not necessarily the best indicator of connections between organizations.

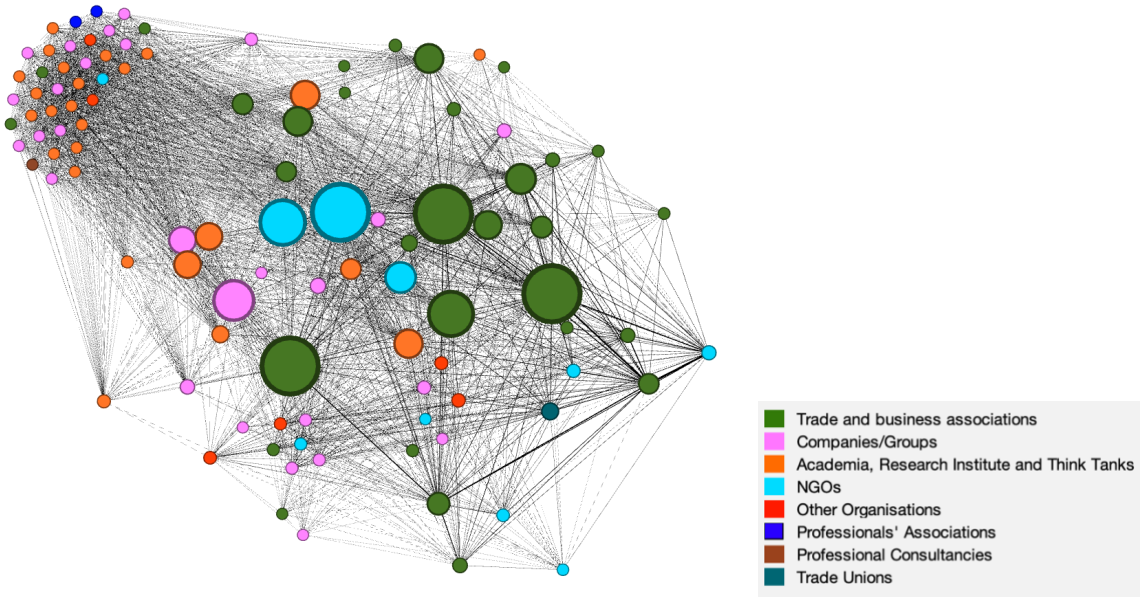

Figure 8: SNA1 co-affiliation network: The EU's raw materials network based on Expert Group membership, node size based on betweenness centrality

From the betweenness centrality visualization, Figure 8, some organizations clearly stand out as more central than others, while the differences are smaller in the eigenvector visualization, Figure 9. Again, a cluster of trade and business associations, now green nodes, appears in the right part of the network, as well as a cluster of 'Companies/Groups' and 'Academia, research institutes and think tanks' in the left. We know from Figure 7 that the reason for the cluster to the left, is that many of them only participate in one specific Expert Group. In the case of the trade and business associations cluster to the right, they share a lot of memberships which other organizations are not part of.

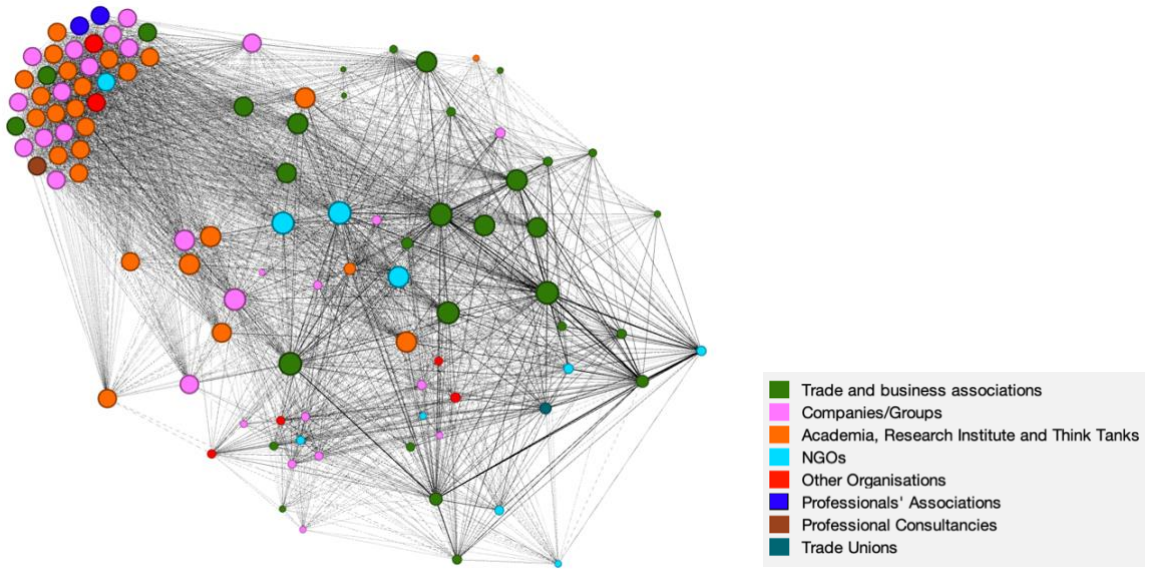

Figure 9: SNA1 co-affiliation network: The EU's raw materials network based on Expert Group membership, node size based on eigenvector centrality

While the visualizations can give a first look at overall network structures, they do not allow for analyzing the most central actors in detail. We therefore rely on the statistical output of the model for the next part of the analysis. Applying betweenness and eigenvector centrality, we identify the 20 most central organizations according to each measure. This gives a list of 21 organizations in SNA1. I.e., there is an overlap of 19 of the organizations between the two centrality measures. See Table 8 for a list of these organizations as well as their organization category, country represented, membership in Expert Group, and their score by betweenness and eigenvector centrality. For the two centrality measures, the rank is also listed in parentheses.

Trade and business associations and NGOs are significantly overrepresented among the central organizations. See a comparison of representation in Table 9. Both measures of centrality output the same four organizations as the most central. The Geological Surveys of Europe (EGS), Eurometaux, Euromines and the European Tyre & Rubber Manufacturers' Association (ETRMA). The four organizations are members of almost all the raw materials Expert Groups, and from the eigenvector score of 1, it can be inferred that they connect to all organizations in the network through maximum one link. I.e., they have a membership in common with all other organizations in the network. It also means that the number of shortest paths through the organizations, i.e., the betweenness score, is the same for all of the four

organizations, as all other organizations have the shortest possible path, other than a direct link, through them. These organizations can be seen as having the greatest potential of being holders of information in the network. They are positioned between other organizations in the network, indirectly connecting actors that are not otherwise connected (betweenness centrality) while being connected to other actors who are also well connected (eigenvector centrality). This enables them to be brokers or gatekeepers.

Table 8: The most central organizations based on memberships only in Commission Expert Groups (SNA1) and measured by betweenness and eigenvector centrality

Organization	Category	Country	Expert Group membership*	Betw. centr. score (rank)	Eig. centr. score (rank)
EuroGeoSurveys - The Geological Surveys of Europe (EGS)	NGOs	European	1. RMSG; 2. WGDCRM; 3. WGLU; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	184.568 (1)	1 (1)
Eurometaux	Trade and business associations	European	1. RMSG; 2. WGDCRM; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	184.568 (1)	1 (1)
European Association of Mining Industries, Metal Ores & Industrial Minerals (Euromines)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 3. WGLU; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	184.568 (1)	1 (1)
European Tyre & Rubber Manufacturers' Association (ETRMA)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	184.568 (1)	1 (1)
Friends of the Earth Europe (FoEE)	NGOs	European	1. RMSG; 5. COEEIP; 6. EIPSG	137.179 (5)	0.965 (6)
European Recycling Industries' Confederation (EuRIC)	Trade and business associations	European	4. HLSGEIP; 5. COEEIP; 6. EIPSG	135.693 (6)	0.974 (5)
KGHM Polska Miedź S.A.	Companies/Groups	Poland	4. HLSGEIP; 5. COEEIP; 6. EIPSG	116.467 (7)	0.947 (7)
Bellona Europa	NGOs	European	4. HLSGEIP; 5. COEEIP	78.077 (8)	0.92 (8)
CEMBUREAU - The European Cement Association (CEMBUREAU)	Trade and business associations	European	1. RMSG; 5. COEEIP	75.776 (9)	0.917 (9)
Bureau de Recherches Géologiques et Minières (BRGM)	Academia, Research Institute and Think Tanks	France	1. RMSG; 2. WGDCRM; 5. COEEIP	71.047 (10)	0.892 (15)
Industrial Minerals Association - Europe (IMA-Europe)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 3. WGLU; 5. COEEIP	71.047 (11)	0.892 (15)
The European Steel Association (EUROFER)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 5. COEEIP	71.047 (11)	0.892 (15)
Fraunhofer-Gesellschaft (FhG)	Academia, Research Institute and Think Tanks	Germany	2. WGDCRM (observer); 5. COEEIP	69.393 (13)	0.896 (14)
European Aluminium AISBL	Trade and business associations	European	1. RMSG; 5. COEEIP	67.291 (14)	0.907 (10)
ERAMET	Companies/Groups	European	4. HLSGEIP; 5. COEEIP	62.902 (15)	0.898 (11)

Luleå tekniska universitet (LTU)	Academia, Research Institute and Think Tanks	Sweden	4. HLSGEIP; 5. COEEIP	62.902 (15)	0.898 (11)
Technická univerzita v Košiciach (TUKE)	Academia, Research Institute and Think Tanks	European	4. HLSGEIP; 5. COEEIP	62.902 (15)	0.898 (11)
Association des Constructeurs Européens d'Automobiles (ACEA)	Trade and business associations	European	1. RMSG, 2. WGDCRM; 4. HLSGEIP; 6. EIPSG	44.461 (18)	0.526 (63)
European Federation of Waste Management and Environmental Services (FEAD)	Trade and business associations	European	5. COEEIP	41.295 (19)	0.861 (18)
Critical Raw Materials Alliance (CRM Alliance)	Trade and business associations	European	2. WGDCRM (Observer); 5. COEEIP	38.387 (20)	0.841 (20)
European Suppliers of Waste-to-Energy Technology (ESWET)	Trade and business associations	European	5. COEEIP	35.115 (23)	0.857 (19)

* 1. “RMSG”: Raw Materials Supply Group; 2. “WGDCRM”: Working Group "Defining Critical Raw Materials"; 3. “WGLU”: Working Group "Exchanging best practices on land use planning, permitting and geological knowledge"; 4. “HLSGEIP”: High level steering group of the European Innovation Partnership on Raw Materials; 5. “COEEIP”: Commission operational Expert Group of the European Innovation Partnership on Raw Materials; 6. “EIPSG”: EIP Sherpa group

Table 9: Comparison of organization type representation among all organizations and among central actors.

Organization type	Pct. among all orgs.	Pct. among central orgs. (SNA1)*	Pct. among central orgs. (SNA2)*
NGOs	9.7	**14.3**	**13.6**
Trade and business associations	30.1	**57.1**	**59.1**
Companies/Groups	26.2	9.5	9.1
Academia, Research Institute and Think Tanks	24.3	19.0	18.2
Other Organisations	5.8	0.0	0.0
Professional Consultancies	1.0	0.0	0.0
Trade Unions	1.0	0.0	0.0
Professionals' Associations	1.9	0.0	0.0

* Overrepresented types of organization in bold

6.1.2 The wider raw materials Social Network (SNA2)

After having analyzed the social network based on membership in Commission Expert Groups, we widen the delimitation of the network definition, by also including membership in ‘other associations/(con)federations/networks or other bodies’ that are listed in the EU’s Transparency Register. Organizations meet and collaborate through many different channels and forums, as will be further elaborated in the following sections, and defining the network only on Expert Group membership is more simplistic. Figure 10 shows a simple visualization

of SNA2, as was shown for SNA1 is. In SNA2 there are 285 nodes and 779 edges. 103 organizations and 182 groups.

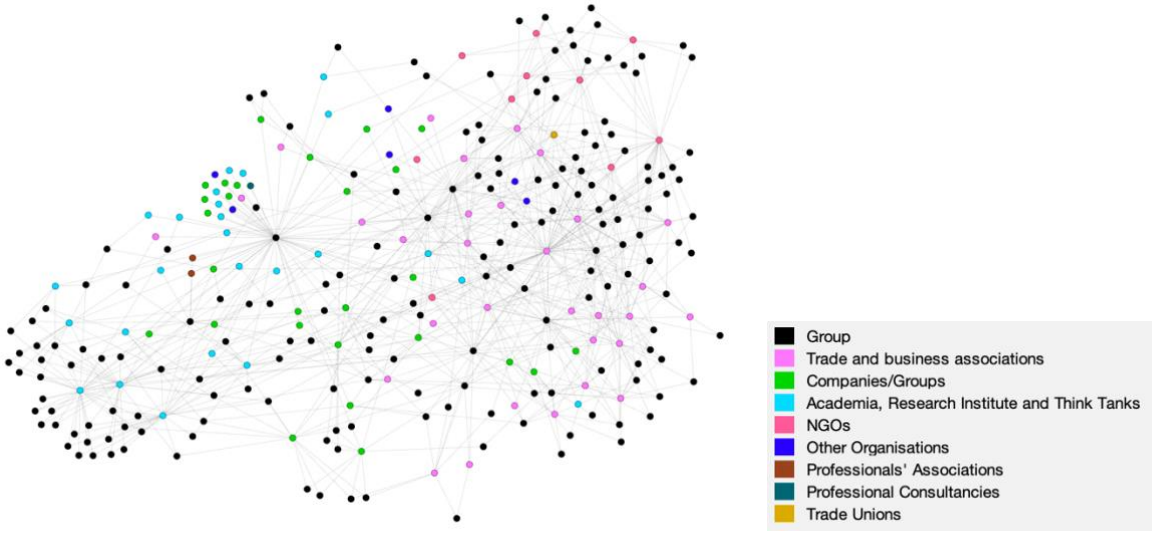

Figure 10: SNA 1: The EU's raw materials network based on Expert Group membership

Figures 11 and 12 visualize SNA2 with node sizes based on betweenness centrality and eigenvector centrality respectively. Groups are again removed, making it a co-affiliation network. The density in the SNA2 co-affiliation network is even higher than in SNA1 as expected. The patterns are somewhat similar with four to six organizations standing out as more central in terms of betweenness than the others, albeit a bit less significant than in SNA1. This is likely because the number of shortest paths through the most central organizations relative to the number of shortest paths through other organizations is reduced, as organizations who were poorly connected in the Expert Group network (SNA1) may now be connected to the network through other groups (e.g., industry or academic groups) as well. This can e.g., be seen in the simple affiliation network for SNA2, Figure 10, where the "mushroom" of organizations only connected to the network through COEEIP is much smaller. In this wider network the different organizations seem to be more clustered based on categories. This time there is not only a green cluster of 'trade and business associations', but also a cluster of 'NGOs' in the top of the figure, a cluster of 'academic, research and think tanks' and a cluster of 'companies/groups' in the left part of the figure. The latter two seem to be rather interconnected.

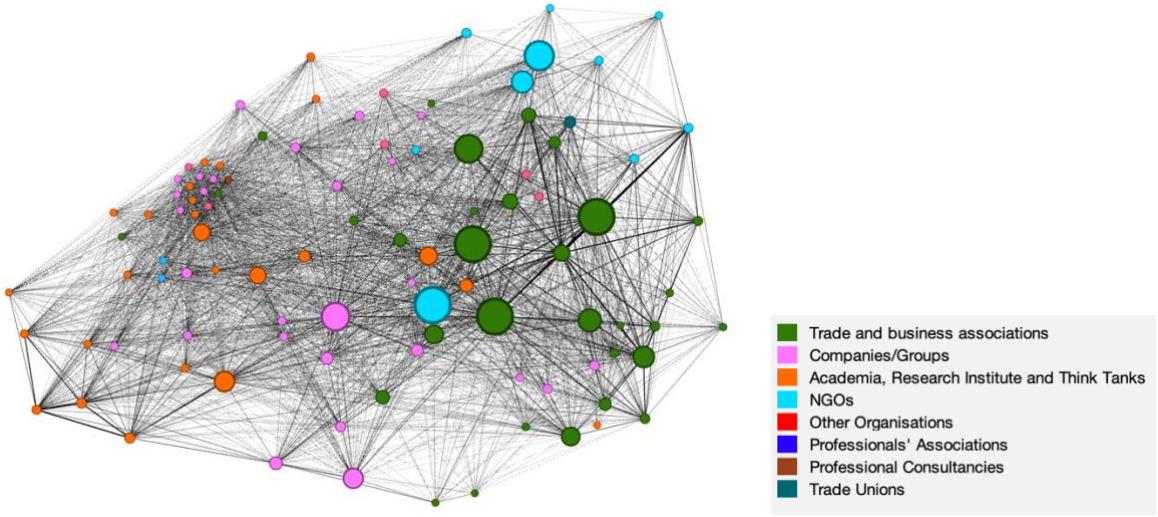

Figure 11: SNA1 co-affiliation network: The EU's raw materials network based on Expert Group membership, node size based on betweenness centrality

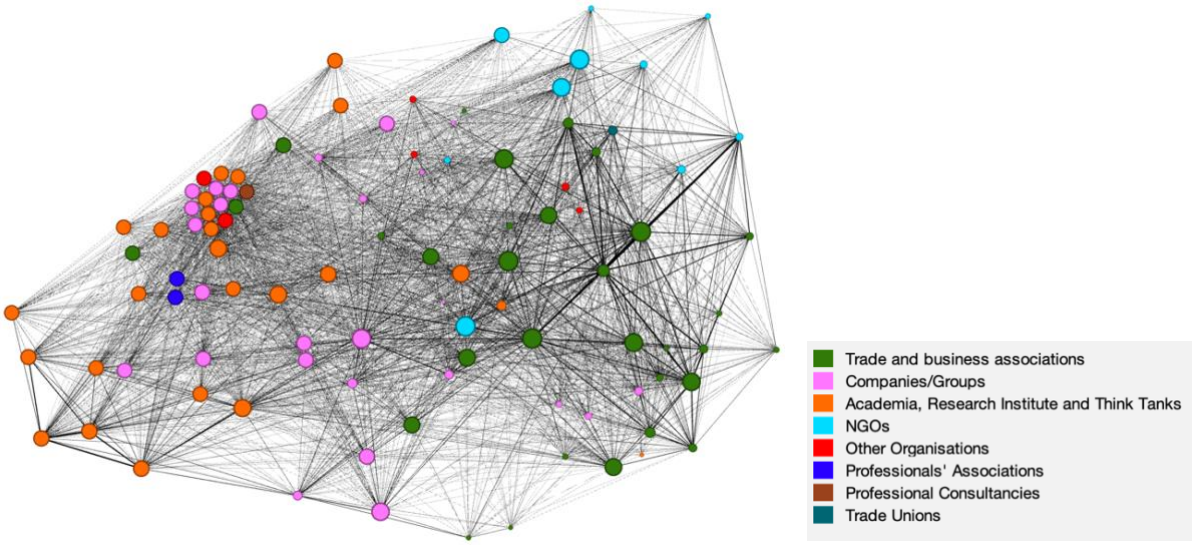

Figure 12: SNA1 co-affiliation network: The EU's raw materials network based on Expert Group membership, node size based on eigenvector centrality

We also identify the 20 most central organizations according to betweenness and eigenvector centrality for SNA2, giving a list of 22 organizations. I.e., there is an overlap between 18 organizations across the two indicators. See Table 10. The organizations are exactly the same as in SNA1, except that now the European Chemical Industry Council (Cefic) is also among the top 20. The ranking varies slightly, but exactly the same four organizations turn out to be the most central. Again, there is an overrepresentation of Trade and business associations and NGOs compared to the full population of organizations in the network. See Table 9.

Table 10: The most central organizations based on memberships in all groups (SNA2) and measured by betweenness and eigenvector centrality

Organization	Type	Country	Expert Group membership*	Betw. centr. score (rank)	Eig. centr. score (rank)
EuroGeoSurveys - The Geological Surveys of Europe (EGS)	NGOs	European	1. RMSG; 2. WGDCRM; 3. WGLU; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	143.048 (1)	1 (1)
Eurometaux	Trade and business associations	European	1. RMSG; 2. WGDCRM; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	143.048 (1)	1 (1)
European Association of Mining Industries, Metal Ores & Industrial Minerals (Euromines)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 3. WGLU; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	143.048 (1)	1 (1)
European Tyre & Rubber Manufacturers' Association (ETRMA)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 4. HLSGEIP; 5. COEEIP; 6. EIPSG	143.048 (1)	1 (1)
Friends of the Earth Europe (FoEE)	NGOs	European	1. RMSG; 5. COEEIP; 6. EIPSG	110.839 (5)	0.974 (5)
KGHM Polska Miedź S.A.	Companies/Groups	Poland	4. HLSGEIP; 5. COEEIP; 6. EIPSG	103.915 (6)	0.962 (7)
European Recycling Industries' Confederation (EuRIC)	Trade and business associations	European	4. HLSGEIP; 5. COEEIP; 6. EIPSG	103.486 (7)	0.971 (6)
European Aluminium AISBL	Trade and business associations	European	1. RMSG; 5. COEEIP	78.214 (8)	0.935 (8)
Bellona Europa	NGOs	European	4. HLSGEIP; 5. COEEIP	72.885 (9)	0.925 (9)
CEMBUREAU - The European Cement Association (CEMBUREAU)	Trade and business associations	European	1. RMSG; 5. COEEIP	70.668 (10)	0.916 (10)
Bureau de Recherches Géologiques et Minières (BRGM)	Academia, Research Institute and Think Tanks	France	1. RMSG; 2. WGDCRM; 5. COEEIP	65.805 (11)	0.9 (12)
ERAMET	Companies/Groups	European	4. HLSGEIP; 5. COEEIP	63.823 (12)	0.915 (11)
Industrial Minerals Association - Europe (IMA-Europe)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 3. WGLU; 5. COEEIP	56.45 (13)	0.88 (16)
The European Steel Association (EUROFER)	Trade and business associations	European	1. RMSG; 2. WGDCRM; 5. COEEIP	56.45 (13)	0.88 (16)
Fraunhofer-Gesellschaft (FhG)	Academia, Research Institute and Think Tanks	Germany	2. WGDCRM (observer); 5. COEEIP	53.415 (15)	0.884 (15)
Luleå tekniska universitet (LTU)	Academia, Research Institute and Think Tanks	Sweden	4. HLSGEIP; 5. COEEIP	47.29 (16)	0.887 (13)
Technická univerzita v Košiciach (TUKE)	Academia, Research Institute and Think Tanks	European	4. HLSGEIP; 5. COEEIP	47.29 (17)	0.887 (14)
European Chemical Industry Council (Cefic)	Trade and business associations	European	2. WGDCRM; 4. HLSGEIP; 6. EIPSG	45.795 (18)	0.621 (63)
European Federation of Waste Management and Environmental Services (FEAD)	Trade and business associations	European	5. COEEIP	39.998 (19)	0.865 (18)

Association des Constructeurs Européens d'Automobiles (ACEA)	Trade and business associations	European	1. RMSG, 2. WGDCRM; 4. HLSGEIP; 6. EIPSG	35.181 (20)	0.541 (64)
Critical Raw Materials Alliance (CRM Alliance)	Trade and business associations	European	2. WGDCRM (Observer); 5. COEEIP	32.416 (21)	0.842 (19)
European Suppliers of Waste-to-Energy Technology (ESWET)	Trade and business associations	European	5. COEEIP	27.876 (24)	0.841 (20)

* 1. “RMSG”: Raw Materials Supply Group; 2. “WGDCRM”: Working Group "Defining Critical Raw Materials"; 3. “WGLU”: Working Group "Exchanging best practices on land use planning, permitting and geological knowledge"; 4. “HLSGEIP”: High level steering group of the European Innovation Partnership on Raw Materials; 5. “COEEIP”: Commission operational Expert Group of the European Innovation Partnership on Raw Materials; 6. “EIPSG”: EIP Sherpa group

6.1.3 Summary

Social network analyses conducted using data on the members of the Commission’s Expert Groups on raw materials provide outside-in perspectives on the social network structures in and around the Expert Groups. Especially four actors emerge as dominant in the network, by being particularly central in terms of both betweenness and eigenvector measures. EuroGeoSurveys (EGS), Eurometaux, the European Association of Mining Industries, Metal Ores & Industrial Minerals (Euromines), and the European Tyre & Rubber Manufacturers' Association (ETRMA) stand out by being directly connected to all other actors in the network, giving them the highest possible scores.

The networks are overall integrated and consists of connections among all types of organizations, but local clusters of organization types become more visible when the network scope is expanded to include ties based on co-membership in not only Expert Groups but also ‘other associations/(con)federations/networks or other bodies’. Clusters of respectively ‘trade and business associations’, ‘NGOs’, ‘academic, research and think tanks’ and ‘companies/groups’ appear, with the latter two seeming to be rather interconnected and centered around the operational group of the EIP (the COEEIP). The density in both SNAs conducted is relatively high as a consequence of the network boundaries being defined as membership in the raw materials Expert Groups. As there is overlap of members between all the Expert Groups, all organizations in the SNA are connected to each other by a maximum of a few links. Whether this is a realistic reproduction of reality is discussed later, following the analysis of the interview results, where we see that the Expert Groups meet very infrequently and, in some cases, not at all.

6.2 Orchestration and expertise through Expert Groups

The starting point for this research thesis is that Expert Groups are a tool that the Commission uses, as an orchestrator, and the organizations are voluntarily participating as

intermediaries to help the Commission reach its targets on raw materials policy. Recall that literature has identified the Expert Groups as playing a significant role in EU policy-making (Gornitzka & Sverdrup, 2008; Chalmers 2013; Metz, 2013; Gornitzka & Sverdrup, 2015). However, the primary findings of the interview process indicated that the Expert Groups on raw materials were not the main forums for exchange between organizations, or for contributing to the Commission's policy formulation of the CRM Act. The following section will evaluate the raw materials Expert Groups in relation to orchestration literature, as well as literature on the functions of expertise. Firstly, the official missions of the Expert Groups, according to the Commission's Register of Expert Groups are considered. Secondly, the perception of the organizations participating, based on semi-structured interviews and the qualitative content analysis are analyzed.

6.2.1 Official purpose of the Expert Groups

It is useful to consider the explicitly stated purpose of the relevant Expert Groups, according to the Commission and relate it to the orchestration literature. The missions of the RMSG and the EIP on raw materials according to the register are respectively:

> "Exchange of views on the competitiveness and sustainable development of the non-energy extractive industry (NEEI). To analyze, discuss and exchange views on the supply of raw materials, with a focus on the sustainable competitiveness of the NEEI sector. Subgroups provide support for the legislator in the development and implementation of EU legislation and policies and develop actions to improve sector sustainability" (European Commission, 2022d).

> "The European innovation partnership on raw materials is a stakeholder platform that brings together representatives from industry, public services, academia and NGOs. Its mission is to provide high-level guidance to the European Commission, EU countries and private actors on innovative approaches to the challenges related to raw materials" (European Commission, n.d.-b).

Abbott et al. (2015) have outlined four plausible techniques of orchestration, commonly used by international organizations. These are convening, agenda-setting, providing assistance, endorsement, or coordination. The stated purposes to have an "exchange of views" in the RMSG and that the EIP "brings together various representatives" from across the value chain, are indicative of a convening technique in orchestration. According to Abbott et al. (2015, p.14), the position of international organizations allows them to "empower actors and organizations by bringing them into contact with other influential actors, and to steer them by selecting which actors and organizations to convene". The Commission has the final choice of who sits in the Expert Groups (C(2016) 3301). By convening various organizations, they

initiate discussions between organizations that might not otherwise meet to discuss raw materials. Additionally, listing the Expert Groups, their mission, and the member organizations in the Register of Expert Groups indicates that this is an officialized intermediation, as in the conceptualization done by Brés et al. (2019). Providing 'support' and 'guidance' is a reference to the use of expertise, but exactly which functions this expertise plays is more easily deduced based on the interviews.

6.2.2 The role of Expert Groups according to the interviewees

Each interviewee was asked what they perceived the role of the raw materials Expert Groups to be. The interviewees from the extractive industries all pointed out that the Expert Groups' role is to advise the Commission and provide information. "The Expert Groups are there to advise the Commission. Everyone is welcome to provide feedback, provided that you are member, have a legitimate interest and can provide input" (Interview, IMA Europe). "In these groups, the Commission gets information that they lack and an industry perspective" (Interview, Euroalliages). These statements are broadly aligned with the stated purpose of the Expert Groups in the Register, which is to provide support and guidance. A common theme in the interviews was that highly technical advice and data were particularly important because, "The Commission is openly saying that they are missing data. This [RMSG] is highly technical, and many participants are just observing" (Interview, ACEA). These statements point towards an instrumental function of expertise, as defined by Boswell (2008). They also indicate that within the Expert Group framework, some organizations are more influential due to their ability to provide this technical evidence, while others participate to observe. In Gornitzka and Sverdrup's (2015) types of expertise, this points toward the use of scientific-oriented expertise.

Despite the role of the Expert Groups to provide information and guidance, many interviewees responded that they could not recall the last time any of the Expert Groups had met, and everyone stated or agreed that they had very few meetings or interactions in the last year. "Honestly, I don't know what's happening with that [Raw Materials] Supply Group, because we have had one meeting a year, so it's dormant. It almost doesn't exist. And honestly, frankly, I just think it's there for show." (Interview, EEB). Another interviewee expressed that they had been unaware of their organization's participation in the raw materials Expert Group, which they were listed in the register as participating in. "I was not aware of these Expert Groups. And I've been working with raw materials for quite a while" (Interview, NGO Consultant). Another attributed the limited frequency to the pandemic stating, "Sometimes there are joined meetings, but they are short with a limited agenda. For the last few years, all

meetings have been online due to the pandemic situation. So, the groups are active but much less since covid" (Interview, IMA). The note that these Expert Groups might be "for show" points to a legitimizing function of expertise.

The academic institutions, which are only members of the Operational Group of the EIP Raw Materials, identified that the group had been completely inactive. One pointed out that it had recently been renewed. "They needed new candidacies and I applied for VITO". Despite the new call for membership, the interviewee pointed out, "the only activity that I'm aware of was when I received the message that I was accepted as, or that VITO, the institute, was accepted as a part of the EIP" (Interview, VITO). Additionally, another interviewee outlined an attempt to clarify the status of the group, stating, "one of our experts wrote to the Commission asking, are we still alive, are we still somehow an active player, and they got an answer, yes. So, apparently the Commission is still seeking to make use of them, but the way they are going to use them is not fully clear" (Interview, NTNU). As is evident in the above statements, the interviewees express uncertainty about why the raw materials Expert Groups are meeting infrequently. The last record of a meeting in either of the EIP groups, according to the Register, was in 2020, despite still being listed as active (European Commission, 2022c). The last record of a meeting in the RMSG was in 2021 (European Commission, 2022d) although two of the interviewees could provide records of a meeting held in October, suggesting that the Register is not entirely updated regarding the activities in the Expert Groups. This suggests that the processes around the expert groups are overall less formalized, as in the conceptualization of intermediation done by Brés et al. (2019).

The highly infrequent meetings in the groups are unexpected, considering the existing literature on Expert Groups. Firstly, the Commission is understood by many EU scholars to rely heavily on knowledge and expertise as a source of legitimacy (Moodie, 2016; Boswell, 2006; Radaelli, 1999). Secondly, the Expert Groups are also identified in the literature as the most common 'mode of consultation' (Gornitzka and Sverdrup, 2008). The Commission has made the recurring publication of the CRM list and related strategy into a proposal for a regulation, we had expected to see an increase in activity in the groups up to its release, as was also pointed out by one career Brussels lobbyist that we spoke to. An interviewee supported this with an observation from experience with other Expert Groups stating, "From what I've seen, from what I've observed from the Commission, I think they do use them quite extensively. They are an important and valuable source of information for the Commission" (Interviewee, ETRMA). Additionally, the interviewee from UEPG had observed that the functioning and

frequency of meetings in Expert Groups differed dependent on the responsible DG, the unit, the chairman, and those attending.

It was mentioned by some that even when there had been meetings, they were primarily being used by the Commission to present information. “So, in this kind of group, honestly, it's just the Commission presenting the agenda. It's online also, so it has maybe changed the dynamic a bit. The Commission, DG GROW is there, they are presenting what they are doing. People can ask some questions and that's all” (Interview, IndustriALL). Another interviewee perceived that the policies presented in the RMSG were being developed primarily in discussions outside the forum. “In the Raw Materials Supply Group, a lot of times we've received documents where the decisions were clearly already made and clearly, we knew that there was already some lobbying going on, because they would come to us with pretty much a finished, finalized document” (Interview, EEB). Thus, some of the organizations perceive that the Commission was not looking for advice in the actual meetings. The civil society organizations were the ones most clearly stating this as a critique.

The informative nature of the Expert Groups was seen by some as useful, and they perceived it valuable to participate. “The RMSG is where we get info about the criticality exercise and a view on the timeline, and which materials are likely to be selected” (Interview, Euroalliages). The content discussed in the RMSG Expert Group allowed their organization to be prepared for changes in the CRM list. A different interviewee stated, “When the agenda is given the day before, you start to see the intentions of the Commission” (Interview, ACEA). This suggests that the formal agendas sent out by the Commission before the meetings were in themselves indicative of the Commission’s priorities, that organizations could use to understand where the broader policy agenda would be shifting.

From an orchestration perspective, using the Expert Groups to present information would suggest that they are forums for agenda-setting, where the Commission establishes the “pressing governance issues and plausible policy solutions” (Abbott et al., 2015 p. 15). Interviewees pointed out that the groups helped them to understand the current priorities and timeline from the Commission in order to prepare for other discussions, supporting that this is an orchestration technique. Abbott et al. (2015 p. 15) argue that agenda-setting "influences intermediaries’ priorities and helps them define their strategies”. Thus, the intermediaries in the Expert Groups can use this information to shape their organizational strategies around the information they receive and seek influence in other forums.

Some interviewees identified that while the meetings were infrequent, and the Expert Groups were not necessarily forums for discussion among participants or with the Commission, they did serve as a platform to make contacts that were valuable elsewhere.

> "In terms of the meetings themselves, they were always a little bit, I would say, formulaic, lots of presentations, not much time for discussion, questions. But they did provide a way and a network that could be used outside of the meetings to share information and have discussions as well" (Interview, ETRMA).

This points to a network building function of the Expert Groups. Having your name on the Expert Group lists was also perceived as important in order to establish the organization as being part of the network. The previous secretary general of ETRMA told us that,

> "Back in 2011, as an industry we positioned ourselves. Then we went to the European Commission and asked to be a part of the EIP, and we joined in 2012. The President of the Association was in the High Level, I was in the Sherpa Group and part of SCRREEN" (Interview, previous ETRMA rep.).

6.2.3 Summary

There is general agreement among interviewees that there are not many meetings in the Expert Groups, but there are diverging perceptions as to what the purpose of these Expert Groups are. The interviewees from the extractive industries emphasize that the purpose of the Expert Groups is to provide advice and guidance to the Commission, which is in line with their official mission. Assuming this to be the role of the Expert Groups entails that the Commission is relying on the expertise of their members in an instrumental function. It is key to note that the organizations who emphasize this function also connect it with highly technical knowledge and data related to specific materials. Additionally, the existence of the Expert Groups, while they are not particularly active, points to a symbolic function, in that being able to reference them may provide legitimacy to the Commission's policies. However, many of the other interviewees noted that they were mainly used by the Commission to present information, but that this can be informative in terms of understanding the Commission's policy priorities. Convening and agenda-setting are the orchestration techniques identified. Furthermore, the intermediation seems to be official, in that the groups and participants are listed by the Commission in its Register, but with a lower degree of formalization, due to the uncertainty on the part of the intermediaries as to what they are for and how frequently they are supposed to be meeting.

6.3 Coordination and competition in the intermediary network

As laid out in the previous sections, the Commission Expert Groups on raw materials appear to have a low level of activity, and several interviewees said that there is not much interaction between the members of the Expert Groups through the Expert Groups. Nonetheless, some of the interviewees stated that they engage with each other on almost a daily basis and all could recognize other organizations as having influence in the network. This indicates that there are flows of information and knowledge within the network. According to Seabrooke and Henriksen (2017, p. 14)'s work on expert networks and 'issue control', "professional and organizational networks must be studied through interaction on issues of concern, through the allocation and defence of professional tasks, and conflict and points of cooperation established by different actors in position towards the issue". Through the interviews and subsequent qualitative content analysis, three such areas of conflict and cooperation have been identified. These were about how the policy framework should deliver the materials needed in the European market, considerations of environmental protection, and considerations of social protection.

The issues became evident through the interviewees discussing their own contributions to the policy agenda as well as what they found to be the strengths and weaknesses of the most recent policy changes. In each interview, interviewees were also asked to identify which organizations they perceived to be important with regard to shaping the policy agenda. We showed the lists of central organizations, which resulted from the SNA conducted for this thesis to all interviewees at the end of the respective interviews to get their input on whether these organizations were important, whether they were the "right" organizations, and if other influential organizations were missing. As has been explored in the methods section, the SNA shown during the interviews differs from the final SNA used in this thesis. This was a result of a later decision to remove groups that had only one of the organizations in the network as a member, as these groups do not provide interaction between organizations in the network. This changed the results somewhat. Through this discussion of organizations with interviewees, various claims were made as to why their own organization, or other influential organizations, were contributing to the debate on the key issues and thus able to exercise issue control.

Of the three issues, securing access to the needed materials is the most dominant issue, due to the Commission's emphasis on urgency, and thus the organizations with the authority and influence to provide expertise and act on this issue are perceived as being the most influential. As the mining industry associations and the geological surveys are the actors with this expertise, they figure as the most influential in the network and their role as central players

is evident in both the SNA and in the interviews. The following section will analyze the three issues and the collaboration and coordination happening in relation to them.

6.3.1 Securing needed materials and addressing the supply chain

A core issue in the raw materials discussions related to the question of how the European market would secure access to the necessary raw materials to support developments in the energy transition and the digital transition. When asked about the main changes to the policy agenda, geopolitical concerns were perceived by the interviewees as being the main factors driving the prominence of this issue. Some interviewees pointed to the Russian invasion of Ukraine, "Obviously, no one could foresee the 2020 Russian innovation. So naturally, it's really changed things and increased the pressure to create an actual legislative proposal" (Interview, EEB). Others emphasized fears of increased dependence on China with one stating, "If we make Europe dependent on electricity, especially batteries, we are making Europe dependent on raw materials. So, we are moving our dependency from Russia to China" (Interview, ACEA). There were also references to the IRA in the US, such as "The industry is facing an existential crisis. The IRA in the US and subsidies in China are protectionist and Europe is still believing in free trade, but we are losing production" (Industry, Euroalliages). Most used terms such as "increased pressure" and "urgency" to describe the effect of these concerns on the motivations of the Commission.

The associations representing the extractive industries were overall perceived in the majority of interviews to be the most important. Eurometaux was most frequently referenced as being the most influential organization, with Euromines in a close second, driving the overall policy debate. These two organizations are also present in both SNA1 and SNA2 as the most central. Even before being shown the lists, they were the two organizations that interviewees thought of, but for a variety of specific reasons. When asked if any specific organizations were particularly influential in shaping current raw materials policies, the interviewee from EEB stated, "Eurometaux. It's a godsend to them. They have put in a lot of effort over the last 15 years to create this." Some pointed to Eurometaux because the organization is itself a group that gathers many organizations from the mining industry. "You have organizations such as Eurometaux, which is the horizontal body for the European non-ferrous metal industry, which gathers a lot of the organizations together. That's been driving this" (Interview, ETRMA). Euromines is a member of Eurometaux, as are a few of the other organizations in the Expert Groups. "The relevant organizations are Euromines and the individual mining companies, maybe a little bit on processing" (Interview, ACEA)

In addition to having many members, the most influential organizations, according to the interviewees, were those with the data to inform the Commission about how to access materials that are necessary for the European market. EuroGeoSurveys was also among the most central organizations in SNA1 and SNA2, and most interviewees mentioned national geological surveys, for the data they provide. The representatives from the extractive industries and academia referenced close collaboration with the geological surveys. The industry associations were also perceived to be influential because of their data. “That's why I'm talking about the Eurometaux. Because they represent lots of companies, [the Commission] also know that they can ask them, what would be the problem if you want to have a new mine in lithium in Europe” (Interview, IndustriALL).

The question of which materials to focus on seemed to be an area of contention. For example, the interviewee from UEPG pointed to the association’s importance as representing the aggregates industry, due to the ubiquity of aggregates in everyday life. “Our industry is a huge industry. It's the largest extractive industry. But it's not well known. It's quite hidden.” This interviewee explained that stone aggregates, as an example, are found in asphalt and concrete, and thus present everywhere. The uses of these materials are “just so wide that you don't see it anymore” (Interview, UEPG). Their organization is launching a campaign for an additional category called “essential raw materials” to draw attention to the importance of aggregates, which they feel is being overlooked in the current policy focus. From this, it can be inferred that specific organizations representing the “right” materials are more influential.

Some interviewees pointed to specific organizations or types of organizations that they thought were missing from the list of central organizations we shared. The downstream consumers of raw materials were mentioned most frequently, as being missing. The interviewee from ETRMA for instance pointed out that the list was lacking some more organizations representing the batteries sector, as they were of the view that the batteries agenda was really the most dominant factor in the formulation of the CRM Act. The interviewee from ACEA stated that, “Magnets, battery procedures, tire manufacturers. These also need raw materials that are critical.” This interviewee also reiterated that the requirements to decarbonize the European fleet of cars were making the batteries producers very important within raw materials policy.

There were some comments made as to whether the current policy framework would translate to concrete benefits for the organizations with the necessary materials. One of the other highly central organizations in the network analysis was ETRMA. Interestingly, the

interviewee from ETRMA expressed that, while natural rubber had been on the CRM list in the past, which is the material they primarily represent, he was uncertain about the benefits to the industry from representing a critical raw material and was consequently less concerned about it no longer being on the list. On the other hand, the interviewee from EEB argued that, "I mean, anytime you're talking about state aid to companies, anytime you're talking about facilitating, permitting, which is exactly what they want, what wouldn't you want out of this as a mining company?"

6.3.2 Environmental considerations

Another frequently referenced theme was the environmental considerations that need to be addressed. Several interviewees pointed to the importance of the NGOs with one stating, "You have NGOs who are pushing increased traceability and substitutability of the supply chain and so on. So, they're also driving the debate" (Interview, ETRMA). Another interviewee identified the involvement of NGOs, "With mining comes sustainability issues, and then civil society concerns" (Interview, Euroalliages). The interviewee from UEPG explained that interest from environmental NGOs has increased over recent years and that the aggregates industry had increased their collaboration with a number of them to improve the sustainability of their extraction sites. Despite the presence of some environmental concerns, one interviewee from a research institute mentioned, that in his perception of the current policy agenda, and the proposal of the CRM Act "getting the metals is somewhat more important at the moment than looking at the sustainability." (Interview, VITO)

The two NGOs we interviewed pointed to their own authority in this policy space, as being among the organizations with the knowledge to draw attention to these issues. The EEB representative also pointed out several other NGOs that were important actors, but not necessarily among the top 20. Their core concerns in this debate could be further categorized as being related to the role of impact assessments for new mines and a more fundamental question about increased circularity, as opposed to increased extraction.

The NGOs are conscious of positioning or distinguishing themselves vis-a-vis each other in the agenda, but also emphasize working together to increase their influence with the Commission. The EEB representative for instance stated that around 2020, the EEB had internal discussions on how to position themselves within the mining and CRM agenda. "We thought, okay, a lot of people are looking into the mining aspects in terms of due diligence, human rights, indigenous rights and, all of that. But nobody's really looking, at least as much, at environmental justice" (Interview, EEB). The NGO representatives both also referenced the

upcoming launch of a coalition of NGOs working on raw materials. This shows that they are conscious of the value of working together and building their own network to increase the influence of their messages with the Commission.

In both interviews, it became evident that there was a concern about the opening of new mines and increased levels of extraction, rather than a focus on increased recycling and circularity. The representative from EEB highlighted as a positive in the new CRM Act, that there were requirements for mining companies to improve their reporting on the raw materials content of their mines so that the need to dig new mines would decrease. The interviewee also stated that EEB has spent the last few years trying to bring focus to the "billions of tons of mining waste sitting idly that are not economically exploited." (interview, EEB). Overall, they viewed the inclusion of some language on circularity, in the CRM Act, as a positive. However, the interviewee also stressed that "when you look at the level of consumption globally, and European consumption in particular, it's twice as high as what the planetary boundaries are, or what the planet can withhold and withstand." The consultant working with an NGO was also critical stating that, "finishing all the known reserves of a number of minerals and not being willing to look at the consequences of that is very problematic." Both interviewees also referred to faster permitting procedures, which are a central part of the CRM Act, as encouraging this focus on increased extraction, potentially to the detriment of thorough environmental impact assessments.

6.3.3 Social considerations

Social considerations were also addressed in some of the interviews, although primarily by the interviewees from civil society. In the Expert Groups and broader policy discussions, IndustriALL expressed its position as distinct from the other industry representatives. "It was very important that the trade unions were also represented in this kind of Expert Group and alliance. Because it's usually just industry and business-oriented" (Interview, IndustriALL). This interviewee also emphasized how they differed from other civil society organizations, stating, "For us, sustainability has two legs. The environmental aspect but also the social aspect. That was at first not covered. And we think that we as trade unions are more or less the only ones who can advocate for that." In the interview with EEB, it was said that civil society organizations were able to inform the Commission about the social issues because "We are the ones that speak to communities on the ground." This is a similar claim to the one made by IndustriALL, namely that direct contact with people working in or affected by mining allows

them to understand public opinion. “The current Commission can hear us because we also have the public opinion with us” (Interview, IndustriALL).

The IndustriALL representative was happy to see that there were some social considerations present in the CRM Act, particularly the chapter on good working conditions. This interviewee expressed that it was important that the Act not only consider how it would create jobs but also the creation of good quality jobs. Additionally, “the criteria for some projects to be recognized as strategic projects are covering the social dimension. This means that you have to create good quality jobs, you have to talk with the social partners, you have to talk with the trade union to see if it's a good project” (Interview, IndustriALL).

Faster permitting procedures for new mines and the designation of ‘strategic projects’ were seen to be a concern from a social sustainability standpoint. Both EEB and IndustriALL stressed that there will be cases where local communities will not be supportive of new mining projects. “It's a super tricky issue because everyone wants critical raw materials, but nobody in a country wants a new mine” (Interview, IndustriALL). For EEB, there was a concern that the descriptions of permitting procedures and strategic projects in the CRM Act would have the consequence that, “communities will be coerced into agreeing, rather than there being a genuinely democratic process for deciding whether a project will go through.”

6.3.4 Summary

This thesis seeks to contribute to the literature on orchestration and the concept of ‘intermediary networks’. By speaking to representatives from the organizations within the Expert Groups, the key issues within the network became evident. Within these issues, there is a sense of coordination and competition, and organizations are conscious of using a variety of strategies to establish control over aspects of the issue. There were several examples of organizations building their own networks, from both industry and civil society, as a strategy to increase their influence with the Commission. The most central organizations, Eurometaux, Euromines, and EuroGeoSurveys, are themselves networks consisting of organizations across Europe, meaning they can lay claim to expertise coming from the mining industry across Europe. Some also mentioned organizing campaigns and actively distinguishing their messages from other organizations as strategies to seek influence. The extractive industries are particularly prominent because they have the data to inform the Commission. Nonetheless, the inclusion of some language on social standards and circularity in the Act shows that the concerns of civil society have been considered. This means that there is also space for influence

from the civil society organizations that lay claim to expertise related to social and environmental sustainability.

6.4 Alternative forums for engagement

As discussed, albeit interviewees had different views on the importance of the raw materials Expert Groups in terms of policy making and agenda setting, all interviewees pointed to other forums or channels for engagement that they perceive as being important or even more important. One interviewee for instance stated that "I'm not saying [the Expert Groups are] less influential. What I'm saying is that it's a little part of the story" (interview, UEPG). Another said that "I also know that there are, of course, other groups which are super important" (interview, IndustriALL). Several different forums were mentioned, but one stood out very clearly, namely the Industrial Alliance ERMA. Another forum that was mentioned multiple times was the 'Solutions for Critical Raw Materials – a European Expert Network' (SCRREEN) workshops, which are expert workshops held as part of the process of defining the list of CRMs and SRMs. Others included bilateral meetings with the Commission, and events, conferences, and summits, including the European Raw Materials Week and European Raw Materials Summit. This next section will analyze the findings related to these different forums.

6.4.1 The European Raw Materials Alliance

ERMA is an Industrial Alliance launched by the Commission as part of the 2020 EU Action Plan for Critical Raw Materials (COM(2020) 474) previously mentioned. The Alliance was first announced in the 2020 New Industrial Strategy for Europe (COM(2020) 102). The Alliance is tasked with identifying barriers, opportunities, and investment cases, initially for rare earths and magnet value chains, but subsequently for CRM more broadly, to build resilience and open strategic autonomy (COM(2020) 474). The Commission communicated that the Alliance is open to participation from all interested stakeholders, including industry, NGOs, civil society, research and technology organizations, MSs, trade unions, and investors (COM(2020) 474). The Alliance has two major workstreams. One is called 'value chain-specific consultation processes' which seeks to identify and provide tailored solutions to industry needs with regards to raw materials-related industrial ecosystem and wider societal challenges; unlock regulatory bottlenecks; and promote stakeholder engagement (ERMA, n.d.-a). The other is called 'investment channel for raw materials projects' and is focused on installing a Raw Materials Investment Platform; selecting and prioritizing cases to secure primary and secondary raw materials supply for Europe's industry; defining financing

strategies; and assessing EU funding and financing sources for investment opportunities (ERMA, n.d.-a). The workstreams are implemented through clusters. Currently, there is a cluster on Rare Earth Magnets & Motors and a cluster on Materials for Energy Storage and Conversion (ERMA, n.d.-a).

The European Raw Materials Alliance quickly emerged as an important forum during the interviews. The majority of interviewees mentioned the Alliance as being of high importance, for instance stating that "the European Innovation Partnership is an important asset, but I think it's today quite superseded by the European Raw Materials Alliance" (interview, NTNU). Another expressed it as directly as "What has happened is that they've created the European Raw Materials Alliance, and that's where they get their input. They don't need the [Raw Materials] Supply Group" (interview, EEB). With regards to the importance of ERMA, one interviewee explicitly said that they found the Alliance to have had quite a big say in the CRM Act, stating that "I find a lot of their ideas in the new critical raw materials act" (interview, VITO). When asked what forums other than the Expert Groups are important, the Euroalliages representatives said ERMA and SCRREEN.

Several of the NGO and academic interviewees point to a large industrial focus in ERMA. In describing the Alliance, one interviewee said that "the Commission wants to use some of those Alliances to develop and build investment, and [organizations from the battery industry] are the ones that have essentially got money to invest" (interview, ETRMA). The academic interviewees agreed that the academic focus in ERMA had diminished since its inception. It was highlighted that "it was more at the start of ERMA that there was quite some contribution by universities and research institutes made into the data. For instance, we wrote a roadmap and we were allowed to give input to the writing of this roadmap" (interview, VITO). They argued that now ERMA has "drifted away more towards industry", further adding that "the aim of ERMA is to incentivize industry to set up business related to raw materials in Europe. So of course, it's a little bit natural that research institutes maybe are a bit less involved in that part" (interview, VITO). Similarly, another academic expressed that "it's less for research and innovation and for universities to be part of, I think, and more for the industrial part" (interview, NTNU).

Among the NGOs interviewed, there was a shared perception that the there is not a lot of space for NGOs to contribute in the Alliance. The EEB representative presented a very critical view of the Alliance, expressing that "I don't know how many geological surveys or businesses there are, but it's a massive amount compared to just four NGOs" (interview, EEB).

They went on to explain that in their view, there are few NGOs "because most NGOs decided, we're not going to be part of this greenwashing alliance" (interview, EEB). In their view, the NGOs that did participate did so to get information about what was going on in the Alliance. The other NGO representative made a similar point, saying that "there was a lot of reluctance in even the bigger NGOs that we're more or less in contact with WWF, Friends of the Earth, all of these to actually engage in that and I guess most haven't because in terms of the scope, it's clearly industry led" (Interview, NGO Consultant).

ERMA can also be discussed in terms of orchestration. Whereas the Expert Groups appear to be used by the Commission as forums for agenda-setting and convening, the Commission seems to be primarily using an endorsing orchestration technique towards ERMA. Endorsement is an orchestration technique that rests on the orchestrator enhancing the legitimacy and social authority of the intermediary by publicly endorsing their work. At the same time, the orchestrator can control or attempt to control the goals of the intermediary by attaching conditions to the endorsement (Abbot et al. 2015). The Commission launched and endorsed the Alliance in the 2020 EU Action Plan for Critical Raw Materials (COM(2020) 474) and continues to endorse the Alliance frequently. On the occasion of the publication of ERMA's 2021 Action Plan to secure European Raw Materials, Commissioner Thiery Breton, who leads the regulatory work on the CRM Act from the side of the Commission, said in a statement that "The EU depends on others – mainly China – for the import of permanent magnets, as well as the rare earth elements they are made of. The European Raw Materials Alliance plays a key role in addressing these dependencies" (ERMA, 2021). In the CRM Act regulation (COM(2023) 160) the Commission states that "[the regulation] also provides a framework to support projects along the critical raw materials value chain, building on the work of the European Raw Materials Alliance" (COM(2023) 160, p. 3).

It might also be argued that the Commission is using a convening technique, by bringing actors together. However, we are not able to say a lot about the extent to which the Commission attaches conditions to the endorsement of ERMA, as well as the degree of control the Commission has over its composition of participants, its board, etc., as this was not the focus for this thesis at its outset. In the discussion section, we further discuss the implications of our findings on the role of ERMA.

Resting on the perceptions of the role of ERMA amongst interviewees, the intermediary network, in this case ERMA, also functions as an actor itself, and has the ability to influence policy. In other words, ERMA is not merely an intermediary acting out the goals of the

orchestrator. This view on intermediary networks as actors is one presented by for instance Godet & Orsini (2021) or Broek & Klingler-Vidra (2022). By engaging in this view, orchestration theory can be combined with social network theory. The intermediation is not linear. Rather, the intermediary diffuses meaning to the objective of the orchestrator. By combining the orchestration perspective with social network theory, it is possible to study the network dynamics around issue control and diffusion of ideas taking place in and around ERMA, as for instance Broek & Klingler-Vidra (2022b) do in their study of the UN Sustainable Development Goals (SDG). They study how intermediaries "give themselves authority to diffuse the SDGs and define their individual roles through processes of role appropriation" (Broek & Klingler-Vidra, 2022, p. 1306-1307). In this research project, we have not researched directly the network in and around ERMA, as the starting point was around the Commission Expert Groups. This is discussed further in the discussion. Yet, the empirics gathered indicate how an orchestrator may create a network of interlinked organizations, which may in turn take issue control over the object of the orchestrator. Metz (2015, p. 8) argued, on the topic of Expert Groups that "committees are often created as technocratic bodies but are nonetheless involved in the political decision-making process", and that perceiving Expert Groups as solely technocratic bodies risks neglecting their possible influence on policy content and politics (Metz 2015). However, in the context of the findings in this thesis, this argument might be even more relevant in the case of ERMA.

The statements from NGOs and academics about the dominance of industrial players also illustrate that in this network, some appear to have an outsize ability to influence the overall governance of the issue at stake.

6.4.2 SCRREEN

SCRREEN is another expert network on CRMs (SCRREEN, n.d.). It has amongst other things supported the Commission in producing the list of CRMs and SRMs in 2020 and 2023. The SCRREEN workshops held in relation to producing the lists include a long list of industry experts and consist of 30 minutes to two-hour workshops on each of the raw materials being evaluated for the list (European Commission, 2023a). The list of participants in the SCRREEN workshops is made publicly available by DG-JRC (European Commission, 2023a).

Some interviewees mentioned the SCRREEN workshops as being important, especially IMA argued for this. The representative explained, "To become a part of that Expert Group [SCRREEN], you need to produce, process, or recycle the relevant raw materials. If you do not have a direct, legitimate contribution to this Expert Group, you cannot participate. You need to

have data to share, so it is mainly technical people contributing." (interview, IMA). The previous Secretary General of ETRMA also said that "SCRREEN was really only looking at the facts, so the data. For that I had appointed a statistics expert. Someone who understands the data." The agenda for the workshops, which was also available in the 2023 Study (European Commission, 2023a), is indeed very tight and does not appear to leave room for discussing CRM policy more broadly. However, interviewees have told us that the Commission and the consultants conducting the workshops do follow up with participants who have data in bilateral dialogues. This is also stated in the 2023 study:

> "Several follow-up actions were carried out after the workshops, including […] follow-up with individual stakeholders who indicated willingness and capability to contribute relevant data and input for the criticality assessments. Based on this feedback, some of the criticality assessments were improved while others were consolidated with more accurate data." (European Commission, 2023a, p. 19).

None of the interviewees spoke about discussing broader policy issues during these specific follow-ups, but several interviewees mentioned that they have had continuous bilateral dialogues with the Commission on more broad discussions, which is discussed in more detail further down. This does, however, indicate that technical knowledge in some way provides access to the Commission.

It could be argued that the Commission is drawing on science-based expertise through SCRREEN and ERMA, in the conceptualization by Gornitzka and Sverdrup (2015). At least that is how the Commission argues for engaging with these organizations specifically rather than other organizations. Gornitzka and Sverdrup (2015) argue that drawing on science-based expertise rests on assumptions that a bureaucracy, in this case being the Commission, derives its legitimacy from fostering and governing based on specialized and enlightened expertise. All interviewees point to a very high degree of technicality around designing CRM policy, and several argue that the Commission lacks the competences for this. So, engaging with technical and industrial experts is a way to gain this.

6.4.3 Bilateral meetings, events, and conferences

Finally, other than formal groups or alliances, there is a broad agreement that creating bonds with the Commission through bilateral meetings as well as through arranging and participating in conferences is fundamental in order to make your voice heard. These observations point to the importance of creating and nurturing personal and professional connections within the network and with the Commission. Two interviewees shared similar

points. “I think the lobbies have, you know I'm thinking of Eurometaux, all the big groups, a capacity to engage with the Commission, you know not even with traditional lobbying. I mean it's a fact that they are continuously invited to speak and to interact to be engaged in all sorts of events. So, you know, they have these alliances, they have all these tools but then they are also on a one-to-one basis continuously setting the agenda. At least that's our impression.” (interview, NGO Consultant). Similarly, the IndustriALL representative noted that “it’s my personal feeling, that the Commission knows who are the main actors. And then there are of course bilateral contacts. But it's not like hidden meetings which are not public. Sometimes, for example, Eurometaux invites Peter Handley from DG GROW for a public conference, but then they can also raise their messages”.

These organizations also make use of this strategy themselves. IndustriALL explained that “We had also bilateral contact with DG GROW to explain all the social aspects that we would like to see as a regulation” (interview, IndustriALL). Another industry representative said that because they know that the Expert Groups are not that important, bilateral dialogue is necessary (interview, ACEA). ETRMA recounted that in trying to establish natural rubber as a critical material, building a close network with the Commision was necessary (interview, ETRMA), also mentioning that “I have seen Breton in October, we had a full day with him in one of our facilities” (interview, previous ETRMA). Euroalliages also mentioned for instance meeting with Peter Handley, DG ENV, and DG TRADE, however, without specifying whether these meetings were bilateral.

Specific events, such as the European Raw Materials week and the Raw Materials Summit were highlighted by many as an occasion to engage with the Commission and the network and to present your ideas (interview, Vito; EEB; IMA; NGO Consultant; IndustriALL; Euroalliages; UEPG). One referred to them as “the two biggest platforms for the raw material community to ask questions and exchange directly” (Interview, IMA).

These observations point to the fact that establishing personal connections is key. In their theory on issue control, Seabrooke and Henriksen (2017) analyze transnational governance as a two-level network characterized by competition between both organizations and professionals. As noted previously, this perspective emphasizes that the contested nature of transnational issues allows for professionals to use their networks across organizations to shape how they are governed. This is a layer which we are not able to analyze in detail in this thesis, due to the sole focus on organizations and not individuals.

6.4.4 Summary

Although the perception of the role and importance of the raw materials Expert Groups in terms of policy making and agenda setting differs among interviewees, all point to other forums or channels of engagement which they perceive as being important or in some cases even more important than the Expert Groups.

The industry alliance ERMA stood out very clearly, while the technical workshops held by SCRREEN as well as bilateral contacts and meetings also emerged as important. The Commission launched ERMA in 2020 and continues to endorse and draw on the work of the Alliance, indicating an endorsing orchestration technique. What extent of control the Commission has over the constitution and activities of the Alliance is subject for another study, but the empirics indicate that ERMA has the ability to influence policy, suggesting that the process of orchestration is not linear. In other words, ERMA illustrates, more clearly than the Expert Groups, how the Commission may create intermediary networks which may in turn take issue control over the object of the orchestrator. Moreover, following from the discussion of the influence of different types of actors in 6.3, the empirics on ERMA indicate that industry actors have an outsize ability to take issue control within the network in and around ERMA. Especially NGOs and academic interviewees point to a dominant industry focus within the Alliance. Reading about the workstreams in ERMA as well as communication from the Commission about the Alliance, seems to support the large industry focus. The findings on both ERMA and the expert network SCRREEN point to the use of science-based or specialized expertise by the Commission. This may mean that some actors are effectively excluded from effective participation.

Finally, a broadly shared perception that personal contact with the Commission through bilateral meetings as well as through arranging and participating in events is one of the most effective ways to gain influence appeared. This leads to a discussion of two-level networks in which not only organizations but also professionals are considered, as conceptualized by Seabrooke and Henriksen (2017). The professional layer is not the focus in this thesis, as its scope is on organizations, but this suggests that it could be useful to look deeper into this aspect.

6.5 Summary of the analysis

The analysis seeks to answer the research question: *How do organizations in expert networks influence the formulation of EU green industrial policy?*

Firstly, looking at the membership of the raw materials Expert Groups allowed us to identify a network of relevant actors that, on the one hand, are interested in raw materials policy, and on the other hand, the Commission has deemed relevant to include in its Expert

Groups. From the network analysis, we have identified specific actors who are best positioned to be key holders of information within the network, and who likely have the ability to influence how the issue is treated.

Secondly, we analyzed the role of the three Expert Groups dedicated to raw materials. In the interviews, it became clear that the Expert Groups themselves are not the forums through which the organizations are interacting with each other, although they may be important for the participants to understand the Commission's priorities, who else is in the network, and to establish themselves as having relevance to this issue. These uses of the Expert Groups lend themselves well to a discussion of orchestration. By convening different types of organizations and agenda-setting, the Commission is determining who belongs in the intermediary network and framing the main issues from its own perspective.

Thirdly, we analyzed how the organizations are coordinating and competing to establish influence over different issues within the broader policy framework. The interviews indicated that there the organizations in the intermediary network interact and almost everyone recognizes that the largest associations representing the mining companies in Europe are the ones with the most influence, particularly Eurometaux. The three main issues of contention are how the policy framework should secure access to the non-energy materials needed in the European market, which environmental considerations should be included, and which social considerations should be included. The interviews illuminated several strategies the organizations were using to have influence over these issues and the organizations made claims to authority coming from the expertise they provide. The interviews pointed to other forums where relevant organizations interact and seek influence. In the frequently mentioned forums, ERMA and SCRREEN, there is a connected, but also separate, network of organizations. In much of the policy formulation, the expertise is highly specialized and technical, relating to the mining industry supply chain, which may explain why the industry associations figure so prominently. However, the inclusion of social and environmental considerations indicates that there is also space for society-based expertise, where some of the civil society organizations are also influential.

7. Discussion

After having analyzed the findings of this research through an explanation of the results and application of the theoretical framework, we will now engage in a discussion. There are theoretical implications as well as policy implications of the analysis. Each section commences with an introduction.

7.1 Theoretical implications

In our construction of the theoretical framework for this thesis, we referred to several separate but interlinked perspectives that contribute to the literature on Transnational Governance. These were theories on orchestration, theories of networks and issue control, and theories of expertise. The theoretical framework enabled us to analyze the role of different actors in the governance of EU raw materials policy in the previous section. The findings in the analysis also allow us to consider broader implications for theory. In the following section of the discussion, we will first evaluate how our findings contribute to the development of a key concept that links the theoretical perspectives, namely 'intermediary networks'. Secondly, we will consider the role of expertise and appeals to authority within an intermediary network. Lastly, we will consider a theoretical critique of 'new forms of governance' in the shadow of hierarchy.

7.1.1 Orchestration & intermediary networks

The primary implication of our analysis is that the link between orchestration theory and network theory is credible and highly relevant for understanding the Commission's policymaking. The starting point in the theoretical framework was orchestration as a form of governance, that international organizations often use, due to their inability to make and enforce hard laws. The orchestration literature has pointed to the engagement of national regulatory networks by the Commission specifically to develop and implement regulation (Blauberger & Rittberg, 2015). The analysis shows that the Commission also engages a network of many other types of organizations, through its Expert Group framework. We have identified the use of orchestration techniques in the functions of the raw materials Expert Groups, namely convening and agenda-setting. The Commission, as part of an intergovernmental organization, has privileged access to a variety of organizations and has "powers to convene" (Abbott et al., 2015). We argue that convening the organizations is an important mechanism for the organizations to view and understand who else is important. Furthermore, by presenting its own priorities and informing participants, the Commission is agenda-setting. The combination of these two techniques, we argue, allows the organizations to understand the core issues and establish their own strategies to seek influence. We have also identified the use of an endorsing orchestration technique by the Commission towards other forums outside of the Expert Groups. In sum, while we were surprised to find that the raw materials Expert Groups were not themselves particularly active forums for interaction between

organizations, we have shown that through the Expert Groups, the Commission contributes to constructing an active network where there is interaction elsewhere.

Our SNA suggests that the structure of the network can give a good indication of which organizations are most influential. In our delimited network which only considers Expert Group co-membership, the four most central organizations have a link to every other organization in the network, and the list of most central organizations is only slightly different once we include other groups and associations that the organizations are participating in. Of the four most central organizations, Euromines, Eurometaux, and EuroGeoSurveys were frequently mentioned by the interviewees as being highly influential. What is not clear, with this analysis, is whether they are most central within the Expert Group network because they were already influential and able to secure a seat on all the relevant Expert Groups, or they became most influential because of their centrality within the Expert Group network. In other words, we do not claim to make inferences about causal effects. Given that we are most interested in causal mechanisms and the actors' motivations and strategies, we maintain that looking at the structure of a network of intermediaries is an effective starting point to understand which actors are likely to play a central role in shaping an issue.

The 'intermediary network' concept also has implications for our understanding of the relationship between the intermediary and orchestrator in the OIT model. We have inferred that this relationship between intermediary and orchestrator differs in the Expert Groups and in the Industrial Alliance ERMA. Here we bring attention to the question of formalization. Formalization is a question of the extent to which the processes of intermediation are codified (Brés et al., 2019). According to Brés et al. (2019), the more tacit procedures are, the more room there is for intermediaries to make their own interpretations. While the rules governing the Commission Expert Groups have gotten stricter over time, and the pressure to increase the inclusion of civil society representatives has increased, the rules governing the Industrial Alliances seem less clear. The Industry Alliances are, to our knowledge, not governed by the same rules as the Expert Groups, but as this has not been the focus of this thesis, we cannot say a lot about this. Members of ERMA include organizations from all around the world and looking at just the first page of members you find organizations from non-EU countries such as the USA, Cameroon, Australia, Brazil, Canada, Malaysia, and many more (ERMA, n.d.-b). From a quick search on a few of those companies in the Transparency Register, many are not registered. Although we cannot say that much about the procedures in ERMA, based on the insights we have gotten, ERMA can be thought of as representing a form of interpretive

intermediation, as in the conceptualization of Brés et al., (2019), which is official but unformalized. The uncertainty on the part of the interviewees, as to what the processes are in the Expert Groups, also suggests a degree of informalization, although the stricter rules governing the Expert Groups suggest a higher degree of formalization than in ERMA.

In the conceptualization of orchestration done by Abbott et al. (2015), they assume that the orchestrator and intermediaries have correlated goals in relation to the target. The work done by Brés (2019) suggests that this might not always be a correct assumption. Furthermore, Brés (2019, p. 136) argues that the formalization of intermediation "needs to be carefully handled" because official but unformalized intermediation is more likely to be captured by the intermediaries. Consequently, the intermediation process is not a straightforward relationship where the intermediary helps to achieve goals, as they are defined by the orchestrator. In the words of Brés et al. (2019), "intermediaries help construct and shape the meaning of regulations, just as they intermediate it". In sum, the limited degree of formalization in both the Expert Groups and ERMA would suggest that there is ample room for intermediaries to construct and shape raw materials policy, albeit to a higher degree in ERMA. Some interviewees did indeed argue that ERMA has been able to influence the policy outcome of the CRM Act, as already discussed.

This analysis has maintained a focus on the top level in the two-level network, as in the work done by Seabrooke and Henriksen (2017), looking at the relationship between organizations in the network. Thus, we have viewed each interviewee as a representative of the perspectives and strategies of their respective organizations. Here it is interesting to consider the work of Henriksen & Ponte (2018), who have also sought to combine the orchestration literature with that on social networks, but looking at the bottom of the two-level network, and considering that professionals working on issues are not necessarily just representatives of their organization. They reiterate that the risk of public actors engaging in orchestration is that the issue can be captured by certain interests, where there are strong ties between professionals, and that this is not well studied (Henriksen & Ponte, 2018). Several interviewees were able to mention specific individuals, from other organizations including the Commission, as being highly relevant to speak to and they referenced the importance of participating in events and conferences, where they could speak to other experts in the policy field. Several also mentioned having previously worked with other organizations working in the policy field of raw materials. An addition to the study of 'intermediary networks' would thus be to understand the role of

individual professionals working in an intermediary network, in addition to those of the organizations.

7.1.2 Politics of expertise in an intermediary network

This analysis has identified many forums where actors can come in contact with each other and the Commission on the topic of raw materials. Coding the interviews allowed us to identify bilateral meetings with the Commission, bilateral meetings between organizations, public consultations, Commission Expert Groups, the Raw Materials Week, the Raw Materials Summit, other events and conferences, ERMA, and SCRREEN. The sheer number of forums that were mentioned reflects the identification in the literature, that the Commission is highly dependent on expertise (Moodie, 2016; Radaelli, 1999), and there are consequently many access points for external actors to provide this expertise (Metz, 2013). This leads us to make further considerations of the types of expertise that the organizations provide through these access points, as well as the functional purposes of the different types of expertise for the Commission.

Essentially all organizations made claims to expertise that fit into the society-oriented category, in the conceptualization by Gornitzka and Sverdrup (2015). The organizations that were most central in the network analysis, and influential according to the interviewees, were those with their own extensive networks, who are able to reference knowledge from representing many companies. According to Gorniztka and Sverdrup (2015) “Society oriented expertise posits a direct relationship between societal actors and public administration.” They elaborate further that the authority of the Commission is dependent on its ability to mediate among societal actors and understand the preferences of different interests (Gornitzka and Sverdrup, 2015). It follows that the associations with many members can lay claim to extensive society-based expertise. Eurometaux for instance, represents the non-ferrous mining companies and thus is able to gather extensive experiential knowledge from the mining industry. IndustriALL gathers trade unions from across Europe, meaning that the Commission can reference its perspectives are representative of workers. In the interviews, many referred to having or building their own networks to increase their influence. The implication of this being that society-oriented experiential knowledge is a valuable claim to authority for organizations seeking influence with the Commission.

It seemed that in some of the forums, for instance in SCRREEN, the focus is on highly specialized technical expertise, or in the conceptualization of Gornitzka and Sverdup (2015), science-oriented expertise. Interestingly, the participants in the SCRREEN workshops are

listed by their own names, suggesting that they participate as individual professionals with a greater degree of independence. For comparison, participants in Expert Groups are listed as organizations in the Register of Commission Expert Groups. According to Gornitzka and Sverdup (2015) international organizations are particularly influential when they "draw on independent expert sources to provide information that is scarce and valuable to its member states". They elaborate that an organization such as the Commission partly derives its independence and authority from, "its ability to present itself as neutral and to ground its actions in updated and specialized information." The organizations who had members participating in these workshops also lay claim to having this scarce information, raising the question of whether specialized technical expertise is also an important way to gain access to the Commission.

In addition to the types of expertise referenced by the different organizations, it is necessary to consider the functions of different types of expertise from the perspective of the Commission. Boswell (2008) distinguishes between the instrumental functions of expertise, in helping an organization to deliver its goals, and symbolic functions, where a reference to expertise legitimizes an organization and substantiates its decisions. Our analysis indicated that the different forums on raw material policy play distinct functions in the Commission's decision-making. In ERMA, the Commission gets direct access to the extensive and highly specialized knowledge of the mining industry companies that can help deliver its goals. Similarly, the SCRREEN workshops gather specialized experts, who can deliver data and technical knowledge of the science-oriented type. These two forums are actively contributing and seem to play an instrumental function in developing and delivering policy goals. This is not to say that these forums do not also play a symbolic function, in that referring to "neutral" expertise in for example SCRREEN, is also important for legitimizing the Commission's policy goals. However, the Expert Groups are much less active, while they have a greater proportion of NGOs and civil society present. This suggests that the existence of the Expert Groups plays a much greater symbolic function for the Commission.

7.1.3 Governmental expertise and the shadow of hierarchy

We have analyzed the process of competition and coordination in an intermediary network on raw materials policy, up to the publishing of a legislative proposal by the Commission. This thesis has focused on the Commission orchestrating a network of non-state actors. In an opposing view, Börzel (2010) has argued that what matters most for European public policy is still state actors and political competition between them, so EU governance

still happens in the 'shadow of hierarchy'. Furthermore, Radaelli (1999) has suggested that the existence of many 'veto points' in the EU legislative system may limit the importance of network governance. As the regulation will now have to be negotiated and adopted in the European Parliament and European Council, several of the interviews mentioned that contact with MS authorities and Members of the European Parliament is now more important, and where they will seek influence. Arguably, this is where there will be space for the 'shadow of hierarchy'.

While this thesis looked at the network of non-state actors in the Expert Groups, there are also nation-state authorities listed as official participants. In the conceptualization done by Gornitzka and Sverdrup (2015), government-oriented expertise from the nation-state authorities allows the Commission to understand MS interests and preferences at the policy formulation stage. They argue further that "a high degree of involvement of national officials in the expert groups can thus be seen as a way for the Commission to develop structured and organized connections with national administrations." In other words, engaging with the national authorities through the Expert Groups may help smoothen the process of getting the regulation through the European Council. However, our analysis has shown that the Expert Groups meet infrequently, and when they do, it is largely the Commission presenting. Because we have not spoken to any MS authorities, we are unable to speak to what their level of involvement in this policy process has been outside of the Expert Groups, but we can infer that they will not have been able to influence the CRM Act through the raw materials Expert Groups. As is discussed in more detail later in this section, one could imagine that the fact that Act for the first time comprises a regulation may alter the dynamics around the actors seeking influence.

7.2 EU policy implications

The analysis in this thesis has led to a number of findings regarding the role of intermediary networks in EU raw materials policy, and the coordination and competition for issue control happening within them. As already discussed, a primary finding was that in contrast to previous literature which ascribes high importance to Expert Groups in EU policy-making, this case has shown that the Expert Groups on raw materials appear not to be very actively used by the Commission nor facilitators of much interaction in the EU raw materials social network. Instead, other forums figure as potentially more dominant in shaping the policy agenda, with especially the Industrial Alliance ERMA standing out. At this point, it is relevant

to zoom out a bit and consider the broader context in which this policy area is being shaped and discuss the implications of the findings for EU policy on raw materials and more broadly.

First, we consider the geopolitical context around the CRM Act. Some factors indicate that there might be larger factors at play than solely raw materials considerations, impacting the way in which the policy outcome has been shaped. Secondly, we ask, what are the implications of the findings related to the Industrial Alliance? What are the implications for the shaping of the raw materials policy agenda in the EU, and moreover does this case point to more general observations about the role of Industrial Alliances in EU policy formulation and implementation? Finally, we conclude discussion of by discussing the salience of the policy issue. While the CRM Act may not attract much attention from the wider public in itself, it taps into several larger and much more sensitive issues such as global dependencies and industrial competitiveness, not to forget that the Act seeks to increase CRM mining within the EU, at a time where heated debates about mining and land use and rights already figure across MS.

7.2.1 Geopolitical tensions: captured by a larger agenda?

Many interviewees pointed to the impacts of geopolitical factors on the shaping of the CRM Act. In the analysis, we discussed the implications of geopolitical factors on the security of supply, which seems to be the most central issue of debate in the CRM Act. The analysis in this thesis has primarily focused on the competition for influence among raw materials stakeholders. But this is a good time to zoom out a bit from the dynamics within the raw materials sphere and consider whether there may be wider geopolitical factors at play, impacting how the raw materials agenda has been shaped right at this time of the publication of the 2023 CRM Act. Some argue that the CRM Act is part of an attempt to make a strong political response to a global green subsidy race (Conley, 2023). If the policy is as much a question of sending a strong political signal to the industry, the global markets, and foreign counterparts, as it is about making the perfect CRM policy, then consulting all stakeholders may be relatively less important while allying with industry is more important. The next paragraphs discuss this.

A point can be made regarding EU industrial policy debates in the wake of the current geopolitical tensions arising from Russia's invasion of Ukraine, the energy crisis, global inflation, and the U.S. IRA, amongst other factors. These factors have put immense pressure on EU leaders to deliver a strong response to the headwinds that the European industry is phasing (Henley & Rankin, 2023; Rankin, 2023). With the U.S. IRA of August 2022, a subsidy scheme aimed at accelerating investments in renewable technologies, fears quickly arose that

industry would begin evaporating from Europe. The Financial Times for instance reported that Volkswagen announced that it would put plans to build a new battery factory in Eastern Europe on hold, and instead focus on possibilities in the U.S. (Milne et al., 2023). The car manufacturer estimated that it could receive €10bn in US incentives through the U.S. IRA and called for an EU response to the U.S. subsidies scheme (Milne et al., 2023). Several interviewees also pointed to such geopolitical factors. One mentioned that in their view "the recent policy emphasis is driven by the need to counteract the IRA" (interview, ACEA). Another explained their view in more detail:

> "The CRM Act came out at a tough time. The industry is facing an existential crisis. The IRA in the US and subsidies in China are protectionist and Europe is still believing in free trade, but we are losing production. Producers elsewhere can sell much cheaper than the sustainable prices in Europe. We need recognition of our efforts, and we need to solve our competitiveness issues" (interview, Euroalliages).

The CRM Act was published together with the NZIA on March 16, 2023. The Commission stated in the press release that "Together with the proposal for a European CRM Act and the reform of the electricity market design, the Net-Zero Industry Act sets out a clear European framework to reduce the EU's reliance on highly concentrated imports" (European Commission, 2023b). Although the Commission does not state that the NZIA and CRM Act are responses to the U.S. IRA, many analysts seem to think so (see e.g., Claeys, 2023; Clifford Chance, 2023; Dahdah et al., 2023; The Economist, 2023).

Hence, it could be argued that the CRM Act might also serve another purpose than "just" an attempt to increase the security of the supply of CRMs. One interviewee made a similar observation, stating that "the CRM Act is part of a political agenda and a critical situation", further adding "so they needed to write it quickly" (interview, Euroalliages). If the CRM Act is as much a question of sending a strong political signal to the industry, the global markets, and foreign counterparts, as it is about making the perfect CRM policy, and if the policy development around the act has to a larger than usual extent happened at a high political level, and processes have been rushed, then consulting all stakeholders may be relatively less important. These factors may be part of the reason why the Expert Groups have not been as involved as could have been expected. In the next section, we will discuss the relative dominance of the Industrial Alliance ERMA vis-a-vis the Expert Groups.

7.2.2 Is the Industrial Alliance overtaking the former role of the Expert Groups?

In the case of intermediary networks in EU raw materials policy studied in this thesis, the findings indicate that the Industrial Alliance ERMA is an important network actor. There are even some indications that the Alliance is more influential than the Expert Groups, as well as a more important forum for interaction between organizations in the EU raw materials social network. As has already been detailed in the analysis, interviewees have commented on the dominance of ERMA. On top of that, some have also made observations about the Industrial Alliances more broadly. One interviewee expressed that "the industry alliances seem to be a bit more important recently" (interview, NTNU), while another explained in more detail:

> "my impression over the last few years is that these alliances have kind of come to prominence and they have been very, I mean I'm thinking of the European Raw Materials Alliance there's also the European Batteries Alliance but particularly the Raw Materials Alliance it seems that it's been really the forum where industry and some governments have really pushed positions." (interview, NGO Consultant)

As discussed, ERMA is an Industrial Alliance launched by DG GROW in 2020. Today there are nine Industrial Alliances under DG GROW, covering different policy areas within energy, technology and circular economy, the first of which was launched in 2017 (European Commission, n.d.-a). We refer to these DG GROW alliances as Industrial Alliances, to not confuse the term with the general notion of an alliance of industrial actors. The Commission especially highlights the success of the European Battery Alliance and the Circular Plastics Alliance, launched in 2017 and 2019, and used these successes as argumentation for creating more Industrial Alliances, including ERMA (European Commission, 2020). The Commission writes that the Industrial Alliances are "a tool to facilitate stronger cooperation and joint action between all interested partners", "but that are not involved in decision making on policy, regulation or financing" (European Commission, n.d.-a). The Commission further writes that all relevant partners are involved, including EU countries, regions, industry, financial institutions, private investors, innovation actors, academia, research institutes, civil society, trade unions, and others (European Commission, n.d.-a).

The European Parliament has previously criticized the Commission's Expert Groups, which led to the adoption of reforms in the use and governance of the groups, as previously discussed. The criticisms were related to a lack of transparency around the use of the Expert Groups (Gornitzka & Sverdrup, 2008). This, for instance, meant that any organization which is a member of an Expert Group must be registered in the Transparency Register (C(2016) 3301), and that the Commission is obliged to keep the Register of Expert Groups updated with

members of the Expert Groups, meeting minutes and similar (Gornitzka & Sverdrup, 2008). As discussed already, the rules governing the Industrial Alliances seem less clear.

DG GROW's Industrial Alliances have been subject to scrutiny from some, but this seems to be limited. The NGO, Friends of the Earth, who also figures as a central actor in our SNA, but whom we have not been able to get in contact with, published a paper in 2021 in which they argued that the Industrial Alliances created by DG GROW represented a new form of "corporate capture that threatens democracy and the environment" (Tansey, 2021). As was discussed in the analysis, two NGOs that we spoke to also mentioned that they had reservations about participating in ERMA (interview, EEB; interview, NGO consultant), with one of them specifying that this was due to fears of legitimizing something they could not agree with (interview, EEB).

The observations made in this thesis beg the question of whether the Expert Groups are not the most relevant mode of consultation anymore. The findings suggest that ERMA is relatively more dominant than the Expert Groups on raw materials, leading to the question whether the Industrial Alliances are taking over the former role of the Expert Groups on policy areas under DG GROW. We cannot draw any conclusions about the role of DG GROW's Industrial Alliances more broadly, as we have neither studied the use of Expert Groups nor Industrial Alliances on policy areas other than raw materials. Nevertheless, the case study in this thesis contributes to the literature on the role of Industrial Alliances in the EU. More scholarly attention should be given to these Industrial Alliances, including regarding their role in shaping intermediary networks which may in turn take issue control. A more detailed further research agenda is laid out in the conclusion.

7.2.3 Future implications: Salience of the issue

Finally, it is relevant to discuss the salience of the issue, and the implications this may have for its future treatment. Today, the critical raw materials agenda in itself does not appear to be very politically salient. Political salience is an outcome of the "importance of an issue to the average voter, relative to other political issues" (Culpepper, 2011). Culpepper (2011) argues that low salience political issues are decided through "quiet politics", as they come with low public interest and knowledge. The quiet politics framework emphasizes the "advantages of managerial organizations under conditions of low political salience" and argues that this fosters good conditions for lobbying. In low salience conditions superior knowledge and access to key decision-makers are the most important currency. The relatively low salience environment, which has arguably characterized the raw materials agenda thus far, might thus have fostered

good conditions for the industry alliance to grow powerful. On the contrary, politically high salient issues necessitate public support and force actors to seek interest group allies. High salient battles often leave corporates in poorer positions for influence, leading them to "lose many high-profile political fights" (Culpepper 2011).

While the CRM agenda might not in itself be politically salient at the moment, the agenda taps into a lot of big and much more salient temporary debates. This for instance includes debates on global dependencies, energy security, industrial policy in the EU, among other factors which were also discussed in the section above. Another issue which has been a subject of big national debates in different European countries is around mining, as well as broader land use and indigenous lands rights debates. The announcement of the find of Europe's largest deposit of rare earths in Northern Sweden early this year, for instance sparked vivid debates (Johansson & Fridén, 2023; Nutti Lampa, 2023; Unga & Heikki, 2023). The announcement came at a convenient time as Sweden had just taken over the presidency of the European Council, i.e., making its government holder of the right to decide the European Council's agenda (European Council, 2023), and just ahead of the publication of the CRM Act. A focus of the CRM Act is to increase the mining of raw materials in Europe, and it sets out to "reduce the administrative burden and simplify permitting procedures for critical raw materials projects in the EU" (European Commission, 2023b).

The CRM agenda has accumulated more interest from NGOs and civil society organizations over the past few years as has been argued in the analysis. At the same time, the CRM Act was the first time that the Commision proposed a regulation on securing the supply of CRMs , whereas previously, the Commission has published the recurring CRM list and strategies as non-regulatory publications. This means that the European Parliament and European Council will also have to adopt the regulation and will have the opportunity to amend the proposal. Read about the EU's ordinary legislative procedure in section 2. The Empirical Case. This may change the dynamics around the policy process and hence the intermediary networks. As was just outlined above, the criticism from the European Parliament led to reforms of the Expert Group usage. Whether the salience of the CRM agenda will increase in the future, and whether the Industrial Alliances will be subject to increased scrutiny will be left to be seen.

8. Conclusion

This thesis sought to answer the question: *how do organizations in expert networks influence the formulation of EU green industrial policy*? This question has been addressed

through a case study of the social network in and around the European Commission's Expert Groups on raw materials, in the context of the publication of the CRM Act in March 2023. In studying this question, we have constructed and applied a theoretical framework combining theory on orchestration, theories of social networks and issue control, and theories of expertise. Through this approach, we have contributed to the development of a key concept that links the theoretical perspectives, namely 'intermediary networks'.

In sum, we show how the Commission as an orchestrator contributes to creating an intermediary network, within which organizations coordinate and compete for issue control, and which in turn can influence the policy outcome. In analyzing the intermediary network, we find that the Expert Groups are in fact not the main center of expertise drawn on by the Commission, nor the main forum for interaction between organizations in the intermediary network. Rather, other forums, particularly the Industrial Alliance ERMA, figure as relatively more dominant.

This thesis has taken a mixed-methods approach combining an SNA with qualitative interviews. An SNA of the co-affiliations between member organizations in the Commission's three Expert Groups on raw materials has enabled us to identify a network of relevant actors that, on the one hand, are interested in raw materials policy, and on the other hand, the Commission has deemed relevant to include in its Expert Groups on raw materials. This analysis provided a view of the structure of this network, from which we have identified specific actors that are best positioned to be key holders of information in the network, and who likely have the ability to influence how the issue is treated in the policy formulation and implementation. Through semi-structured interviews with organizations identified in the SNA, we tested the findings of the network analysis and gained a more in-depth understanding of the activities in and around the Expert Groups, as well as the role of the Expert Groups and other relevant forums in the perception of member organizations.

We find that the three Expert Groups on raw materials and their subgroups meet infrequently, and in some instances, no meetings have been held for several years. In analyzing their role, it became clear that the Expert Groups themselves are not the forums through which the organizations are interacting with each other. Nevertheless, the Expert Groups may be important for the participants to understand the Commission's priorities, who else is in the network, and to establish themselves as having relevance to this issue. These uses of the Expert Groups lend themselves well to a discussion of orchestration. By convening different types of

organizations and agenda-setting, the Commission contributes to constructing networks of actors and framing the main issues from its own perspective.

We show that albeit the Expert Groups are not active forums for engagement, there is interaction between the organizations in the intermediary network, where almost everyone recognizes that the largest associations representing the mining companies in Europe are the ones with the most influence, particularly Eurometaux. The three main issues of contention are how the policy framework should secure access to the non-energy materials needed in the European market, which environmental considerations should be included, and which social considerations should be included. The interviews illuminated several claims to different types of expertise as part of strategies the organizations were using to influence these issues. The Commission draws on instrumental expertise from the intermediary network, especially highly technical expertise, as it lacks resources and competencies, but it also appears to use expertise in a legitimizing function. That the Expert Groups are less active than other forums, while they have a greater proportion of NGOs and civil society participants, suggests that the existence of the Expert Groups plays a greater symbolic function for the Commission.

We identify other forums through which this network of organizations interacts and seeks influence. In and around the frequently mentioned forums, ERMA and SCRREEN, there are connected networks of organizations. Particularly ERMA, the Industrial Alliance formed in 2020 under DG GROW, stands out, and several interviewees argued that this Industrial Alliance has become more important than the Expert Groups. By launching and continuously endorsing ERMA, the Commission also engages in orchestration towards ERMA, using an endorsing technique. Academic and NGO interviewees argue that ERMA has a large industrial focus and that there is less room for academic and civil society input. As the Alliance was not the starting point of this thesis, we do not know a lot about the processes within the forum.

On the one hand, this thesis set out to investigate the role of the Commission as an orchestrator through an analysis of which organizations it invites to participate in the formulation of a raw materials agenda. On the other hand, it investigates the interests of the organizations and adds to the orchestration literature, by considering how an orchestrator may create a network of interlinked organizations, which may in turn seek to take issue control. The primary implication of our analysis is that the link between orchestration theory and network theory is credible and highly relevant for understanding the Commission's policymaking. The 'intermediary network' concept has implications for our understanding of the relationship between intermediary and orchestrator in the OIT model. While orchestration theory by Abbott

et al (2015) considers the goals of the orchestrator and the intermediary to be correlated, we have shown that the intermediary network takes part in shaping the treatment of the issue and is able to influence the policy outcome and its implementation. Within this intermediary network, we have shown that some have an outsize ability to influence others, and thus on the overall governance of the issue. This study contributes to literature bridging orchestration and social network theory, by applying the concept of 'intermediary networks'.

Studying how organizations in intermediary networks influence the EU's raw materials policy agenda is highly relevant right at this point in time. In order to achieve its sustainable transition commitments, the EU has identified a manyfold increase in the future demand for critical and strategic raw materials, of which the Union is almost entirely dependent on supplies from other regions in the world and in many cases one single country. At the same time, geopolitical tensions are putting pressure on EU leaders to reduce global dependencies and protect European industrial competitiveness, as part of which the critical raw materials agenda has been made into a strategic priority for the European Commission. In this context, it is key to understand how the policy agenda is being governed in the EU.

The findings in this thesis call for an increased scholarly attention towards the political agenda of raw materials in the EU. It also calls for more attention specifically to the role of DG GROW's Industrial Alliances and whether they are replacing the role of the Expert Groups on sensitive political issues. Finally, an addition to the study of 'intermediary networks' would be to understand how individual professionals seek control when the EU convenes a network of experts on policy formulation.

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