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Pamela Lesser

Scales of trust

An exploration of the social licence to operate of mining at the societal level

LAPIN YLIOPISTO
UNIVERSITY OF LAPLAND

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AN EXPLORATION OF THE SOCIAL LICENCE TO OPERATE OF MINING AT THE SOCIETAL LEVEL

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If we knew what we were doing, it wouldn't be called research, would it?
Albert Einstein

Abstract

PAMELA LESSER
Scales of Trust. An exploration of the social licence to operate of mining at the societal level
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This thesis is an exercise in theory building around the function of SLO at the societal scale. A well-established concept applied at the scale of local communities, research on the nature of SLO at the societal scale is still at a nascent stage. There are many reasons for this including the challenge of defining who comprises 'society,' whether trust can underlie a relationship between society and industry given the complexity of actors, and the blurring of the SLO concept itself as a private governance mechanism given the levers of change involve policy makers and legislation. There also exists an ideological obstacle, as some academics hesitate to explore scales beyond the community because it suggests a possible diluting of social licence as it is understood, that power lies in a community as it does in government. To delve more deeply into these issues, the research begins with the proposition that SLO is a concept with the community-company relationship at its core, but that it is scalable, meaning the drivers, actors and relationship-building goals can be scaled-up from the community level to the societal level. This idea has been operationalised via development of the Scalar SLO Model, which integrates within a single model the drivers of acceptance and loss at both scales. In so doing, the model ultimately allows testing both intra- and inter-scales to address the objective of the thesis, explaining the mechanism behind the functioning of societal SLO and to determine its relevance for a community's acceptance of a mining project.

The community and societal scales are integrated in the model through shared drivers of gaining or losing trust and acceptance. As the drivers of community SLO can be scaled up to also function as the drivers of societal SLO, so too are the roles that trust and acceptance play. Where a company must build a relationship with a community based on trust for there to be acceptance of a project, so too must industry build a trust-based relationship with society for there to be acceptance of the mining industry. One important difference between the Scalar SLO Model and

other models is the incorporation of government as a foundational driver both at the community and societal scales. Previously, government was theorised to have a role in SLO, albeit undefined, only at scales beyond the community.

The research is situated in Europe, where welfare democracies have positioned the state to act as the gatekeeper of mining acceptance and where the majority of societal level research and practice on SLO has been undertaken. Testing of the Scalar SLO Model reveals that the drivers and roles of trust and acceptance do not scale neatly. This has provoked a re-thinking of SLO as a scalar concept to one more contingent on the satisfaction of preconditions and drivers. Government and its associated legal and regulatory frameworks are not, as originally assumed, the foundational driver of societal SLO but rather a precondition for the relationship-building between industry and society to then begin. In Europe, fulfilment of the preconditions is a large part of developing trust and acceptance.

Development of the Scalar SLO Model is rooted in the extant SLO models with additional research on trust-building in Finland and Spain. The subsequent testing of the model to determine the accuracy of the drivers and the influence between scales necessitated a further refinement of the individual drivers at each scale. These more nuanced drivers allow for the testing of the interactions and influences of the scales themselves, both in terms of the effect scale has on SLO and the effects different scales have on one another. The outcomes are a result of utilizing multiple methods consisting of both qualitative and semi-quantitative data analysis.

The model and the thesis in general respond to the quickly evolving discourse and legislative actions now taking place in Europe. From 2008 when raw materials first appeared on the European Commission's agenda to the present day, the importance of incentivising critical and strategic raw materials production for the energy transition has leapt to the top of the Commission's policy priorities. The lightning-fast process of adopting the Critical Raw Materials Act (CRMA) is the clearest demonstration of this. Incentivising mining and gaining a social licence are not, however, the same. Concerns as to the loose environmental and social standards in the CRMA have already been voiced by civil society. With the sufficiency of the preconditions questionable, efforts by the mining industry to build relationships with the broader public are not likely to succeed and tensions around mining activities will probably increase.

What began as an enquiry into SLO as a two-tiered concept of community scale and societal scale, where the broad-gauge public acceptance of the mining industry was thought to be important for the local acceptance of mining projects, has resulted in several surprising findings. The first is that societal and community SLO are each comprised of preconditions and drivers with good governance and strong legal frameworks being the preconditions at the societal scale. It is not clear what the preconditions for the community scale are precisely as the research focuses on the functioning of societal SLO, but it is clear they exist and are related to governance.

Fulfilment of these preconditions are necessary before the trust-building work industry must subsequently undertake with society, based on the drivers, can begin. The second finding is that SLO at the societal scale is not important for the local acceptance of a project. What matters for acceptance is the community-company relationship and the ability to negotiate issues that happen at the site level. Societal acceptance plays a supportive role to community acceptance and is dependent on it. The third finding is that because the preconditions are so important at the societal level, there is little room for the mining industry to build relationships with the general citizenry because there are fewer benefits that industry has the power to negotiate. This could change over time, for example, if the public feels the preconditions are adequate and they demand more from industry. For now, however, the space for relationship-building in Europe is minimal.

Keywords: Social licence to operate, Europe, mining, community, society, scale

Tiivistelmä

PAMELA LESSER
Luottamuksen ulottuvuudet. Kaivostoiminnan yhteiskunnallinen sosiaalinen toimilupa
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Väitöskirja keskittyy sosiaaliseen toimilupaan (*social licence to operate*) liittyvään teorianmuodostamiseen yhteiskunnallisesta näkökulmasta. Käsitteen soveltaminen paikallisyhteisöihin on vakiinnuttanut paikkansa, mutta sosiaalisen toimiluvan luonteen tutkimus yhteiskunnan tasolla on vasta aluillaan useasta syystä. Ensinnäkin on hankala määritellä, ketkä kaikki muodostavat ”yhteiskunnan”. Toiseksi on syytä kysyä, voiko yhteiskunnan ja teollisuuden välinen suhde perustua luottamukseen, kun otetaan huomioon toimijoiden moninaisuus? Kolmanneksi itse sosiaalisen toimiluvan käsite yksityisenä hallintomekanismina on vaikea hahmottaa, koska muutostekijöihin kuuluvat myös päättäjät ja lainsäädäntö. Asiaan liittyy myös ideologinen aspekti, sillä tutkijat usein välttelevät yhteisötasoa laajempaa tarkastelua, koska se saattaisi vesittää näkemyksen, jonka mukaan sosiaalisen toimiluvan näkökulmasta valta kuuluu yhtälailla yhteisölle kuin valtionhallinnollekin. Tässä tutkimuksessa sosiaalista toimilupaa tarkastellaan käsitteenä, joka perustuu yhteisön ja yrityksen väliseen suhteeseen mutta joka samalla skaalautuu siten, että toimiluvan edellytyksiä, toimijoita ja suhdetoiminnan tavoitteita voidaan tarkastella yhteiskunnan tasolla. Tässä tutkimuksessa tätä lähestymistapaa sovelletaan käytäntöön kehittämällä skalaarinen sosiaaliseen toimiluvan malli (*Scalar SLO Model*), joka integroi samaan malliin sekä hyväksynnän että hylkäämisen edellytykset molemmilla tasoilla. Malli mahdollistaa tasojen sisäisen ja tasojen välisen testauksen, jonka avulla voidaan selvittää yhteiskunnallisen sosiaaliseen toimiluvan toimintamekanismit ja määritellä sosiaaliseen toimiluvan merkitys kaivosprojektia koskevan yhteisön hyväksynnän kannalta.

Malli yhdistää yhteisöllisen ja yhteiskunnallisen tason kuvaamalla luottamuksen ja hyväksynnän saavuttamisen tai menettämisen yhteisiä edellytyksiä. Luottamukseen ja hyväksyntään pätee sama kuin yhteisöllisen sosiaalisen toimiluvan edellytysten soveltamisessa yhteiskunnan tasolla: yrityksen on rakennettava luottamukseen perustuva suhde saadakseen projektinsa hyväksytyksi, ja samoin kaivosteollisuuden

on luotava luottamukseen perustuva suhde yhteiskunnan kanssa, jotta teollisuus saavuttaa yleisen hyväksynnän. Yksi keskeinen skalaarisen sosiaaliseen toimiluvan mallin ja muiden mallien välinen ero on se, että valtionhallinto määritellään perusedellytykseksi sekä yhteisöllisellä että yhteiskunnallisella tasolla. Tähän asti on ajateltu, että valtionhallinnolla on sosiaaliseen toimiluvan kannalta oma, joskin määrittelemätön roolinsa vain yhteisöä ylemmällä tasolla.

Tässä tutkimuksessa tarkastelun kohteena on Eurooppa, missä demokraattiset hyvinvointivaltiot ovat asettaneet valtion kaivostoiminnan hyväksyttävyyden portinvartijaksi ja missä myöskin on tehty suurin osa yhteiskunnallisen tason sosiaalisen toimiluvan mukaisista käytännön toimista. Skalaarisen sosiaalisen toimiluvan mallin testaus osoittaa, että luottamuksen ja hyväksynnän edellytykset ja roolit eivät skaalaudu saumattomasti. Siksi tutkimuksessa on uudelleenarvioitu sosiaalista toimilupaa skalaarisena käsitteenä, joka on riippuvainen ennakkoehtojen ja edellytysten täyttymisestä. Aikaisemmasta näkemyksestä poiketen valtionhallinto sekä siihen liittyvä oikeudellinen ja hallinnollinen viitekehys eivät ole yhteiskunnallisen sosiaalisen toimiluvan perusedellytys, vaan ne ovat pikemminkin ennakkoehto teollisuuden ja yhteiskunnan välisten suhteiden rakentamiselle. Euroopassa luottamuksen ja hyväksyttävyyden muodostaminen perustuu suurelta osin ennakkoehtojen täyttymiseen.

Tutkimuksessa toteutettu skalaarisen sosiaalisen toimiluvan mallin kehittäminen perustuu olemassa olevien sosiaalisen toimiluvan mallien lisäksi luottamuksen rakentamisen tutkimukseen Suomessa ja Espanjassa. Kehitysvaihetta seurannut edellytysten tarkkuuden ja tasojen välisten vaikutusten testaus vaati yksittäisten edellytysten hienosäätöä kullakin tasolla. Näiden yksityiskohtaisempien edellytysten avulla voidaan testata itse tasojen interaktioita ja vaikutuksia selvittäen tason vaikutus sosiaaliseen toimilupaan ja eri tasojen vaikutukset toisiinsa. Tulokset perustuvat empiiristen aineistojen kvalitatiiviseen ja semikvantitatiiviseen analyysiin.

Väitöskirjassa kehitetty malli vastaa Euroopassa luonnonvarojen hyödyntämisestä käytyihin keskusteluihin ja niitä koskeviin lainsäädäntötoimiin. Vuonna 2008 raaka-aineet tulivat ensimmäistä kertaa Euroopan komission agendalle, ja sittemmin kriittisten ja strategisten raaka-aineiden tuotannon kehittäminen energiasiirtymää palvelevaksi on nostettu komission ohjelmien prioriteettilistan kärkeen. Tästä selkeä esimerkki on EU:n kriittisten raaka-aineiden asetuksen (CRMA) nopea käyttöönotto. Kaivostoiminnan edistäminen ja sosiaalisen toimiluvan hankkiminen eivät silti ole sama asia. Erityisesti kansalaisyhteiskunnan taholta on nostettu esiin huoli CRMA:n *löyhistä ympäristö- ja sosiaalisista kriteereistä. Koska* ennakkoehtojen riittävyys on kyseenalaista, on todennäköistä, että kaivosteollisuuden yritykset rakentaa suhteita laajempaan yleisö epäonnistuvat ja jännitteet kaivostoiminnan ympärillä kasvavat.

Alussa tutkimus keskittyi sosiaaliseen toimilupaan kaksikerroksisena yhteisöllisen tason ja yhteiskunnallisen tason käsitteenä, jossa kaivosteollisuuden yleisen hyväksy-

misen ajateltiin olevan tärkeää kaivosprojektien paikallisen hyväksymisen kannalta. Tutkimus poiki silti yllättäviä havaintoja. Ensin havaittiin, että yhteiskunnallinen ja yhteisöllinen sosiaalinen toimilupa perustuvat ennakkoehtoihin ja edellytyksiin ja että hyvä hallintotapa ja vahvat juridiset kehikot ovat ennakkoehtoja yhteiskunnallisella tasolla. On epäselvää, mitkä ovat nimenomaisia ennakkoehtoja yhteisöllisellä tasolla, sillä tutkimus keskittyy yhteiskunnallisen sosiaalisen toimiluvan toimintaan, mutta selvästikin niitä on ja ne liittyvät hallintoon. Näiden ennakkoehtojen tulee täyttyä ennen kuin teollisuus voi aloittaa välttämättömän ja edellytyksiin perustuvan luottamuksen rakentamisen kansalaisyhteiskunnan kanssa. Toinen havainto oli, että yhteiskunnallisen tason sosiaalinen toimilupa ei ole tärkeä projektin paikallisen hyväksynnän kannalta. Sen sijaan hyväksynnän kannalta tärkeitä seikkoja ovat yhteisön ja yhtiön välinen suhde ja kyky neuvotella alueellisista asioista. Sosiaalinen toimilupa edistää yhteisön hyväksyntää ja on myös riippuvainen siitä. Kolmanneksi havaittiin, että koska ennakkoehdot ovat tärkeitä yhteiskunnallisella tasolla, kaivosteollisuudella ei ole sanottavasti mahdollisuuksia rakentaa suhteita koko maan kansalaisiin, koska tarjolla on vähemmän etuja, joista teollisuudenalalla on valta neuvotella. Tilanne voi muuttua ajan mittaan, jos esimerkiksi kansalaiset näkevät, että ennakkoehdot ovat riittävät, ja jos heidän kaivosteollisuudelle asettamansa vaatimukset kasvavat. Toistaiseksi Euroopassa ei silti ole juurikaan tilaa suhteiden rakentamiseen.

Avainsanat: sosiaalinen toimilupa, Eurooppa, kaivostoiminta, yhteisö, yhteiskunta, taso

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To everyone who has helped me survive and thrive through this epiphany-inducing Sisyphean task...I thank you from the bottom of my heart. It is no exaggeration to say that without the patience, brilliance and support of my three supervisors – Timo Koivurova, Daniel Franks and Janne Autto – this dissertation would never have been finished. To this day I still shake my head in wonder that such prominent and inspiring people agreed to supervise me, and I will forever be grateful.

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Brussels, 18 November 2024
Pamela

List of Original Articles

The dissertation is based on the following original articles, which will be referred to in the text by their Roman numerals I-IV.

Lesser, P., Suopajärvi, L., Koivurova, T., 2017. Challenges that mining companies face in gaining and maintaining a social license to operate in Finnish Lapland. Mineral Economics 30(1):41-51. DOI:10.1007/s13563-016-0099-y

Lesser, P., Gugerell, K., Poelzer, G., Hitch, M., Tost, M., 2021. European mining and the social license to operate. Extr Ind Soc. 8(2), 100787. https://doi.org/10.1016/j.exis.2020.07.021.

Lesser, P., 2021. The road to societal trust: implementation of Towards Sustainable Mining in Finland and Spain. Mineral Economics 34(2), 175-186. DOI: 10.1007/s13563-021-00260-9.

Lesser, P., Poelzer, G., Gugerell, K., Tost, M., Franks, D., 2023. Exploring scale in social licence to operate: European perspectives. Journal of Cleaner Production 384: 1-11. https://doi.org/10.1016/j.jclepro.2022.135552

List of Figures

List of Acronyms

COI	Communities of Interest Protocol
CONFEDEM	National Confederation of Mining and Metallurgy Businesses
CRMA	Critical Raw Materials Act
CSR	Corporate Social Responsibility
EC	European Commission
ESG	Environmental and Social Governance
EU	European Union
FANC	Finnish Association of Nature Conservation
Finnish TSM	Finnish Towards Sustainable Mining Standard
FinnMin	Finnish Mining Association
IRMA	Initiative for Responsible Mining Assurance
KMO	Kaiser-Meyer-Olkin
MS	Member States
MAC	Mining Association of Canada
NGOs	Non-governmental Organisations
PCA	Principal Components Analysis
SLO	Social Licence to Operate
SPSS	Statistical Package for Social Sciences
TSM	Towards Sustainable Mining
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNE	Spanish Association for Standardisation
US	United States

Table of Contents

1. Introduction

1.1. Research Problem

The social licence to operate (SLO) began as an empirical concept embodying the idea that the risks of not having community support were just as great as the risks of not having government support (Cooney, 2017). Local communities could delay or stop a project by protests or blockades just as government could refuse to issue a permit or licence. As a theoretical concept, SLO also first concentrates on the community-company relationship drawing on a multitude of disciplines and theories to explain why and how it develops (and in cases un-develops) and the role that trust plays. Only recently has SLO at scales beyond the local community been a subject of study (Jartti et al., 2020; Litmanen et al., 2016; Poelzer et al., 2020; Zhang, et al., 2015). Yet, scales beyond the community have always been a focus in the European SLO literature, noteworthy because the concept did not even manifest on the continent until the early 2010s. One reason for this is the dearth in mining projects, but there are sectors other than extractives where SLO could have emerged but did not. At the very least, the late arrival of SLO suggests that conditions were not ripe to foster such dependent relationships between community and company because there may be something intrinsically different about Europe. For societal SLO to become such a prominent part of the extractives discourse so early on suggests that, at least in some European countries, scales beyond the local level play a role in acceptance. The aim of this thesis is therefore to explore how the SLO functions at the societal scale, and in so doing, better understand the interplay between the community and societal scales and its relevance for empirical knowledge.

There are several terms that require clarification before proceeding with the thesis. Defining who the community is that grants the SLO changes depending on context, but a generally accepted definition is those who live in the immediate and surrounding areas of mining operations and who are affected by the operation's activities (Franks & Cohen, 2012; Thomson & Boutilier, 2011). 'Society' refers to any scale beyond that of the local community, and this could be the regional, national, or supra-national levels (Jartti et al., 2020; Litmanen et al., 2016). This ambiguity is problematic as it raises questions as to who 'society' is in societal acceptance and what is being measured; for example, is societal acceptance a measure of the acceptance of specific national actors involved in mining or a barometer for public opinion in general? While this is not a question resolved in the thesis, remaining cognisant of the different interpretations such a broad definition allows is

important. In the SLO literature, 'society' has dual meanings. It typically refers to the public at the national level, but also to the role of government and the governance system around mining making it difficult to distinguish industry's impacts outside of legislative and regulatory frameworks (Poelzer, 2021). For this reason, it is useful to include a definition of government as it is not a monolithic being, but one comprised of many different functions from policymaking to developing and enforcing laws and regulations (Poelzer, 2019). In the SLO context, government typically refers to permitting authorities consistent with the metaphor of a social licence having equal weight as a government licence. This thesis takes a broader view of government as consisting not only of legal and regulatory frameworks that ensure mining companies follow the law, but also governance capacity, such that there is an ability and willingness by government to hold the mining industry accountable (Zhang et al., 2015). The last term requiring clarification is what is meant by 'Europe'. Similar to government having a myriad of functions, so too are there different understandings of what constitutes Europe, as it is not a homogenous entity. In this synthesis, Europe includes not only the European Union (EU) and its Member States (MS) but refers more generally to European countries with welfare democracies. Even though these countries do not all share the same welfare model, they do share broad characteristics such as social protections for all citizens, social inclusion and democracy (Esping-Andersen, 1990). Most importantly for the SLO discussion, in these countries, it is the role of government and not the private sector to govern the populace. Government shoulders the weight of ensuring a well-regulated mining industry that is held accountable and behaves according to the highest environmental and social standards. It is the strength and dominance of government in these European countries that comprise the idea of Europe in this thesis as a region of its own that can be contrasted with other major regions in the world.

SLO as a concept applicable to the societal scale is still under-developed. Its drivers, actors and aims are portrayed as scaled-up versions of community level SLO. Trust remains the goal of relationship-building whether it is between community and company or society and industry and acts as the gatekeeper to acceptance at both scales (Boutilier et al., 2012; Mercer-Mapstone et al., 2018; Moffat and Zhang, 2014; Zhang et al., 2015). Whether one scale is a mirror of the other is not clear, nor is it clear whether trust can be scaled up and relevant for the society-industry relationship.

Exploring the functioning of SLO at the societal level, with so many actors and competing agendas, is a more complex undertaking than studying SLO as a local level concept involving a community and company. It is understandable why the early research focuses on communities; yet it also raises the question why the Europe-based research early on chose to address the role of society in the acceptance of mining and even across numerous industries (Lehtonen et al., 2021; Smits et al.,

2017; Wilson, 2016). One explanation is that it is difficult to discuss the acceptance of mining projects without also addressing the legal and regulatory frameworks which govern them because these frameworks are integral to acceptance (Poelzer, 2021). This brings up a tension between SLO as a concept based on voluntary behaviours and industry self-regulation, and the role that government plays at the societal level and possibly the community level too. To more deeply explore this tension, Europe, and particularly the Nordic countries,[1] are used as the contextual lens to illuminate how SLO functions at the societal level.

The last aspect of the research problem involves SLO as a scalar concept. To date, SLO is well researched as a community-based concept but less so as a societal-based one. How these two scales interact with one another, however, has not yet been addressed in the literature. At its core, SLO is about the relationship between a community and company; yet the European context suggests this might not always be the case as broad public acceptance appears to have significant influence on the local acceptance of projects. How the scales interact and influence one another remains ambiguous, but this knowledge is crucial for understanding what actually is important for a mining project to move forward, or not.

1.2. Research Field

The SLO concept originated from the mining industry in the late 1990s as a response to the industry's growing awareness of its need to better manage the political and social risks of their projects (Cooney, 2017). For the mining industry, SLO serves as a metaphor for its reprioritisation of interests emphasising the salience of community acceptance (Viveros, 2016). For academics, SLO is largely a concept about private governance, relationship-building, and on the negative side, one that is overvalued potentially masking complexities and power relationships between companies, government, and communities (Meesters & Behagel, 2017; Owen & Kemp, 2013). It draws heavily from the disciplines of psychology, political science and sociology, and in so doing, theories that touch on behavioural and social psychology, governance, social contract and social capital, among others, have been woven together to form the theoretical basis of SLO. Although there is no agreed upon definition of the term, and there are many, one of the most widely accepted is that SLO refers to the

1 A word on the distinction between Nordic and Scandinavian countries is warranted here. There is a rich history to the evolution of the term 'Nordic', but conventionally the Nordic Region consists of Denmark, Norway, Sweden, Finland and Iceland as well as the Faroe Islands, Greenland and Åland. Please see the Nordic Council and Nordic Council of Ministers website https://www.norden.org/en/information/facts-about-nordic-countries. Eurostat defines Scandinavian countries to be Denmark, Norway and Sweden https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Scandinavian_countries.

informal and tacit presence or absence of public acceptance or support for an activity (Boutilier et al., 2012; Franks & Cohen, 2012; Gunningham et al., 2004; Owen & Kemp, 2013). Early models (Thomson & Boutilier, 2011) were developed equating the levels of community acceptance with normative boundary criteria. Subsequent models validated the findings of early models but also shifted focus to identify the drivers of SLO from the company perspective (Moffat & Zhang, 2014).

From 1997-2010s, enormous interest in SLO was generated globally in theory and in practice. The concept did not start to emerge in Europe until the 2010s, taking root first in Finland with the arrival of multi-national mining companies importing global best practices (Koivurova et al., 2015). The early European discourse focused on indigenous rights and northern rural communities in a Nordic context (Eerola, 2017; Poelzer and Ejdemo, 2018; Suopajärvi et al., 2017) while also elaborating on its more theoretical elements including corporate social responsibility (Tuulentie et al., 2019) and social capital (Suopajärvi et al., 2019).

As the global SLO literature began to address the idea of SLO at scales beyond the community, it was reframed and conceived of as something that could be issued by different communities, regions and even the general public (Boutilier et al., 2012; Prno, 2013; Prno and Slocombe, 2012; Zhang et al., 2015). Subsequent research attempted to identify the drivers of 'national' SLO using a similar methodology used for the community scale but with much weaker correlations (Zhang, et al., 2015). The more theoretical aspects of societal SLO also were fleshed out aligning more closely with social contract theory (Boutilier et al., 2012) and the ideas of political and legal licenses (Morrison, 2014).

Research across Europe, and again primarily the Nordic countries, homed in early on SLO being more than a local concept because of the strong presence of government, also referred to as the 'state' in this thesis, in every facet of natural resource development (Lehtonen, 2019; Litmanen et al., 2016; Poelzer et al., 2020). For example, a study in Sweden analysed how the state perceives a mining-related policy process that is also shaped by non-state actors (Poelzer, 2019), suggesting not only that government has a role in SLO but that SLO itself has the power to influence policy and regulation. Establishing the connection between SLO and government extends well beyond extractives to different sectors such as the nuclear waste management industry (Lehtonen, 2019), which provides an interesting benchmark for the extractives industry. In Finland, although nuclear power has historically and continues today to be a socially controversial form of energy production, it generally has broad-based acceptance at least due in part to heavy government regulation (Lehtonen et al., 2020). Exploring the attitudes toward mining among the public at large is a popular aspect of societal SLO (Jartti et al., 2020; Lindman et al., 2020). It is interesting to note that outside Europe, the starting point for research on societal SLO is typically from the perspective of industry (Zhang, et al., 2015), whereas the starting point within Europe is most often government (Poelzer, 2020).

Rounding out the theoretical literature are comparisons between Corporate Social Responsibility (CSR) and SLO concepts at the industry level (Lindman et al., 2020) and the importance of not only trust but distrust to the concept (Lehtonen et al., 2019).

To date there has been no in-depth research on the interplay between the community and societal scales. Although the literature implies the two are related (Dare et al., 2014; Prno, 2013), the portrayal of the relationship is vague as SLO is often described as a dynamic level of social acceptance by stakeholders at multiple levels of society (Mercer-Mapstone et al., 2018; Prno & Slocombe, 2012). Discussion of societal SLO in the non-European literature inevitably comes full circle reconnecting with its local conceptualisation based on the rationale that "local communities are key arbiters in the process because of their proximity to projects, sensitivity to effects and ability to affect project outcomes" (Prno & Slocombe, 2012, p. 347). In the European literature, however, societal acceptance is not perceived as being related to local acceptance through the role of communities but rather society and community are related through trust in government (Lesser et al., 2020; Poelzer & Yu, 2021).

1.3. Research Questions

Consistent with and building on current understandings of the SLO concept, the aim of the thesis is to answer the following:

- How does SLO function at the societal level?

The departure point for addressing this question is that achieving and maintaining acceptance across the broader society includes similar drivers, actors and goals to achieving and maintaining the acceptance of local communities. Yet, it is also clear there are differences, most notably that government appears to be important for achieving societal acceptance whereas it is not clear that it plays such a direct role in local acceptance. This is particularly true in Finland and Spain where there are empirical examples of national governments attempting to help the mining industry build trust with the public at large. This is validated by other European-based research where societal acceptance and government are uniformly portrayed as being inseparable. The empirical examples, academic research and dearth of examples of SLO at the local level suggest Europe is different than other highly regulated countries, such as Canada, Australia and the United States (US) where SLO began and spread. In these countries, SLO continues to be synonymous with relationship-building between community and company with there being little research on acceptance at scales beyond the community or about government involvement. The topic is

timely given the European Commission's (EC) pivot toward re-industrialising to further the green transition. Increased domestic extraction of critical and strategic raw materials is now one of the top priorities of the EC and will remain high on the agenda for years to come. The fact that government is leading the charge for more mining further substantiates the idea that government is also involved in the acceptance of mining for society-at-large.

To address the aim, the thesis posits the following three research questions.

- Research question 1: How do existing models account for the societal acceptance of mining and can they explain empirical cases in Europe?

- Research question 2: How do relationship and trust-building between society and industry differ in European mining cases?

- Research question 3: How does the scalar relationship between the societal and community SLO of mining function?

1.4. Statement of Argument

This thesis is an exercise in theory building around the function of SLO at the societal scale. Although there has been some research on the nature of societal SLO, it is still in its infancy. Delving deeper into who is involved in trust-based relationships at the societal scale, for example if government is included or if relationships are simply between the industry and the public at large, clarifying the drivers, and understanding if, and if so how, the issue of scale affects the SLO concept itself is the motivation for this research.

The original intent of the concept is to encourage companies to prioritise the interests of communities on par with the interests of government, such that the need for a social licence from communities is just as great as the need for a legal licence from the government (Cooney, 2017). The proliferation of the concept globally demonstrates the power behind the idea of communities determining whether projects succeed or fail (Franks et al., 2014; Poelzer & Yu, 2021; Prno and Slocombe, 2013; Thomson & Boutilier, 2011). Whether acceptance from the broader society influences acceptance at the community level, and hence the ability of a mining project to receive its permits and operate without conflict-related stoppages, has until recently remained on the periphery of SLO as a theoretical concept and empirical practice.

A community's acceptance of a project assumes two perspectives in the literature. The first is from the perspective of the community itself and focuses on the way

a company behaves. Thomson and Boutilier (2011) were the first to conceive of a model that translates this into the different stages of relationship-building and what a community needs from a company at each stage. They use a hierarchical model to illustrate three distinct levels of SLO, which are acceptance, approval and co-identification, and superimpose the normative boundary criteria of legitimacy, credibility and trust on each level. In this model, there are multiple gradations and meanings of SLO as it is simultaneously defined as validation of a project's legitimacy, a company's credibility to deliver on commitments, and ultimately the trust a community has in the company as a whole (Thomson & Boutilier, 2011). The ideal is a trust-based relationship as it implies the interests of the community and company are one.

Later models shifted away from the idea of SLO having multiple levels and loosely incorporated the normative criteria into the actual drivers of SLO. Moffat and Zhang's (2014) pathway analysis posit three drivers of community acceptance, which are impacts on social infrastructure, procedural fairness and contact quality. Impacts on social infrastructure are integral to validating a project's legitimacy; procedural fairness speaks to a company's credibility to deliver on commitments; and contact quality is the basis of a trust-based relationship (Moffat & Zhang, 2014). The role that trust plays in acceptance is also slightly different. Instead of being the ultimate aim of the community-company relationship, trust mediates acceptance. It is a necessary precondition of acceptance.

The literature on SLO at scales beyond the community is largely based on Moffat and Zhang's (2014) methodology for modeling community acceptance, and it is therefore not surprising that societal acceptance functions as a scaled-up version of community acceptance. Instead of impacts on social infrastructure, procedural fairness and contact quality, the drivers at the societal level are distributional fairness, procedural fairness and confidence in governance. Rather than focusing on the community-company relationship, the relationship in focus becomes the one between society and industry with trust continuing to mediate acceptance. The correlations at this scale are weak, however, with no other research at the societal level focusing on the functioning of SLO.

Government and governance are integral to societal acceptance in all of the literature, but this is much more pronounced in the European research. All of the European literature on societal SLO, whether it is mining, oil and gas or nuclear energy related (Lehtonen et al., 2020; Poelzer et al., 2019; Smits et al., 2017; Wilson, 2016), indicate that trust transforms from a theory of interpersonal relationships to one of institutional relationships between society, industry and government. How SLO functions at the societal level though remains far from clear.

The research for this thesis starts from the proposition that SLO at the societal level is a scaled-up version of SLO at the local level, with similar drivers, actors and trust-mediated bilateral relationships. This understanding is transformed into the

Scalar SLO Model (Scalar model), the first to integrate the community and societal drivers of SLO and address not only the building of SLO but also its withdrawal. The model also diverges from earlier models in that it incorporates the idea of legal and regulatory frameworks as a necessary condition for SLO at both the community and societal scales. The reasoning behind this at the societal level is clear as there is broad consensus in the literature that government plays a role; however, the rationale at the local level is different. In the European literature, there are very few examples of trust-based relationships between a community and company, which is at odds with the literature from Canada, Australia and the US. It is clear that SLO has had difficulty gaining traction in Europe. In part this is due to there being few mining projects, as the continent for decades has moved away from mining and toward environmental conservation thus affording few opportunities for relationship-building. It is not only this, however, as much of the research on community SLO also discusses inadequate permitting processes and regulatory frameworks (Kokko et al., 2015; Suopajärvi, 2015). In this way, government also enters the discourse at the local level albeit less directly than at the level of society.

Testing the Scalar model occurs in several stages and begins with the societal scale. The first stage involves grappling with the empirical understanding of societal acceptance by evaluating the process of adoption and the implementation mechanism of the Mining Association of Canada's (MAC) Towards Sustainable Mining (TSM) program in Finland and Spain. In both countries, the national governments attempted to help the mining industry build trust with the general public by supporting the adoption and implementation of TSM. Although too early to evaluate government's efforts or whether TSM increases public trust, what is apparent is that industry did not believe they alone could persuade the public of TSM's worth and legitimacy. The standard had to be associated with an official entity which in turn would confer legitimacy on the standard and the mining industry's implementation of it. This implies that the 'Engagement' and 'Benefit sharing' drivers, which play such a prominent role in the community-company relationship, may not play the same role in the industry-society relationship throwing the scalability of the drivers into some uncertainty. In the latter stages of testing, the scalability of drivers and their interactions with one another become clearer.

These later stages include a survey instrument and subsequent statistical analysis revealing that in Europe, government and the accompanying legal and regulatory frameworks are not the foundational drivers of SLO but are instead necessary and separate preconditions for it. There must be public trust not only in the laws that regulate mining but also in the capacity of government to regulate and hold industry accountable before the voluntary relationship-building between society and industry can begin. For conceptual clarity and to preserve the integrity of SLO behaviours being voluntary and beyond compliance, the preconditions are not considered part of the SLO but remain distinct. Fulfilment of the preconditions is a

large part of developing trust and acceptance, possibly to such an extent that citizens who view the preconditions as being sufficient do not really expect that much extra from companies, because the legislative and regulatory demands are already quite high. There may also be differing levels of preconditions across MS, and equally likely, differing levels of preconditions across different regions of the world.

If governance is now a precondition rather than a driver, having Legal and procedural fairness as a driver in the Scalar SLO Model cannot be correct. The new data points to a necessary reconceptualisation of the other societal drivers of SLO too. The most important driver of societal SLO is now economic growth, and to a lesser extent, broader communication and outreach. Again, these are distinct from the preconditions, involve industry alone, and are the themes that should be the centre of industry trust-building measures with society. Satisfaction of the preconditions are essential before industry can successfully initiate relationship-building around economic growth and communication and outreach. Testing of the model ultimately reveals that societal SLO is not simply a scaled-up version of community SLO for several reasons. First, the drivers at the community scale are different than those at the societal scale. Second, while a trust-based relationship between community and company is at the very least an important goal and may be a prerequisite for acceptance at the local level, its role at the societal level is far less clear. Third, scale actually plays a relatively minor role in the functioning of the SLO. Instead, it is more about the fulfilment of preconditions and drivers. The preconditions, which are government led and consist of governance capacity as well as legal/regulatory frameworks, precede the drivers meaning their fulfilment must take place before industry can build trust with society.

In terms of trust, the original conception of trust having to underlie the society-industry relationship is questionable for the following reasons. In Europe, trust in companies is bound to trust in government in a manner that is different than SLO in Canada, Australia and the US. In those countries, trust in companies effectively replaces the need for trust in government. Because of the importance of the preconditions in Europe, there is actually little room for at least the mining industry to manoeuvre around the SLO work because there is little that can be negotiated. It could be argued that in Europe, trust in industry is only a small part of acceptance, or conversely, that acceptance is largely defined as the fulfilment of the preconditions.

The literature and early assumptions about the role of societal SLO turn out not to be correct. Instead of being important for the local acceptability of mining projects, empirical evidence suggests it is peripheral to community acceptance and is only important in conjunction with local factors. What matters most is developing trust between community and company. The role of societal acceptance is more of a supporting and dependent one for local acceptance, which argues for the idea that scale plays a much smaller role in the SLO than previously thought. While societal acceptance may exist, such as individual communities supporting mining as an

industry, any particular community at a given time will still reserve judgement on a project based on how the company relates to their community. So, there can be broad support for industry, but societal acceptance as a force that can influence local acceptance is contingent both on the satisfaction of preconditions and establishing solid relationships between communities and companies at the local level. In short, societal SLO relates to preconditions but community SLO drives acceptance.

1.5. Contribution of Thesis

Given that mining only emerged on the European policy agenda in 2008, it is astonishing how quickly the policy landscape has changed. The EC has moved from being conservation-oriented and mining agnostic for decades to reversing course in a few years with the goal of domesticating not only mining but the entire critical raw material value chain. This change has taken place during the years of research for this thesis, and it is interesting to note the changes align well with the findings.

What began as an enquiry into SLO as a two-tiered concept of community scale and societal scale, where the broad-gauge public acceptance of the mining industry was thought to be important for the local acceptance of mining projects, proved not to be the case necessitating a broad re-thinking of the SLO concept. The main contribution is this reconceptualisation such that societal and community SLO both are comprised of preconditions and drivers, where the preconditions at the societal level clearly relate to government and its governance capacity. As the research focused on the societal level, the preconditions at the community scale are still in need of further study; although, it is clear they also involve government and governance. Unlike previous studies of SLO at scales beyond the community where government is a factor in gaining acceptance, this research shows that government is instead a necessary, and in some cases, possibly a sufficient precondition for it. Situating the research in a region populated by social welfare democracies, albeit of different types, but where the state is central to all activities has enabled a more in-depth understanding of the role of the state and the relationship between it and the relationship-building that a company and an industry must undertake. Government's role is to function in a manner expected by the general citizenry including the willingness to hold industry accountable and the capacity to ensure they behave responsibly. Expectations of government and how it fulfils its role likely varies between the different European countries and certainly in countries outside of Europe. Whatever the level and type of precondition required, it must be fulfilled before a mining company, or the industry at large, can successfully build relationships with a community or with society. The drivers of SLO are what should guide industry's behaviour, and the voluntary relationship-building behaviours, in this thesis, are understood as the SLO. Hence, SLO and acceptance are not

synonymous; SLO only applies to industry's role. Acceptance results from fulfilment of the preconditions and the drivers such that SLO is an element of acceptance but not the ultimate goal.

The second contribution is a more refined understanding of the role of scale in the SLO concept. The most important factor for the acceptance of a mining project is the community-company relationship and the ability to negotiate issues that happen at the project level. The notion of societal acceptance and a relationship between the public and industry is too complex and ambiguous to have any real impact on what happens at the site level. Discussions around broader societal benefits and costs also have little to no influence on community acceptance, even though economic growth is the main driver behind societal acceptance. What is surprising is the dependent and supportive role societal acceptance plays to local acceptance. This aligns with the idea of preconditions and the crucial role they play at the societal scale. It could even be that what is understood as societal SLO in Europe are simply the preconditions for the community level in order for relationship-building between community and company to occur.

The third contribution focuses on Europe and why the ratio of preconditions to drivers, or government's role versus that of industry, may be different than in Canada, Australia and the United States, where SLO first arose and spread. Because the preconditions at the societal level are so important for acceptance in Europe, there appears to be little room for, and perhaps little need of, the mining industry building relationships with the public. As government regulates almost every issue connected to mining, there is little room for industry to build relationships with society because there is very little that is in their power to negotiate. This does not mean, however, that government and industry are disconnected. On the contrary, in Europe, trust in industry is bound to trust in government in a different way than in the Anglo countries. Industry alone cannot build societal trust because Europeans still expect government to assume the lead on improving the practices of the mining industry. At the same time, government cannot help industry build trust with the public-at-large because this then becomes part of the preconditions. Companies have to build those relationships on their own. Although I use the word trust to describe the relationship society has with government and possibly with industry, further research is warranted to clarify what exactly is meant by trust. While the idea of trust underlying relationships initially was scaled up to the societal level, it is not clear that trust is a requirement either at the community or the societal scales. In this thesis, it is more akin to Thomson and Boutilier's ideal relationship, something to strive for but not essential for mining projects to move forward.

The fourth and final contribution is the bridge to empirical knowledge. Europe's shift away from conservation toward reindustrialisation and the raw materials needed will only exacerbate existing tensions around mining. Relying less on voluntary, private governance measures and focusing more on strong legal

and regulatory frameworks is far more likely to engender acceptance. How those frameworks are developed, structured and implemented should be the central concern of policymakers. Recognising that industry alone cannot attain acceptance, but also that government cannot help them build trust, requires a shift away from the present course of European governments attempting to legitimise industry practices. Government and industry have different roles to play, and in Europe, industry's role may sometimes be quite nominal. Government's role, however, will always be central to acceptance and the existence of the European mining industry.

Regarding the prospects of future research and the contribution of this thesis, since mining-related legislation is relevant both inside and outside of Europe, the finding of preconditions becomes an interesting comparison regarding the space companies have to operate and the effectiveness of SLO. Conversely, it is also interesting to study how the level of preconditions varies across MS's and outside Europe. Refining the understanding of preconditions at the community level provides an additional subject for future research. And lastly, re-envisioning SLO in light of its juxtaposition with preconditions is essential for understanding the relationship between the two and what acceptance of a mining project, a mining company and the mining industry itself ultimately requires.

1.6. Articles and Thesis Structure

There are four articles that comprise the thesis and they are presented here in chronological order. In the first article (I), Challenges that mining companies face in gaining and maintaining a social license to operate in Finnish Lapland (2017), we explore the newly emerging SLO concept from the perspective of companies and communities living and or working in the sparsely populated, rural region of northern Finland. Although the topic in focus is mining, there were also interviews involving other industries, such as shipping. There are several main challenges that companies faced at the time including confusion around who the community is that should grant an SLO, whether historical experiences of residents' opinions being discounted affect present-day attitudes, and most relevant to the core of this thesis, whether government is also an actor.

Although these were the developmental years for SLO in Finland, the early findings still align with the global research. Placing at least some boundaries around the idea of community is important for empirical application, hence the definition in the article also views community as stakeholder networks (Thomson & Boutilier, 2011) or communities of place (Franks et al., 2014). Geography becomes the key to defining community because impacts and benefits will always need to be negotiated at the local level first. Consistent with this, in Lapland there are multiple communities around, for example, a mine site. These communities experience impacts in very

different ways demonstrated by the Kittilä gold mine case where the villages closest to the mine experienced the majority of negative impacts while the benefits went to communities slightly farther away. These findings align with Owen and Kemp's proposition (2013) that social license reflects the voice of the community majority and not that of the voices most affected and least visible.

There is one challenge that did not resonate with the global SLO literature and that is government emerging as a potential actor even at the local-regional level. A survey conducted in the municipalities of Kittilä and Kolari (Suopajärvi, 2003) and used for the article demonstrates that people negative to mining believe the monitoring of environmental impacts is not sufficient, linking the acceptance of mining to government action rather than solely to company action. A national survey conducted in Finland around the same time shows the flip side of this, which is that trust in authorities and national legislation is related to the acceptance of mining and plays a role in the development of the SLO (Jartti et al., 2020; Litmanen et al. 2016). The research on the Talvivaara accident (Sairinen et al., 2017) follows the same trajectory where the regional permitting authorities, in addition to the company, were held accountable for the Talvivaara accident and the ensuing broken trust between the mining company and affected community that ultimately spread to the mining industry and the entire citizenry in Finland.

Even from the early research, the theme of government as an actor in SLO at both community and societal scales and the lack of space for companies to build relationships with communities emerged. Continuing with the example of the Kittilä gold mine, the municipality of Kittilä decided to relocate and settle new mining residents near the Levi ski resort, about 35 kilometres from the mine instead of to Kiistala, the closest village to the mine. This caused major disappointment among the villagers of Kiistala, who expected to reap the economic benefits of the mine as they experience the brunt of the impacts. Rather than the mining company having a strong voice in deciding where the relocation takes place, as is often the case in non-European countries, it was instead a decision taken by the municipality. This is not to say that governments in Canada, Australia and the US have no authority over corporate actions; rather, corporate-government relations exist in more discreet and complex ways because these governments may not hold the same level of trust and power as in Europe. It is this very power in Europe that contributes to suppressing community-company relationship building because companies have very little latitude to negotiate benefits and thus have little incentive to engage in solving issues with a community.

The difficulty of determining who the community that grants an SLO is plus the early indication that government may be a key actor at both scales led to the research for the second article and development of the Scalar model.

In the second article (II), European Mining and the Social License to Operate (2020), we speak to the theoretical debates and extant models of SLO. This is a

conceptual article integrating empirical research in the EU with existing academic literature and particularly the SLO models. The starting point is the idea that SLO appears to be a scaled-up version of community SLO and that existing SLO models would also apply to Europe with some nuances. These nuances, including integrating the community and societal scales to simultaneously maintain their distinctiveness yet show the potential for interactions, the role of government and the possibility of losing SLO given the visible antagonism toward mining, became the foundational components of the Scalar SLO Model (see Figure 1 below). Since the aim was to provide a model that helps explain the pan-European context, it was never meant to be an attempt to explain how SLO functions everywhere on the continent. Instead, the objective was to identify the distinguishing characteristics that consistently arose in the literature and research and test their relevance for Europe.

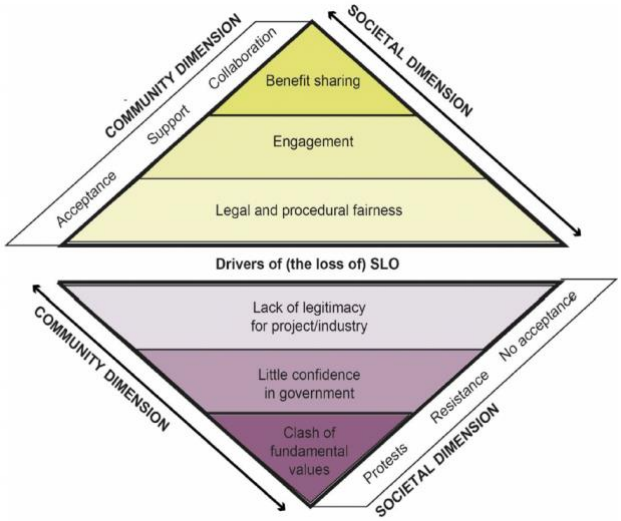

Figure 1:Scalar SLO Model

Upscaling the drivers of community SLO and the roles that trust and acceptance play are the core of the model. After establishing the drivers could be shared and that the scales could operate individually but also in tandem with one another, it became possible to see there could be different levels of acceptance or withdrawal at different scales. Thus, even if the drivers are shared, theoretically there can be different levels of acceptance, and indeed, this is borne out by empirical evidence.

Government as a key actor is operationalised through its incorporation into the first driver of SLO and simultaneously acts as the threshold between a project building SLO or losing it at both scales. Placing government at this point of equilibrium was not a cognisant decision while building the model, but this visualisation of

government's potential role, and the corresponding weaker placement of company engagement, created the impetus to further study the government-company dichotomy inherent in the SLO concept.

Establishing the drivers of SLO underlying the community and societal scales, coupled with the societal discourse around legislation and regulation and the need for stronger accountability of the mining industry, seeded the ground for the third article focusing entirely on societal SLO.

The third article (III), The Road to societal trust: implementation of Towards Sustainable Mining in Finland and Spain (2021), more explicitly explores how SLO functions at the societal level, the main aim of this thesis, by exploring the implementation of the Canadian Towards Sustainable Mining (TSM) program in Finland and Spain. The article is based on empirical evidence gathered through expert interviews and analyses the responses via three critical elements of SLO which are dialogue, relationship building and trust.

The national mining associations of two European countries each independently arrived at the decision that adoption of the Mining Association of Canada's (MAC) TSM program would be the best way to promote more responsible mining and achieve societal SLO. After the Talvivaara disaster in Finland, the government created a multi-stakeholder network to decide the way forward for the mining industry. Although the network decided the TSM program would convince the public the mining industry had changed and Talvivaara would not happen again, the real benefit of the network was the relationship-building that happened among the participants themselves. In contrast, the national mining association of Spain did not take the network approach but rather chose to incorporate TSM into the Spanish national standards body. Rather than building trust among stakeholders as a precursor to adopting the standard, the aim is establishing trust in the mining industry once they begin implementing the various protocols.

Assuming trust mediates acceptance and is necessary for SLO, the hypothesis of the paper is that the horizontal network approach in Finland would improve the framework conditions for implementation of TSM more than the Spanish approach, and therefore, result in the delivery of better outcomes. The process led by the Finnish government incorporates trust-building measures throughout the duration of the process, whereas Spain's adoption of national standards backloads social acceptance conditioning it largely on how the mining companies perform their TSM obligations. Although these were very early days of TSM being adopted in both countries, the interviews indicate the hypothesis is not correct. The network approach may not be better at achieving societal SLO because, for example, the effect of early trust-building between members appears less important than demonstrating immediate behavioural changes within the mining industry. In addition, the oversight institution for TSM certification is an important element in building trust and should be perceived as stable, legitimate, and competent (see Lesser, 2021, p. 11).

These empirical examples validate that at least the concept of societal SLO exists, and moreover, that industry believes it cannot build trust with society alone but requires government's help. What the research does not corroborate is the role that government actually plays and the importance, or not, of societal SLO on the local acceptance of a project. It was surprising how nebulous the understanding of societal SLO was for all of the interviewees and the uncertainty around the efficacy of TSM in building public acceptance, particularly as there is so much discretion for an individual company as to how they implement the standard. Whether government can actually help industry build trust with the public-at-large also remains opaque. Usually, only mining associations adopt TSM without government support. In Finland and Spain, industry believed having government support would be beneficial. While acknowledging the research was conducted during the very early days of TSM, it can be surmised that companies relied on trust in government and the TSM standard to garner acceptance. What they did not seem to be doing is actively engaging communities and other stakeholders.

Determining whether government can help facilitate engagement on behalf of industry or whether industry needs to do that work themselves became one of the main questions underlying the fourth and final article.

The last article, Exploring scale in social licence to operate: European perspectives (2023), seeks to provide more clarity in the understanding of societal SLO and the role that scale has in the SLO concept itself. It answers the questions 1) what are the main drivers of SLO at the community and societal scales in Europe, 2) what other factors are important for there to be SLO at both scales, 3) how do the two scales interact and influence one another and 4) why is societal SLO less relevant for the local acceptance of a mining project than originally thought? The answers to these questions fill a significant gap in the literature as to the distinction between local and societal SLO, how the two scales are integrated and whether they interact with and influence one another.

Testing the scalar influences proved difficult and needed both qualitative and semi-quantitative techniques. The findings were surprising in that societal SLO turns out not to be important for the local acceptance of a project and has little to no influence at the local level. Consistent with the findings in the third article where societal SLO was perceived as a very ambiguous concept, the analysis in this paper shows that opinions around mining are uncertain as are the elements necessary for its acceptance.

As elsewhere in the world, in Europe the discourse around mining activities, whether supported or opposed, and SLO centres on communities. The perception of mining at the community level is critical for a project's acceptance because local factors are good predictors at both community and societal scales. The reverse is not true as societal factors tend not to be important predictors at the local level and are only significant for the broader society if local factors are in place (see also Lesser et

al., 2023, p. 6). Revisiting the original proposition of the thesis related to scaling up SLO, the drivers do not neatly transfer resulting in difficulties with upscaling the concept and questioning its usefulness to catalyse change in the mining industry.

The thesis consists of two parts: a synthesis and four peer-reviewed research articles. The synthesis provides an overall background to my doctoral inquiry. It introduces the social licence to operate concept, provides a theoretical introduction to the concept, empirical examples of how societal SLO functions in Finland and Spain and discusses the importance of scale to the SLO concept. The focal point of the synthesis is the main research question, which asks how SLO functions at the societal level. In answer, it merges the main findings from the four research articles that constitute the second part of this thesis into a coherent picture that ultimately re-conceptualises SLO from a scalar concept to one of preconditions and drivers. The synthesis chapters are as follows:

Chapter two overviews the theoretical framework.

In **Chapter three**, the methods and approaches used in the four articles are discussed.

The results are presented in chapters four to six, with **Chapter four** summarising the existing SLO models in the literature that influenced development of the Scalar SLO Model, integrating the community and societal scales of SLO.

Chapter five moves the research into the empirical realm comparing two examples of societal trust building in Finland and Spain.

Chapter six addresses how the community and societal scales interact and influence one another.

Chapter seven presents the conclusions of the research.

The second part of this dissertation contains the four distinct articles mentioned above that contribute to answering different aspects of the research questions. All four articles have been published in ranked, internationally peer-reviewed journals. The articles are included in the Appendix in their final, accepted manuscript versions. All are open access. Since the articles were published in different journals, each follows the respective publisher's guidelines concerning the required citation style.

I am the first and or sole author of all four publications. Since each article stands as a separate research publication, some overlap between them has been unavoidable, especially concerning the discussion of the SLO concept itself. Nevertheless, the focus and accompanying research questions in each article are unique and provide

novel insights particularly with respect to societal SLO. The findings from these four articles are the basis of the thesis and articulate a more robust and clearer SLO concept that is presented in the synthesis.

2. Theoretical framework

Although SLO is a concept and term coined by the mining industry, it enjoys a rich theoretical tradition after entering the academic realm in the early 2000s. Most often alluded to as a metaphor referring to the public acceptance or non-acceptance of an activity (Martinez & Franks, 2014; Owen & Kemp, 2013), it is rooted in the expectations and beliefs of local actors affected by a mining project (Gunningham et al., 2004; Thomson & Boutilier, 2011). The theoretical evolution of SLO can be described as one of increasing scale. What initially began as a local concept over time was scaled up to regional, national and eventually supra-national levels. In this chapter, the idea of scale will guide our understanding of SLO as a theoretical concept.

I begin this chapter with an introduction to SLO as it is most broadly understood, a local level concept with the community-company relationship at its core. The idea of SLO functioning at the societal level is then introduced and subsequently the topics of scale and scalar interactions are visited briefly given the sparse literature on the subject. Building on the idea that the drivers of SLO at the societal level can be scaled up from the community level, the Scalar SLO Model is introduced merging the drivers at both scales into a single integrated model thus allowing for the relationship between different variables and drivers to be tested and compared. The chapter concludes with a discussion about the implications of scale on the understanding of the SLO concept and what it means for the broader governance context around mining activities.

2.1. SLO: A Scalar Concept

Even if not overtly addressed, the issue of scale has always been present in discussions around social acceptance because the emergence of a concept prioritising community interests resulted not from a single mining project, but due to the poor behaviour and lack of accountability from the industry as a whole (Thomson & Joyce, 2006). For decades, mining has been undergoing change prompted first by the environmental movements of the 1960s and 1970s, and second, as a response to the subsequent legislation throughout the 1970s, 80s and 90s regulating mining activities more tightly than previously was the case. Changing social expectations in the 1990s saw communities not only demanding more involvement in decision-making around mining but expecting to receive more benefits from the projects

along with reassurances the industry was being properly regulated (Prno, 2013). By the late 1990s, the benefits of and need for mining were questioned globally reinforced by greater difficulties obtaining permits and more organised and effective opposition (Thomson & Joyce, 2006). In response, some of the 'majors' in the mining industry have attempted to change their behaviour to respond to these social challenges.

Creation of the term 'social license' is most often attributed to James Cooney in 1997, when he used the phrase at a World Bank meeting to describe the importance not only of having government acceptance of a project but community acceptance too (Cooney, 2017). The focus is not on the expectation of performance but on the actual performance itself, and more specifically, on the how rather than the what industry does. Several months earlier, however, W. Henson Moore used the term in a forestry magazine article to refer to the broader societal approval of an industry's practices including the need to hold industry publicly accountable (Boutilier & Thomson, 2022). Where Cooney's definition emphasises community opinion and local stakeholders such as municipalities, residents and neighbourhood businesses, Moore's definition emphasises societal opinion and national actors such as governments and the media. The term soon caught on in the mining vernacular to sum up how industry should behave to win a community's support. The almost simultaneous coining of a term that addresses two very different scales and two very different industries sets the stage for my research on SLO as a scalar concept, and the potential future testing of this thesis' findings across different industries.

SLO soon emerged in the academic literature where it continued its theoretical evolution in parallel with its empirical evolution exemplifying Bourdieu's emphasis on the importance of theory being bound to practice (Bourdieu, 1977). Ironically, although SLO is very much a sociological concept with its multi-scalar orientation connecting community and society, its theoretical underpinnings are less rooted in sociology than in other disciplines. The theoretical foundation of SLO is a combination of theories pulled from political science, sociology and behavioural psychology (Joyce & Thomson 2008; Lacey et al., 2016; Parsons et al., 2014; Poelzer & Yu, 2021; Prno & Slocombe 2012; Suopajärvi et al., 2019). In this chapter, the literature on SLO at the community scale is emphasised because it is where the vast majority of research has been concentrated with the rest of the chapter touching more briefly on the societal scale and interactions between scales.

2.1.1. Community

Community SLO can be understood from two perspectives. The first is what a community wants from a company, and this usually includes both resources and behaviour, to grant the company a social licence. This licence is intangible (Franks & Cohen, 2012; Martinez & Franks, 2014) and the mechanism of 'granting' can range from not outrightly opposing a project to signing an impact and benefit

agreement with a company (Hitch & Fidler, 2007; Parsons et al., 2014). Who grants the social licence should ideally be persons who truly represent a community's interest, but there are many cases where there is neither a cohesive community nor a person that has a mandate as a representative. The second perspective is from the view of the company and what they believe they need to do for community acceptance. In both perspectives, the core element is the relationship between a community and a company, and it should be based on interpersonal trust or the relationship between individuals in a community and the persons who represent a company (Thomson & Boutilier, 2011). Interpersonal trust is achieved over time and only after transcending through different levels of relationship building (Joyce & Thomson, 2000). Identifying the different levels of relationship building, their normative boundary criteria and linking these criteria to levels of SLO are the first milestones in the development of the SLO concept and still widely accepted today as the underlying mechanism at the community scale (Joyce & Thomson, 2008).

Introducing the mechanism of SLO begins with distinguishing where the critical threshold is between the loss of acceptance and the steps of relationship-building that eventually lead to acceptance. The early models have labelled this first boundary criteria as social legitimacy, which comes from the company's respect for established norms and is tied to a community's belief that a project's benefits outweigh its costs (Joyce & Thomson, 2008; Thomson & Boutilier, 2011). Research in the Nordic countries and Russia found the legitimacy of mining for communities to be defined as a combination of the local mining narrative and the behaviour of extractive activities (Koivurova et al., 2015; Wilson, 2016). Hence concepts such as distribution of benefits, procedural fairness and corporate social responsibility all play a role in legitimacy. Yet, these elements of social legitimacy do not reflect trust between a community and company but rather serve as building blocks toward a future trust-based relationship.

Whether there is a single level of trust, or a single level of acceptance remains nebulous, and it is one of the difficulties with the SLO concept. Thomson and Boutilier (2011) assert that the SLO itself evolves and can range from tolerance or acceptance of an activity to approval and occasionally to a shared identity between the community and company associated with an activity. Acceptance is therefore the lowest level of SLO, and trust is the highest reflecting their belief that a weaker SLO is characterized by transactions between parties while a stronger SLO is characterized as transcending the transactional relationship to one of collaboration. This is echoed by other scholars asserting social legitimacy is a form of acceptance dependent on a community's perception of procedural fairness and the fair distribution of benefits (Jijelava & Vanclay, 2018). Like acceptance, trust also includes guises where it can either be a single level or multiple levels. There are still many aspects of SLO that remain conceptually murky and clear nomenclature at least as a starting point would be most welcome.

The second level toward building SLO is approval with the boundary criteria between acceptance and approval being credibility. This is generated when a company regularly provides accurate and understandable information and adheres to agreements (Boutilier et al., 2012). Credibility is about a company or project being believable, promises that are made being realistic, and the extent to which a community perceives a company as being sincere (Jijelava & Vanclay, 2018). Figure 2 illustrates and describes the boundary criteria of the different levels of SLO.

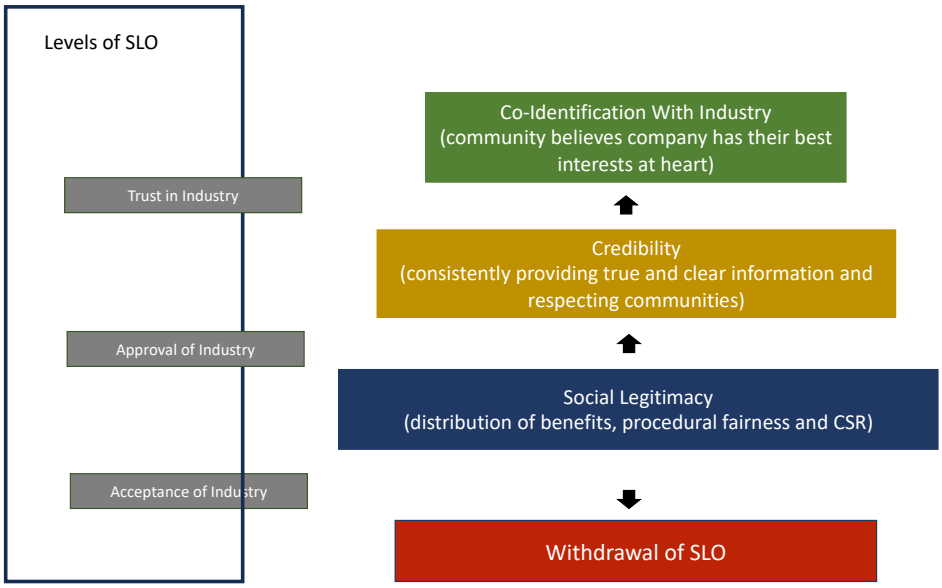

Figure 2: Levels of SLO and boundary criteria in the Thomson and Boutilier model

Unlike legitimacy, credibility is not its own theory but is based both on social contract theory and the theory of social capital (Boutilier et al., 2012). Social licence is often described as an informal social contract between a company and the host community (Lacey et al., 2014; Nelson & Scoble, 2006; Thomson & Boutilier, 2011). Rather than government being an actor, social contract theory as applied to SLO at both scales binds the private sector and citizenry. Social contract becomes a private governance agreement, sometimes tangible and sometimes not, between community and company where businesses must fulfil community expectations in exchange for permission to carry out their activities (Morrison, 2014). SLO as a social contract fits well with Cooney's original conception equating the loss of legitimacy from communities with the inability of a company to prioritise their interests on par with those of government (Boutilier, 2014). Early SLO models also drew on consent-based and justice-based forms of social contract, particularly with respect to the role

procedural justice plays in obtaining community acceptance (Lacey & Lamont, 2014). While social contract theory can help explain SLO, there is a difference between the two. Social contract focuses on expectations of performance. It is what the members of an industry do that matters; if they do not perform, they are not welcome. It is not about how they do something but what they do. Conversely, SLO is largely about the quality of a relationship realized through various relationship-building phases that start as transactional relationships and ideally become institutionalized over time, so they are more interpersonal, systemic and solid.

Social capital is the other theoretical base for the credibility boundary criteria. The literature asserts that a company can acquire a social license to operate by creating relationships with a host community, ideally fusing the trust of local residents leading to an overall sense of communal well-being (Boutilier et al., 2012; Mercer-Mapstone et al., 2018; Moffat & Zhang, 2014; Prno, 2013; Thomson & Boutilier, 2011). Social capital theory (Putnam & Goss, 2002) underlies some of the earlier Nordic SLO research, particularly in Finland and Sweden, as the research impetus was to understand the social structure of a neighbourhood and how mining might change that (Suopajärvi et al., 2019).

The third and last level is co-identification with trust separating it from approval. As a theory applicable to the SLO and extractives context, trust is most often understood as the willingness to make oneself vulnerable (Gehman et al., 2017; Howse, 2022), and trust is obtained when the community believes the company has their best interests at heart. While in the early models trust functioned as the highest normative level of SLO (Joyce & Thomson, 2008; Thomson and Boutilier 2011), in later models trust is shown to be a precondition of acceptance and not synonymous with it (Moffat & Zhang, 2014). Rather than suggesting a contradiction between models, I would argue there is a complementarity in that SLO, or acceptance, is the ultimate aim and gaining trust is the vehicle for achieving that aim. Trust is also the demarcation point between Thomson and Boutilier's idea of transactional versus interpersonal relationships and serves a similar function for Moffat and Zhang's analysis showing trust to act as the boundary criteria between the drivers of SLO and SLO itself. In both conceptualisations, trust is the key to a more stable relationship between community and company that can weather difficulties over the long term. It is not the endpoint, but it is critical because it differentiates a community-company dynamic based on consultation and engagement from one that has passed these stages to a more integrated form based on trust. Although the literature tends to describe SLO as the ongoing relationship between community and company, it is more than that, and this is important for conceptual clarity as to why SLO is different than consultation and engagement and theoretically should be seen as a distinct concept in and of itself.

Jijelava and Vanclay (2018) try to reconcile these competing understandings by viewing trust as a more robust type of credibility where a community expects

a company to make decisions that will at least benefit both parties. Trust is therefore both interactional and institutionalized. Interactional trust occurs when a community believes a company, including its management, treats them with respect, engages in constructive dialogue and honours its commitments. This more superficial trust ultimately leads to institutionalised trust or a long-term consideration of each other's interests.

Before moving on to SLO at the societal scale, it is important to include a discussion of the study by Moffat and Zhang (2014) that argues trust and acceptance are not the same but rather that trust is a precondition for acceptance and approval. In their study, acceptance and approval both are mediated by trust. Drawing on their understanding of social legitimacy and credibility, four drivers for SLO at the community scale are initially identified: impacts on social infrastructure, contact quantity, contact quality and procedural fairness. Their analysis shows that impacts on social infrastructure, contact quality and perceived procedural fairness are predictors of trust in a mining company eventually leading to the acceptance of a project. Contact quantity is not a predictor of trust. Of the three predictors, impacts on social infrastructure have the least influence on a community's trust in a mining company. Their study built on and streamlined the existing understanding of SLO so there are not multiple levels of trust and acceptance but rather trust appears to mediate acceptance. The pathway analysis does not, however, definitively show a causal relationship between trust and acceptance leaving open the possibility that indeed trust may not be a precondition for acceptance but an ideal to strive for.

From these two models, it is difficult to know if trust is a condition of good relations or a result of them. Thomson and Boutilier would argue that even transactional relations are good relations, and these are adequate for the lowest level of SLO, which is acceptance. Importantly, they can exist without trust. Moffat and Zhang, however, argue that acceptance is a higher bar requiring relationships that emanate from shared experiences and social relations, in other words, trust-based relations. Hence, trust would be a result of good relations and thus a prerequisite for SLO. For conceptual clarity, my research assumes that a higher bar is needed for SLO and therefore trust-based relations and good relations are not the same.

2.1.2. Society

There is much less research on the function of SLO at the societal scale. What research there is, tends to either be around its theoretical underpinnings or the relationship between government and SLO. Its theoretical foundations are the same as those for SLO at the community scale. Thomson and Boutilier's model has been applied at the national level (Boutilier, 2017) while Zhang et al. (2015) use a similar methodology to test the relationship between drivers of national SLO, trust and acceptance. Legitimacy, credibility (social contract and social capital) and trust in scaled up versions form its foundation.

Legitimacy at this scale is mainly applied to company actions in the global SLO literature, but in the European literature, it is applied to both government and private governance actions. With respect to companies, garnering social acceptance by showing concern for social and environmental issues while also preventing negative perceptions are some of the key ways to gain legitimacy. Particularly if a legal system does not assure legitimacy, a company will feel compelled to pursue it (Aguilera et al., 2007). In reference to government actions, legitimacy tends to fuse the understandings of the social licence with legal licenses and political licences (Bice et al., 2017; Lehtonen et al., 2020; Poelzer, 2019; Smits et al., 2017). It also tends to be conflated with trust. In Smits' (2017) research on oil and gas projects in Greenland, the SLO concept is explicitly applied to the societal level building on the idea that successful projects are a result of obtaining social, political and legal licences with legitimacy and trust forming the basis of the three licenses. The SAP model (social, actuarial and political risk and licensing model) complements this and offers insights to inform a study of societal level SLO by offering a risk-based model of the various licenses in play and their governance (Bice et al., 2017). In the Finnish context, Litmanen et al. (2016), considers legitimacy to include trust in environmental legislation and authorities.

In the wake of the Talvivaara accident in Finland in 2012, the idea of trust in environmental legislation and authorities became more nuanced. Rather than government, also referred to as the state, being viewed by the public as a homogeneous entity, it became clear that specific agencies within the state could be blamed for accidents. In the Talvivaara case, it was not the national government who was faulted but rather the permitting authorities in charge of the mine who were blamed (Jartti et al., 2014; Litmanen et al., 2016; Sairinen et al., 2017). This research identifies the imbalance between generalized trust in the state and mistrust in environmental authorities as a problem for SLO. Future research went further with scholars arguing that trust in the state and its environmental laws are as important as a company's behaviour for the acceptance of mining (Jartti et al., 2018; Litmanen et al., 2016).

The perspective of the state on its own policy processes being also shaped by civil society is another avenue of research on how SLO functions at the societal scale. Poelzer (2019) studies the connection between input legitimacy and throughput legitimacy to understand whether the emergence of SLO has caused government officials to question whether they still control mining-related policy processes. Ultimately, he found the role of civil society, referring not only to non-governmental organisations but the public at large, in the policy process to be less important than how the individual government departments were structured.

There is no literature that explicitly examines credibility, or more specifically social contract and social capital, at the societal scale. Theoretically, credibility as social contract would also have to address government as a potential actor leading to the question with whom is the social contract between? There can never be a written

agreement between society and the mining industry, and having an agreement between government, society and industry that is purely voluntary contradicts the inherent role of government. Unless government and regulatory frameworks are brought into the discussion, it is difficult to see how social contract applies at the societal scale. Social capital runs into similar problems at the societal scale, which is perhaps why it is not included in the SLO literature. In relevant non-SLO literature, Putnam (2002) writes about social capital in terms of trust and distinguishes between trust earned through interpersonal relationships versus the more diffuse trust in an entity such as the state. This line of reasoning has not yet been applied to the SLO literature, however.

The literature on trust at the societal scale is also extremely limited consisting of Zhang et al.'s study (2015), Smits' work (2017) and the Finnish and Swedish scholars studying the role of the state in relation to SLO (Lehtonen et al., 2020; Poelzer, 2019). Most of the research thus comes from the Nordic countries and is noteworthy as the topic extends beyond the mining sector to include oil and gas and nuclear waste management while also focusing less on SLO as a local concept than one applicable to the state. The Thomson and Boutilier model still serves as the foundation for these studies, particularly concerning nuclear waste repositories in Finland, France and Sweden (Lehtonen et al., 2019). In this study, not only trust but scale also are addressed as the focus is on the responsibility of the state in generating acceptance for a singular project in response to global problems. The findings recommend the addition of governance aspects to the Thomson and Boutilier framework, particularly to account for the diversity of settings in Europe, such as the 'high-trust contexts of Finland and Sweden' and the French society of 'mistrust' (Lehtonen et al., 2019, p. 5).

The idea of mistrust, interestingly, enjoys a strong presence in the Nordic literature. The authors of the same study note the weak conceptualisation of trust, particularly the interactions between trust, mistrust and distrust; the inattention to the positive aspects of mistrust and distrust; and the pitfalls inherent in asserting trust should be a requirement for a strong SLO, especially in situations of unequal power (Lehtonen et al., 2021). Recommendations for bolstering the model include more emphasis on the interplay between trust, mistrust and distrust; the advantages of a cautious and watchful citizenry; and stronger recognition of the role of trust beyond community-company relations.

A slightly different angle on the mistrust aspect is research that demonstrates having a social licence may still be possible in the absence of trust between industry, government and society (Jijelava & Vanclay, 2018; Smits et al., 2017; Wilson, 2016). Rather than trust, acceptance depends on the relevant actors engaging in productive dialogue; company management and workers understanding local expectations, concerns and values; and the influence affected stakeholders have to shape interactions and determine outcomes consistent with their beliefs. Other

studies suggest it is not necessary to have deep interpersonal relationships, but rather more shallow transactional relations are sufficient (Poelzer & Yu, 2021; Sairinen et al., 2017; Tuulentie et al. 2019). The idea that neutrality and passive support may be enough is one that resonates in Europe and will be discussed in later chapters.

2.2. Toward An Integrated Approach

Building from the SLO models discussed herewith, the Scalar SLO Model describes the relationship between SLO at the local and societal scales. The community and societal scales are joined through shared drivers of gaining or losing trust and acceptance. As the drivers of community SLO can be scaled up to also function as the drivers of societal SLO, so too are the roles that trust and acceptance play. Where a company must build a relationship with a community based on trust for there to be acceptance, so too must industry build a relationship with society based on trust for there to be acceptance of the mining industry among the broader public. One important difference in the Scalar SLO Model is the incorporation of government as a foundational driver both at the community and societal levels. Previously, government and its accompanying legal and regulatory frameworks were drivers only at scales beyond the community. The other variation from the existing models are the incorporation of the drivers of withdrawal and loss. Whereas previous models simply state there could be a withholding or loss of SLO, this model proposes drivers at the same level of detail as those necessary for building SLO. The ultimate aim of developing and testing the model is to explain the mechanism behind the functioning of societal SLO and to determine its relevance for a community's acceptance of a mining project.

2.3. Conclusion

This chapter introduces the SLO concept and discusses its theoretical underpinnings which draw from a multitude of disciplines and theories including (social) legitimacy, social contract, social capital and trust. Using the models from Thomson and Boutilier (2011) and Moffat and Zhang (2014) to guide the discussion, I show how the different theories are woven into the two models at both community and societal scales. The similarities and tensions between the models are also highlighted.

Using the models as a foundation, I introduce the Scalar SLO Model presented in the second article of this thesis. This model is the first to integrate the community and societal levels of SLO and does so by scaling up the community drivers, the actors involved in relationship-building and the roles that trust and acceptance play. The model will be further discussed in Chapter 4.

3. Approach and Methods

In this chapter, I introduce the research approach, which is an inductive one moving from the compilation of data to seeking patterns in those observations and theorizing about the patterns. Techniques for data collection utilize a qualitative mixed-methods approach including literature review and expert interviews (Tranfield et al., 2003). Both qualitative and semi-quantitative methods are employed for analysis. Textual analysis is utilised to identify themes within a set of text data (Hart, 1988; Williams & Vogt, 2018) and a Likert-scale survey instrument and statistics, including factor and regression analyses (Brinkmann, 2013), test internal and external variables in relation to the Scalar SLO Model. To explain the findings of the statistical analyses, I rely on Le Meur's (2013) idea of horizontal and vertical diffusion.

3.1. Research Approach

The research approach begins with the main aim of the thesis, to ascertain how SLO functions at the societal level. The first step in delving deeper into the subject is exploring the existing SLO literature with a particular focus on the community and societal drivers of SLO and the accompanying models. In comparing the two, it becomes apparent the community drivers can be scaled up to the societal level and that the literature has de facto proceeded along this assumption although it is not explicitly stated anywhere. A note of caution is warranted, however, given the research on community SLO in all its aspects is much more extensive than societal SLO. Thus, the ability to scale may also partially be due to the lack of research on the functioning of societal SLO.

Scaling up the drivers and mechanism of SLO at the community level to the societal level requires some nuancing which should be made transparent here. At the community level, the quality of contact between a company and community is the most important driver of SLO and the drivers all have strong relationships to trust and acceptance. This is not the case at the societal scale, where contact quality is replaced by confidence in governance. Additionally, none of the societal drivers have strong relationships to either trust or acceptance as the correlational analysis yielded weak results (Zhang et al., 2015). Differences notwithstanding, the other drivers and the ability to scale the community-company relationship to a society-industry one where the goals are trust and acceptance align very closely. The Zhang et al. (2015) study explicitly defines trust at the national level as trust by the public in

the mining industry rather than trust by a community of a mining company. Based on this, the drivers of SLO at the community level were scaled up to the societal level and incorporated into a single, integrated model called the Scalar SLO Model. It is worth noting that while the drivers in the model are taken from the existing literature with some modification from the interviews in Finland and Spain, the decision to share drivers also makes theoretical sense as comparisons between scales are only possible if there is a constant, in this case the drivers. Holding the drivers as constants allows the testing of different variables that might affect them and therefore SLO.

Based on the assumption that what drives the outcomes of trust and acceptance at any scale may be the same, the latter part of the research explores whether this is true and goes further to also investigate the interplay between scales. Given the recurring themes of government and legislation in Europe, one of the more important questions is whether governance has a role in SLO, and if it does, what is that role? This is bolstered by the research linking the concept of a social licence to political and legal licences (Bice et al., 2017; Morrison, 2014; Smits et al., 2017) providing further evidence that at least at the societal level, trust may not only be bound up with industry but with government too. Whether or not government can help industry build relationships with society is a different issue, however, and one that is also explored in the later research.

3.2. Methods

The data are developed from multiple sources of primary and secondary information. Sources include fieldwork (meeting with public authorities, industry representatives, civil society leaders, and academics/research organisations), academic literature on SLO, mining sector good practice guidance and sustainability reports, corporate histories, documentation from governments and regulations, international standards related to the extractives industry, demographic statistical data, conference proceedings, news media, theses, and websites.

I use a mixed methods approach due to its flexibility in helping to theory build and aid in the generalisability of findings (Jennings, 2019). Both qualitative and semi-quantitative methods are employed including literature review, expert interviews, survey research, factor analysis and regressions. All of these inform the research questions in different ways including providing a knowledge base, gathering key insights to help theory-build, testing the theory via empirical research and statistical analysis leading to inference making (Morse, 2003; Tashakkori & Teddlie, 2010).

The first step in the research process involved an extensive literature review to ensure a solid knowledge foundation of all the SLO research to date. As the thesis progressed and I identified the research gap in societal SLO, the timing

of the adoption of the Canadian TSM protocols by the mining associations in Finland and Spain proved serendipitous. I contacted those individuals integral to the conceptualisation, development and implementation of the standard in Finland and Spain and conducted expert interviews with them all. The interviews observed a semi-structured format and sought to provide background knowledge and explore specific knowledge gaps, specifically whether different methods of identifying and adopting TSM might affect the acceptance of mining. Textual analysis was utilised to analyse interview data identifying patterns and themes in the data. Only once I had a more robust conceptualisation of societal SLO, did I then employ semi-quantitative methods. Although typically a tool for deductive research, they proved necessary to test the emergent societal SLO concept itself and the intra-concept relationships between community and societal SLO. Two types of semi-quantitative methods are used; the first is a Likert-scale survey that was subsequently analysed using statistical methods comprised of a principal components analysis and regressions.

3.2.1. Literature Review

Research on mining and SLO routinely includes document review as data and sources of information (Franks et al., 2010; Kemp et al., 2011; Sairinen et al., 2017). There is a large amount of theoretical and empirical literature on the role and functioning of SLO (Bice and Moffat, 2014; Koivurova et al., 2015; Moffat et al., 2016; Parsons et al., 2014; Prno & Slocombe, 2012).

The literature review is comprised primarily of academic articles focusing on SLO (approximately 65) although also others that either had a methodology (for e.g. Le Meur, 2013) or contained subject matter that helped explain the research (Arquilla & Ronfeldt, 2001). Research was conducted on the SLO concept including its theoretical underpinnings, various geographic contexts, and continuing evolution as a concept with respect to scale and applicability to a multitude of industries including seaweed harvesting (Rostan et al., 2022), forestry (Moffat et al., 2016), citizen marine science (Kelly et al., 2019), and nuclear (Lehtonen et al., 2020). The intent behind the review is two-fold: first, it provides the foundational knowledge necessary to identify research gaps, and second, it provides a base for designing the framework that will guide the research on societal SLO. Because SLO is a concept that draws on multiple disciplines and theories, there is a massive amount of literature associated with the topic and it was necessary to confine the review to articles explicitly mentioning SLO. Even so, there are more articles on SLO than could be used as a quick search in Google Scholar shows by pulling up approximately 14,800 results for "social license to operate" and 9,310 for "social licence to operate". In addition to academic articles, the inclusion of practitioner literature from individual leading mining companies such as Anglo American's 'Social Way,' allowed me to follow not only the evolution of the concept, but also to trace how corporate views on the

concept evolved in parallel with those of academics. Finally, I conducted a review of relevant international mining standards to not only understand the Canadian TSM system better but the role that standards in general play in the public acceptance of mining (Aguilera and Cuervo-Cazurra, 2004).

While all of the literature contributed to the development of the Scalar SLO Model, there are several articles and models on which I relied heavily and are therefore explained here in more detail. Thomson and Boutilier's pyramid (2011) provides the first model of SLO and it still serves as the basis for much of the SLO research. The three boundary criteria of legitimacy, credibility and trust separating the three normative levels of SLO are the primary inspiration for the top three levels in both the community and societal dimensions of the Scalar model. The community and societal drivers are derived mainly from Moffat and Zhang's (2014) pathway analysis identifying the drivers of community SLO and their subsequent study at the national level (2015). The drivers in the Scalar model are not identical to Moffat and Zhang's as I modified them slightly based on the interviews in Finland and Spain, as well as SLO research primarily from the Nordic countries. The normative levels of SLO have also been slightly modified as co-identification did not appear to be a good fit in Europe and support was considered too strong. The understanding of acceptance also differs as it is often equated with tolerance in the Thomson and Boutilier model but was not readily embraced in Europe being deemed too negative. There is little SLO research on the withholding or withdrawal/loss of SLO other than Thomson and Boutilier (2011) describing it as the lack of legitimacy, Franks et al. (2014) identifying conflict as an important means through which environmental and social risks are translated into business costs and decision-making, and Luke (2017) applying a conflict framework to non-governmental organisations (NGOs). Hence, the three lower tiers are derived from only a couple of information sources in combination with my personal knowledge of conflictual examples in Europe. All of the literature review references are included in Annex I of this thesis.

Again, the literature on societal SLO is much sparser and less established than on community SLO. Although slowly emerging on the global stage, SLO's functioning at the societal scale has been a prominent part of the Nordic and European research very early on and continues to be so. The lack of information made the study of societal SLO difficult solely from literature, and it was fortunate that empirical examples of efforts to build societal SLO at the national level in Finland and Spain were ongoing. Expert interviews involved with these empirical efforts helped formulate the second research question but also called into question some assumptions I made earlier about societal SLO, most importantly that it has a significant influence on and may even be a driver of the local acceptance of mining. The interviews, it turns out, suggest something else.

3.2.2. Expert Interviews and Qualitative Data Analysis

Expert interviews were conducted both in Finland and in Spain during Autumn 2019. These involved key people in the efforts to identify, develop, approve and implement the Mining Association of Canada's (MAC) Towards Sustainable Mining (TSM) standard in the respective countries. As TSM was adopted in Finland in 2015 and the particular TSM protocol of interest for my research adopted in Spain in late 2018, there were no companies in either country who had yet undergone a third-party audit. Thus, it was not possible to study the effectiveness of TSM on societal acceptance itself. It was, however, possible to examine whether different mechanisms of implementation affect societal SLO. In Finland, a stakeholder network was put together by the government to decide on and oversee an international standard Finnish mining companies should follow. Spain took a different tactic with the national mining association proposing TSM be incorporated into Spain's national standards body, who would then have the responsibility for its implementation and continued governance. The methodology for evaluating these two different implementation mechanisms sought to align the key expert interviews (eight in Finland and five in Spain) with three of the core elements of SLO, specifically company-community dialogue, fairness and trust (Mercer-Mapstone et al., 2017; Mercer-Mapstone et al., 2018).

There are two notable limitations of this part of the research. First, it was very early days for the adoption of TSM in both countries. While several mining companies that were members of the Finnish network embarked on the required third-party audits for TSM, it would be years before the actual audit reports were completed and made public. Spain, having just adopted the Community and Outreach Protocol of TSM, of particular interest for SLO research, did not have any companies starting the audit process. As one of the outcomes of TSM is to help gain and maintain the societal acceptance of mining activities, and the only interviews are of key people involved in its adoption and implementation, there is an inherent bias favouring TSM. Yet, even so, interviewees openly discussed concerns with the respective mechanisms and the original assumption that a horizontal network governance structure would have more successful outcomes was not so clear after analysing the interviews. As to the issue of whether voluntary standards have the same influence in other countries, a much larger number of cases will be needed to ascertain this. The second limitation is the number of interviews, an outcome of the relatively small number of people involved in deciding the implementation mechanisms for the initiatives in both countries.

3.2.3. Semi-Quantitative Analysis

Two different types of semi-quantitative analytical tools have been used. The first is a survey instrument using a Likert scale to test the drivers and underlying assumptions of the Scalar SLO Model. The survey was based on a revisit and narrowing down

of the earlier literature review in order to parse out the main drivers of SLO for both the community and societal scales. The basis for selection is a combination of the most oft-cited articles coupled with my own personal knowledge of the relevant literature. The drivers of community and societal SLO were then transposed into survey questions to help answer the main research question, which asks how SLO functions at the societal level?

The Webpropol program was employed to develop the online survey in September 2019. Utilising a snowball sampling method, it was distributed to a broad range of interested stakeholders across Europe with some knowledge of and/or experience with mining to test European perceptions of the mining lifecycle. The target groups include governmental authorities, NGOs, research organisations and academics, community representatives and students. To increase the number and diversity of respondents, the survey was subsequently translated into six additional languages (Finnish, Swedish, German, Polish, Portuguese and Spanish) and the deadline extended by one month. The survey ultimately was run in seven languages and remained open for two months, the timeline established in response to its linkage with future deliverables. There were a total of 278 responses. Given the small sample size for each individual language, which did not allow for analysis by country, the results from all surveys were then combined from Webpropol into a single data set within the Statistical Package for Social Sciences (SPSS). To ensure the adequacy of the survey sample, the Kaiser-Meyer-Olkin (KMO) test for sampling adequacy was run returning a value of 0.817 indicating adequacy (see Lesser et al., 2023, p. 2).

The survey data is examined using correlational analysis to help decipher the relationships between the drivers and the acceptance of mining within and across scales. Having semi-quantitative data on these complex real world-relationships proved critical in theory building around societal SLO (Maiwada, 2015). The correlational research design includes a factor analysis to understand the grouping of drivers more clearly, and therefore, the distinction between community and societal SLO in Europe. Three of the survey questions are designed to test the drivers of the Scalar SLO Model as well as the drivers from the literature review. As each of the questions has roughly 10 potential responses, a Principal Components Analysis (PCA) was useful to identify relationships between possible responses across the three questions. Not only were there significant relationships, but those relationships tended to be sensitive to scale naturally ordering themselves into community and societal categories. To confirm that a data reduction technique such as a PCA should be used, the Bartlett's Test of Sphericity was run indicating a suitable data set with a result of .000. This resulted in the creation of SLO frames, which express the relationship of the different drivers of SLO at the individual community and societal scales. As multiple drivers constitute a single frame, frames are useful to allow a more nuanced understanding of these drivers. Because all of the drivers ultimately are a reflection of society's social, cultural, environmental and economic priorities, having

a frame versus a single driver provides the space to include these multiple priorities rather than just one or two (Davies et al., 2016; Dewulf et al., 2009).

The next step in fulfilling the research design utilised regression analysis, specifically the Pearson product-moment correlation coefficient or what is more widely referred to as Pearson's r, to test the relationship between the different responses within the community and societal categories. Finally multiple regression analysis was used to test the influences and interactions between categories.

To explain the findings of the regression analyses, I rely on Le Meur's (2013) idea of horizontal and vertical diffusion. Although he applies diffusion in the context of policy influences on local communities, I found it aptly helps explain issues of scale. For example, the different community drivers were shown to diffuse horizontally across the community scale but the same was not true for the societal drivers. Even more stark was the lack of vertical diffusion from societal to community scales as will be explained in fuller detail in Chapter 6.

4. An Integrated SLO Model

This chapter seeks to answer the first research question, which is how do existing models account for the societal acceptance of mining and can they explain empirical cases in Europe? It examines a total of ten models shown in Figure 3 addressing SLO as a community concept, as a societal concept and as something that can be withdrawn or lost. To answer the question whether the models explain empirical cases in Europe, and the answer is not completely, I turn to Esping-Andersen's (1990) three typologies of the welfare state differentiating the role of the state in Anglo countries versus central Europe versus Scandinavia. To bridge existing SLO models with the research in Europe, the Scalar SLO Model is introduced integrating the community and societal scales.

As a metaphor for a complex process, SLO as a local concept is well-suited to a model. The early models embedded the significant components and drivers of SLO and link them to the outcome of community acceptance (Moffat & Zhang, 2014; Thomson & Boutilier, 2011). Over time, additional models looked more closely at the loss of SLO (Luke, 2017), SLO at the national level (Zhang et al., 2015) and SLO embedded within the larger environmental and social ecosystem (Prno & Slocombe, 2012). The latter two suggest that scale has always been part of the SLO discourse, but it was an undercurrent and not brought into the spotlight and examined.

Figure 3: Chronology of SLO in 10 models

4.1. SLO Models at the Community Scale

4.1.1. Joyce and Thomson: Three-Factor Model

Joyce and Thomson in 2008 were the first to define SLO in terms of legitimacy (Boutilier, 2014) and propose that SLO at the project level would promote reputational benefits at the corporate level (Gehman, Lefsrud and Fast, 2017). The model includes three normative components, which are legitimacy, credibility and trust. Legitimacy is gained when a mining company conforms to established legal, social and cultural norms that can be either formal or informal. Credibility occurs when a mining company is believed by the community. Trust is the willingness to be vulnerable to the behaviours of another. The differences between project acceptance and approval are based on the three normative components. Where acceptance requires legitimacy, approval needs both credibility and trust. Of note is that this model assumes the community perspective meaning its normative components and range hierarchical scale reflect the community's perceptions of company performance.

4.1.2. Thomson and Boutilier's Pyramid Model

With their pyramid model in Figure 4, Thomson and Boutilier (2011) mainstreamed the concept of SLO in academia where subsequent research across a range of disciplines parsed the mechanism, scaled it up and extrapolated it to numerous contexts and industries. Building upon the earlier model from 2008 and assuming the community perspective, the same normative components are used – legitimacy, credibility and trust – but this time associated with an individual level of SLO – acceptance, approval and co-ownership – respectively. What was also added is a fourth level below acceptance, indicating withholding or withdrawal of SLO is possible. In this model, legitimacy plays a dual role indicating when a project has acceptance from the local community or has been rejected. Franks and Cohen (2012) adapted the Thomson and Boutilier model to equate the state of social licence with stakeholder behaviour such that resistance, compliance, co-operation and championing are behaviours that align with withhold/withdraw, acceptance, approval and psychological identification, respectively.

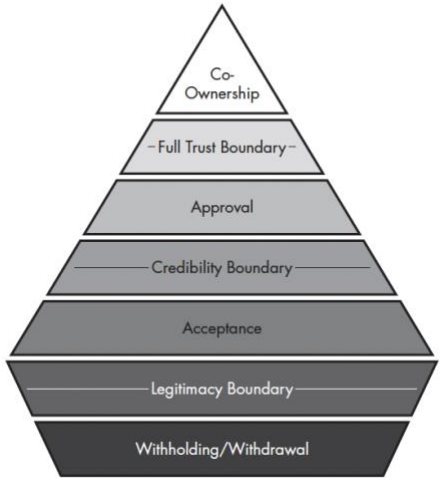

Figure 4: Pyramid model

More than credibility and trust, legitimacy resonates in European countries, the focus of this thesis, as there is much discussion around the impacts and benefits of mining, whether mining should move forward at the pace proposed, and generally how to ensure responsible mining. The discourse is less about the relationships either with an individual mining company or the industry at large, but whether a project and mining in general are legitimate activities and how to define legitimacy in this context.

4.1.3. Moffat and Zhang's Community Level Path Analysis

Moffat and Zhang (2014) view SLO through a local lens but from the industry rather than the community perspective. Their model of the key factors that influence the acceptance of mining at the community level show how a mining company's activities influence the perception of the company itself. The three factors are procedural fairness, contact quality and social infrastructure with trust mediating acceptance rather than being the end goal as shown in Figure 5. Procedural fairness, defined as the company willingly and respectfully listening to a community's opinions, and contact quality, described as a more collaborative than consultative relationship, are the two most important factors.

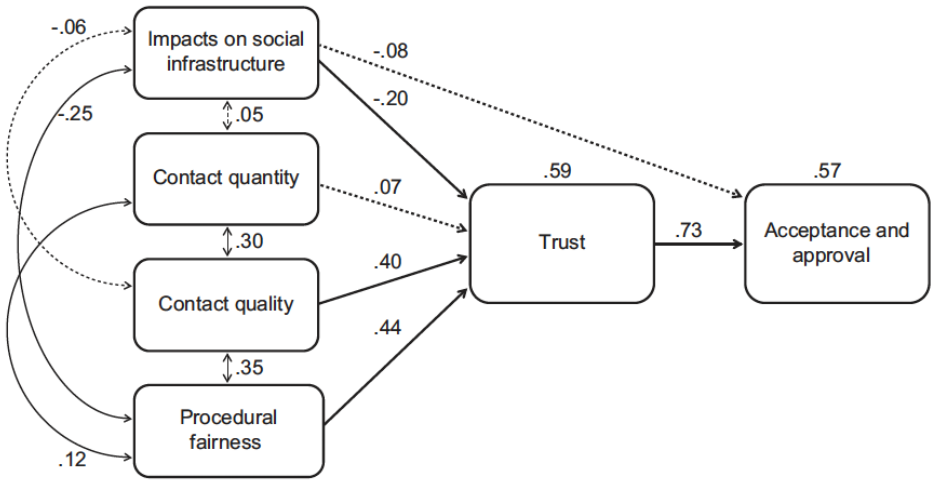

Figure 5: Community drivers

4.1.4. Mercer-Mapstone et al.'s Relationship-Building Path Model

Mercer-Mapstone et al. (2018) built on Moffat and Zhang's path model above to test the associations between dialogue, procedural fairness and relationship-building with trust and acceptance seen in Figure 6 (Kooiman, 1993). The results illustrate the importance of dialogue in building strong relationships between people but the benefits spill over into how people perceive company behaviour. The better the dialogue, the stronger the perceptions that a mining company's mode of functioning is fair. The research provides empirical evidence that dialogue is linked to relationship-building, trust and more generally to SLO. This is bolstered by research from Martinez and Franks (2014) in their study on mining company-subsidised community development in Chile. In the study, the authors found that when community development centred on opportunities for dialogue and taking actions on community concerns, companies enjoyed much higher support which in turn contributed to gaining SLO (Martinez & Franks, 2014).

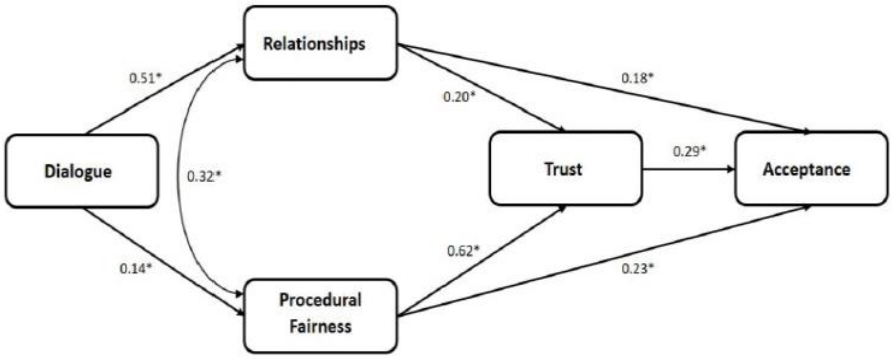

Figure 6: Testing dialogue

4.2. SLO Models at the Societal Scale

4.2.1. Prno and Slocombe's Multi-stakeholder Governance Model

Prno and Slocomb (2012) model the governance and institutional mechanisms that allowed SLO to materialise in northern Canada's mining sector shown in Figure 7. At its core is the classic governance triangle consisting of the state, market and society (Kooiman, 1993; Peters & Pierre, 2004; Stoker, 1998) but with additional hybrid mechanisms functioning in different configurations. The model explicitly shows the complexity and multi-scalar influences on SLO that exist. It also shows an aspect crucial to this thesis which is the contextual nature of SLO. By emphasizing governance and institutional arrangements, the model shows that SLO at the local level is contextual. Company-community relationships are influenced by outside factors, and therefore, what is needed to gain and maintain SLO will vary from place to place. Prno and Slocombe conclude further research is needed to establish the appropriate governance models for different situational contexts. One of the criticisms of SLO is that it is too vague to be used as a governance framework, and it is worth noting here that the authors do not explicitly say SLO is a governance relationship, only that it is influenced by them.[2]

2 It is interesting to note than Gunningham et al. (2014) in looking at pulp and paper mills also noted the importance of context with respect to SLO, specifically that "location and geography has a lot to do with it," and that a "mill in the boondocks" with an economically dependent local community could be anticipated to have a more relaxed social licence.

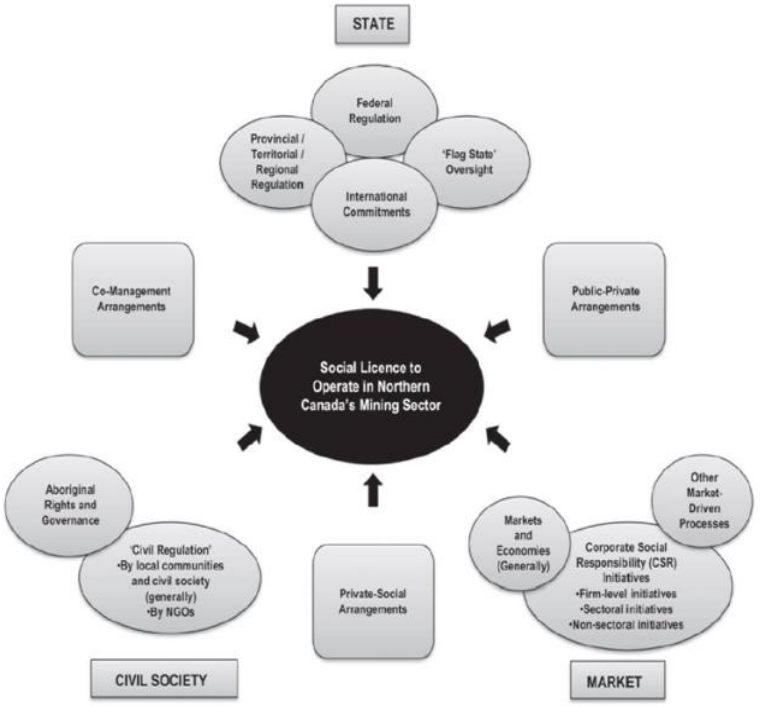

Figure 7: Multi-stakeholder governance

4.2.2. Prno and Slocombe Systems Model

Two years later, Prno and Slocombe (2014) expanded their modelling of SLO integrating the above model showing governance and institutional arrangements with a systems approach illustrated in Figure 8. They scaled those arrangements to the regional, national and international levels while accounting for socio-economic and biophysical elements as well as local variables involving the mine, community and their relationships.

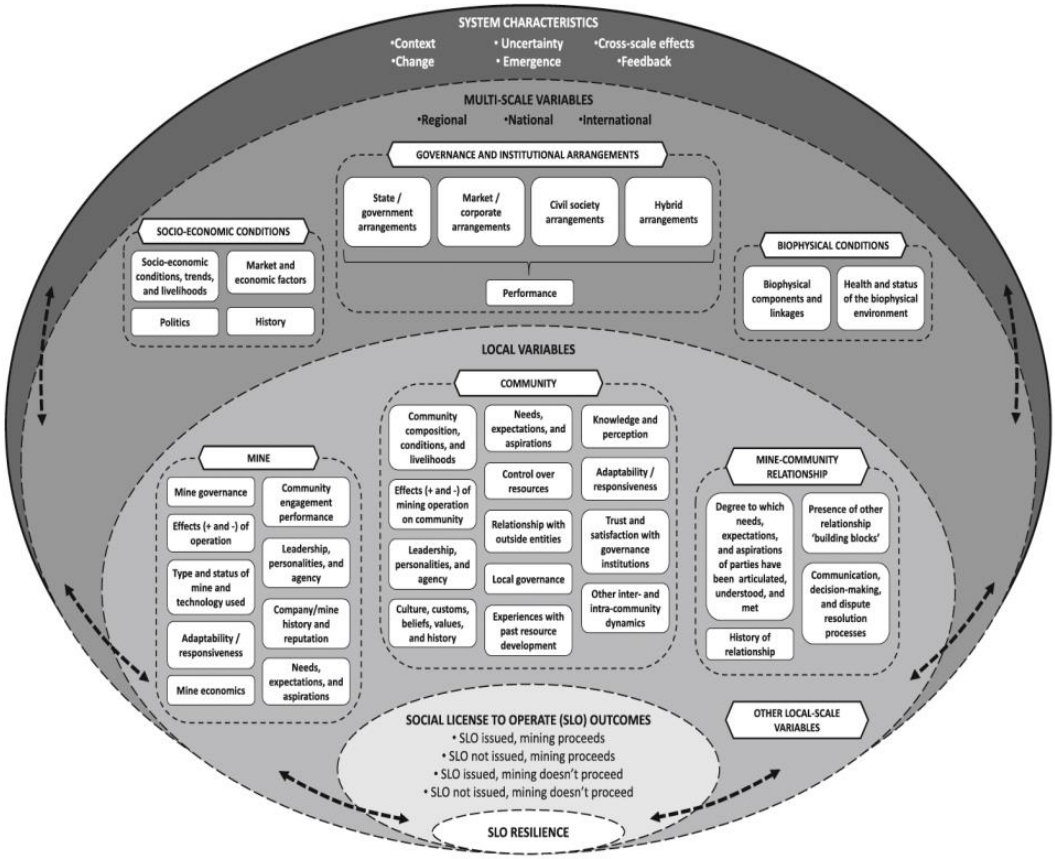

Figure 8: Systems model

4.2.3. Morrison's Three Strand Model

In the governance and systems-based models, SLO is not perceived as a process or even a tool, but rather as an outcome or product of a myriad of factors. Building on this approach, Morrison (2014) adapted Prno and Slocombe's 2012 model demonstrating the interdependency with political and legal licenses, which has been dubbed the Three Strand Model (Gehman et al., 2017). This is shown in Figure 9. All three models assert that SLO does not exist in a vacuum but in the context of governance arrangements adding complexity to Cooney's original concept separating community acceptance and government acceptance. This has also been mirrored in the SAP model (Bice et al., 2017) mentioned previously. Morrison's model fits the European cases used for this research well with its emphasis both on governance and the rule of law but without the Canadian-specific hybrid mechanisms in Prno and Slocombe's Multi-Stakeholder Governance model.

It is worth noting that Gunningham, Kagan and Thornton (2004) ten years prior to Morrison's publication discuss the interface between social licence and economic

and regulatory licenses. The focus, however, was not governance but analysing corporate behaviour. To understand the influence of social licence on a company, the authors study social pressures in conjunction with legal and market pressures as conditions of a multi-faceted licence to operate. There was no specific model in the article, however, and therefore it is not broken out separately in this chapter.

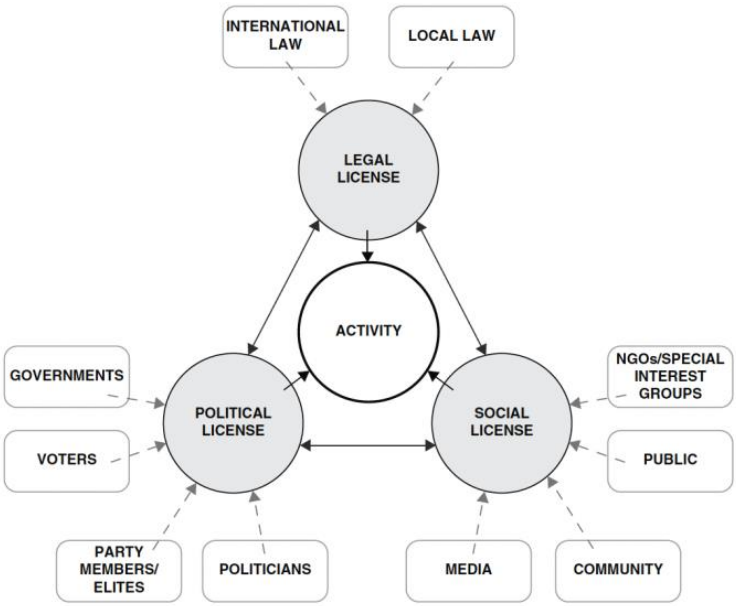

Figure 9: Three strand model

4.2.4. Zhang et al.'s National Level Path Analyses

Conducting an analysis at the national scale, Zhang et al. (2015) used citizens' survey results to evaluate the drivers of trust and acceptance at the country level in Australia, China and Chile. The tested drivers were similar to those used by Moffat and Zhang (2014) at the local level but with some modifications shown in Figure 10. The first is procedural fairness, here defined as the degree to which industry listens to communities and changes their behaviour in response to community concerns. Distributive fairness substitutes for impacts on social infrastructure and is about the equitable distribution of economic benefits to a country and the individual citizens. Governance capacity is all-encompassing referring to how well Australians, Chinese and Chileans feel that government and the accompanying regulatory framework force the mining industry to behave responsibly and hold them accountable. The path analysis showed much lower correlations among all variables at the national level than at the local level; however, there are some important findings which also resonate with the European research, notably the role for governance. The strongest acceptance emerged from

Australia and Chile when citizens believed the environmental impacts of mining were minimal and that government was capable of regulating extractive activities.

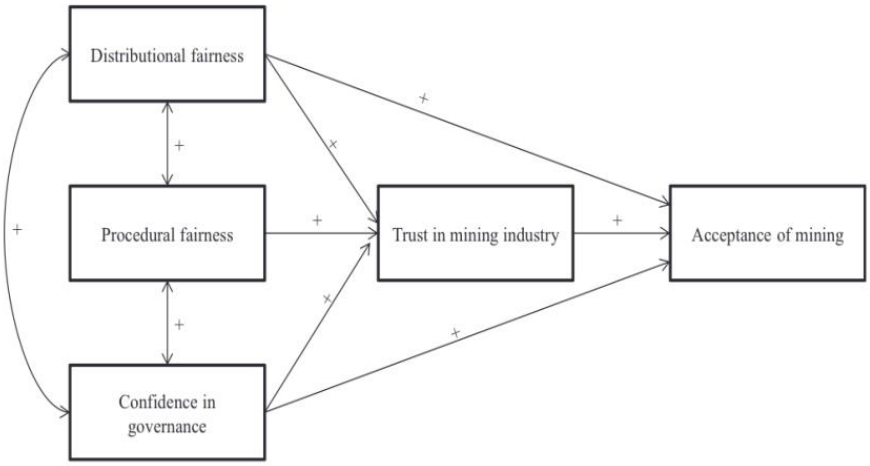

Figure 10: National level drivers

4.3. Model of Loss

4.3.1. Diamond Model

Luke (2017) applies Thomson and Boutilier's 2011 pyramid model to illustrate a community's identification with a resistance movement. Known as the diamond model and shown in Figure 11, its primary objective is to understand the levels and boundary conditions of SLO withdrawal in a coal seam gas development project in the Northern Rivers region in Australia where much of the community supports resistance movements. Those undecided and withholding support assume a central position in the model acknowledging there is a transition between gaining SLO and losing it. As the aims of the resistance movement are seen as more legitimate, credible and finally truthful by a community, the members position in the model would be within the lower tiers. The study concludes that the SLO is not dependent on a single decision made by an expert or even a community leader, but rather it is a process of each community member jostling for position in the social hierarchy based on their individual values, perceptions of risk and social connections. The idea of SLO being a social constructivist concept is also echoed by Franks and Cohen (2012) in their work equating the levels of social licence with stakeholder behaviour. The two are closely intertwined and affected by many factors including individual perceptions of a project or activity and the social capital within a given community. This is termed the "resilience relationship" and influences how stakeholders respond and the strength or weakness of the social licence (Franks & Cohen, 2012).

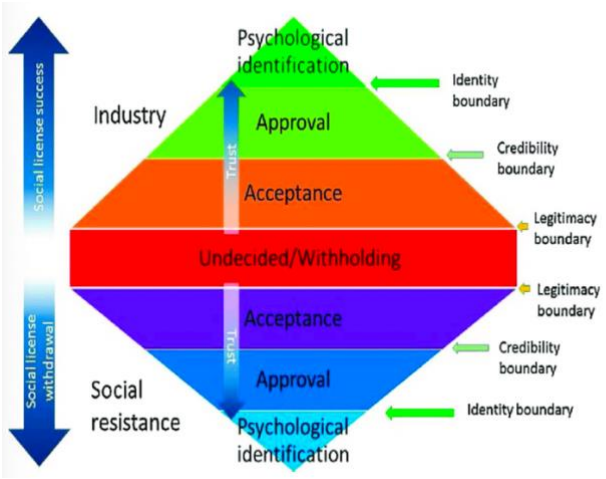

Figure 11: Diamond model

4.4. Europe and Mining

The SLO concept has had a slow and difficult start in Europe and continues to have problems gaining traction to this day. Perhaps first to note is that Europe does not think of itself as a mining region. There are areas where mining has taken place for decades and even hundreds of years (e.g. Erzberg mine in Austria), but the vision of the industry tends to be from the coal mining era. Very few new mines have begun operations since the 1990s. Since Europe's need for minerals and metals was met by importing the necessary quantities, there has been little incentive to restart domestic mining at any scale. The fact that the starting point for SLO is in negative territory, with the understanding there are exceptions, is crucial for understanding why the models are a difficult fit. The societal models study Chile, Australia, China and Canada but all of these have a strong mining identity. Mining is an accepted fact. There might be conflicts around projects, but not around the need for mining itself which could be another reason for the focus on modeling community level SLO. This is one fundamental difference with Europe and why it makes studying SLO in this context a good opportunity for additional theoretical clarification of the concept. Second to note is the dominance of the state with the result being less room for industry to build relationships with society because there are fewer benefits that industry has the power to negotiate. It is the literal and figurative centrality of government versus the market in European culture that has coloured the uptake of SLO as a private governance concept.

There are a few key points to note regarding SLO's trajectory in Europe: first, not only did the SLO concept arrive roughly a decade later than in other parts of the world, particularly Canada, Australia and the US, but the focus of SLO has always

been different too. Early on, the European academic literature addressed the issue of SLO beyond the community level, studying the role of legislation, regulation and the state in general unlike the global literature focusing primarily on SLO as the ongoing relationship between community and company. In fact, there are very few examples of SLO manifesting as a trust-based relationship between community and company (Koivurova et al., 2015). It is also worth noting there have been very few new mines opened on the continent for decades, so there simply have not been opportunities for SLO to develop at any scale. Mining is not the only industry, however, where SLO is relevant. Forestry is another one, and particularly in Finland and Sweden, forestry is one of the main industries providing ample opportunities to study relationship-building at multiple scales. The fact there appears to be no literature on the topic from either country, whereas there is research from Canada, reinforces the notion that SLO is still an emerging concept in the Nordics and by extrapolation in Europe.

While these reasons help explain the contemporary situation, they do not explain why Europe may be different and the citizenry's reticence adopting an industry concept of self-regulation. Undoubtedly there are many reasons for the differences, but there is one aspect that is particularly relevant to the discussion in this thesis and which I would like to introduce here. The literature on the Talvivaara accident with the ensuing studies placing blame on the permitting authorities, coupled with the Finnish government creating the Finnish Network for Sustainable Mining, is emblematic of the discourse across Europe where it is difficult to discuss SLO without mentioning government. It is not simply a conversation about government possibly having a role, but a deeply ingrained expectation on the part of the citizenry that it is government's responsibility to ensure their safety and well-being. In the second article that proposes the Scalar SLO Model, my co-authors and I suggest there may be a uniquely European worldview that affects the development of SLO albeit acknowledging these are nuances and not fundamental differences. With the subsequent research, although not negating the idea of a worldview, what began to stand out is that the attitudes and expectations Europeans' have of the state is different than in Canada, Australia and the US. To clarify, here the term 'state' is used very generally but implying the national, or in European Union terminology, the Member State level. In turn, the responsibilities the state has with respect to the regulation of the mining industry and mining projects is much more comprehensive than it is in the Anglo countries. This is not to say that no relationship exists between the mining industry and government in the Anglo countries, but rather it is a very different relationship and one where government is involved in less direct, more complex ways. Rather than dwelling on what those differences are, the important point for this thesis is to understand why there are differences and from where they originate. The Anglo countries and Europe share many commonalities such as strong legal and regulatory frameworks, democratic governments, having a well-educated

and wealthy citizenry, but the historical evolution of the state and its contemporary role in Europe help explain why government is the gatekeeper of acceptance rather than industry, and the little space that industry has to manoeuvre.

4.5. Social Welfare Typologies: Bridging Anglo and European Models

To better explain how Europe differs from Canada, Australia and the US, I turn to the seminal yet also debated work of Esping-Andersen (1990) and his three typologies of the welfare state. Subsequent research has modified the three typologies to also include Mediterranean and post-Communist regimes. There are also additional typologies that describe the role of the state very differently including Castles & Mitchell (1993), who distinguish the fourth "radical" welfare regime of Australia and New Zealand in which there is low social expenditure yet equality is achieved through labor relations. The Varieties of Capitalism approach pioneered by Hall and Soskice (2001) views institutions as being networked leading to market economies that are similar to welfare regimes yet also different (Ebbinghaus & Manow, 2001). Heywood[3] (2019, see pp. 32-39) proposes additional regimes such as western polyarchies, new democracies, East Asian regimes, Islamic regimes and military regimes. Although aware of the literature, I adhere to the original convention of the three welfare state typologies given the general acceptance of these typologies and as my interest is in differentiating Anglo (not only Australia but Canada and the US) from European countries.[4] Esping-Andersen argues the welfare state directly influences how interpersonal relationships are arranged and there are three welfare regime-types. The first includes Anglo countries such as Canada, Australia, the US and United Kingdom (UK) and is dubbed the 'liberal welfare state'. Here the benefits target primarily low-income, usually working class, persons dependent on the state. Although entitlement benefits are minimal, the rules are strict and grantees are stigmatised. The state encourages the market.

Europe, interestingly, is not covered under one welfare state model but by two similar yet slightly different models. The corporatist regime, the second regime-type, groups countries such as Austria, France, Germany and Italy. This exemplifies a 'post-industrial' class structure where rights are attached to class and status and never questioned. Corporate interests are in deference to the state. This regime type,

3 For more information, please see Heywood, Andrew. 2019. *Politics*. Fifth edition. London: Macmillan International Higher Education/Red Globe Press.

4 For additional information, please see: Ferreira, Leonor Vasconcelos; Figueiredo, Adelaide (2005): Welfare Regimes in the UE 15 and in the Enlarged Europe – an Exploratory Analysis, 45th Congress of the European Regional Science Association: "Land Use and Water Management in a Sustainable Network Society", 23-27 August 2005, Amsterdam, The Netherlands, European Regional Science Association (ERSA), Louvain-la-Neuve.

however, is also influenced by the Church and ideas around preserving traditional family values. For example, family benefits encourage motherhood.

The third and smallest regime-cluster is 'social democratic' comprised of countries in which the principles of egalitarianism and the decoupling of collective rights from the marketplace were expanded also to the emerging working classes. Scandinavia slots into this category. Countries within the social democratic regime cluster prioritise the highest level of equality. Blue collar workers enjoy the rights of salaried white-collar employees. In so doing, the market is pushed out and a universal consensus is built favouring the welfare state. "All benefit, all are dependent and all will feel obliged to pay" (Esping-Andersen, 1990, p. 28). It is important to note there is no pure case. The necessary criteria for defining welfare states revolve around the extent and quality of social entitlements, the strength or weakness of the middle class and the power imbalances between government, economic actors and family.

As no European country falls under the liberal welfare state model, it is unsurprising that countries where the market dominates, as opposed to the state, would embrace a private governance concept such as SLO. In this typology, it is the market that determines benefits, hence, the expectations from communities and society of companies and industry to provide and distribute economic, social and environmental benefits. The division by Esping-Andersen of Europe into two different regime-types helps explain differences seen across the continent. As noted earlier, there is no single European context or worldview and the study of Towards Sustainable Mining in Finland and Spain in Chapter 5 reinforces this notion. Finland's consensus-based network governance approach fits well with the Scandinavian regime-type favouring universalism and the equal distribution of benefits. Conversely, Spain's approach using a national standards body reflects the corporatist regime type where benefits are attached to class and status but the state is still dominant over the market. The struggle to tailor the existing SLO models was largely a question of how to cope with the role of government, including the distribution of benefits, because government clearly has a central part to play. These have been reconciled in the Scalar SLO Model discussed below.

4.6. Scalar SLO Model

Development of the model begins with the literature on the drivers of SLO at the community scale. My research did not delve deeply into SLO at this scale as there is a basic consensus among scholars that the mechanism of SLO, which refers to how a relationship between community and company eventually evolves into one based on trust, has been largely fleshed out and what remains is the need to better understand the boundaries and weak points of the concept (Owen & Kemp, 2013). The bases for the community scale drivers are those identified in Moffat and Zhang's

study (2014), which are Impacts on Contact Quality, Procedural Fairness and Social Infrastructure, overlaid onto Thomson and Boutilier's normative criteria of relationship-building. When the model was in development, research on SLO in Europe truly was in its infancy with almost all of the academic publications coming from the Nordic countries. This literature was used as well to help tailor the drivers and levels of SLO to resonate better in the European context. Please see Figure 12 for the modified community scale drivers. The community scale drivers became Contact Quality, Perceived Procedural Fairness and Social Benefits.

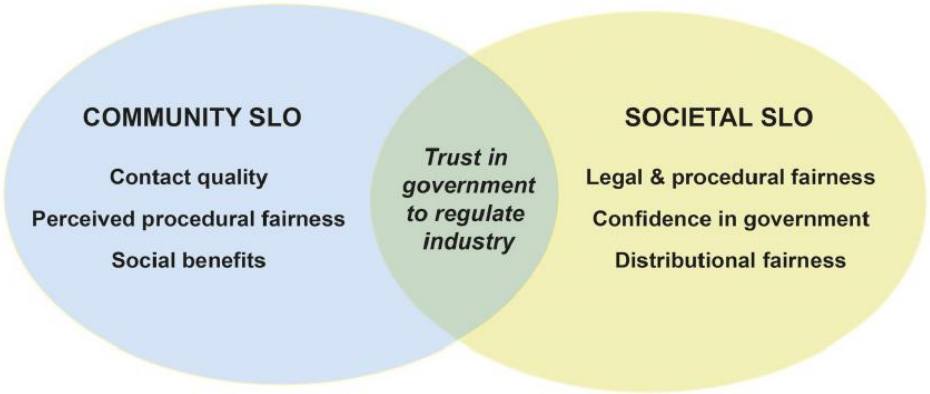

Figure 12: Modified community scale drivers

With less literature available regarding the drivers of societal SLO, I turned to Zhang et al.'s study (2015) on SLO at the national level. This also became the basis for much of the European study on the subject (Jartti et al., 2018). There are many similarities in terms of the model, analytical method and drivers between Moffat and Zhang's study on community SLO and Zhang et al.'s study on national SLO. Like the community model, the national model assumes SLO is fundamentally a relationship that is trust-based leading ultimately to long-term acceptance, but instead of a relationship between company and community it is between a country's citizenry and industry. Path analysis was again used to determine the drivers, which were similar. Instead of Contact Quality, Procedural Fairness and Impacts on Social Infrastructure at the community level, the drivers at the national level are Confidence in Governance, Procedural Fairness and Distributional Fairness. Overlaying these drivers again onto Thomson and Boutilier's normative framework, the new societal drivers became Legal and Procedural Fairness, Confidence in Government and Distributional Fairness.

Comparing the two sets of drivers in conjunction with the other SLO literature strongly suggests that the mechanism of SLO at the societal level is a scaled-up

version of the local level. The core of the concept is about relationship-building; trust and acceptance are the hoped-for outcomes; and even the drivers at the two scales are similar with the more intimate relationship between community and company being scaled up to one between society and industry with government somehow involved.

Proceeding on the assumption that SLO can be scaled, the two sets of drivers were merged into one so that the community and societal scales now share the same drivers. This was also supplemented by my understandings drawn from the literature review as well as from the interviews related to the implementation of TSM in Finland and Spain. This became the foundation of the Scalar SLO Model in Figure 13.

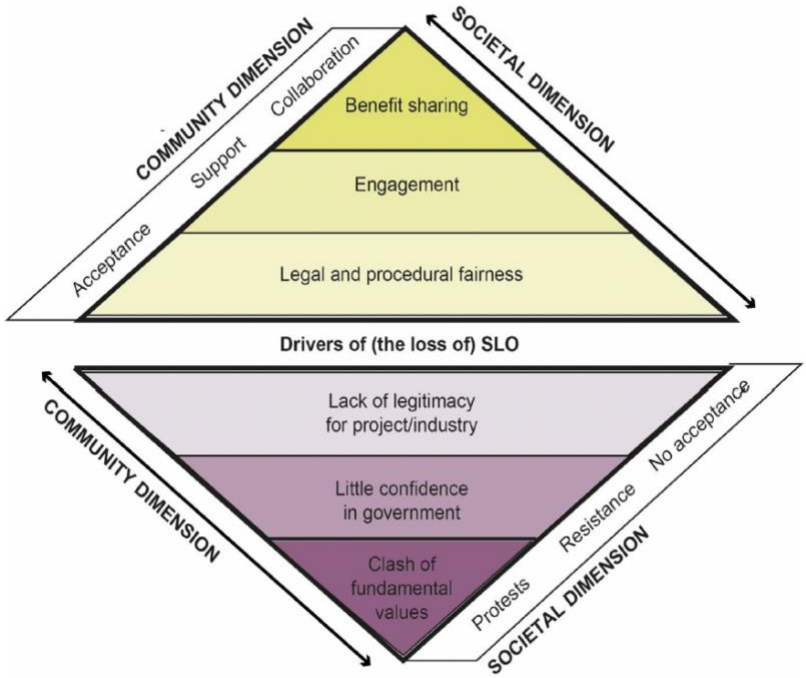

Figure 13: Scalar SLO Model

The Scalar model makes two significant contributions to the SLO research. First, it is the only integrated SLO model addressing both the community and societal scales. The second is that it is the only one that introduces the drivers of loss or withdrawal. The Scalar model reflects the empirical reality that in Europe, decoupling community and societal scales is difficult. There is no self-spontaneous public discourse; it comes from somewhere. When discussing the potential adverse environmental impacts for a host community, inevitably the leap is made to the

effects it could have on the larger environment and what that means for policy discussions such as those surrounding Natura 2000[5]. This also segues into discussing the inherent tensions between environmental conservation and economic growth. When discussing the potential financial benefits for a host community, the leap is made to quandaries around taxes and royalties that should go to the Member States. Hence the (trans-)national interest versus local benefits debate. When discussing mining generically and the impacts on a host community, the leap is made to discussing the pros and cons of industrial policy and outsourcing what is still perceived to be a dirty industry. In short, there are no local discussions about mining without also discussing the societal implications. It even goes beyond this into the more esoteric realm of values as debates around mining often link to larger value-centric issues such as responsible sourcing, circular economy, post-consumerism and societal transformation versus preservation.

4.6.1. Building Social Licence

Less has been said so far related to the normative component of the model and the levels of SLO. Even though the normative elements of legitimacy, credibility and trust are not explicitly part of the Scalar model, they have informed the drivers and the overall structure. There are, however, several nuances that should be addressed. To begin, the boundary criterion of legitimacy, demarcating whether a project has acceptance or not, has two meanings in the Thomson and Boutilier model. The first is whether a community believes the project has more benefits than impacts, and the second is whether a community feels they are being respected and treated fairly by a company. Regarding the first meaning, at the time of writing the article, the economic benefits of mining are not seen as a foundational driver because the research and discourse indicate it is government's job in Europe to ensure the economic needs of citizens. Having additional economic benefits than those the government provides would be helpful but not crucial for SLO. This is reflected in the uppermost tier of the Scalar SLO Model, which is 'Benefit Sharing,' signalling the need for economic benefits is more aspirational than foundational. The second meaning of the legitimacy boundary criterion equates to Moffat and Zhang's driver of procedural fairness describing the need for a company to treat a community respectfully and fairly. Again, rather than being the foundational driver, this is reflected in the middle tier of 'Engagement'.

5 Natura 2000 is a network of protected areas across Europe to preserve the most valued and threatened species and habitats. It comes from two European Union directives, The Birds Directive (https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive_en) and the Habitats Directive (https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en). The Birds and Habitats Directives set out the overall legal framework for protecting and managing Natura 2000 sites (https://environment.ec.europa.eu/topics/nature-and-biodiversity/natura-2000/managing-and-protecting-natura-2000-sites_en).

With respect to the levels of SLO, these were incorporated into the Scalar model albeit with slightly different terminology reflecting a general European predilection for specific vocabulary. The lowest level of SLO is acceptance in both models, and while not changed, the definition was softened. The literature and interviews suggest acceptance is seen as a more neutral term akin to Luke's model designating an undecided/withholding level. Rather than 'approval', the level is changed to 'support' because the interviews suggest approval refers to the outcome of government processes. The uppermost level of co-ownership did not resonate at all in Europe. Even those supportive and knowledgeable of mining did not feel comfortable with co-owning a project. That is the purview of government, hence, collaboration was a better fit.

Moving onto the drivers, the base of the Scalar model is 'Legal and Procedural Fairness,' premised on the idea that in Europe, government and its accompanying regulatory frameworks have legitimacy. Government accountability is important. The second driver is 'Engagement' reflecting the importance of company and industry outreach to communities and society, respectively, with government aiding the relationship-building when necessary. The uppermost driver of 'Benefit Sharing' connects the ideas around social infrastructure and the economic legitimacy of a project with the emerging European discourse, particularly in the Nordics, around mining revenue and taxation. It also implies that benefits go beyond merely financial to include social benefits too. This refers to a sense of enhanced well-being in terms of cohesiveness and stability.

In addition to the drivers, part of the model development includes describing how the drivers at both scales manifest in Europe or should ideally manifest if they have not already. These are provided in Figure 13. For example, at the community level, 'Legal and Procedural Fairness' manifests itself through actions such as the company informs and conducts requisite community consultations, and in turn, the community perceives company behaviour as respectful and compliant with legal requirements. At the societal scale, one manifestation is the desire, particularly by the Sámi peoples in Finland and Sweden, that the mandates from the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) be incorporated into national mining legislation. 'Engagement' at the community level manifests when the community believes a company listens to and respects them and they have a voice in decision-making. At the societal level, it assumes the form of raw materials awareness campaigns and the adoption of voluntary mining standards. The Finnish Network for Sustainable Mining, the subject of the third article, is an example of societal level engagement. The uppermost tier of 'Benefit Sharing' is only a wish-list as there were no clear examples at the time of writing at either scale. Providing the manifestation of the drivers is one way to address the regional differences seen across Europe and the value-centred discourses heard as well. In practical terms, it is one way to keep the model simple and yet add nuance and complexity to it.

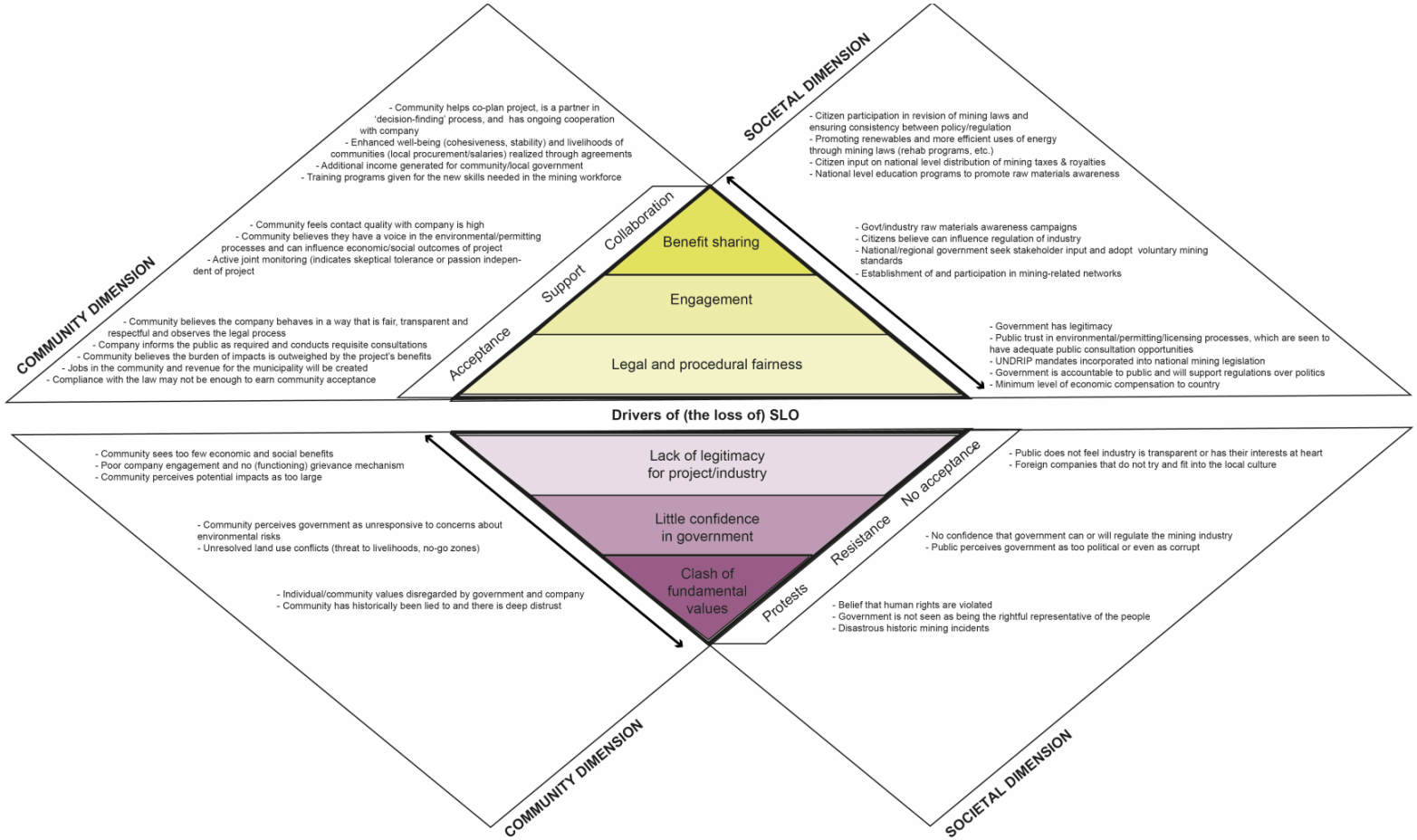

Figure 14: Manifestation of drivers

4.6.2. Losing Social Licence

Before delving into the drivers of loss, a brief word on why this is relevant in the European context. Mining had lain dormant for decades, and it was only in 2008 that the European Commission put raw materials back on the agenda with the Critical Raw Materials Strategy. Exploration and mining companies began to take notice of the changing policy landscape and the number of both exploration and exploitation project proposals began to grow. The proposals early on were not initially opposed by communities. However, as the number of proposed projects continued to increase as did their scale compared to those developed decades ago, a growing awareness by the public of outdated mining legislation at all levels of government and the reminder of past but recent accidents,[6] resistance grew assuming a form of resource nationalism and later transforming to outright opposition (Eerola, 2022; Jartti et al., 2020). The loss of SLO is not a main focal point of the thesis, but the continuing opposition to mining over the duration of my research suggests more systemic problems may exist in Europe challenging the idea that acceptance of a mining project, let alone the mining industry, is achievable.

Even though the mining industry considers not achieving SLO, or its withdrawal, as the most important business risk to the mining industry (Ernst & Young, 2018), it is interesting there is little study on the causes and how to recognize when a situation is deteriorating. Thomson and Boutilier's model is the first to address the loss of SLO, but it is simply a level placed below the legitimacy boundary criteria without explanation as to whether loss is simply one level or if there are gradations of loss and what the corresponding levels of loss might be. Boutilier et al. (2012) define social license withdrawal as "when alliances of stakeholders exercise their 'veto' power over resource access". Boutilier (2014) highlights three factors weighing on the legitimacy of withdrawal: 1) unsatisfactory community engagement, 2) public voting or opinion polling and/or 3) the perception that the benefits of a project are not greater than what currently exists. This is mirrored in Haines et al. (2002) who looked at social licence in the coal seam gas industry and found that perceptions do indeed matter. What some saw as harmful, others saw as beneficial. Even agreeing on what good employment and respectful corporate behaviour look like proved to be extremely difficult.

Luke's model (2017) correlates the loss of SLO with support for a resistance movement. She found the theme of impacts and benefits to rural livelihoods important with companies judged consistent with a community's existing values. Better jobs in the mine and further down the supply chain garnered appeal to towns wanting new investment and younger workers. This reflects Prno's (2013) observation that the legitimacy of a project hinges largely on benefit provision and

6 Recent accidents include the Aznalcollar toxic spill in 1998, the 2000 Baia Mare cyanide spill in Romania and the 2012 Talvivaara tailings accident (Eerola T. , 2022) in Finland.

the degree to which it enhances the local economy (Prno, 2013; Williams & Walton, 2013). Bridging theoretical models and practice, Franks et al. (2014) investigate the influence of conflict at the local level on the sustainability performance of the extractive industries. There is a strong business case for SLO, as failing to address the environmental and social risks of a project results in a significant cost to companies.

These findings, in conjunction with empirical evidence of increasing tension across Europe, provide the basis for development of the lower tiers of the Scalar SLO Model. Before delving into the drivers, it is helpful to understand from where the tensions arise and in what parts of Europe they are prevalent. In Spain and northern Finland, these revolve around concerns that mining is discordant with the existing way of life. In Portugal, there is distrust in government and a perception that communities have little ability to influence either government or industry. In Sweden, the discourse centres on the belief that government lacks capacity in regulating mining activities. In Sweden and Finland, there are deep-seated tensions around sovereignty that underlie debates about mining, such as Sámi rights versus those of the state. In Poland and Germany, collective values such as climate change can pit the societal desire to meet climate change goals against the local community's desire for jobs and economic growth (see Lesser et al., 2020, p. 4).

In the Scalar model, the drivers of loss in descending order are:

- Lack of Legitimacy for Project/Industry
- Little Confidence in Government
- Clash of Fundamental Values

The corresponding levels of tension (as opposed to acceptance) are:

- No Acceptance
- Resistance
- Protests

The first driver of loss is 'Lack of Legitimacy for Project/Industry', equal to No Acceptance, and used in the same way as Thomson and Boutilier's level of withdrawal. It acknowledges that the benefits of a project must outweigh the negative impacts, and this is usually demonstrated through financial benefits. It is about the relationship between company and community and manifests when engagement is insufficient, and the distribution of benefits poorly negotiated. On the societal side, it manifests when industry is viewed by the public as being opaque, there is minimal outreach and little effort to observe cultural norms. Because the no acceptance level implies there was acceptance previously, a note is warranted on where the space is for neither having nor losing SLO. Acknowledging that SLO is not inherent or pre-existing is important for the utility of the concept because companies cannot simply claim they have SLO without proving they have earned it (Bice, 2014). This was

addressed in the 'withholding/withdrawal' level at the bottom of the Thomson and Boutilier pyramid. In the Scalar SLO Model, the idea of withholding is implicit in the acceptance tier because the literature and interviews suggest acceptance is seen as a more neutral term akin to Luke's model designating an undecided/withholding level.

The second tier is 'Little Confidence in Government' equal to a level of Resistance. This manifests when government is seen as inert, being unresponsive to community concerns about environmental risks and incompatible land uses that threaten livelihoods and disregard no-go zones. On the societal side, at best the public doubts government has the ability or desire to regulate the mining industry. At worst, government is viewed as highly political or even corrupt.

The lowest tier is 'Clash of Fundamental Values', equal to a level where Protests are seen. For communities to reach this tier, their individual and collective values would be repeatedly ignored by government and or the company. The community has historically been lied to and there is deep distrust. On the societal side, human rights are seen as being violated. Government is not considered legitimate or representative of the citizenry. 'Clash of Fundamental Values' is meant to reflect the fact there are people who are simply opposed to mining and this is both at the local level, for instance mining and reindeer herding are considered incompatible, and the societal level, where there are widespread beliefs that increasing recycling while decreasing consumption will negate the necessity for primary materials.

4.7. Conclusion

The extant SLO models reveal several distinct patterns. As a local concept, SLO is understood both from the community and the company perspectives. For the former, the community perceptions of mining have been translated into normative criteria (Thomson & Boutilier, 2011), while the latter are actions, translated into drivers, that a company needs to undertake (Mercer-Mapstone et al. 2018; Moffat & Zhang, 2014). At the local level, the SLO models all stress the need for transparency, companies being respectful and following the laws (procedural fairness), and meaningful contact that fosters dialogue and relationship building. As a societal concept, the majority of the literature supports the approach that it is a scaled-up version of community SLO; however, there are also different views that deserve mention. Two of the more widely referenced are Morrison's three-strand model and Prno and Slocombe's systems-based conceptualisation. As there was only one model that addressed the loss or withdrawal of SLO, there were no detectable patterns other than the loss of SLO harkening back to the normative criteria of the pyramid model but applying it in reverse to explain the support of resistance movements.

5. Trust-building in Finland and Spain

In this chapter, I shift focus from the conceptual Scalar model to the empirical study of SLO at the societal scale. The second research question is introduced asking how relationship and trust-building between society and industry differ in Europe than in Canada, Australia and the United States, where SLO first arose. The motivation for the question originates from empirical examples in Finland and Spain of industry and government assuming societal trust can be built through implementation of an international good-practice mining standard, such as the Canadian Towards Sustainable Mining (TSM) protocols. Although TSM has spread globally, its adoption in Finland and Spain was not simply by the national mining associations, which is the norm, but rather government also played a role. In Finland, government spearheaded the effort, while in Spain, government took a less active role but nevertheless provided legitimacy to industry's efforts. The chapter begins with an introduction to the Canadian standard and proceeds to discuss the different adoption and implementation mechanisms employed by Finland and Spain. It concludes with the implications of those different approaches for trust-building in Europe versus Canada, Australia and the US as well as between European countries themselves. What emerges is that industry alone cannot build trust with society and achieve societal acceptance, but also that societal acceptance as a concept is too vague and ambiguous to be useful as a goal. Without understanding what it is, whether it can be achieved remains unclear.

5.1. Industry Self-Regulation

The second research question seeks to clarify how relationship and trust-building differ in Europe and arises from the prominence of the theme, particularly in the Nordic literature, that trust in industry is inextricably bound to trust in government. The three typologies of the welfare state help explain why the citizenry's expectations of the state and private sector are different between the Anglo countries and Europe, and this is bolstered by research from the Nordics showing that legislation has traditionally been thought of as best practice and the public expectation of companies was simply to follow the laws (Koivurova et al., 2015). Only in the last decade has this expectation begun to change in Europe so that mere compliance with legislation and regulation is not always adequate for acceptance. The mining associations of Finland and Spain adopting the Canadian TSM embody this change.

Outside of Europe, sustainability standard systems have for decades become a key means to engage with mining companies and other stakeholders to drive ESG (environmental, social and governance) performance in the sector and companies use them to demonstrate they are operating responsibly (BGR report, 2022). It is interesting to note that the first standard systems for mining were developed in large part as a response to mining companies desiring guidance in obtaining a social licence to operate from communities.

The TSM program is a global mining standard started by the Mining Association of Canada (MAC) in 2006 and has since spread internationally to ten other countries (Mining Association of Canada, 2023). The national mining associations in Finland and Spain are two of the earliest adoptees of the TSM with FinnMin (Finnish Mining Association) adopting it in 2015 (Mining Association of Canada, 2015) and CONFEDEM (National Confederation of Mining and Metallurgy Businesses) in 2018 (Mining Association of Canada, 2018). TSM is unique among mining standards as it is adopted not by a singular company but instead by a country's national mining association with the result that all mining companies belonging to the association are then required to implement TSM. Given the targeting of associations at the national level, the argument could be made that at least one of TSM's aims is to help build trust in the mining industry at the national level[7], or in the language of this thesis, to help obtain societal SLO. It requires MAC members to commit to certain responsible practices related to environmental and social performance through principles and frameworks and measure the improvement of sustainability management systems by reporting against 30 indicators set by eight assessment protocols. It covers all mined materials and assessment is at the site level. Although it started out as being a distinctly Canadian standard, it now has a global reach and has been adopted by national mining associations in Finland (2015), Argentina (2016), Botswana (2017), Spain (2018), Brazil (2019), the Philippines (2020), Norway (2020), Australia (2021) and Colombia (2021) (Mining Association of Canada, 2023). FinnMin was the first association outside Canada to adopt the TSM framework.

Adopting the framework in Finland and Spain signalled a shift not only by the citizenry but by the mining industry itself toward embracing voluntary tools in synergy with the more traditional legal tools of regulation. The decision is also notable because TSM is a Canadian standard, and hence non-European, and thus 'foreign'. Particularly when it comes to the utilisation of raw materials in Europe, there has been a marked increase in resource nationalism (Jartti et al., 2014) with

7 Many standards assess at the company level and not at the project site level. As this thesis is about scale, it is important to mention that TSM does audit at the mine site level and therefore is not only about relationship building between society and industry but also about relationship building between community and company.

the consequent backlash against foreign mining companies and mining standards alike. One explanation for the decision could be that to date there are no European mining standards leaving little choice but to either adopt a foreign standard or develop a new standard from scratch. Revisiting the research question, it would seem that trust-building at the societal scale in Finland and Spain is becoming more similar to other regions of the world with the move toward embracing voluntary international industry standards.

As it was early days for TSM in both countries, assessing whether the standard contributes to societal acceptance of the industry was not yet possible. The focus of this chapter therefore homes in on the process of how the two mining associations decided to adopt the Canadian TSM and the structures that were set up to ensure its effective implementation. The mechanism of adoption differs markedly between Finland and Spain as do the oversight bodies responsible for ensuring the standard's implementation. One mechanism of adoption involves building a multi-stakeholder network initially led by government, while the other mechanism involves the national mining association incorporating TSM into their national standards body. The oversight mechanisms to ensure responsible implementation also differ with one being the traditional TSM modus operandi of the member mining association overseeing implementation while the other places responsibility in the country's national standards body. The distinct approaches offer an opportunity to study whether different types of adoption and oversight mechanisms improve the framework conditions for implementation and therefore support the delivery of better outcomes.

5.1.1. TSM in Finland

The Finnish Mining Association's journey toward adopting TSM began after the Talvivaara accident in November 2012 that not only prompted outcries from local communities but eventually from the whole of society (Sairinen et al., 2017). While the initial protest was aimed at the Talvivaara mining company, it was not long after that distrust of that single mining company transformed into distrust of government, particularly permitting officials, and spread to the mining industry in general. Something had to be done to rebuild trust in both government and the mining industry. Adopting a collaborative network approach, in May 2014, the Finnish Network for Sustainable Mining (the Network) [8] was formally established and eventually adopted the Finnish Towards Sustainable Mining Standard (Finnish TSM). Although the Canadian TSM serves as the model for the Finnish TSM, the environmental chapter of the multi-stakeholder governed global mining standard IRMA (Initiative for Responsible Mining Assurance) (Kaivosvastuu, 2000-2023)

8 The Finnish Network for Responsible Mining is known as Kaivosvastuu in Finnish. Please see the website for more information: https://kaivosvastuu.fi.

also influenced the Finnish TSM. As a result, the Finnish version is more robust developing two additional protocols addressing water management and mine closure. Implementing tools such as the Corporate Social Responsibility (CSR) report, toolboxes for exploration and exploitation and online training courses were created as well. Post standard-adoption and tool development, it becomes the responsibility of the companies to implement the requirements and report on them. The first information appears around 2022, roughly seven years after the TSM was adopted by FinnMin, when self-assessments of five mines were verified.[9]

Because the Network initially was led by the national government and consisted of all relevant stakeholders including the Sámi Parliament, Reindeer Herders Association, the Finnish Association for Nature Conservation (FANC), among others, the choice of TSM enjoyed broad support internally within the membership. And because the Network was a horizontal governance structure that embodied many of the relationship-building characteristics espoused by the SLO concept, particularly its consensual nature and ongoing voluntary engagement in need of continuous trust-building efforts to survive, there was genuine belief that it would help build societal trust and acceptance. For years the Network was touted as a model governance structure that could help gain acceptance of mining activities, even in areas with conflicting interests. Hope even stretched to the possibility of mining being accepted in areas where the Sámi peoples lived.[10] . It thus appeared to successfully address the problem around the marginalisation or further silencing of vulnerable groups through this idea of equal governance (Newman et al., 2004). Over time, however, a number of key stakeholders left the Network diminishing its legitimacy and effectiveness, at least in the eyes of those knowledgeable about the Network and its activities. Ultimately it became a Network dominated by FinnMin and its member mining companies.

5.1.2. TSM in Spain

Unlike in Finland, there was no single accident or emergency that galvanized a national effort to ensure better practices in the mining industry. The impetus for adopting TSM came from the increasing opposition to mining projects across the country and the realisation that permitting new projects was an extremely lengthy, expensive undertaking with no guarantee of success in the end. It also came from the mining-related governance structure in Spain where mining is a regional competence and not a national one. Thus, to improve the chances of new mining projects being permitted, for better harmonization and to clarify who is responsible

9 For more information, please see the website of Agnico Eagle https://agnicoeagle.fi/results-from-verification-of-the-towards-sustainable-mining-standard-2022/.

10 Being Europe's only officially recognised indigenous peoples and inhabiting the northern regions of Norway, Sweden, Finland and the Kola Peninsula in Russia, mining has become more contentious recently with the Sámi in Finland forbidding any mining in their Homeland.

for overseeing voluntary good practices, the mining association of Spain decided to implement TSM through UNE, the Spanish Association for Standardization, a quasi-governmental entity designated by the Spanish Ministry of Economy, Industry and Competitiveness to the European Commission.

Integration of the Canadian TSM into the Spanish UNE Standards began in 2008 with the environmental and management protocols becoming UNE 22470 Sustainable Mining Management Systems (Requirements) and UNE 22480 Sustainable Mining Management Systems (Indicators). Both standards were later revised in 2015 and 2019. In the 2019 revision, UNE 22470 and 22480 were renamed the Sustainable Mining, Mineral Processing, Metallurgy Management System (Requirements and Indicators). It was not until 2018 that the 'social' protocol, the Canadian TSM Aboriginal and Community Outreach Protocol, was incorporated into UNE renaming it the Communities of Interest Protocol (COI). The membership unanimously approved adoption of the COI indicating broad acknowledgement by the Spanish mining industry of the importance of stakeholder communication and engagement (see Lesser, 2021, p. 4).

Although the adoption of national standards is a top-down process, their construction is voluntary and decisions based on unanimity with dedicated time for public consultations. Generally, the benefit of standard bodies, such as the UNE, is they themselves are viewed by the public as legitimate, stable and neutral. Additionally, the processes of adoption are considered robust and transparent, if not to the public, at least to those involved. The basic assumption is that standards and their implementing bodies should help improve trust in the activity and those participating in the activity through their own unique way of branding.

5.2. Trust-Building

There are two types of trust-building addressed in this chapter. The first is whether trust-building between society and the mining industry is the same in Finland and Spain as in Canada, Australia and the United States. The second is comparing trust-building measures between Finland and Spain to assess similarities and differences and what this might say about trust-building across Europe in general.

At first glance, it appears that trust-building is not different in Finland or Spain from the Anglo countries where SLO originated given that an international mining standard has been adopted by the national mining associations of both countries. Not only do these types of standards have a shared aim of improving industry behaviour, which in turn should help build greater acceptance of mining activities, they are also globally ubiquitous. It is, however, important to delve deeper to really understand whether trust-building is the same, and this can be accomplished through a better understanding of the implementation mechanism in the two countries.

In Finland, because of the Talvivaara accident, trust in both the mining industry and government was broken. The fact that it was the government who took the initiative to find a way forward and rebuild trust rather than the Talvivaara mining company or FinnMin is illuminating. Although there is no government-led initiative in Spain, the incorporation of TSM into the UNE as opposed to the Spanish national mining association, CONFEDEM, reflects the same belief that government and not industry is the custodian of legitimacy and an essential actor for trust-building. At a more theoretical level, these actions show that while voluntary, industry self-regulatory measures may be helpful to build trust and confidence in the mining industry at the societal level, they cannot stand alone. They must in some way be associated with, or even better be supported by, hard law.

In Canada, where SLO has existed now for decades, the MAC developed the TSM protocols as a response to mistrust of the mining industry. TSM is an industry standard created and overseen by industry. The Canadian government does not have an active role although it appears supportive of MAC and TSM. This has set the tone for the process of adopting the standard and establishing oversight mechanisms in other countries. To my knowledge, the government has only played an active role in Finland and Spain. There is no literature indicating government involvement in the adoption of TSM in Norway, Mexico, Guatemala, Colombia, Panama, Brazil, Argentina, Botswana, the Philippines and Australia. Thus, I assume both are unique initiatives that suggest trust-building at the societal level differs in Europe because industry and government are bound together in a way they are not in other parts of the world.[11]

5.2.1. Europe v Canada, Australia, USA

To answer the first question, whether trust-building is the same in Finland and Spain as elsewhere around the world, the fact that the two governments saw TSM as necessary to improve the public perception of mining and attempted to foster trust on behalf of the mining industry indicates that it is not. In the case of Finland, a key difference is that it is the Network who has to date conferred legitimacy on TSM rather than the standard inspiring public trust and confidence in the mining industry. It is not only the multi-stakeholder composition of the Network that makes it trust-worthy, but also because it is government-established and in the beginning was government-led. Even if trust in government was diminished because of Talvivaara, research shows that government is not thought of as a singular entity (Suopajärvi et al., 2017). In this case, trust in the national government was relatively

11 The national mining association in Norway adopted TSM in 2020, after the expert interviews were concluded in Finland and Spain. I did not, therefore, consider Norway in the article on societal trust. Whether or not the government played a role in the adoption of TSM would be important for the assumptions in the third article and is an opportunity for further research.

untouched and the blame landed on the shoulders of the environmental permitting authorities (Jartti et al., 2018). This preserved the legitimacy of the national government, which was then transferred to the Network. In Spain, a similar pattern emerges where industry believes that for TSM to have legitimacy with the public, it needs to be associated with an official entity, if not government itself, that will aid in trust-building and lead to greater public confidence. The Spanish mining association, CONFEDEM, could have chosen to directly adopt TSM as is the norm in other countries. They did not, however, which suggests it was important that an external entity imbued with societal trust confer legitimacy on it. In this case, the UNE is the trusted entity. Both cases in Finland and Spain show for there to be societal SLO, industry cannot go it alone. There must be an association with either government itself or a governance entity that is seen as trustworthy by the public.

The interviews of the Spanish experts bring up an interesting conundrum, however, and that is the disinterest on the part of the Spanish national government in the UNE as an entity, including all of its standards, not just the UNE Sustainable Mining Standards. The rationale provided in the interviews is that the national government tends to be uninterested in non-legal mechanisms, including standards, because they have no direct connection with legislation. In this instance, not only are the UNE Sustainable Mining Standards voluntary, but they aim for something higher, beyond legislation. Although it seems odd that government does not want to aim for something higher, this is consistent with the idea in Europe that legislation is considered best practice and it is enough to be compliant with it.

5.2.2. Europe v Europe

As to the second question, the Spanish UNE has very different characteristics from the Finnish Network. The UNE is a recognised, quasi-official body funded by the government; it is not purely voluntary like the Network, which was in constant need of funding once the Finnish government financially pulled out. Additionally, the interviews suggest that because the UNE provides clear rules and a systematic communication procedure, companies themselves favour the additional structure over simply following TSM. The UNE offers more concrete guidance and the need that Spanish companies have for this is another distinguishing feature. Interviewees in Spain agree the absence of communication between companies and communities is the single largest problem. Even so, concerns were expressed that more communication could result in unmet expectations and fraught communication ultimately exacerbating the situation and leading to greater problems. The safer route in the eyes of many companies is not to engage. This is very different in Finland where the interviews indicate the opposite. Because trust-building among the Network participants occurred early and continuously leading to the consensual decision to adopt TSM, the mining companies who ultimately would have to fulfil the criteria felt comfortable with the community engagement requirements

believing the legitimacy of the Network would help persuade those external to the Network this was the correct way forward. The companies in Finland did not show the same concern that engagement would go poorly or indicate a hesitancy to communicate. As the Network had been working with the relevant stakeholders for years, there appeared to be confidence that continuing along the same path would result in positive outcomes.

When the research first began, the initial thought was that the Finnish model of horizontal governance would result in a better outcome, meaning stronger societal SLO, than the more hierarchical Spanish model with a formal institutional process. The Finnish Network, particularly its first couple of years, displayed the characteristics seen in the Thomson and Boutilier (2011) model where first the Network needed to have legitimacy both internally and externally. With the support and financial backing of the government, this was possible to achieve. Credibility came at the beginning via the multi-stakeholder process that included participants opposed to mining yet all of whom worked together to identify how the trust between industry-society-government could be rebuilt. The interviews clearly showed the members trusted one another and that the Network itself was an extremely worthwhile endeavour. Although relationship-building among all participants was strong at the beginning, after the financial (and nominal) withdrawal of the Finnish government in 2015, the Finnish Sámi Parliament also in 2015 and tensions with the Association of Reindeer Herding Cooperatives and the FANC[12] on the rise, the interviews indicate a problem of legitimacy and credibility both within and outside the Network.

Internally, the stakeholders who eventually left felt their interests were not being well represented. Externally, the picture is more complex given the number and diversity of stakeholder groups that fall under this category, which includes all non-members of the Network. Problems of legitimacy and credibility differ depending on who the stakeholder group is and the interests they have. For example, the Director General of the Network spoke at numerous events sponsored by the European Commission raising awareness of the Network across the whole of Europe. He was an extremely effective spokesperson, and the Network was held up by the European Commission and others as proof that problems could be overcome and societal acceptance obtained through the efforts of a multi-stakeholder model of mining governance. Over the years, with the difficulty obtaining funding to keep the network alive and the loss of key stakeholders, doubt in the Network's ability to keep relevant stakeholders with conflicting interests at the table emerged and the potential for achieving societal SLO in Finland was thrown into question.

12 The Finnish Association for Nature Conservation ultimately withdrew from the Network in November 2021.

Within Finland itself, the breadth of the public's awareness of the Network and its activities is not clear; although, given the founding of the Network and its activities were well publicized for years both on television and in the press, it is likely the Finnish public generally was aware of it. For those not directly involved, it could be the case that following the Talvivaara accident in the news and learning about the Network created the impression everything was working smoothly, so for the general public, trust in the mining industry was restored. Conversely, it could also be the case that not seeing tangible changes in industry behaviour, yet a proliferation of mining proposals garnering much media attention, caused people to question the efficacy of the Network. This also brings up another issue which is who or what we should consider when saying that societal SLO exists. Is it the key stakeholders involved in mining issues at the national level or is it a barometer for the attitudes of the general public?

Although a stakeholder, the public-at-large is far less relevant than those residents living close to mining sites or proposed mining sites. Particularly in Lapland where most of the new mining projects in Finland are proposed, residents had been well aware of the Network and its activities, including the promise of audit reports benchmarking the members of FinnMin against the Finnish TSM standard. Using voluntary standards and conducting mining audits is not something the mining companies operating in Finland have had to do historically, which could be one reason why it took approximately seven years before the first complete audit was made public. Determining the impact of the time lag on the residents' perceptions of the Network is not within the scope of this thesis, but the interviews do indicate the lag was problematic for members of the Network itself, and they assumed it would not be viewed as beneficial by those outside of the Network either. As promising as the Network was in its early years with its trust-building measures occurring early and all through the process of adopting and implementing TSM, the Network proved fragile and its influence on outcomes uncertain. It is difficult to know whether the creation and existence of the Network has ultimately been enough to foster societal trust and more research on the subject is warranted.

The Spanish case does not exhibit trust-building measures up front as it was the mining association unilaterally that decided to adopt TSM and integrate it into the UNE. There are multi-stakeholder consultations as part of the UNE standard adoption process, but the interviews indicate there were no multi-stakeholder groups dialoguing about the best way to ensure public acceptance. Applying the Thomson and Boutilier model (2011) to this case, it is the UNE and its process, which is oriented toward transparency, consensus and inclusion, that would confer legitimacy on the implementation of TSM. None of the interviews reveal negative attitudes or distrust toward the UNE. In terms of credibility, the interviewees state the national standards body is considered neutral with good and fair processes resonating with the procedural fairness driver of Moffat and Zhang's work (2014).

Trust-building is left to the end in this case, after the companies comply with TSM and proceed with their third-party audits. There was no discussion of either UNE or TSM being trusted in the interviews and working toward actual trust does not appear to be a conscious goal.

The findings from the research, though preliminary, suggest that mechanisms which favour early trust-building do not appear to improve the framework conditions for implementation or support the delivery of better outcomes than mechanisms which favour trust-building later in the process. It is interesting that an entity, such as the Network, embodying the main characteristics of SLO, including dialogue, relationship-building and trust, may not result in a better outcome than an entity, such as the UNE, that is procedural and neutral with no objective to build stakeholder relationships. The fact that the UNE offers a sense of continuity and stability, however, are two of the features that may ultimately make it a better implementation mechanism than the Finnish Network.

There is one main limitation of this research which should be noted and that is the small number of people close enough to the cases to be interviewed. As it was too early to study the actual outcomes of TSM on public acceptance, what could be studied is the way in which it was adopted and the chosen mode of implementation. In both cases, there were a limited number of people involved, and it was those key experts that were interviewed for this article. In Finland, a total of eight interviews have been conducted and in Spain there have been five.

5.3. Conclusion

The development and implementation of the SLO concept in Europe has from the very beginning followed a different trajectory than in other regions of the world. The academic discourse launched directly into studying SLO beyond the community scale. Empirical evidence suggests establishing trust-based relationships between community and company have been difficult whether we are speaking of the Nordic countries, the Iberian Peninsula, Mediterranean Europe or Eastern Europe. The research also suggests that societal SLO includes government as a key player and the trust relationship at this scale may involve not only the society-industry relationship but the society-government relationship as well. It also, however, suggests that what is meant by SLO at the societal level is not clear even to the actors involved, and that its utility as a galvanising force for acceptance at any scale is questionable.

If the trust relationship includes government, it is not surprising, that trust-building would look somewhat different in Europe. Although TSM has spread globally, like SLO, its mode of entry into Europe has been different than in other parts of the world. The governments of Finland and Spain tried to help the industry build trust with society through their support of TSM in the belief that by

associating the standard with an official entity, legitimacy would be conferred on the standard and the mining industry's implementation of it. This also validates a shift in the perception of the European public that while legislation itself is no longer enough to garner public acceptance, voluntary measures also are not enough in and of themselves to gain the public's trust. There must be a melding of both for there to be societal acceptance. Once again, we arrive back to the second research question as this melding was noted ten years earlier (2014) by Harvey and Bice suggesting that even in highly regulated contexts where social impact assessments are enforced and generous benefits are in place, community opposition continues to increase. For there to be social licence, a collaborative approach must be in place because a host community and company are then forced to learn to truly hear one another, discuss and ultimately reconcile their concerns.

The implementation mechanism of a horizontal governance structured network versus an official national standards body is different; however, the desired outcomes are the same in wanting a process and product agreeable to everyone including those involved plus the broader society. In networks, trust building measures are infused among all participants throughout the duration of the network's existence. In national standard bodies, there may be trust building measures among those crafting the standard, but in terms of the public, trust comes only after the companies begin reaching out to community members as they implement the Finnish TSM. As SLO is about relationship-building and not simply public consultation, on its face the Network should guarantee better outcomes. Although preliminary given the nascent stage of implementing TSM, the research did not find the multi-stakeholder dialogue, relationship-building approach to lay better groundwork for societal acceptance than the top-down, more hierarchical approach of a national standards body.[13] Caution, however, is warranted as it is not clear that societal SLO is predicated on the success of either the Network or the UNE Standards.

13 It is interesting to note in the BGR report, where standards were once driven by ESG factors and SLO, the growing number of initiatives of recent times have been driven primarily by legislation indicating a role reversal for these standards. Instead of helping to obtain public acceptance, standards are used to ensure compliance with legislation indicating a trend toward stronger regulation and a narrowing of the gap between voluntary and required practices.

6. Scalar Relationships

In this chapter, I introduce the third and final research question, which asks how the scalar relationship between the societal and community SLO of mining functions? To answer this presumes clarity as to how societal and community SLO function individually. Chapter 4 presents the extant models that describe the functioning of SLO as a local concept and notes the sparse details on societal SLO as a concept. The Scalar SLO Model posits the scaling up of community drivers to the societal level based on the theoretical research, however in Chapter 5, empirical reality suggests the drivers do not transfer neatly. Hence, what societal SLO is and what drives it are still not clear making it difficult to address the question of the scalar relationship.

Ironically, to gain clarity around societal SLO also entails delving into community SLO, which heretofore had not been in focus. To do so, another literature review was conducted in combination with the European research casting a wider net identifying all the important elements that comprise and drive SLO at both scales. These, along with the drivers in the Scalar model, were tested via a survey instrument in seven different languages across Europe. Groupings of elements emerged at both community and societal scales providing a more nuanced and holistic picture of what Europeans view as being important for SLO. With empirical testing, it has become clear that SLO does not function as previously suggested and that there are limitations in the existing literature.

6.1. Empirical Challenges

Consistent with the theoretical literature, and most notably the Thomson and Boutilier (2011), Moffat and Zhang (2014) and Zhang et al. (2015) models, the original intention was to test whether the societal drivers of SLO actually are scaled-up versions of the community drivers, as reflected in the Scalar model. Although the literature and research point to this being the case, the sharing of drivers is also functionally important for the theoretical clarification intra- and inter-scales in two ways. The first is that similar variables affecting the drivers can be tested and compared at both the community and societal scales in order to ascertain whether these variables produce different outcomes depending on scale. The second builds on the first, offering the possibility to determine if situations can occur where there are different levels of SLO at different scales. Sharing drivers makes this type of analysis possible.

Although theoretically desirable, the empirical findings from the research on TSM in Finland and Spain indicate that the drivers do not transfer neatly throwing into question the functioning of SLO at the societal scale. While the national governments of both countries attempted to foster trust on behalf of the industry, the impact on actual acceptance among the public at large is yet unclear. This suggests that government and governance may not be able to trust-build on behalf of industry because it is the companies who must reach out to the public and build those relationships themselves. If government does not have a role in societal SLO, then the 'Legal and procedural fairness' driver cannot be the foundation of the Scalar model, and earlier models showing 'Confidence in governance' as a factor in SLO at the national level may play a different role than earlier conceived. In general, the existing literature suggests a direct if largely undefined relationship between public governance and industry voluntary behaviours (Jartti et al., 2020; Lehtonen et al., 2020; Poelzer et al., 2020; Sairinen et al., 2017; Zhang et al., 2015). One of the main findings in this research is the clarification of the relationship between the two.

Regarding the 'Engagement' and 'Benefit sharing' drivers at the societal scale, the expert interviews indicate that at least some mining companies are reticent to reach out to stakeholders and many are not sure how to do so. The issue of the sharing of benefits either with the community or with society did not come up in the interviews. Many of the experts interviewed come from the private sector so these viewpoints are not surprising, but it is also the case the survey data did not bolster the argument for either driver being important at the societal scale. Given these outcomes, a revisiting of the SLO concept as portrayed in the earlier models and existing literature is warranted.

6.2. Reconceptualising Drivers

Clarifying the drivers at the community and societal scales entailed additional testing accomplished via a survey instrument run in seven languages across Europe. The outcome of this phase of research is what are termed, the SLO Frames, and they embody different perspectives on what is important for SLO to emerge at both scales. Interestingly, the frames self-organised into three community-oriented frames and three societal-oriented frames.

The community-oriented frames emphasise the importance of negotiating an equitable distribution of benefits at the local level; companies realising CSR commitments and demonstrating a desire to go beyond legislation; empowering communities to influence decision-making and companies being more pre-emptive and attentive to community concerns. Societal frames underscore the importance of economic growth, legal and regulatory frameworks, holding companies accountable, government capacity and societal acceptance (see Lesser et al., 2023, p. 5).

To reconceptualise the drivers in the Scalar SLO Model, correlational analysis was used to test the relationship between each of the frames individually, and subsequently as scalar groupings (meaning the three community frames and separately the three societal frames), with the acceptance of mining at the community and societal scales. Where there were statistical relationships, these frames then became the reconceptualised drivers of SLO as shown in Figure 15.

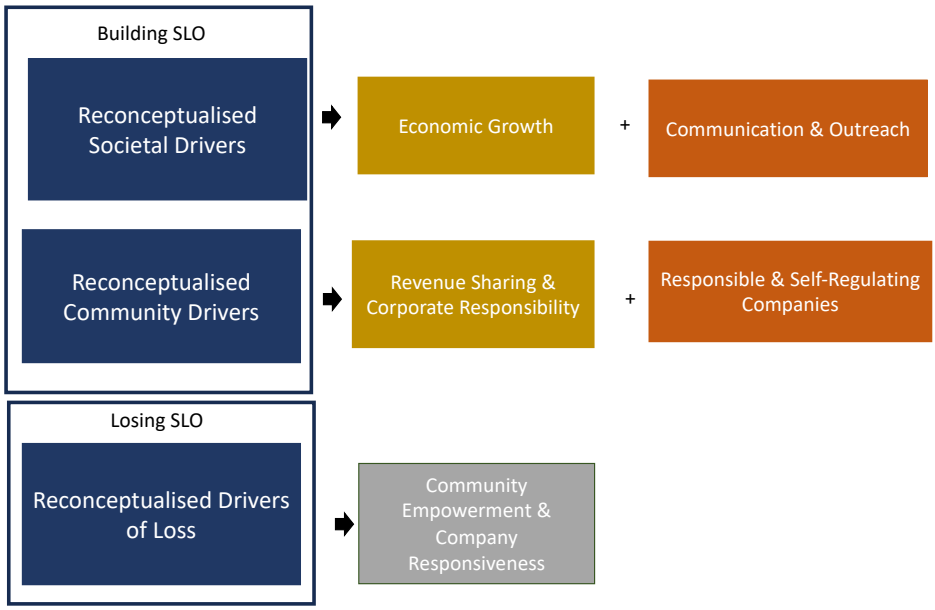

Figure 15: Reconceptualised SLO drivers

As detailed in the last research article, the new community-oriented drivers became 'Revenue sharing and corporate social responsibility,' meaning "companies should share revenue with both communities and society and good communication to negotiate this distribution is essential" (Lesser et al., 2023, p. 5), and 'Responsible and self-regulating companies,' which implies satisfaction with the current situation but also that mining companies have to act responsibly and proactively anticipate community problems. Referring to the lower tiers of the pyramid, one identified driver of the loss of SLO is 'Community empowerment and company responsiveness,' which translates to impacted communities requiring more power in decision-making and companies responding faster to community concerns. The societal drivers became 'Economic growth,' which sees mining as intrinsically positive but considers the most significant benefit to be economic growth and deems it a requirement for acceptance, and 'Corporate accountability and societal acceptance,' where "legislation and accountability are the foundations of societal

SLO and companies should not only go beyond existing legislation but be more communicative with the public at large" (Lesser et al., 2023, p. 5). The latter has been shortened to 'Communication and Outreach' as shown in Figure 15 above.

There are limitations to the research that should be noted, most importantly that the survey sample was small consisting of 278 people. While there were tests to determine representativeness of the sample and validity of the statistical method, there is the basic fact that the sample was small and not randomised.

6.3. Interactions and Influences

The initial assumptions of how the societal and community scales interact and influence one another are based on the academic literature and the research for this dissertation. There are several main assumptions, the first being that the closer a person is to a project site, the more important site level issues become, including the community-company relationship (Prno, 2013; Suopajärvi et al., 2019; Tarras-Wahlberg, 2014). Conversely, the further away from a project site a person is, the more the person will be concerned with broader issues, such as advantages and disadvantages accruing to the wider society, because there is a more abstract relationship with mining. Thus, it would be logical to assume the community frames would have a strong relationship to community scale SLO. The second assumption evolved from the abundant literature that points to reverberations from the local level to scales beyond, particularly in the case of company reputational risk (Bice et al., 2017; Franks et al., 2014; Owen & Kemp, 2013; Parsons et al., 2014); thus, it is likely community frames also have a relationship to societal scale SLO. The third assumption is based on literature and empirical evidence that point to societal acceptance being important for local acceptance in Europe. The expectation is that the societal frames would not only have a strong relationship with societal scale SLO but also community scale SLO.

In fact, almost the opposite was found. People with a local orientation tend to see mining as positively contributing to communities, and also to society, though the relationship is weaker. It should be noted there is a subset of people with this orientation that view mining as detrimental at both scales. Whether mining is seen as beneficial or detrimental, the community–company bond is paramount and there should be quality engagement, which presumes also the negotiation of benefits and other community-relevant issues.

Except for the one societal frame that emphasizes economic growth, the societal frames are weak predictors that mining is seen as either beneficial or detrimental to society indicating very little relationship between the two. This is surprising because the expectation had been the reverse; the societal frames should be strong predictors of societal SLO. The societal frames also have virtually no relationship to the

community frames indicating societal acceptance has little bearing on community acceptance. Whatever beliefs exist around societal SLO and mining are likely to remain at that level. The fact there is little relationship suggests that some of the initial assumptions around the role of societal SLO and how the scales interact with one another require re-thinking.

6.4. Conclusion

The study of scale reveals several unanticipated findings. The vagueness around the societal SLO concept renders it relatively powerless as a force for achieving societal acceptance of the mining industry, and its association with government calls into question what underlies the relationship between society and industry, particularly the role of trust and the meaning of acceptance at this scale. Since the research does not point to trust being present in a society-industry relationship but reserved for the society-government relationship, the idea of trust at the societal scale should be re-examined at least in Europe. The lack of influence on the community scale is another surprise. SLO is a local concept and the dynamics between a host community and company, particularly when it comes to the negotiation of benefits, are much more important for the acceptance of a project than the broader policy and public discourses on the benefits and impacts of mining.

The misalignment between the survey raw data and subsequent statistical analysis, in conjunction with the interviews from previous chapters, point to the importance of government, legislation and regulation, but also highlight the contradiction that at least theoretically, government should not have a direct role in SLO.

Whether or not societal SLO can ever become a reality remains to be seen, but it is clear that it will never emerge if the economic benefits of mining for every European are not emphasised. This is the most important predictor of acceptance and crucial for broad support. Demonstrating the fair distribution of benefits to the broader public may prove easier said than done as it is a clear challenge. There will never be societal level agreements with a company or an industry. Benefits resulting from a specific project will stay at the site level. Convincing the broader society that they too are benefitting from mining may require collective action from industry as a whole.

7. Discussion and Conclusions

In Chapter 6, empirical testing of the Scalar model reveals discrepancies in the literature challenging our existing understanding of societal SLO and indeed the SLO concept itself. Before presenting the conclusions of the research, a brief revisit of the steps that have led up to the re-evaluation of the concept are warranted.

Chapter 4 presents the range of extant models of SLO addressing the community scale, the societal scale and how SLO may be lost or withdrawn. Even if in Europe there appear to be few examples of a community-company relationship exhibiting trust (Heikkinen et al., 2013; Sairinen et al., 2017; Suopajärvi et al., 2019; Tarras-Wahlberg, 2014), the models still explain well the relationship-building steps and dynamics between a host community and a mining company. And, of course, there are many examples globally of community-company relationships that exhibit characteristics of trust (Howse, 2022; Prno & Slocombe, 2012). Whether trust-based or not, the emphasis on more interpersonal relationships at the local level forging stronger bonds between the actors thus reducing the risk of opposition and conflict is a theme that is well documented in the literature (Franks et al., 2014; Koivurova et al., 2015; Mercer-Mapstone et al., 2018). Although discussions around government and governance are sometimes associated with SLO at the community scale, they remain on the periphery (Jijelava & Vanclay 2018; Martinez & Franks, 2014; Parsons et al., 2014; Prno 2013). At the societal scale, the SLO models tend to focus on the classic governance triangle of state-society-market (Morrison, 2014; Prno & Slocombe, 2012) with only Zhang et al.'s (2015) model analysing the drivers of acceptance at the national level. These drivers are scaled-up versions of local level drivers from the earlier study by Moffat and Zhang (2014) but with weaker correlations. As the European condition initially appeared to have differences not explained by these models, particularly the importance of the societal scale and the role of government, the Scalar SLO Model was developed scaling up the community drivers to the societal level and integrating the idea of legal and regulatory frameworks as the first building block for SLO at both scales.

Empirical testing of the model began with the case studies in Finland and Spain of governments' attempts at aiding the national mining associations to build trust with society. These examples show that the drivers identified in the model do not scale up neatly, nor is it certain that governments can help industry with trust-building because it is industry who must build these relationships themselves. From the key expert interviews, it is clear that both government and industry play roles in helping to gain and maintain acceptance from the public at large, but what these roles are

remain opaque. Equally so are any concrete ideas as to how societal acceptance manifests or what it measures. For example, is it the absence of contestation? Is it a measure of national level actors involved in mining or a barometer of general public opinion? Rather than providing answers, these two cases provoke more questions as the importance of societal acceptance for the local acceptance of a mining project became less certain as did government's role.

The latter stages of empirical testing utilising a survey instrument and semi-quantitative methods shed light on the drivers of societal SLO, the influence of drivers on acceptance at both the community and societal scales, as well as the influence of the two scales on one another.

7.1. Toward a New Model of SLO

SLO is fundamentally a local concept that is not so easily scaled up to the societal level. Simply understanding it as the interplay between the two scales conflates the understandings of the roles that government, community/society and a company/industry play. It was not until the fourth article and reconciling the contradictions between the raw survey data and the correlational analyses that these roles became clearer. The raw survey data strongly emphasizes the importance of government and regulation, and thus, the expectation has always been that the frame, 'Fair regulatory process and good governance', should be the single most important societal driver. It was extremely surprising that it was the weakest frame of the three with no significant relationship to societal acceptance. This, in combination with the 'Corporate accountability and societal acceptance' frame where legislation and accountability are theoretically the most important elements but only weakly correlated to actual acceptance, suggest that in Europe, the governance system does not actually drive societal SLO but is instead a precondition for it. The strongest driver turns out to be 'Economic growth' indicating this is where society sees the benefits of mining.

If government and legislation are necessary and perhaps even sufficient preconditions for societal SLO, and economic growth is the main driver, then there are misunderstandings in the literature and the Scalar SLO Model should be changed. In the SLO literature (Zhang et al., 2018), preconditions and drivers are generally described as being synonymous with one another, but in my reconceptualisation, they are distinctly different. The preconditions, which are government led and consist of governance capacity as well as legal and regulatory frameworks, would need to precede the drivers while also making clear that in Europe, fulfilment of the preconditions must take place before industry can build trust with society. The role of preconditions is to engender trust in the governance system around mining so the citizenry believes government will protect them, rigorously regulate mining companies and hold the companies accountable. Societal acceptance is in effect

negotiated up front and revolves around trusting government. Rather than the drivers in the Scalar model of 'Legal and procedural fairness', 'Engagement' and 'Benefit sharing', the 'Legal' component of the first driver becomes a precondition, and the new drivers are 'Economic Growth' and 'Communication and Outreach,' the latter being a more explicit way of expressing its origin Frame, 'Corporate accountability and societal acceptance'. The drivers, therefore, are less about relationship-building and more about outcomes that should be achieved. Figure 16 graphically depicts the new model of societal SLO.

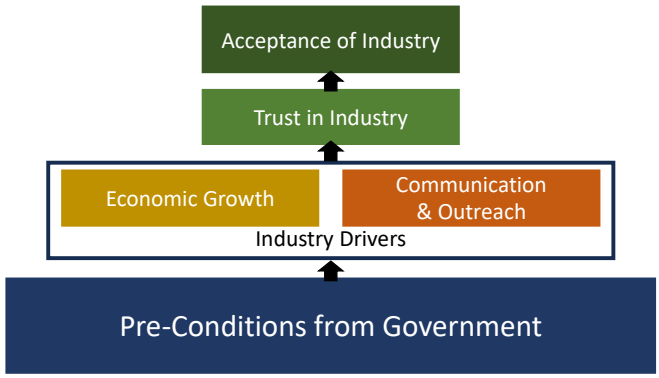

Figure 16: Proposed model of societal SLO

It should be noted that this revised model of societal SLO does not address the lower levels of withdrawal portrayed in the Scalar model, and this is simply due to not empirically testing them and thus having no data. If the preconditions are necessary for building acceptance, it would make sense the reverse would be true as well, meaning the withdrawal or loss of acceptance presumes the preconditions are not in place. However, industry would likely have a role in this as well and better understanding the drivers of loss is an important future topic of research.

7.1.1. Preconditions

Identifying the role of government and its associated legal and regulatory frameworks as necessary preconditions for SLO at the societal scale is the most important finding of this research. In Europe, fulfilment of the preconditions is a large part of developing trust and acceptance. So much so that citizens who view the preconditions as being sufficient, do not really expect that much 'extra' from companies because the legislative and regulatory demands are already quite high. Only with the satisfaction of the preconditions can industry-initiated relationship-building around economic growth issues and improving communication be successful. If the European public, and here speaking in the broadest possible terms, do not see the preconditions as

being sufficient, it becomes extremely difficult for the mining industry to develop trust with those groups. One suggestion to bolster the acceptability of preconditions is to study different government-industry contracting models and tailor relevant ones to Europe. A strong legal framework will not drive acceptance but a weak one will certainly inhibit mining.

Europe also provides evidence there may be differing levels of preconditions. For example, in the countries of the former Soviet Union where there tends to be less trust in government than other parts of Europe (Eurobarometer Report, 2014), the preconditions for SLO may not be fulfilled rendering moot any attempt by companies to engage with the public to build trust. It also could be the case where the expectations of preconditions are rather low making their fulfilment easier than other parts of Europe. In the Nordic countries, which traditionally are considered to have high public trust in government (Edelman report, 2022), the preconditions are likely stronger and also satisfied making room for relationship-building. The fact that SLO does not appear to be manifesting across Europe as it has in Canada, for example, suggests that the governance framework in Europe around mining is still not considered acceptable by the citizenry.

7.1.2. Trust and Acceptance

For simplicity's sake, the original conception of trust at the societal level being a scaled-up version of the local level still holds true, meaning trust is between community and company at the local level and between society and industry at the societal level. To be clear, the drivers themselves are no longer considered scaled-up or scaled-down versions of one another. As trust is such an important component of the SLO concept (Cooney, 2017; Dare et al., 2014; Thomson & Boutilier, 2011), several clarifications are warranted. Trust in companies is bound to trust in government in Europe in a manner that is different than SLO in Canada, Australia and the US. In those countries, trust in companies effectively replaces the need for trust in government (Poelzer & Yu, 2021). Because of the importance of the preconditions in Europe, however, there is actually little room for industry to manoeuvre around the SLO work because there is little that can be negotiated. It could be argued that in Europe, trust in industry is only a small part of acceptance, or alternatively, that acceptance is largely defined as the fulfilment of the preconditions.

The other issue around trust is more fundamental to the SLO concept itself, but as I did not explicitly study trust, this discussion remains more theoretical. The research did touch on the topic of trust at the societal scale but no evidence emerged that pointed to the importance of it being the basis of a society-industry relationship. The two societal frames in addition to the 'Fair regulatory process and good governance' speak to the need for corporate accountability and companies going beyond existing legislation as well as economic growth. There is no mention of a relationship at this scale let alone a trust-based one between society and industry.

Instead, trust appears to be reserved for the society-government relationship. What underlies the relationship between society and industry is not clear. While it is important for a theoretical understanding of whether trust mediates acceptance at the societal scale, for empirical reality it may not be so necessary. This is especially true in Europe where the preconditions are the most important part of societal acceptance. The relationship industry builds with society is secondary, and by implication, the quality of the relationship should not matter so much because it is not the determining factor of acceptance. This said, in terms of theory, if SLO (in its most simplistic definition) is the acceptance of a mining project and the mining industry and is based on trust, then if there is no trust between society and industry at the societal level, it is difficult to argue there is SLO. For now, I will leave that question unanswered as it is not the focus of the thesis, but it warrants further investigation at some point in the future.

7.2. Relevance of Scale

Having established the importance of government and governance as a precondition for societal acceptance, the relevance of scale to the SLO concept should be addressed. There are several aspects of scale which are important. The first is that early assumptions about the role of societal SLO in Europe turn out not to be correct. Instead of being important for the local acceptability of mining projects, empirical evidence suggests it is peripheral to community acceptance and in fact is only important in conjunction with local factors. What matters most is developing trust between community and company.

This is extremely relevant for the policy landscape of today. With the recent adoption of the Battery Regulation and the Critical Raw Materials Act, the tenor in Europe has shifted dramatically in support of industry involved in domestic extraction, minerals processing and recycling. This spate of recent legislation aligns well with the idea of preconditions being important for societal acceptance. Whether or not this legislation is deemed to fulfil the preconditions is a separate issue, but an effort is being made to reconcile the competing political pressures of deregulating mining activities related to the energy transition while simultaneously incentivising them through additional regulation. Deregulating without having the public trust in current regulation will not speed up the permitting of new mining projects, however. The optics simply reinforce the belief that corporate interests supersede those of the public and government either cannot or will not protect the people.

The second aspect is that while both the societal and community scales are comprised of government-related preconditions and drivers, there is more clarity around the preconditions at the societal level, defined broadly as governance and a

country's legal and regulatory frameworks. Again, the functioning of government and the legal frameworks are simply preconditions for companies to engage with communities or industry to engage with society to develop trust. In Europe, however, the idea of trust-building at the societal scale is not even that relevant because acceptance of the mining industry has more to do with the preconditions, for example, that government, legislation, and regulation are working as intended. Because relationship-building at the societal scale is so difficult and has been unsuccessful to date in Europe, it becomes difficult to distinguish the impacts of the mining industry outside of the legislative and regulatory frameworks. This is validated by other literature asserting SLO is an indicator for when the institutional framework (legislation/regulations) is insufficient and therefore unable to produce SLO (Poelzer et al., 2020). One answer to the question of the preconditions at the community scale could be that at least in Europe, societal SLO does not yet exist as it is now simply a precondition for there to be community SLO and relationship-building between communities and companies.

7.3. Scaling Up for Industry-Wide Change

An improved understanding of the role of scale in the SLO concept is important not only for theoretical clarification, but also for real-world application. Initially the assumption was that SLO as a local community concept could be scaled-up and made relevant as a societal concept too. A tangible outcome of this would, for example, be the ability to invoke industry-wide change. If a single mining company can participate in a trust-based relationship with a community, and assuming SLO is scalable, it should be possible for the mining industry to participate in a trust-based relationship with society. Presumably this is the intention of a global mining standard such as TSM, catalysing industry-wide change, thereby gaining and maintaining societal SLO. The research, however, shows this is not the case. SLO is fundamentally a community-based concept and not scalable to the societal level. Employing it as a catalyst to spark industry-wide change is unlikely to be successful. Efforts by mining companies and policy makers to further SLO at the societal scale are not the key for enhancing acceptance of mining projects at the local level.

The utility and power of SLO continues to rest in its ability to strongly encourage companies to prioritise community interests. One could argue the adoption of TSM is SLO forcing industry to prioritise societal interests, but this is not the equivalent of a mining company directly interacting with a local community and perhaps signing an agreement with that community. Simply adopting a voluntary standard overseen by the mining industry itself and having no real dialogue with the general public is less about changing company behaviour than it is trying to convince the public-at-large that the mining industry is a responsible actor and there should be

broad support for mining. If we look at SLO as a concept with behavioural change of a company or industry at its core, it helps explain why societal SLO has remained a diffuse concept. There has not yet been enough societal pressure to induce the industry to really change its modus operandi. If it did collectively decide to adhere to more rigorous social and environmental requirements, including conducting truly meaningful engagement, the concept might start gaining some traction. SLO at the societal scale embodies the idea that to have acceptance, the entire mining industry would have to alter the way it practices mining and adhere to much more rigorous social and environmental requirements. It is not simply reflective of societal collective opinion but is grounded in a relationship predicated on the idea that if industry improves and meets the expectations of society, in return they are assured long-term support and acceptance.

7.4. Challenges Across Europe

The first challenge is the heterogeneity that characterizes Europe. With 27 different countries, cultures, languages and histories, there cannot be a single approach to achieving societal acceptance. The Nordic countries are different from the Iberian Peninsula, which is different from the Soviet legacy countries, which are different from Mediterranean countries. The types of preconditions at both scales and their robustness will differ between these regions and between the Members States themselves. Outside Europe, for example in Canada, Australia and the US but also throughout South America and Africa, the level of preconditions will probably vary dramatically as will the importance of a company's role in building community trust or industry's role in building societal trust. This research is important because the notion of preconditions and drivers can be tested in sectors other than mining and the degree of precondition needed can also be tested to see how that influences SLO. First, however, more research needs to be conducted on the drivers at the community level to better understand the specificities of the preconditions at this scale.

The second challenge is the lack of space for companies to build relationships. Because the requisite preconditions are so strong in Europe, and we have seen this in the TSM research where acceptance borders on fulfilling the preconditions, there is little room for trust-building between society and industry or company and community for that matter. In Europe, societal SLO is theoretically achieved when a large majority of the population have trust in the industry to operate in a responsible manner and where the economic benefits are perceived as positive. Empirically, however, it appears that the lack of opposition is what truly characterizes societal SLO. Some caution is warranted, however, as this research focuses on mining and other sectors may be different.

The third challenge is the complexity inherent in the societal SLO concept because of the broad range of actors. In Finland and Spain, it is not clear whether societal SLO means the support of some or all of the members of the Finnish Network, and in the case of Spain, of the mining industry and committees that comprise the UNE, or if societal SLO is a measure of public opinion in general.

It is important to understand there will always be opposition to mining in Europe, but the research on societal SLO shows the barometer is different in Europe. The preconditions are more significant, and the societal expectations of government's performance are likely higher than other parts of the world. It is not industry who is supposed to take the lead on improving their practices but rather government is expected to assume this role. This could differ in countries that are weak or undemocratic and offers an opportunity for future research on understanding societal SLO. If there is one message this thesis strives to convey, it is that companies looking to establish a SLO should consider whether the preconditions are in place if they want to have a chance at building it.

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ORIGINAL PAPER

Challenges that mining companies face in gaining and maintaining a social license to operate in Finnish Lapland

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Abstract The Social License to Operate (SLO) concept is significant precisely because it is bringing social issues and local communities to the forefront of the mining discourse. Although the concept of SLO has taken root in Lapland, and there are success stories of its implementation, challenges to gaining and maintaining it still remain. For example, to gain SLO, when speaking about community acceptance, the "community" must be clearly defined, as there may be heterogeneous groups claiming to be "locals," such as out-migrated descendants or summer-cottage owners. Historical experience poses another challenge as residents remember their inability to affect the outcome of large-scale public works projects that exploited natural resources after the Second World War. That history carries over into present situations when new mining projects are proposed. But, challenges also provide opportunities for learning and for new solutions, and the good practices espoused by the mining companies reveal an adaptive attitude and a responsiveness to local community concerns.

Keywords Social License to Operate · Mining · Social issues

Introduction

The most common definition of a SLO is that it is issued when a mining project is seen as "having the broad, ongoing approval and acceptance of society to conduct its activities" (Prno and Slocombe 2012). As projects are situational and every community-company relationship is different, SLO is highly contextual (Prno 2013). The contextual nature of SLO is clearly seen in Finnish Lapland, an area abundant in metallic minerals and other resources, dominated by pristine natural spaces yet also containing both rural and increasingly urban development, and the region finds a growing number of proposed mining projects from both domestic and foreign operators at its doorstep and companies continue to plan future projects. To give an example of the current volume of mining in Lapland, in the 2000s, five new mining projects began the environmental impact assessment process and two of these have already started production (Kittilä gold mine in 2009 and Kevitsa copper and nickel mine in 2012). Several companies are in the exploration phase for iron ore and also have plans for opening new mines; however, due to the present recession, companies are waiting for better times. More than half of all Finnish mining operations are located in Lapland, the northernmost county of Finland covering almost one third of the country's total land area (Suopajärvi 2015). As a result, communities find themselves having to grapple with issues arising from this heightened interest in mining and confronting difficult circumstances such as the need to reconcile economic interests with social and environmental values.

While mining companies acknowledge the need to observe legal and regulatory requirements, the concept that SLO embodies, namely that companies need to go above and beyond this in order to secure a community's ongoing acceptance of a project, is a concept that has only recently taken root in Finland. Brought by foreign mining companies largely from Canada, SLO has begun to permeate Lapland, and as communities also are demanding more sustainable mining projects, we see the concept of SLO now firmly entrenched in Finland and a regular part of the mining discourse (Koivurova et al.

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2015b). However, with more interaction between community and company comes also a more complex relationship that in northern Finland is still in the early stages and which proceeds largely on a trial and error basis. While there have been successful examples of mining companies working with communities, there are also unsuccesful examples, but nevertheless, we continue to see communities and companies try and work out solutions amid challenges that can pose daunting obstacles. It is to these challenges which companies must overcome to gain a community's acceptance of their project that we turn to in "Results and discussion: challenges in gaining and maintaining SLO" section and which are the main focus of the article. Prior to this, the polarizing nature of the SLO nomenclature and the ambiguities that continue to surround the concept are presented followed by the methodology used and the case studies that provide the foundation for identifying the challenges to gaining and maintaining a SLO in Finnish Lapland.

SLO—a term praised and vilified

The SLO, as a concept, is simultaneously praised and vilified. In terms of the positive contribution of SLO, even if it did originate as an industry response to criticisms globally of their environmental and social modes of operating in the 90s, it has also brought to light the need for a more engaged and long-term relationship with potentially affected communities. This includes the relationship with indigenous communities as the community acceptance idea underlying SLO comes very close to indigenous law where the prior and informed consent of indigenous peoples are required before issuance of permits. SLO implies that a company has exceeded the requirements of the law, yet even though it is voluntary on the part of a company, SLO is increasingly gaining legitimacy and becoming an integral part of the permitting process for mines precisely because companies value the need to obtain and maintain it. According to Bice (2014), many companies have incorporated into their sustainability reports the importance of acquiring a SLO. However, the gap between concept and action is clearly illustrated when she notes that while one company report states the purpose of gaining SLO is to assure communities and governments, the company will protect the value of environmental and social resources and that both stakeholders will share in the company's business success; she also notes that there are no specific examples of criteria for attaining SLO given in this nor any of the other sustainability reports that she reviewed.

While the idea of companies needing to work diligently to obtain and maintain a "social license" from communities throughout the life of a project has, in its relatively short lifespan, gained widespread attention, SLO is still based on a company's voluntary actions and there is no standard as to what those actions should include since they will vary depending on the particular development situation. Indeed, Prno and Slocombe (2012) assert that not all mining contexts will involve SLO, as the minimum prerequisite is that broad mining sustainability principles are embraced, i.e., communities must believe that the social, environmental, and economic benefits of a project outweigh its potential negative effects. Prno and Slocombe (2012) also maintain that even if securing SLO is a goal of both parties, if community-company expectations are irreconcilable, no SLO may be possible.

In critical circles, SLO is described as a cynical attempt by industry to disguise what is in reality a self-preservation mechanism with altruistic behavior that suggests that companies now see the light and embrace social sustainability principles. Strands of this can be seen in the following definitions by Moffat and Zhang (2014) and Owen and Kemp (2013), respectively: SLO is the "ongoing acceptance and approval of a mining development by local community members and other stakeholders that can affect its profitability," and SLO is "more about reducing overt opposition to industry than it is about engagement for long-term development." The use of the word "license" also provokes criticism regarding the lack of any legal basis for SLO (Harrison 2015), yet both communities and companies appear to be endowing it with a type of figurative legal force[1] so that SLO is now something many people view as being essential for and directly tied to a project approval (Bankes 2015).

Perhaps at the core of the different perceptions surrounding SLO is the belief that motive matters more than behavior—or not. It is true that SLO emerged as a response by the mining industry to combat increasingly negative public opinion due to both environmental problems and the lack of social responsibility. However, even if SLO did not originate as a purely altruistic endeavor, but rather to increase profits and ensure smoother operations, the end result is that in more and more cases, industry is acknowledging that they must operate in a more socially beneficial manner throughout a mine's lifecycle to ensure that a community does not stop or hinder a project. Perhaps one of the things that has contributed to the popularization of the SLO concept is that, at the end of the day, the rationale for why industry is changing its behavior matters less than if those changes actually benefit the people who are most adversely affected.

Methodology

This article aims to be a commentary on scientific discussions of the SLO. Data from two research projects, *Sustainable*

[1] While there may be no legal foundation for SLO, there is an interesting parallel to indigenous law and its FPIC, which can perhaps serve as a model for the future integration of SLO into legislation.

Mining, local communities and environmental regulation in Kolarctic area (Sumilcere) led by the University of Lapland (January 2013 to December 2014) and *Testing improvement processes of Finnish environmental impact assessment and the modes for application in Arctic Regions of Finland and Russia* (First-In Arctic EIA) led by the Arctic Centre, University of Lapland (February 2013 to March 2015), are used in the text to develop the arguments for the challenges to gaining and maintaining SLO in Finnish Lapland. The text is also, however, based on the observations of the writers who have been following the mining discussion both on the empirical and theoretical levels.

For the Sumilcere project, 30 individual and focus-group interviews were carried out in Kittilä and Kolari during 2013–2014, and a total of 45 people were interviewed. The project's main objective was to reach as many different types of people as possible, and hence, there were a wide range of informants: schoolchildren, entrepreneurs in different sectors, reindeer herders, local politicians and municipality authorities, people working for the mining companies, and housewives and retirees. The data was analyzed using a structured template designed to highlight the empirical findings, e.g., main themes of the interview, negative and positive impacts, and aspects of procedural and contextual social sustainability (see Suopajärvi et al. 2016).

Unlike the Sumilcere project which, among other things, did specifically focus on SLO, the main goal of the First-In Arctic EIA project was to compile private sector EIA best practices in Finnish Lapland. Semi-structured interviews using a prepared questionnaire were performed by phone and in person over a period of 2 years. The respondents include 12 companies[2] of which three are (or in the case of Northland "were" as the company declared bankruptcy in December 2014) mining companies (Gold Fields Arctic Platinium Oy, Agnico Eagle Finland Oy, and Northland Mines Oy), three EIA consultants, two business associations including the mining-related one (FinnMin – Kaivannaisteollisuus ry), two government agencies, and two NGOs. In terms of number of interviews, while not all are affiliated with the mining sector, out of a total of 29 interviews,[3] 20 are either directly with mining companies or involved discussions about mining projects, Kittilä and Kolari in particular. We did not interview local villagers individually, as the main focus of the project was to gather private sector best practices from the companies themselves in order to improve their practice of EIA. Although the questionnaire did not include specific questions on SLO, many best practices in EIA espoused by the companies, such as engaging early and transparently with communities, overlap with the some of the more widely accepted practices of SLO. This said, although the data collection focused on information gained through verbal interviews, the implementation and success of these practices have not been verified.

On a final methodological note, the authors want to acknowledge that while there are numerous interviews from both projects, the SLO challenges discussed in the subsequent section are derived largely from two case studies—Kittilä and Kolari mines—and the conclusions cannot necessarily be extrapolated to all mining projects in Lapland or its environs.

The case studies

Northern Finland, mining, and SLO

The concept of a SLO has been a relative newcomer to Finland with its preconditions having been set once Finland joined the European Economic Area (as then a European Free Trade Agreement member) in 1995 thus opening its economy up to foreign direct investment. The actual term "SLO" did not arise in Lapland until the mid- to late-2000s having emerged in conjunction with the entrance of foreign mining companies (mainly British and Canadian). Although Finland has a long history of mining dating back to the discovery of the copper ore deposit in Eastern Finland in 1910,[4] Outokumpu, these earlier projects tended to be State-owned.[5] It is only once Finland began to decentralize its economy in the 1980s, including the mining industry, that private domestic companies began to operate and the role of the private sector began to slowly become more of a presence. As foreign mining companies only entered Finnish Lapland in the early 2000s, the expectations surrounding SLO are just beginning to solidify.

The two cases

As previously mentioned, the interviews from both the Sumilcere and First-In projects that are used to identify the challenges come from Agnico Eagle's Kittilä mine, a prosperous gold mine with an expected lifecycle until 2034, and Northland Resources' Hannukainen mining project in Kolari which was in the permitting phase when the two research

[2] The companies include Lapland Hotels, Ahma Environment Group, Kemijoki Oy, Gold Fields Arctic Platinium Oy, Innopower Ltd., wpd, Taalaeritehdas, Yllaksen Matkailu Ltd., Arctia Shipping Ltd., Vapo Oy, Agnico Eagle Finland Oy, Northland Mines Oy; the EIA consultants include Pöyry Finland Oy, Sito Ltd., and Ramboll Ltd.; the business associations include the Reindeer Herders' Association and FinnMin – Kaivannaisteollisuus ry; the government officials include ELY Centre Lapland and Municipality of Kittilä; and finally the NGOs are the Finnish Nature Conservancy and Kemi-Tornion lintuharrastajat Xenus ry.

[3] A total of 14 companies, seven (7) EIA consultants, one (1) business association, two (2) government officials, and five (5) NGOs were consulted.

[4] http://www.outokumpu.com/en/company/history/Pages/default.aspx (Accessed June 12, 2016).

[5] http://www.outokumpu.com/en/company/history/Pages/default.aspx (Accessed June 12, 2016).

projects began, but declared bankruptcy mid-way through them and before mining operations could commence. Although unintentional, the situation at Northland provides a unique opportunity to study the challenges inherent in maintaining SLO for a company in financial trouble. While both projects initially received SLO from most of their stakeholders, only the Kittilä mine was able to maintain it.

The Suurikuusikko deposits (or more widely referred to as the Kittilä mine) are located in Lapland about 150 km north of the Arctic Circle and equidistant (at 35 km) from both the center of Kittilä Municipality, with approximately 5800 inhabitants, as well as the tourist destination of Levi (Koivurova 2015b). Owned and operated by Agnico Eagle, a publicly traded Canadian-owned company with operations in Canada, Finland, and Mexico, production began aboveground in 2009, and as of 2012, has been conducted solely underground.[6] The estimated mine life cycle continues until 2034, which in terms of community relations, means the company must be a good neighbor for decades. Agnico Eagle's sustainable development policy outlines their guiding principles and commitments to protect the health and safety of employees and contractors, as well as the environment and communities impacted by the activities at Kittilä mine.[7]

Agnico Eagle has been held up as a model operator by most, but not all, of the stakeholders affected by the project and continues to operate profitably today. In general, the company is widely praised for its effective stakeholder engagement strategies and has received its SLO for years. This said, there are still challenges, which will be discussed in the next section.

Northland Resources (now bankrupt) was previously headquartered in Luxembourg with operations in northern Finland (Hannukainen) and northern Sweden (Kaunisvaara). Known for its iron-ore resources, open pit mining began at Hannukainen in 1978 with operations continuing until 1988. The mine is located about 100 km north of the Arctic Circle and approximately 25 km from the center of the municipality of Kolari, with a population of 3600 inhabitants. Northland became active at the mine site in 2005 (Koivurova 2015b).

When the website of Northland Resources was working, a section on "Mining Responsibly" included a section entitled "SLO" with the stated objective that the company be "(…) seen as an integral and beneficial part of the community, and has the support of the various local stakeholders."[8] As will be seen in the following section, Northland initially had very proactive stakeholder outreach and engagement strategies, but as its financial situation deteriorated, so did their willingness to continue interacting with the community.

Results and discussion: challenges in gaining and maintaining SLO

Challenge 1: who is the community authorized to give SLO?

When the SLO is given to the company by local people and the community, who then comprises this "community"? Usually, communities are described as affected stakeholders, host communities, or local residents, but Owen and Kemp (2013, 33) are critical toward the whole concept of community. They argue that it is homogenizing diverse stakeholders and different opinions under the same rubric. We agree with this criticism based on our empirical work which shows that many different communities are often present in the vicinity of a mine site and can experience both positive and negative impacts in almost inversely proportionate ways.

For example, in the case of the Kittilä mine, the villagers of Kiistala living in the immediate vicinity of the Kittilä gold mine feel quite disillusioned with the municipality of Kittilä. One reason for this division is the result of the municipality's decision to settle new mining residents near the Levi ski resort, which is about 35 km from the Kiistala Village and the mine. While the residents of the remote Kiistala village expected to have new families moving into the area, which they assumed would create an increase in property values and catalyze the development and maintenance of public and private services, this did not happen as most of the new residents moved closer to the larger municipality of Kittilä. Because none of these expectations came to fruition, the villagers ended up feeling both disappointed and betrayed. The benefits of the mine at the local level are therefore experienced in the Levi Region and the municipality center, not in the Kiistala Village, whose residents experience only negative environmental impacts, e.g., heavy traffic caused by commuting workers, dust, noise, and potential water quality problems at the Kittilä Mine. Villagers also feel that they have not had, and worse continue not to have, the ability to affect project development because for numerous reasons the municipality strongly supports the mine. These reasons are primarily economic as the authorities warmly welcome the additional tax revenue resulting from the influx of new residents and new economic activity, which in turn provide services that make the community more desirable. Hence, Owen and Kemp's notion (2013, 33) that the idea of social license is that it reflects the voice of a majority in the community and not that of the voices of the most affected, and usually less visible groups, holds true in the case of Kittilä. It is worth noting that Agnico Eagle has not been involved in the decisions about the settlement of mining workers and their

[6] http://www.agnicoeagle.com/en/operations/northern-operations/kittila/pages/default.aspx (Accessed June 12, 2016).
[7] http://www.agnicoeagle.com/en/Sustainability/Pages/Our-Approach.aspx (Accessed on October 17).
[8] Research obtained from the Tekes First-In EIA project as Northland Resources was one of the companies interviewed numerous times for the project.

families. However, that does not negate the fact that this empirical example is still relevant for the discussion of understanding the definition of community in the context of the SLO.

Who the community is clearly varies depending on the specific project and site context. For example, if one looks at the Hannukainen Project, whose previous owner was Northland Resources until they declared bankruptcy in December 2014, and now has just been purchased by Tapojärvi Oy, the local community of Kolari is not uniformly supporting the project. In particular, there is strong opposition against the mine among tourism entrepreneurs in Ylläs Ski Resort, located about 10 km from the planned mining site (Jokinen 2016), as they are arguing that it is their industry which will be the most negatively impacted if the mine opens. In comparison with the Kiistala Villagers in the Kittilä mining case, the argument of the entrepreneurs is much stronger because the municipality is heavily dependent on the tourism industry as it accounts for about half of the revenue stream coming from all of the industries combined in Kolari (Satokangas 2013).

Second, if and when the community is a place-based grouping of people, who are included in this category? In some definitions, community includes more than only geographical positioning and is described as a sharing of not only identity and the interactions of everyday life, but also a sharing of common social and political institutions (Vanclay et al. 2015). Community can also be described as consisting of "questions of identity, culture, territoriality, and cultures of belonging, inclusion and exclusion" (Howitt 2011, 87). For example, rural Lapland and municipalities like Kittilä and Kolari are areas of out-migration that have continued for decades because of the lack of education and employment opportunities (Regional Council of Lapland 2011). In this group of people who have migrated away from Lapland, there may be ones who still identify themselves as "locals," return for holidays to their old home places, are recognized as locals by the permanent residents, and are possibly even planning to move back once they have retired. Should they be excluded from the community in Lapland? Also, Finnish Lapland is a popular tourist resort area where there are over 30,000 cottages, which often are second homes, as the official residence may be out of the region (Tilastokeskus 2016). Are these second-home owners to be considered locals?

These examples suggest that the idea of community may be better replaced with the concept of stakeholders or stakeholder networks as suggested by Boutilier and Thomson (2011, 2–3). In the planned mining projects in Finnish Lapland in the 2010s, the understanding of the stakeholders has been extended to cover also, e.g., cottage owners and tourists in environmental impact assessment reports (e.g., Northland Mines Ltd. 2013; Yara Finland Ltd. 2009). All of these groups have some kind of local interest in the planned mining area, whereas for Boutilier and Thomson (2011, 2–3), stakeholders are also, e.g., investors or international human right activists. But then, it can be asked, if SLO is given by all kinds of stakeholders without any bond to the place-specific mining project and has the concept of social license any specific meaning? The importance of the SLO as a tool for mining developments lies in the fact that it stresses the social dimension of extractive industries development (Prno 2013, 577). It is evident that the majority of negative environmental impacts and sometimes also negative social impacts are experienced by the local people and communities living near the mining projects (e.g., Hajkowicz et al. 2011; Lockie et al. 2009; Parsons et al. 2014; Tiainen et al. 2014). For example, negative environmental impacts are quite local although impacts may be realized in water systems or by the traffic also in the larger area. Bringing in the concept of environmental justice, defined as the fair share of benefits and burdens (Nygren 2014), the concerns of these local people and communities must be given special weight and be taken seriously.

One suggestion for a theoretical definition of SLO in order to keep the concept valid for local perspectives is to follow Jason Prno's definition that (2013, 577) SLO is always context-specific and "local communities are often a key arbiter in the process by virtue of their proximity to projects, sensitivity to effects, and ability to affect project outcomes". Hence, community could be defined (1) as host communities and local residents living near the mining project and (2) as groups that are affected by the project or (3) groups that have an influence on the development of the project at the local level. It is important to note that these groups may overlap, but not necessarily, and the identification of these different groups is necessary when undergoing discussions about the SLO.

Challenge 2: is SLO gained only by the present-day perspective or do history and past experiences matter?

The second challenge is related to the idea that SLO is gained with good company performance. Specifically, Moffat and Zhang's (2014) sophisticated quantitative study shows that ensuring procedural fairness and utilizing a genuine collaborative approach (meaning the quality of contact the mining company has with the local residents) are main factors in maintaining the SLO in the longer term. This probably is the case, but obtaining the SLO in the early phases of a project entails factors beyond the company's control. For example, Finnish Lapland has historically been known as a resource region (Franks et al. 2013, 640) on the periphery of Finland where economic activity and employment were based on natural resource exploitation for the purposes of national development in the decades after the Second World War.

Lapland is a county of forests: 98% of land-area is identified as forest and most of it is owned by the State.

After the Second World War, especially in the 1950s and 1960s, Lappish forests have been very intensively utilized for clear-cut logging. At the end of the 1990s, logging was estimated to total around 5 million m^3 (Massa 1994, 231) and almost 4 million m^3 in Lapland in 2013 (total in Finland around 56 million) (Mäki-Hakola and Toivonen 2002; Mäki-Simola 2014). Because logging has involved such large swaths of land, and given the land use intensity that other uses in Lapland require, the sustainability of the forestry sector and reconciliation with reindeer-herding and nature-based tourism has been questioned. Finnish sociologist Ilmo Massa, who has written his doctoral thesis about environmental history in Lapland, argues (1994, 234) that forestry in Lapland has been one of the most destructive industries in Finland's environmental history. However, while historically forestry in Lapland has been viewed in this light, in more recent years, Metsähallitus has developed more sustainable management models. Alongside forestry, Finnish Lapland has also been a region of hydropower production after the Second World War since harnessing the river Kemijoki started in the end of the 1940s. Construction is still continuing to this day. It has been one of the largest hydropower projects in Europe, with almost 20 power plants and two large reservoirs. Almost half of the county belongs to the water system of the river Kemijoki (55,000 km^2), which had been one of the most important salmon rivers in Europe bringing a strong fishing culture of trade and wealth to the Laplanders living by the riverside (Suopajärvi 2003).

During the years of intensive hydropower construction in the 1950s and 1960s, work was provided for thousands of men, but once construction activity decreased, the workforce has also diminished. Employment in the forestry sector has also decreased since the 1980s because of the mechanization of the logging work. Hence, although natural resource exploitation has induced economic well-being for the region in previous decades, as a result of technological advances in combination with a decreasing workforce, the benefits have not been sustainable. Today, Finnish Lapland, and especially rural Lapland, is still considered on the "periphery" of Finland and is suffering from high unemployment, out-migration, and an increasing number of elderly people—all serious social problems and future challenges for small rural municipalities in Lapland (see Suopajärvi 2003, 2015). The opponents of the mining projects in Kittilä and Kolari question whether mining will provide a better future for the localities in the long-term and argue that they would be better served to favor more lasting and continuous employment such as tourism, which has been continuously developing in the area, and also reindeer herding, a traditional livelihood that has survived until the present day (see also Heikkinen et al. 2013; Wilson and Stammler 2016).

Challenge 3: is it only company performance that matters?

In developed countries like Finland, mining is already a heavily regulated sector of industry and the global trend is that legal regulation of the sector will increase (Prno and Slocombe 2012: 350). In 2014, tens of legal regulations were identified in Finland that regulate things like environmental performance, occupational safety, neighbor relations, and procedures for environmental impact assessment, mining-related land use planning, and formal mining licensing procedures (Koivurova et al. 2015b; Kokko et al. 2015). With respect to SLO, we can only say that the relevant question is how legal regulation and an administrative framework affect the gaining of a SLO in a single mining project. According to Prno and Slocombe (2012, 347), this is still unchartered territory: "[However,] the role governance and institutional arrangements play in shaping SLO processes and outcomes have not yet been explicitly considered in the literature." Also, Wilson and Stammler (2016, 2) remind us that, in practice, obtaining the SLO does not depend solely on company performance and that SLO may also be influenced by, e.g., governance regime and legal frameworks for land rights and decision making. Based on our empirical studies, this theme is truly relevant when discussing the SLO in Finnish Lapland.

It should be noted that those who are against or critical toward mining also have doubts about both the permitting process and project operations when it comes to monitoring the impacts of the mine. The main theme embedded in the criticism is that both industry and the Finnish authorities consider the economic benefits to be more important than the local environment. These findings are supported by a survey conducted in both Kittilä and Kolari which found that roughly 65% of those who are negative toward mining projects think that the monitoring of environmental impacts is insufficient. Of those who are positive toward mining, only 12% have similar doubts (Kunnari 2013.) In addition, a national-level survey in Finland showed that trust in authorities and national legislation is related to the acceptance of mining and plays a role in the development of the SLO (Litmanen et al. 2016; Jartti et al. 2014).

In terms of losing SLO, one project in particular can be considered a worse-case example—Talvivaara in Kainuu (Eastern Finland). The mine has experienced serious, ongoing environmental problems, and as a result, the Talvivaara project has to date proven economically unprofitable and its future is still in question. There has been a great deal of media coverage not only about the specific environmental problems but also concerning the role of the monitoring authorities. It appears that when local people are evaluating the SLO for one mining project, they simultaneously evaluate the legitimacy of

the entire chain of actors involved in the project, including the authorities involved in the decision making (see Heikkinen et al. 2013).

Maintaining the SLO: challenges in Lapland

Challenge 4: ensuring an equal distribution of benefits among different communities and interest groups As highlighted in Challenge 1, in the case of the Kittilä mine, there are many "communities" affected by the project. If we speak solely in geographical terms, then, a very clear picture emerges that the impacts and benefits of a project are not distributed evenly. The villagers of Kiistala have borne the brunt of the mine's negative environmental impacts without reaping the rewards of the project's economic benefits, which have gone to Kittilä and Levi. In addition to experiencing negative outcomes, such as an increase in dust, noise, traffic, and potential water quality problems, what compounded the problem for the residents in Kiistala is that when they went to complain to Agnico Eagle, the liaison in the company they were assigned to had left and there was no one else they could directly contact. Thus, the initial grievance mechanisms did not function properly as the turnover of employees complicated ongoing communication with residents. To address this problem, the company subsequently established a group of local people from different institutions and villages to improve interaction and coordination. This had the result of creating a larger network on which the villagers could rely to help with solving issues arising from the mining project. It also provided redundancies for the grievance mechanisms and gave the villagers some measure of confidence that someone in the company could always be reached (see also Koivurova et al. 2015b).

It is interesting to note that early on, Agnico Eagle did make a concerted effort to assure the tourism industry in Levi that the mine would bring many positive benefits to the area without harming the nature on which tourism there depends. Perhaps the most consistent and significant tension with the mining industry in Lapland is with the tourism sector, given that it is all nature-based. Agnico Eagle's website has a dedicated section to expanding the cooperation between the tourism industry in Levi and the Kittilä mine. The website states that Levi has been a considerable attraction in the recruitment of personnel for the Kittilä mine and workers associated with the mine use the services of Levi.[9] The synergies between the two sectors offer a broad range of jobs in Kittilä making it easier for families to settle in the area for the long-term. As a result, the tax base has also increased and is more diversified, which has enabled the municipality to develop more social services and infrastructure. A 2013 article published by Euromines provides numbers for this increase—approximately 90% of the mine employees come from Lapland and over 50% live permanently in Kittilä, many of whom have moved from other locations with their families.[10]

When it comes to ensuring the application of equitable benefits to interest groups, in Lapland, the most well-organized of these are the reindeer herders who belong to the Reindeer Herders' Association. They have taken the initiative in concrete terms to assert what they want from the mining companies. For example, the Association has been the first organization to begin negotiating a compensation agreement with Agnico Eagle; however, to date, there is no official confirmation that one has been signed. The reindeer herders are very proactive in protecting their interests, and the foreign mining companies also seem to welcome this. According to our interviews, it is the foreign mining companies who engage in much more public outreach with the herders and at an earlier stage in the process. They have also proven to be more amenable than the national Finnish companies to working with the Association to solve the potential impacts to grazing land and migration routes.

Another issue that was discussed in Challenge 1, e.g., that SLO only represents the most vocal and well organized groups, carries over to this challenge as well. Communities and interest groups who are concerned about the potential effects of a given project, unhappy with the actual impacts, or feel they are entitled to more benefits, must be well organized and vocal. Friedman and Miles assert that "Stakeholders become salient to managers when they possess attributes of power, legitimacy and urgency of claim… The strength of stakeholder relationships is also governed by the degree to which stakeholder interests are compatible with corporate objectives, and whether their relationship with the company is necessary for corporate goals to be achieved" (Friedman and Miles 2002 quoted in Prno and Slocombe 2012, 353).

Challenge 5: maintaining SLO in the face of pessimism Under this challenge, two scenarios are considered, one from the Hannukainen mining project in Kolari and one from Kittilä. The first scenario concerns the Kolari mine and asks the following question: How did the company's behavior change as their financial difficulties grew worse? The second scenario involves two leaks detected in the tailing pond of the Kittilä mine and looks at whether maintaining SLO in the face of environmental problems that appear to have been prevented from becoming more widespread is an issue in Lapland.

[9] http://www.agnicoeagle.fi/en/media/newsreleases/Pages/expanding-co-operation.aspx) (Accessed June 1, 2016).

[10] http://www.euromines.org/news/newsletters/1-2013/kittila-mine-important-player-development-finnish-lapland (Accessed June 1, 2016).

First scenario

By definition, a globalized economy implies interlinkages and this includes commodity prices such as iron-ore. The fluctuating nature of the mining industry is one aspect that makes the maintenance of a SLO difficult, especially if a project has not already been firmly established, as can be seen in the case of Northland Mines (a division of Northland Resources) and their proposed Hannukainen project in Kolari, Finland. First, becoming active in the Kolari area in 2005, even though mining had occurred in the Hannukainen site under different ownership from 1978 to 1988, Northland Mines never started construction because they declared bankruptcy in December 2014.

According to interviews for both the Sumilcere and First-In Arctic EIA projects, from the very beginning, Northland Mines engaged the community in dialog and sought to foster a positive relationship. Prior to bankruptcy, they integrated the social license concept directly into their management standards of safety and environment and the company's Sustainable Development Policy.[11] When their website was operational, the term "SLO" was used and the company clearly wanted to be an integral part of the community and to obtain the support of local stakeholders. Examples of the strategies employed to gain SLO include not only a continuous running dialog with the community but also financial support through youth-work and various sports and cultural activities, as well as an updated website with news and information. However, once financial troubles set in, the company's behavior also began to change. There was a noticeable decrease in outreach and transparency with the communities, the company started to miss their stated milestones and failed to adhere to a project timeline, and personnel turnover increased which created an atmosphere of greater uncertainty. All of these factors led to the conclusion by locals that the future of Northland was uncertain, and therefore, they could not plan their own personal futures. It was the perception of their own individual unknown futures that caused the withdrawal of SLO (see also Koivurova et al. 2015b).

Second scenario

The second scenario asks whether SLO can be maintained when there are environmental problems that appear to have been solved? In October 2015, Agnico Eagle experienced two leaks in the tailing pond of the Kittilä gold mine. In connection with this, increased levels of sulfate concentrations in the nearby Seuru River had been reported; however, there has been no additional public reporting to date of the effects, if any, the increased levels have had. According to the Centre for Economic Development, Transport and the Environment (ELY Centre) in Lapland, the company did continue to draw additional water samples from the Seuru River, including groundwater samples, and it appears that damages were quite limited as the leak was small and controlled quickly. The authors have not conducted interviews with the residents who live in proximity to the Seuru River, but to date, there has been no public outcry, and no indication the company has compensated the residents for any damages. To answer the question posed above, it does appear that if a minor environmental problem is handled quickly and sufficiently in Lapland, there will be little to no public outcry and the company can still maintain its present level of SLO.

These issues also mirror those in Challenge 2, which raises the question: Is SLO gained only by the present-day perspective of people and communities or do historical experiences matter? Whether or not the bankruptcy of Northland Resources and the leak at Kittilä gold mine will influence local perceptions toward future mining projects in Lapland remains to be seen. If local people bring their memory of historical exploitation to present-day projects, then it is not unforeseeable that future mining projects will have a more difficult time in gaining their SLO.

Challenge 6: will SLO evolve beyond community acceptance into a real tool for Lapland? The trend is clearly in the direction for SLO to become more entrenched in the lexicon of Lapland's natural resource projects, and perhaps more importantly, to become operationalized. There are a number of reasons supporting this continuing trend, which span everything from the law to communities learning from one another.

In terms of international law, there have been new developments regarding the duties of multinational corporations to respect human rights in their development activities. These responsibilities have been outlined by John Ruggie through the UN Guiding Principles on Business and Human Rights, and their relevance for indigenous rights has been identified by the UN Special Rapporteur on Indigenous Rights (Anaya 2013). This has placed more direct responsibility on resource companies to address the rights of indigenous peoples, including the requirement for Free Prior and Informed Consent (FPIC) prescribed in the United Nations Declaration on the Rights of Indigenous Peoples (Article 32(2)).[12] While neither the proposed Hannukainen mine in Kolari nor the Kittilä mine is located in the areas of the Sami Homeland and thus does not

[11] Tekes interview with Northland Resources on August 15, 2013.

[12] 1. Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources. 2. States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization, or exploitation of mineral, water, or other resources. 3. States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural, or spiritual impact.

formally trigger FPIC, the need to respect human rights can be generalized to all local communities in Lapland where it is viewed as a code of conduct, rather than a legal requirement, which should be followed by companies.

National legislation also provides an impetus to further SLO. For example, Finland's new Mining Act, passed in 2011, provides protections for Sami peoples and local communities beyond the public consultation requirements of the EIA process (Koivurova and Stepien 2008; Koivurova et al. 2015a, b). As seen in the interviews conducted for the First-In Arctic EIA project, companies have provided examples of good practices they employ as part of the EIA process and many of these can also be classified under the SLO heading; for example, the need for frequent (and transparent) dialog with stakeholders, having and maintaining respect for local customs, businesses and traditional livelihoods (reindeer husbandry), sponsoring community activities, forming cooperation groups, and creating synergies with the tourism sector and municipalities. There are also methodological tools being developed for the EIA process that can be utilized for implementing SLO. For example, according to Agnico Eagle, they are developing the ability to comprehensively map all potential stakeholders and to measure the effectiveness of social impact mitigation strategies over time.[13] Through legislation such as EIA, one can therefore see the potential for SLO to, at least indirectly, be operationalized. This said, the limits of EIA must also be noted. As the EIA regulatory procedure is predictive and occurs during a project's planning phase only, operationalizing SLO through EIA is limited to the early stages and cannot be ongoing throughout the life span of a mine. There are, however, subsequent mining-related permitting and licensing processes as well as requirements for their future monitoring that could allow for the continued incorporation of SLO.

Compensation mechanisms, such as those with reindeer herders, are becoming more widespread. While economic compensation is often crucial for overcoming direct economic losses, different instruments may be needed in order to obtain wider social acceptability, such as those that address livelihood diversification and improvement (Impact and Benefit Agreements) and in-kind compensation of lost nature values and outdoor recreational possibilities (Ecological Compensation Mechanisms).[14]

Finally, communities and interest groups sharing experiences are another contributing factor to SLO becoming more concretized. There are examples, for instance, of reindeer herders in Sweden speaking to reindeer herders in Finland about their experiences with compensation agreements.[15]

[13] Interview with Agnico Eagle on August 7, 2013.
[14] Email exchange with Pellervo Economic Research, September 2015.
[15] Interview with the Reindeer Herders' Association May 4, 2013.

Conclusions

Finnish Lapland has its own unique characteristics that offer opportunities and pose challenges for companies who wish to gain a SLO. For example, if SLO is a bilateral relationship between company and community, then the fact that the community is a key actor and yet also remains undefined is, at the very least, problematic if SLO is to progress as a useful tool. History, be it decades in the past or more recently, is a contributing factor that subtly shapes peoples' attitudes regarding the potential for mining projects to both positively and negatively affect a community. While the large public-works projects built in Lapland post-World War II were not concerned with public acceptance, times have changed and this has become important to all companies who want to mine in the region.

In Finnish Lapland, the SLO is clearly gaining traction as a concept, but if SLO is both a goal and a set of rules—e.g., the expectations local communities and mining companies have toward one another which are negotiated throughout the mining lifecycle (Prno and Slocombe 2012)—then SLO as a "set of rules" in Finland still has ways to develop. As most relevant laws only provide the framework for officials to think about their application and implementation, the operationalization of SLO can lead to the ideal implementation of already existing legal rules.

Slowly, we are seeing the emergence of tools created for other regulatory processes, such as EIA, that can also be used by companies to gain SLO. Monetary compensation agreements are one type of tool, and these are becoming more commonly used now in advance dispute resolution. With the increasing interest in mining activities in Lapland, there will inevitably be more projects and more of a need to balance competing interests. Concrete SLO tools will need to be developed to safeguard local communities and indigenous peoples who, in particular, may be adversely affected by a project but are not considered to represent the "majority voice." While financial benefits accrue to mining companies, benefits are not guaranteed to those who are impacted by mining activities, and operationalizing SLO is one way to level the playing field and ensure communities benefit too.

While challenges in gaining and maintaining the SLO in Lapland remain on the conceptual and practical levels, it is only with the continuing development of the SLO concept itself that these challenges can be clarified and then overcome. The future trajectory of SLO in Finnish Lapland is clearly in the direction of it becoming a more important component in the development of extractive projects, as it holds true potential for reconciling difficult conflicts.

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Original article

European mining and the social license to operate

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ABSTRACT

The Social License to Operate (SLO) has become an established part of the natural resource development lexicon in North and South America as well as Australia. In Europe, the concept of the SLO in relation to mining is still in early maturation and acceptance possibly due to the very different worldview that exists in Europe. The European 'condition' can be characterized by a greater degree of trust in governance bodies and the role they play in prioritizing the best interests of the citizens they serve. The 'Scalar SLO Model' is inspired by Thomson and Boutilier's original conception and developed during the H2020 MIREU project to describe the SLO in Europe; however, its logic can be applied to any other jurisdiction globally. What distinguishes the Scalar SLO Model from other contributions to the literature is two-fold. First, the division between the Community and Societal drivers of the SLO reinforces the notion that the nature of the SLO within the Community dimension can manifest itself differently than within the broader Societal dimension where values may not be the same. The second distinguishing contribution introduces the attributes of loss of the SLO as represented by conflictual relationships in both dimensions.

1. Introduction

Roughly 20 years ago Jim Cooney, a Placer Dome mining executive, coined the term 'social license to operate' (SLO) responding to the mining industry's deteriorating public reputation and increasing social risk. Since then, the SLO has turned into an increasingly popular concept on a global level, addressing community-company relationships in high impact industries such as mining (Prno and Slocombe, 2012; Boutilier, 2014; Owen and Kemp, 2013; Moffat et al., 2016; Vanclay and Hanna, 2019), bioenergy and energy cropping (Baumber, 2018; Edwards and Lacey, 2014) agriculture and forestry (de Jong and Humphreys, 2016) and even tourism (Bickford et al., 2017). Despite the general agreement in academia that for "mining companies, it is increasingly evident that obtaining a formal license to operate from governments and meeting regulatory requirements is no longer enough" (Moffat and Zhang, 2014, p. 61) there is still ambiguity as to how precisely the SLO unfolds and mirrors different institutional and cultural contexts. A review of the published literature shows the strong influence of the Canadian, Australian and Latin American discourse, which is reflecting on those particular institutional, cultural and socio-economic conditions (Thomson and Boutilier, 2011; Prno, 2013; Moffat and Zhang, 2014), while the European discourse is focused on indigenous rights and northern rural communities in a Nordic context (Eerola, 2017; Lesser et al., 2017; Suopajärvi et al., 2017; Poelzer and Ejdemo, 2018). This results in a gap in the conceptualization of the SLO from a European Union (EU)-perspective. In this article, we take a first step to bridge this gap by taking a pan-EU perspective on the SLO. This perspective was established during the last two years of the Horizon 2020 project MIREU (Mining and Metallurgy Regions of EU, 2018-2020) where distinctions between Europe and countries that have traditionally been the focus of SLO research clearly emerged. The starting point for this is the shared history of the European Union, rooted in the European Coal and Steel Community (ECSC, 1951) which evolved into the European Union. The EU is characterized by a standardized system of laws, joint political institutions and social and economic policies that apply in the Member States on the matters where the Member States have agreed to act jointly (European Union, 2012a). Additionally, the Charter of Fundamental Rights of the European Union elucidates fundamental, shared values that are serving as a foundation for the Union, that is "founded on indivisible, universal values of human dignity, freedom, equality and

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solidarity (…) based on the principles of democracy and the rule of law. (…) The Union contributes to the preservation of these common values while respecting the diversity of the cultures and traditions of the peoples of Europe as well as the national identities of the Member States (…)" (European Union, 2012b s.p.) Mineral resources are considered as national/Member State's assets and EU mineral policy advocates the development of integrated strategies to respond to different challenges related to raw materials and foster sustainable supply from European sources (2nd pillar of the Raw Materials Initiative) (Commission of the European Communities, 2008). In view of the policy goal of expanding the extraction of raw materials, the pan-EU SLO discourse must also gain momentum, which is a core objective of the MIREU project.

Early in the MIREU project it became clear that because of the strong governance framework of the European Union, the existing discussion around the SLO was an uneasy fit and that the SLO had to be conceptualized for and tailored to the European experience. In addition, observations across Europe clearly show that the mining discussion is inextricably linked with those of climate change, sustainability and the circular economy continually pulling the public at large into a broader mining debate and necessitating the rethinking of the SLO as a mainly local concept to one that is also entrenched within society. Coupled with the recent interest in 'national' SLO research in countries such as Canada, Australia, Chile and China (Prno and Slocombe, 2012; Zhang et al., 2015) and even more recently in Sweden and Finland (Jartti et al., 2020; Poelzer et al., 2020), the time is ripe for reconceptualizing the SLO as an integrated community/societal model. Observations also reveal that the SLO debate in Europe is only beginning, and while existing projects rarely experience disputes, new projects, and sometimes even expansion projects, are encountering opposition more frequently. As current SLO models do not elaborate on the drivers of the withdrawal and loss of the SLO but evidence suggests this is more frequently the case 'on the ground', promoting a more responsible and sustainable European mining industry will only occur if these problems are overcome.

An early abstract for this article was presented at the 9th International Conference on Sustainable Development in the Minerals Industry (2019) and entitled 'Social license from a European perspective'. This article is both a continuation and evolution of that early abstract and here we present a conceptual SLO model that is based on academic debates drawing primarily from the SLO literature but also from planning and governance theories. From the SLO literature, the models of Thomson and Boutilier (2011) and Moffat and Zhang (2014) have been influential as has the recent research focusing on societal SLO mentioned above. The current governance and planning debates (van Huijstee and Glasbergen, 2008; Rooney et al., 2014; Mercer-Mapstone et al., 2017; Meesters and Behagel, 2017; Demajorovic et al., 2019; Gugerell et al., 2020; Poelzer et al., 2020) around trust and procedural fairness are well connected with those of the SLO. Hence, drawing on theories from these fields elaborates both the role of government and the lower three tiers of the model.

The article is structured as follows. The first section presents a brief overview of the SLO research and the pan-EU approach taken to develop the conceptual model. The second section, through a literature review, discusses the pertinent extant models and the theoretical contribution of the conceptual model. The theoretical contribution is two-fold: first, it addresses the gap of integrating the societal dimension of the SLO into a singular model, and second, it describes the drivers of the loss of the SLO. The third section provides the rationale for why current models are insufficient to describe the pan-EU condition and leads to the introduction of the Scalar SLO Model. There are several things to note: as the approach is pan-EU, it must necessarily be broad given the extremely heterogeneous nature of Europe; the fundamental importance of governance is emphasized; and tension is growing in Europe around new mining. The fourth section discusses why the proposed model is a better fit for Europe and the fifth section reflects on the need to test the model and implications for future research.

2. Literature review

2.1. Theory and its application to Europe

As the mining industry assessed its collective challenges to future project development, emphasis on community relations spurred the proliferation of the concept of the SLO (Schloss, 2002; Thomson and Boutilier, 2011; Moffat et al., 2016). While originally focused on contexts where the regulatory frameworks were poor, it evolved to a broader application of instances where legislation fails to meet the expectations of the public (Prno, 2013). Now, the SLO is commonly used to indicate the level of public acceptance for mining projects (Cheshire, 2010; Prno and Slocombe, 2012; Prno, 2013; Parsons et al., 2014; Bursey and Whiting, 2015; Owen and Kemp, 2017) but remains conceptually ambiguous (Owen and Kemp, 2013; Parsons and Moffat, 2014; Bice, 2014; Bice and Moffat, 2014; Owen, 2016). Until very recently, there has been little academic or even practitioner literature on the SLO in Europe, and what there is, is primarily related to the Nordic countries (Tarras-Wahlberg, 2014; Koivurova et al., 2015; Suopajärvi et al., 2019; Jartti et al., 2020). Although a dearth of pan-EU perspectives on SLO persists in the literature, in reality, the combination of shared values and economic purpose within the EU creates a set of institutional conditions where a unique perception of mining exists – an EU worldview that strongly influences what the SLO is and how it functions.

Worldview sets the broader tone for SLO (Lytle and Hitch, 2017) since it addresses the "inescapable, overarching systems of meaning and meaning-making that to a substantial extent inform how humans interpret, enact and co-create reality" (Hedlund-de Witt, 2013, p. 156). Thus, worldview impacts the perception of resource distribution, pathway creation, and actor roles in their social and cultural context (Hulme, 2009). Consequently, acknowledging different worldviews is especially important for understanding the different perspective on the SLO in the EU, specifically understanding the role and responsibility of government. Previous work from Lyra et al. (2014) illustrates the importance of peoples' trust in a government's capacity to effectively regulate mining operations and protect them from harm. Looking at mining operations in Finland, Canada and Brazil, two factors are measured: stakeholder's level of trust in the legal licensing process and stakeholder's collective belief that they can influence regulation of the industry. Where trust is low and the perceived ability to regulate is low, the need for a SLO from stakeholders is highest. Conversely, where trust and the perceived ability to regulate is high, the need for a SLO from stakeholders is lowest. Compared to Brazil and Canada, the need for the SLO in Finland was low because stakeholders had a high level of trust in the legal licensing and regulatory process and were confident that they could influence the industry. This appears to be changing, however, as there is a growing clamor for revisions to Finland's Mining Act of 2011 to account for new concerns such as taxation, royalties and heightened community protections. Yet, the vehicle for addressing unrest is still legislation and the regulatory process. In order to account for these differences associated with a European worldview, we turn to several well-known and established models which offer potential for adaptation to a pan-European context.

Thomson and Boutilier (2011) use a range hierarchical scale based on normative criteria to describe the relationship between a community and company. As the relationship develops, it potentially evolves from legitimacy to credibility to trust. Legitimacy delineates between a company losing its social license and holding a minimum social license, credibility describes a stronger social license when the company follows through on promises and establishes a track record of honesty, and trust is reached when the relationship is reciprocal and the company and community hold mutual interests (Boutilier and Thomson, 2012). While designed for the local level, tracking public perception at the societal level is also critical to understanding the SLO. However, while this model provides a descriptive interpretation of the SLO, more

instruments are also necessary to realize its application.

To combine SLO measures and action to a European approach, we use Moffat and Zhang's (2014) analysis and proposed model of the critical three factors that strongly influence the acceptance of mining at the local level. Their findings of the importance of procedural fairness, contact quality and social infrastructure relative to trust illuminate the effect that specific activities bear on the perception of a mining company. Through the continuation of their work, Zhang et al. (2018) demonstrate that two important components are essential to include when a mining company initially contacts a community: demonstrating community engagement plans are already in place and there is a clear commitment from the company to comply with regulatory requirements. Thus, procedural fairness, trust in mining companies and confidence in governance are not only factors but actual pre-conditions for the SLO. Importantly, this approach to understanding activities related to the SLO shows promise at the national level (Zhang, 2015; Litmanen et al., 2016; Moffat et al., 2016; Jartti et al., 2020). However, SLO in the EU context is transgressing even the national scale and presents cross-scale relationships including community/communities, company, wider society and civil society, company/industry and governments. To understand and assess these relationships, it is necessary to broaden models developed so far, which have focused specifically on the local community level.

Although, the SLO is seen as the bilateral relationship between a company and the affected local community (Esteves, 2008; Esteves and Barclay, 2011), the argument exists to expand the scope to include the company's relation to "the wider society and various constituent groups" (Gunningham et al., 2004, p. 313). The SLO in many respects mirrors practices within the mining industry and, given the mandate of organizations such as the ICMM (International Council on Mining and Metals) and standards established such as the EITI (Extractive Industries Transparency Initiative) and TSM (Towards Sustainable Mining), the general perception of the mining industry is a key piece of the SLO puzzle. One study that shifted the discussion to a broader context looked at national-level predictors of the SLO in Australia, China and Chile (Zhang et al., 2015). Distributional fairness, procedural fairness and confidence in government emerged as predictors, albeit relatively weak. Further research on societal SLO continues with papers from Jartti et al. (2020) and Poelzer et al. (2020), the former focusing on attitudes toward mining among the public at large in Finland, and the latter on the malleability of the SLO as a concept at the societal and community levels and its usefulness as an indicator of deficiencies in the existing institutional framework. Given the recent surge in interest to more formally scale up the SLO concept, a current gap in the SLO research is an actual tool to analyze and understand the SLO at the societal level. The development of a pan-EU SLO model addresses this gap.

2.2. Governance and planning theories and their application to the SLO

Overlaps and similar challenges are apparent between the SLO, governance and planning theories particularly on the issues of procedural fairness and trust. As Poelzer et al. (2020) highlight in their analysis of the SLO in Sweden, but which also speaks to the European Union, in welfare states that are highly regulated, people expect the state to provide legislation that safeguards the environment and the space for the SLO is not as substantial as other regions. Globalization and new governance conditions have changed the state's role and its ability to steer the mining industry, however, and now there are gaps appearing between actors needs and formal regulation or practice. The role of the SLO in governance and institutional change is coming to the fore in Europe and the debate occurs at the societal level which includes both the EU, as it has competence over environmental regulation, and Member States, as they have competence over mining. While the SLO at the societal level can influence governance, policy and legislation, and the model addresses these interactions, whether an actual societal SLO can ever be issued remains to be seen.

Communication and participatory approaches are fundamental to both planning and SLO yet seemingly less well understood in the SLO literature (Mercer-Mapstone et al., 2017; Gugerell et al., 2020). This may stem from the view of the SLO being a process because it remains ambiguous whether the SLO consists of a series of participatory processes and community engagement actions that are re-occurring over time or if the SLO is considered given as long as no contestation occurs. What also remains unclear is if the SLO is granted as an act of official agreement or it is presumed through the absence of contestation and protest (Meesters and Behagel, 2017; Demajorovic et al., 2019) either by the local community or by government. In case of contestation and protest or other changing conditions, informal and formal processes of SLO revocation are not addressed well yet, which is of particular importance since the mining industry considers the SLO as the most important business risk to be revoked by local communities if unsatisfactory conditions occur (Ernst & Young, 2019, 2018 place 7 in 2017-2018).

Although 'meaningful dialogue' or 'effective dialogue' are mentioned as a basis for the SLO in academia and mining activities, it is less clearly addressed how those come into practise and how they are characterised (van Huijstee and Glasbergen, 2008; ICMM, 2013; Boutilier, 2014; Mercer-Mapstone et al., 2017). Mercer-Mapstone et al. (2017) introduce the difference between dialogue and strategic dialogue. Dialogue refers to social learning through dialogue and thus the exploration of different values, perspectives and narratives, which provide the opportunity to 'take each other into account' and come to shared perspectives. Strategic dialogue refers to dialogue as a structured mechanism linked to a certain goal to be achieved. The meaning of dialogue in the SLO literature is more akin to 'strategic dialogue' as it has a specific role to play in the process (Rooney et al., 2014), while Kemp (2010) stresses the additional bridging function to establish mutual understanding of the company and community perspective. This also affirms the recent research of Zhang et al. (2018) emphasizing that what is promised during the initial engagement with a community will have a significant effect on the perception of procedural fairness and a mining company's trustworthiness and therefore should be carefully considered. While this refers to the community level, at the societal level, 'dialogue' could help unwrap group narratives and clarify the expectations the public as a whole has of the mining industry and how it should be held accountable.

3. The Scalar SLO Model

As noted earlier, worldview sets the broader tone for the SLO. How the community and society are connected can be seen in the current societal debates around mining in Europe, which center on economic growth versus environmental conservation, (trans-)national interest versus local benefits, and societal transformation versus preservation. While they all serve as points of divergence amongst actors involved in and affected by mining development (Bebbington and Williams, 2008; Anguelovski, 2011; Arellano-Yanguas, 2011), they also transfer to the national and/or regional level. EU debates constantly transcend scales, and there appears to be much more fluidity between them than is apparent in other mining countries. However, since the impacts of the mine are less visceral and the relationships less direct, gauging the SLO at a higher level becomes vague – particularly as issues of national interest go beyond any individual company. Therefore, from an academic perspective, analyzing the SLO with governance and public acceptance as a point of departure provides the basis for elucidating the different factors critical to social license within both the community and societal dimensions.

3.1. Drivers of community and societal SLO

Initially the drivers of the SLO for the community and societal dimensions were identified and a hypothesis proposed as to what the

interlinkage might be. The Community SLO is driven by three different aspects: (i) Contact Quality, (ii) Perceived Procedural Fairness, (iii) Social Benefits and it is linked to Societal SLO (through trust in government to regulate industry) which is driven by (iv) Legal and Procedural Fairness, (v) Confidence in Government and (vi) Distributional Fairness. Fig. 1describes these drivers in more detail.

3.2. Drivers of the loss of community and societal SLO

While the societal dimension has already been introduced into the academic literature, there is another aspect of the SLO Scalar Model that has not. These are the three drivers of the loss of the SLO and the corresponding levels of withdrawal or rejection. To date the lower tiers of Thomson and Boutilier's pyramid have only been addressed in the context of better understanding social resistance movements. In Luke's (2017) study on the social resistance to coal seam gas development in Eastern Australia, she proposes a diamond model of the social license to operate which extends Thomson and Boutilier's (2011) pyramid below the 'withdrawal' or 'withholding' level to include levels of support for the aims of the resistance movement, mirrored with levels of support for industry. In the conceptual model for Europe, the lower tiers are the drivers themselves and do not correspond in any direct way with social resistance movements. With tensions around new mining projects appearing to be on the increase across Europe, understanding what is at the core of these disputes becomes more urgent. The three lower tiers are drivers that account for people's attitudes toward mining when industry and government actions are perceived as being contrary to European values. They also reflect the predominant mining-related tensions palpable across the continent today, a few examples of which include: a) local issues such as the incompatibility of mining with local lifestyles (Spain and northern Finland), b) a perception that government is not listening to affected communities and society (Portugal), c) a belief that government lacks capacity in regulating mining activities (Sweden), and d) fundamental value differences such as Sami rights versus those of the state (Sweden and Finland), or societal values such as climate change, which can pit the societal desire to meet climate change goals against the local community's desire for jobs and economic growth (Poland and Germany).

3.3. The Scalar SLO Model

The proposed model for the SLO in the pan-EU context overlays the drivers of the SLO, influenced by Moffat and Zhang's findings, for the community and societal dimensions onto Thomson and Boutilier's normative criteria that indicate how a community views company behaviour. The drivers in Fig. 1 have also been merged while continuing to distinguish Community and Society as separate scales. For example, 'Contact Quality' under Community SLO was merged with 'Confidence in Government' under Societal SLO, 'Perceived Procedural Fairness' was merged with 'Legal and Procedural Fairness' and 'Social Benefits' was merged with 'Distributional Fairness'. In the European context, combining the drivers and allowing for a more robust description enables the model to better reflect the heterogeneity that is Europe while still retaining enough concrete meaning to make the drivers useful. The drivers have subsequently become 'Legal and Procedural Fairness', 'Engagement' and 'Benefit Sharing', the upper three tiers of the model which represent increasingly higher levels of the SLO. Using Thomson and Boutilier's classification of relationship types, this also illustrates a change from more transactional relationships at the base to a collaborative relationship at the top tier. The three upper tiers were overlaid onto Thomson and Boutilier's pyramid of normative criteria and the terms changed as 'Approval' and 'Psychological Identification' do not resonate in the European context but, in ascending order, 'Acceptance', 'Support' and 'Collaboration' appear to.

The three lower tiers in the model represent the drivers of the loss of the SLO. Development of these drivers has not been based on prior

Fig. 1. Drivers of Trust and Acceptance (Adapted from Moffat and Zhang, 2014 and Lyra et al., 2014)

academic literature; these have been created using knowledge about the present-day situation of European mining and the difficulties that some projects are facing. The lower three tiers are 'Lack of Legitimacy for Project/Industry', 'Little Confidence in Government' and 'Clash of Fundamental Values' all of which are conflictual relationship types which either hamper mineral extraction or make it impossible. As normative criteria for the lower levels of Thomson and Boutilier's model do not exist, and there are clear gradations of mining-related disputes in Europe, the criteria devised reflect the different levels of tension and include 'No Acceptance', 'Resistance' and 'Protests' (Fig. 2).

There are two features of the model which deserve a special mention. The first is that the levels are building on one another. So, for 'Benefit Sharing' also 'Engagement' and 'Legal and Procedural Fairness' must be attained. The same is true for the lower tiers so that one does not descend to the lowest tier of 'Clash of Fundamental Values' unless the project, or industry in the societal dimension, has already lost legitimacy and there is a perception either of incompetency or corruption in government. This tier also reflects a view in Europe that places exist where there may be a complete rejection of mining and it is simply not possible to mine.

The second feature is the distinction between the community and societal dimensions and the fact that the level of the SLO does not always align. There are cases where the SLO can be higher in the community dimension and lower in the societal dimension, as is the case regarding lignite in Germany. Jobs at the local level are paramount in a region with a long history of lignite mining while society at large is strongly against coal production and supportive of the climate change targets in the Paris Accords. What the potential outcomes may be when there is a situation of misalignment has not been addressed and provides fertile ground for future research.

Finally, the text in the figure below reflects how the drivers for the community and societal dimensions manifest in Europe (Fig. 3).

4. Discussion

4.1. Europe: addressing the empirical gap

It takes only one glance at the SLO literature from a geographic perspective to understand the empirical gap is Europe. The reasons for this are undoubtedly numerous and possible explanations range from the European distaste for adopting 'solutions from abroad', to the slower emergence of the SLO as a term and concept, to mining simply being a small part of the European Gross Domestic Product (GDP) and there being little public awareness of mining as either process or product. In the academic literature, papers attribute the slower emergence of the SLO as a term and concept to the belief that legislation and regulation are best practice, and in combination with the stabilized protocols of long-established mining companies, there simply was less need for the SLO (Koivurova et al., 2015; Poelzer et al., 2020). This reaffirms Lyra's assertion (2014) that in Finland, because there was a high level of stakeholder trust in the legal licensing process coupled with the collective belief of their ability to influence the industry, there was little demand for the SLO. Reasons aside, bringing Europe into the broader SLO debate is important for understanding how the SLO functions where there are strong governance institutions and frameworks, an educated and generally wealthy society but one also with a great deal of cultural heterogeneity. For Europe itself, entering the debate is crucial at this juncture because there simultaneously exists a concern about the dependence on raw materials imports, the desire to restart mining and emerging tensions both at the project level and across society. It should be emphasized the proposed model does not postulate that the SLO, as understood in the existing literature and models, operates differently in Europe than in other parts of the world. On the contrary, overlaying Moffat and Zhang's drivers onto Thomson and Boutilier's (2011) model describes the European situation of the community dimension well. The drivers of the SLO and the normative criteria are very similar in the European context. This does not, however, explain the whole picture that is Europe. For this, the societal dimension needs to be introduced as do the drivers of the loss of the SLO.

4.2. Pan-EU approach: addressing the theoretical gaps

The European Union is a unique model of governance, and legislation as well as procedural processes generally enjoy a high level of legitimacy because they are seen as representing the consensus of the

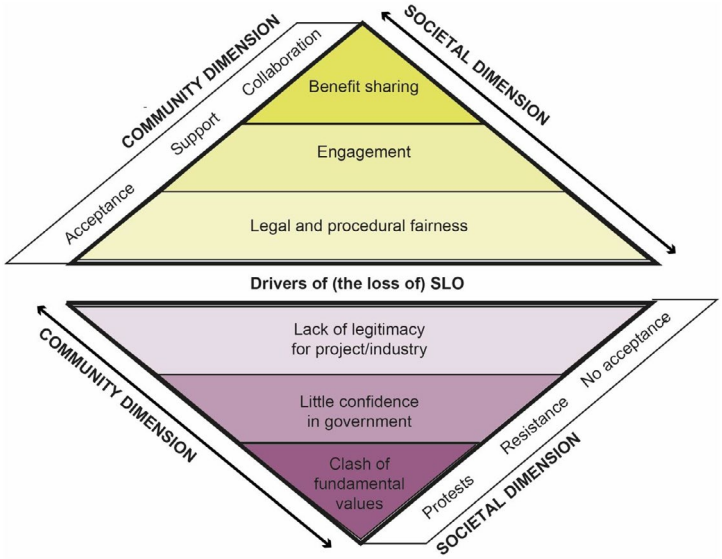

Fig. 2. Scalar SLO Model (Based on Thompson and Boutilier, 2011)

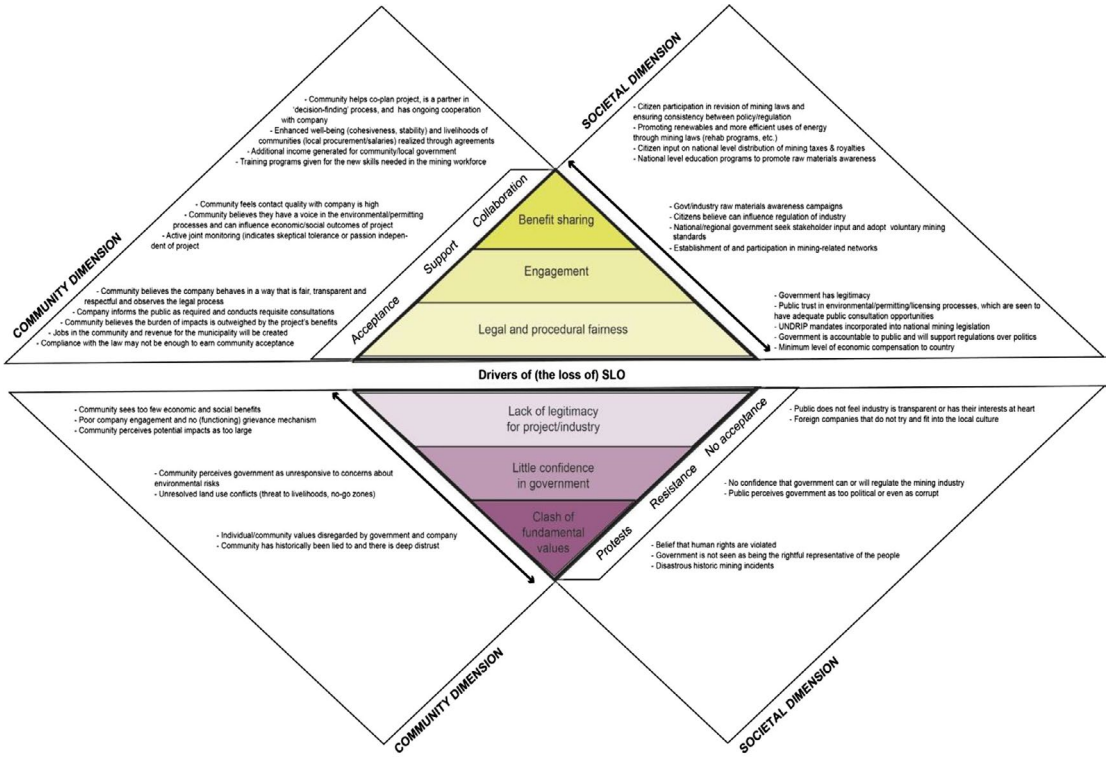

Fig. 3. Manifestation of the drivers in the Scalar SLO Model

majority. At the same time, EU governance institutions are complex, and their effective functioning requires a multi-scalar fluidity that is unique. For instance, even though mining is not an EU competence but a national one, permitting a mine in Europe is not simply confined to a singular level of government. To take one example, environmental policy is an EU competence and environmental issues associated with a mine must therefore comply with various EU Directives. Additionally, the effects of mineral extraction in Europe cross different scales and touch different policy and societal tiers. Because of this, there is a need to take a multi- and cross-scalar perspective in order to acknowledge that the SLO within the community dimension is complemented by a societal dimension of the SLO.

As to its actual incorporation into the model, once the similarities between the drivers of the SLO within the community and societal dimensions, adapted from Moffat and Zhang (2014) and Zhang et al. (2015), were determined and subsequently combined, it then became apparent they could operate in tandem with one another in a singular model. Introducing the societal dimension into the SLO debate is a reflection of those European values, particularly the belief in the rule of law, which are foundational to the European worldview. No other model has yet attempted to simultaneously integrate the societal and community dimensions.

It can also be said that no other model has yet attempted to identify the drivers of the loss and possible rejection of the SLO. Continuing with the governance and public acceptance approach, the foundation for determining the lower three tiers of the conceptual model is again the European worldview while also incorporating the dynamics of opposition to mining in Europe and how that opposition is perceived and handled. It should be clarified that 'opposition' in Europe rarely is physical in nature and almost never violent but rather takes the form of discourse and debate, public referendums, signed petitions and, on occasion, more traditional types of protests. For this reason, there is a conscious decision not to use the word 'conflict' to describe opposition, as that seems too strong, but rather to use the preferred term of 'dispute'.

The first of the lower tiers, which is 'Lack of Legitimacy for Project/Industry', is based on Thomson and Boutilier's early work in 2011 which uses 'Legitimacy' as the lowest level boundary criteria separating the normative criteria levels of 'Acceptance' and 'Approval'. In subsequent work (Boutilier et al., 2012), the concept of legitimacy was clarified to mean the 'legitimacy of benefits', which is also the definition adopted in the Scalar SLO Model. While the original idea of legitimacy as boundary criteria has been co-opted and changed into a driver of the loss of the SLO, the rationale for doing so lies in the European discourse related to opposition where it is not enough that a project/industry confers a minimal level of benefit to gain the SLO. To reach even the lowest level of the SLO, there has to be 'Legal and Procedural Fairness'.

The lowest two tiers reflect more deeply rooted, and more negative, attitudes toward mining. When there have been mining-related environmental disasters in Europe, the authorities are also held accountable by the public and this consistently translates into a loss of confidence and trust in government, which takes a long time to rebuild. There are also examples in Europe where mining will not be accepted under any conditions and this is reflected in the lowest tier. It is not clear whether the drivers of the loss of the SLO are uniquely European or are more widely shared.

4.3. Limitations of model and new issues raised

There are several limitations to the model which should be mentioned. The first is that in arguing for a common European worldview, by definition this excludes the fact that there are indeed many different European worldviews. Stakeholder groups are different across Europe where prevailing worldviews are far more vibrant, with cases where language, culture and identity within the broader society can change within a few kilometers. Even so, it is widely accepted that legitimacy, credibility and trust form the basic 'mechanism' of the SLO. Zhang et al. (2018) mirrors this in establishing confidence in governance, procedural fairness, and trust in mining companies as pre-conditions for the SLO applicable to both the community and societal dimensions further justifying the drivers of both are the same with the difference being attributable to scale. While the differences across Europe are notable, and given the importance of local context in determining the form the SLO takes (Wilson, 2016), rather than glossing over European heterogeneity, the SLO Scalar Model can become a tool to reach a better understanding between all actors as to what particular governance arrangements, engagement strategies and trust-building measures should be put in place. Whether different worldviews can actually be explained and satisfied by the Scalar SLO Model remains to be tested.

The second has to do with the perception in Europe that the SLO almost exclusively focuses on indigenous issues and therefore has little relevance. There is some truth in this as the SLO academic literature tends to divide worldviews into indigenous and non-indigenous ones. With the exception of the Sami peoples in northern Sweden and Finland, Europe lacks the same level of indigenous involvement in mineral resource development compared to other mining regions such as Africa, Australia, Latin American and North America (Boutilier, 2017). Attachment and relationship to the land is a major aspect of worldview, particularly for indigenous peoples, but the majority of Europeans are non-indigenous with different perceptions about land, ownership, community and governance resulting in very different worldviews. The same dynamics are not as prevalent in Europe so comparisons with the SLO literature and preferred approaches differ.

The existing SLO models do not, however, specifically address indigenous issues; rather, they are intended to be applicable globally to all peoples. Even accounting for much of the SLO literature segregating worldviews, the extant SLO models are intended to be universal, and as the Scalar Model uses these as the base, it too is intended to be universal. It is believed the model can potentially addresses the indigenous rights issue in Europe but that will need to be examined more closely in the future.

The third limitation centers on the inability to explain the connection and relationship between the community and societal dimensions. How these relate to and influence one another remains murky but what is clear is that there is a strong relationship in Europe between the two. As pointed out earlier, there are already existing situations of differing levels of the SLO within the community and societal dimensions. What this mean in terms of attitudes toward mining and if this helps explain the challenges around mining are questions that as yet remain unanswered.

The fourth limitation centers on the applicability of the drivers of loss and rejection of the SLO outside of Europe as these have been derived solely from the European experience. While it is surmised that countries sharing a similar level of economic development and belief in the rule of law would likely also share these drivers, this remains open for future exploration.

5. Conclusions

The EU is unique in terms of governance, shared values and a common identity all of which translate into a distinctly European worldview. This worldview influences how the SLO is interpreted and is being introduced into the current SLO debate through the incorporation of the community and societal dimensions of the SLO, as well as the identification of the drivers of the loss of the SLO. Based on this knowledge, the conceptual model seeks to illustrate what the SLO is in the European context, but it is as yet untested and needs to now be validated. There still remain many outstanding questions, perhaps the most important of which has to do with the relationship between the community and societal dimensions and how differing levels of the SLO may help explain the difficulties Europe is currently experiencing around potential new mining projects.

Declarations of Competing Interest

None.

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ORIGINAL PAPER

The road to societal trust: implementation of Towards Sustainable Mining in Finland and Spain

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Abstract
In government, industry and academia, there is a convergence of three trends: (1) the belief that responsible exploration and mining should increase across Europe, (2) industry should follow and 'Europeanise' international good practices and (3) a social licence to operate exists not only between a community and a company but also between society and industry. There are two examples in Europe where these trends are converging—Finland and Spain have both adopted the Canadian Toward Sustainable Mining (TSM) program, but the method of implementation is very different. As a result of Talvivaara, Finland took a network governance approach incorporating trust-building measures from the beginning by bringing diverse stakeholders together to create the Finnish Network for Sustainable Mining. Spain chose to integrate the TSM into their national standards, a more traditional and hierarchical approach but one that also relies on a trustworthy entity with clear longevity. Although implementation is in the early stages in both countries, and therefore this paper provides insights only on preliminary outcomes, results indicate that the network approach may not be better at achieving societal SLO suggesting that other factors such as narrative, dialoguing directly with society, implementing trust-building measures in a timely fashion and proven longevity may have more influence than early trust-building measures between network participants.

Keywords Network · Standard · Social licence to operate · Finland · Spain

Introduction

The secure supply of raw materials for the European Union (EU) is a long-standing issue of concern, and the EU has sought numerous ways to address it, starting with the Raw Materials Supply Group in the 1970s, continuing with the launch of the Raw Materials Initiative in 2008 prioritizing raw materials (EC COM(2008)699 final) and most recently the Action Plan for Critical Raw Materials (EC COM(2020)474) encouraging the domestic industry. As part of the Action Plan, the Commission launched the European Raw Materials Alliance (ERMA) envisioned to be a stakeholder network involving all relevant interests including industrial actors along the value chain, EU countries and regions, trade unions, civil society, research and technology organisations, investors and NGOs who share the goal of supporting the extraction of critical raw materials (EC COM(2020)474). The day before ERMA's launch, however, a letter was delivered to the Commission with the signatures of approximately 234 civil society organisations and academics expressing their deep concerns about the narrative of the Action Plan (Civil Society open letter, 2020). European policy and European society are at a critical juncture in charting the future course of exploration and exploitation activities, and the tension between those who believe mining is critical for the energy transition and those who champion post-consumerism and resource decoupling has come to the fore, with adoption of the Action Plan and launch of ERMA. Caught in the middle are the companies, who have largely been alone in trying to handle the opposition and discovering that social acceptance, equated with the social licence to operate concept for the purpose of this paper, is not only a result of their individual behaviour but also that of the entire industry. The Commission's convening of a stakeholder network to promote critical raw materials shows not only that government is willing to enter the fray but could be interpreted as an acknowledgement they see the legitimacy of the entire mining industry potentially at stake.

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What is happening on-the-ground is buttressed in recent academic literature asserting that while connected, there is a company social licence which is separate and distinct from the industry's social licence (Boutilier 2020). Research on the societal dimension of SLO, particularly around its preconditions, what drives it and how it affects community SLO, although the latter point still not well understood, acknowledges the importance of better understanding the societal influences on acceptance (Zhang et al. 2015; Litmanen et al. 2016; Zhang et al. 2018; Jartti et al. 2020; Poelzer et al. 2020; Ruokonen 2020). The concepts of societal SLO and industry SLO may either be mirroring or a response to conditions on-the-ground. What is clear is that policy, reality and research are converging as the acceptance of European mining has entered the discourse in all three realms.

Similar organizations and rationale invoked in the opposition against ERMA are also evident at the Member State level and at least three different approaches to address opposition have been attempted in Europe: two at the national level and one at the regional level. This paper compares the two national-level approaches, one in Finland and one in Spain, that not only address the opposition but also proactively seek to build societal SLO through the adoption of international good practices. Both Finland and Spain have adopted the same instrument for achieving acceptance, the Canadian Towards Sustainable Mining (TSM) program, yet have implemented it in very different ways. In Finland, the approach is a government-led network that includes representatives of all stakeholder groups with an interest in mining. All stakeholders are considered equal and decisions are made by consensus. In Spain, implementation is via an industry-led national standard through the UNE, the Spanish Standards Association, a more traditional and hierarchical style of implementation. The aim of this paper is to assess the effectiveness of the implementation mechanism on a policy instrument, in this case, whether a stakeholder network or a national standard is better suited to the implementation of an outside nation's industry standard. As both of these efforts are still new, this article endeavours to provide preliminary insights into the initial phase of adopting the TSM.

Theory and literature review

Dialogue, relationship-building and trust in the context of societal SLO

While the idea of societal SLO has always been embedded in the early academic SLO literature, only recently has it gained prominence. Owen and Kemp (2013) stress that the concept of SLO is applicable at different societal levels from the macro to the local. Prno and Slocombe (2012) write that SLO may be issued by society as a whole (e.g. government, communities, the general public, media), yet in a later study, Prno (2013) notes that while SLO can be issued by different elements and scales of society (e.g. communities, regions, and the general public), local communities are often a key arbiter in the process by virtue of their proximity to projects, sensitivity to effects and ability to affect project outcomes. Litmanen et al. (2016) surveyed several Finnish regions asking questions societal in scope addressing trust in national environmental legislation and attitudes toward the acceptability of the Finnish mining industry. Zhang et al. (2015) and Jartti (2020), conducting research in Finland and Australia, both assert the wider public has expectations regarding how the mining industry should act and conclude that acceptance is clearly mediated through trust, which suggests that building trust and SLO requires joint efforts by industry and government. Unlike the discussions around SLO at the community level between company and community, Zhang and Jartti's work not only validates the existence of SLO at the societal level but that government is a key actor. Recent research supports the government role (Lesser et al. 2020; Poelzer et al. 2020) as does real life in the case of ERMA's initiation by the European Commission.

In terms of understanding how to actually achieve societal SLO, the single most important factor that emerges in every study is trust in the mining industry (Thomson and Boutilier 2011; Prno and Slocombe 2012; Moffat and Zhang 2014; Suopajärvi et al. 2019). The question then becomes how to build trust in the mining industry among the public at large? At both the local and societal levels, engagement strategies emphasizing dialogue and relationship-building appear to be most successful (Prno 2013; Mercer-Mapstone et al. 2017a). The more positive an experience of dialogue is, the more likely the participants are to believe one another's actions are fair leading to stronger relationships that increasingly are built on trust (Mercer-Mapstone et al. 2018). However, when dialogue occurs without building relationships, it does not appear to flow through trust, suggesting there are specific types of dialogue that further acceptance (Mercer-Mapstone et al. 2017b). Indeed, this appears to be the case as Mercer-Mapstone et al. (2017b) posit two types of dialogue, strategic and learning, where strategic is goal-oriented, and learning is about exchanging ideas and building relationships. Dialogue can also be destructive as their research indicates dysfunctional conflict can arise when the expectations around what a dialogue is supposed to achieve are not fulfilled (ibid 2017b). The connection between learning-based dialogue and relationships is crucial to both ensure that expectations are understood and met and that the process whereby an agreement is reached is considered fair. Governance literature also emphasizes the crucial role of communication and participatory approaches in perceptions of procedural fairness, as outcomes are more likely to be accepted if the process is deemed fair (Klijn and Koppenjan, 2016; Poelzer et al. 2020).

As dialogue, relationship-building and trust are essential factors in building SLO at both community and societal levels, hypothetically, they should also play a significant role in the Finnish and Spanish implementation of the Canadian TSM. The implementation approach that more fully embraces the three factors should be more likely to achieve societal SLO. Figure 1 below visually illustrates these inter-relationships.

The role of networks

Delving into earlier literature on SLO, Thomson and Boutilier (2011) at the outset viewed communities as networks of stakeholder organisations. Equating communities with networks suggests that there is something inherent in the network structure itself crucial for SLO. The breadth of literature on networks is extensive, but there are two very different areas of research—national security and network governance—that shed light on why and how networks are important in the SLO context.

Research on networks in the hard security context provides insights into the different ways they organize, the most important elements that must be in place to ensure their survival and the role that ideological beliefs play in not only determining who leaves and who remains, but why a common narrative that binds all participants is crucial. Structurally, they can assume three shapes: (1) a simple chain or line network where information moves along a line of separated contacts, (2) hub or star design where a set of actors is tied to a central but not hierarchical node and (3) an all-channel design or full-matrix, which is a collaborative network where everyone is connected to everyone else and there is no hierarchical decision-making (Arquilla and Ronfeldt 2001). The last type is the most difficult to run effectively yet has the highest potential for achieving goals, and the Finnish Network is an example. The authors identify five levels of theory and practice crucial for a network's survival: technological (communication), social, narrative, organization and doctrine, and for an all-channel design network, having a strong narrative is the most important for its success and survival because it is the common purpose that connects members and draws new ones in. This assumes that a narrative internal to a network is the only one that is important. In the context of societal SLO, there is also a narrative external to the Finnish Network that needs to be crafted.

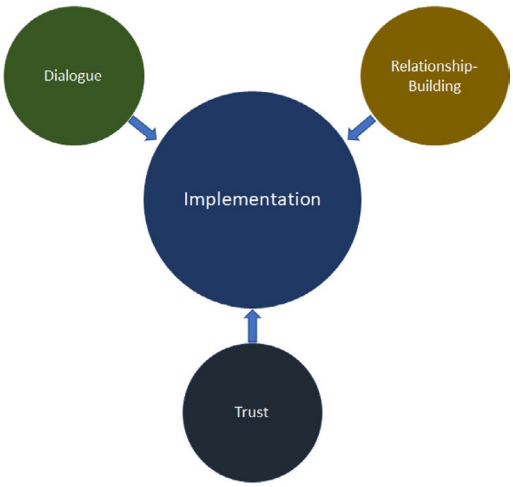

Fig. 1 SLO factors influencing implementation

Networks coalesce not only to achieve a particular end but are also a form of governance (Klijn and Koppenjan 2016) and one particularly suited to solving the problems inherent in a complex society. As opposed to traditional top-down approaches, networks are horizontal, consensus-based and usually long-term voluntary engagements, and similar to SLO, they are in need of trust-building efforts. Revisiting the idea of process versus outcome, because networks are consensus-based bringing stakeholders together to dialogue and solve problems, in so doing, agreements reached may be more durable and implementable by taking more interests into account, and the agreement is also more likely to be fair and perceived as fair. There are, however, other views about consensual processes that are not so positive. Tewdwr-Jones and Allmendinger (1998), writing in the context of planning theory, believe that consensus is a completely utopian idea in political arenas as there will always be winners and losers. Although created to solve complex problems, Klijn and Koppenjan (2016) acknowledge that networks themselves are inherently complex because each participant has their own perception of problems and solutions, which can lead to substantial differences in perceptions, value conflicts and disagreement about outcomes. Yet outcomes in a network structure may not be the only, or even the main, desirable outcome as the intangibles such as new relationships, new practices and new ideas may be seen as more important (Innes and Booher 1999).

National standards

As opposed to the non-hierarchical network structure, the process of adopting national standards is one that is traditional and top-down albeit with a public consultation component. Similar to the network, however, the development of standards is voluntary and decisions are reached through consensus. Whether they are formal (national, regional and international) or informal standards, it is the community of stakeholders comprising the membership of the standards organization that decides what standards should be developed, what they should contain and when and how they should be published (European Commission 2013). The basic structures and processes for adopting formal standards are supposed to offer unrivalled vigour and transparency, if not to the outside world, at least to the members involved.

Standards are also voluntary to implement and are meant to provide the private sector with clear and definitive ways of naming, describing and specifying, measuring and testing, as well as managing and reporting an action (European Commission 2013). They provide a recognized means for assuring the quality and reliability of processes and therefore help bestow legitimacy on outcomes. Implementation of a standard's objectives is typically benchmarked and measured through the use of indicators. Once the standard is adopted, its implementation is not typically overseen by the standards body but by the entity leading the effort (European Commission 2013). Certification programs are often attached to standards and can therefore also act as a branding mechanism. In the Spanish case, AENOR is responsible for the certification scheme attached to the UNE Standards and the entire UNE Standard must be implemented for a company to receive certification (Industry A, personal communication, November 23, 2020). There is also a cost associated with the certification.

As a form of soft-regulation, the benefit of standards is that they provide a company/industry with a clear method for achieving a consistently good outcome, and therefore, standards also are of tangible benefit to stakeholders. To the extent the public is aware of, and has confidence in standards, they should also help improve the image of a company/industry and can be a form of branding. While the process of creating networks and standards are very different, the objectives of ensuring a process acceptable to all, both those involved and broader society, and thus an outcome accepted by all, are the same.

Research hypothesis and methods

The multi-stakeholder network governance approach infuses trust-building measures among all representative interests at the beginning and throughout a process, whereas adopting national standards waits for societal trust to come only once companies implement, in this case, the Canadian TSM program. The hypothesis of this paper, therefore, is that the network approach in Finland is more likely to result in a better implementation of the TSM and hence have a higher likelihood of achieving and maintaining societal SLO. In short, it is expected to improve the framework conditions for implementation and thus support the delivery of better outcomes (Tewdwr-Jones and Allmendinger 1998; Innes and Booher1999; Gugerell et al. 2020).

The data was collected in the course of the H2020 MIREU (Mining and Metallurgy Regions EU) project in several stages. First, a PEST (political, economic, socio-cultural and technical) analysis was conducted across nine of the MIREU partners regions: Andalusia and Castilla y Leon in Spain, Cornwall in the UK, Lapland in northern Finland, Saxony in Germany, Sterea Ellada in Greece, Styria in Austria and both Upper and Lower Silesia in Poland in order to map background conditions that influence SLO in the regions. The PEST identified several instances where acceptance of the mining industry was supported by government: two at the national level and one at the regional level. The two national efforts are the Finnish Network for Sustainable Mining (Finnish Network) and the UNE Standards for Sustainable Mining (UNE Standards), with a focus on the most recent inclusion into one of the standards—the Communities of Interest Protocol from the Canadian TSM program.

To gain insight into the origins of the Network and UNE Standards, how they were developed and the expectations around what they should achieve, interviews with key people involved in their creation, development and implementation were conducted in 2019. In Finland, interviews were conducted during Autumn 2019 and included eight participants highly involved in the Network. In Spain, the interviews were conducted also during Autumn 2019 and included five persons closely engaged with initiating and adopting the UNE Standards, and the Communities of Interest Protocol (COI) in particular, as this is both the most recent addition and the one that focuses on stakeholder engagement. It should be noted that since the COI was adopted only in 2019, there are no questions asking about its implementation, rather only what implementation is anticipated to look like and achieve.

Government-led network vs industry-led national standard

The Finnish Network for Sustainable Mining

Finland takes a collaborative approach to implement trust-building measures through the establishment of an informal network of stakeholders with an interest in working together to ensure a responsible Finnish mining industry. The catalyst for the Network's establishment in 2014 was the mining disaster at Talvivaara in October 2012. Although initially dubbed 'the miracle of Sotkamo' in the media, due to growing concerns over rising contaminants in the wastewater, by early 2012, the public image changed from a blessing into a curse (Sairinen et al. 2017). By the time the mine's gypsum sediment pond leaked in November 2012, public outrage and criticism was massive. It was a process which began as a local environmental conflict but over time became a symbol of national conflict in the mining industry (Sairinen et al. 2017). Research at the time (Suopajärvi et al. 2017) showed that all actors along the permitting chain, not just industry, were evaluated as a result of the accident. Industry, politicians and governmental authorities realized that the public trust in both the mining industry and the government was in peril (Jartti et al. 2017).

The Network was based on previous stakeholder meetings resulting from the Talvivaara disaster when the Ministry of Employment and the Economy, together with the Ministry of Environment, brought together representatives from the extractive industry and its stakeholders to chart a path forward. Establishing a Network for Sustainable Mining based on industry self-regulation, inclusive of all stakeholders and with a mandate to avoid and/or solve conflicts became a primary goal (Kaivosvastuu 2015). Sitra, the Finnish Innovation Fund, funded the Network for its first 2 years, but thereafter, it would have to be financially self-sustaining. In May 2014, the Network was formally established, composed of the stakeholder groups shown in Fig. 2, and eventually adopted the Finnish Toward Sustainable Mining Standard based primarily on the Canadian TSM but also on the environmental section of IRMA (Initiative for Responsible Mining Assurance) (Kaivosvastuu 2015). Two protocols were added to the Canadian TSM, water management and mine closure, and associated tools were developed to aid in implementation, such as the Corporate Social Responsibility report, toolboxes for exploration and exploitation and online training courses.

Although almost all stakeholder groups with an interest in mining are represented in the Network, the industry most opposed to mining, tourism, has never joined even though the Network repeatedly attempted to bring them on board (Civil Society A, personal communication, August 27, 2018). The membership has remained relatively stable over the past 5 years as Table 1 shows, but there have been some changes with 2015 being a particularly momentous year as Sitra withdrew its financial support from the Network and it moved under the Finnish Mining Association (FinnMin), the Permanent Secretary of the Ministry of Environment assumed the chairmanship and the Finnish Sámi Parliament withdrew its formal membership.

With the Finnish TSM Standard adopted and the accompanying tools developed by the Network, it now is up to the companies to each begin implementing the protocols, complying with the indicators and reporting on the outcomes. There is little public information on how the actual implementation is proceeding, but Ruokonen (2020) recently conducted a study using an online questionnaire sent by email to 51 persons in managerial positions representing 15 mining companies. In total, 36 responses were received, and among those, 81% of the respondents stated they are going to implement the Mining Standard, 8% of the respondents have implemented, 56% have started to implement and 17% have not yet started to implement them (ibid 2020).

UNE Standards for Sustainable Mining Management

In Spain, the Canadian TSM is also the instrument adopted to build public trust in the mining industry; however, implementation is very different than in Finland as it is an industry-led national standard. This approach emphasizes trust-building between communities and companies at a later stage once the companies begin following the procedures laid out in the UNE Standards.

The vehicle for implementing the Canadian TSM is the Spanish Association for Standardization (UNE), a quasi-governmental entity designated by the Spanish Ministry of Economy, Industry and Competitiveness to the European Commission. The UNE is responsible for the development and adoption of all national standards. Integration of the Canadian TSM into the Spanish UNE Standards began in 2008 first with the environmental and management protocols becoming UNE 22470 Sustainable Mining Management Systems (Requirements) and UNE 22480 Sustainable Mining Management Systems (Indicators). Both standards were later revised in 2015 and in 2019. In the latest revision (2019), UNE 22470 was renamed the Sustainable Mining, Mineral Processing, Metallurgy Management System (Indicators) and UNE 22480 as Sustainable Mining, Mineral Processing, Metallurgy Management System (Requirements). All UNE standards are produced by committees that operate

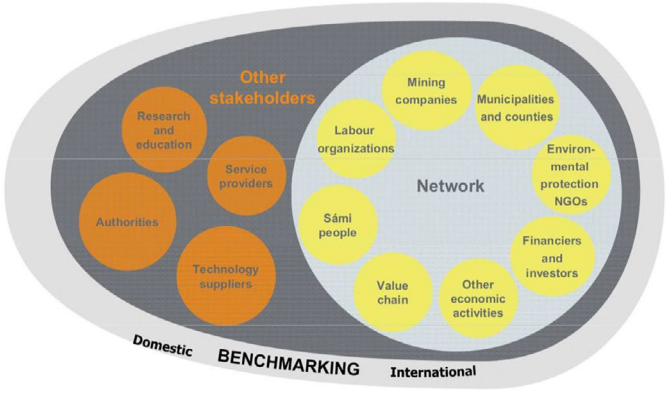

Fig. 2 The structure of the original multi-stakeholder network of the Finnish Network for Sustainable Mining (Yrjö-Koskinen 2015)

Table 1 Composition of the Network from 2015 to January 2021

Original signatories to Statement of Intent (SOI) May 2015	Signatories to SOI as of 2021	Changes from 2015 to 2021
Association of Finnish Local and Regional Authorities	Association of Finnish Municipalities	Sitra withdrew financial support 2015
Association of Finnish Steel and Metal Products	Association of Reindeer Herding Cooperatives (Paliskunta Association)	Finnish Sámi Parliament withdrew November 2015
Association of Reindeer Herding Cooperatives (Paliskunta Association)	Central Association of Agricultural and Forestry Producers (MTK)	Permanent Secretary of the Ministry of Environment became Chairman 2015
Finnish Association for Nature Conservation. (FANC)	Finnish Association for Nature Conservation (FANC)	Confederation of Finnish Agricultural and Forestry Producers (MTK) joined 2016
Finnish Industry Investment Ltd.	Finnish Industry Association	Metsähallitus joined 2019
Finnish Metalworkers' Union	Finnish Industry Investment, Ltd.	
Finnish Mining Association (FinnMin)	Metal Processors Association	
Finnish Sámi Parliament	Metsähallitus	
Regional Council of Lapland	Mining Industry Association (FinnMin)	
Sitra	Regional Council of Lapland	
WWF Finland	Sitra	
	WWF Finland	

under a well-defined procedure. CONFEDEM, the National Confederation of Mining and Metallurgy Enterprises, is the President of the Technical Committee 22 Mining & Explosives (CT22), where its Subcommittee 3 (CT22-SC3) is dedicated to Sustainable Mining Management (Industry B, personal communication, February 18, 2019). The Sustainable Mining Management sub-committee consists of 30 people and includes a wide array of stakeholders ranging from administration, civil society, companies, associations and UNE officers, who are present in all Committee meetings to ensure there is coordination between committees (Industry B, personal communication, April 23, 2019). Once a draft of the standard is approved, there is a public consultation for two months. The comments received are analysed, answered and included if accepted. UNE then sends it to the Spanish Official Bulletin when it is then considered an official Spanish Standard.

Although sustainable mining standards existed since 2008, research in the MIREU project showed that opposition to mining activities in Spain continued to increase after 2008. Realising that current efforts to operate more sustainably were not enough, CONFEDEM spearheaded the effort in 2018 to also adopt the Canadian TSM Aboriginal and Community Outreach Protocol renaming it the Communities of Interest (COI) Protocol. When the COI was proposed to the membership, unanimous approval was given for its adoption indicating acknowledgement by the Spanish mining industry that communication with stakeholders needed improvement and also indirectly validating the UNE process and method for implementation of the TSM (Industry B, personal communication, May 2, 2019). In 2019, the COI was incorporated into UNE 22470:2019.

Results

Finland and Spain have the same goals and objectives, to build public trust in the mining industry and achieve societal SLO; however, their choice of implementation differs dramatically. Since both the Finnish Network and the UNE Standards are still in the early stages of implementation, with the COI having only been adopted in 2019, the results provide only preliminary insights into the initial phase of adopting the TSM. To connect the two approaches with societal SLO, a revisit of the SLO literature discussed earlier that focuses on trust-building is warranted. The work of Mercer-Mapstone et al. (2018) in particular provides an empirical basis for linking dialogue and relationships with trust. Hence, the interviews are analysed from the perspective of whether the Finnish Network and UNE Standards are perceived to contribute to dialogue, relationship-building and trust and therefore whether one or the other is better suited to achieve and maintain societal SLO.

Dialogue

One of the major accomplishments of the Network that all interviewees emphasized is its ability to promote an open, active dialogue within a safe space. Consensus-based decision-making also had a positive effect as voices were not perceived as being marginalized. People with different viewpoints came together and most eventually agreed on the way forward. Those that did not left the Network (see Table 1). This reveals both the positive and negative aspects of a network governance approach: positive since dialogue encouraged learning and perhaps even contributed to the shifting of viewpoints allowing for compromise (Mercer-Mapstone et al. 2018) and negative because those who politically found it challenging to accept a solution that advocated mining, albeit responsible mining, felt compelled to leave. Now that the Finnish TSM Standard and accompanying tools have been developed, the companies must implement the standard. Momentum appears to be ebbing as the main purpose of the Network has been fulfilled. There is less need for dialogue in general, and for the learning type of dialogue in particular, as the future work is not oriented to solving problems but to monitoring companies. While the internal dialogue early on was robust and positive, all of the interviewees felt the dialogue with external stakeholders was lacking. Suggestions for improvement include that the Network should better communicate its activities, especially the benefits of the liability standards, have more visibility, proactively engage external stakeholders and, in the words of one interviewee, *be more present and visible as one front* (Landowner-FI1).

In Spain, the UNE has a hierarchy of technical committees and a clear order of processes that are oriented toward transparency, consensus and inclusion; yet, there is no information as to the nature of the internal dialogue. As there were approximately 30 stakeholders representing different interest groups involved in the adoption of the COI, there must have been dialogue and one can only speculate this would likely have been strategic as the goal was to integrate the protocol from Canada into the existing UNE Standard and not to debate whether it should be integrated. Along with trust, meaningful dialogue with stakeholders appears to be something intended as an outcome of the UNE Standards rather than part of the process. The interviews themselves shed light on this as the only discussion around dialogue centres on communication between companies and stakeholders in the context of a project. Among those interviewed in Spain, all agreed that the biggest problem between industry and communities is the lack of communication:

> *For sure, communication with stakeholders is the absolute and necessary base for any industrial project, mining and exploration even more* (Industry-SP1).

Yet others expressed concern that more community engagement may result in unmet expectations and cause more problems.

> *The COI could have a negative outcome if data is not well explained to communities* (Administration-SP1).

There is reticence to communicate because of a fear, if done poorly, it will cause more problems. The less risky course to take, in the eyes of many companies, is not to engage. However, it is becoming more and more obvious that some communication is necessary so having clear rules and a systematic communication procedure is believed to make it safer and easier for companies.

> *Thanks to the COI, each company will have a systematic way to identify stakeholders and communicate with them* (Industry-SP2).

Perhaps the uncertainty around outcomes in dialogue has also subtly influenced the way in which Spain has chosen to implement the TSM. In Finland, while there is hesitation by some of the companies to implement the Finnish Standard, the reasons given were not due to concern over poor communication outcomes, but rather more from a cost perspective. Whether this outlook by the Finnish companies is due to the effectiveness of the network structure in building early support for the TSM is unclear, but there does appear to be a more pervasive sense in Spain that dialogue, in general, is fragile and could be harmful as well as beneficial.

Relationship-building

The multi-stakeholder approach to building the Network encouraged the interaction of people who might not otherwise speak with one another. Entities both for and against mining participated from its inception with the exception of the tourism industry and relationships between the members appeared to be strong, especially at the inception.

> *It has created a great forum for cooperation and several useful tools including the Protocols and those for reporting* (Industry-SP1).

With the inclusion of stakeholders opposed to mining, the Permanent Representative of the Ministry of the Environment as the chair of the Finnish Network, and the former Executive Director of FANC appointed as Director General, the Network was initially viewed not as a mining association but representative of all interests. At least among the stakeholder groups involved in mining, the Network enjoyed a high degree of legitimacy, and through the Network participants, the bonds between the groups themselves also appeared to grow stronger as there was great momentum and much accomplished the first two years. One setback occurred in the first year of the Network moving under the Finnish Mining Association (FinnMin) with the departure of the Sámi Parliament, who

indicated that it was politically difficult to remain. As discussed previously, the narrative of a collaborative network is important, and this departure, coupled with the tourism industry having never joined, is an example where not everyone shared the narrative that mining should go forward. While the Network increased interaction and built solid relationships with stakeholders within the Network, relationship-building did not extend outside of the Network and is only expected to as an outcome of companies implementing the Finnish TSM Standard.

For Spain, there is little information about relationships being built as part of adopting the Canadian TSM protocols as UNE Standards. While there were public consultations and it was a multi-stakeholder process to approve the standard, there is no indication that relationship-building was part of the process. Relationship-building is also something anticipated to occur as an outcome of implementing the UNE Standards and the COI in particular.

Trust

The Network is seen as neutral and trustworthy by all of those interviewed because it was initiated by government, brought all of the relevant stakeholders together, operated on the basis of consensus to decide how to achieve acceptance of the mining industry and developed the Finnish TSM Standard and accompanying tools. Reflective of the relationships built between participants and the belief in what they were doing, there was unanimous agreement that:

> *The Network is a tremendous achievement that should continue as it is a unique forum in which stakeholders can come together and engage in meaningful dialogue as well as actively influence the behaviour of the Finnish mining industry* (Research-FI1).

The interviews reveal a divide as to whether the Network continues to fairly represent all interests given the exit by several stakeholders. While trust among members remains very high, responses indicate a concern that those outside of the Network may not see it as representative, even though it continues to include the Reindeer Herders Association, FANC and WWF, and therefore, trust-building with the public will be compromised.

> *The greatest risk is the lack of commitment of the stakeholder and parties. The network is as strong as its partners, meaning if they leave, there's no network* (Civil Society-FI1).

While some are questioning whether they should continue in the Network, most of the original members have remained and are still very positive about the Network continuing to further the acceptance of the mining industry. However, because the Network remains largely invisible to people outside those with an active interest in mining, trust-building with society at large will still need to be an outcome of companies implementing the standards and over time demonstrating they are a responsible industry.

Although the UNE is considered trustworthy by industry and the public alike, the process of deciding whether to integrate the Canadian TSM as a UNE Standard occurred via a more traditional, hierarchical mechanism with a limited group of stakeholders. The interviews do not indicate that trust-building was part of the process; hence, societal trust and acceptance would be an outcome of industry's implementation. However, industry could have chosen to integrate the TSM into a professional association such as CONFEDEM, as Finland did moving the Network under FinnMin, but they did not and instead chose to make it a national standard suggesting it was important that an external entity imbued with societal trust confer legitimacy on it. In addition, the UNE is an established body unlike the Network, which is a voluntary organisation that must fund itself. Perhaps if sentiments such as the following were visible to the public, it would result in heightened trust:

> *Mining companies must demonstrate technical and economic capabilities to develop a mining project so it is logical to recognize their capacity to involve the COI to solve acceptance problems* (Industry-SP3).

The lack of public visibility or understanding of what industry is committing to is one obstacle to societal SLO:

> *There is scarce acknowledgement by the public and weak support from the Administration* (Industry-SP4).

This comment also notes the lack of support by the national government. In part, this is due to mining being a regional competence in Spain, but there is also an issue with the national government being uninterested in the UNE Sustainable Mining Standards because they do not support existing legislation but aim for something higher. If there is no direct connection with legislation, the interviewees all indicated the national government tends to be uninterested. Achieving societal SLO without the support of the national government lays a heavy burden on industry but also on the regional administrations.

Discussion

The premise of this paper is that dialogue, relationship-building and trust are essential for achieving and maintaining societal SLO; therefore, an approach, which incorporates

these factors, should have a good chance at fulfilling the objective. Finland and Spain both share the same objective, to build trust between the public and their respective mining industries and achieve societal SLO. The Finnish Network early on engaged in a constructive, learning-oriented dialogue that contributed to the building of strong relationships which resulted in a great deal of trust among its participants.

> *The Network was a great achievement by the Finnish society and it is hoped that it would continue being active and well-supported* (Research-FI2).

Its focus on engaging all stakeholders, supportive of mining or not, to chart a path forward together has been the core of its work. Trust-building is both part of the process and an anticipated outcome. The tangible benefits, such as participants learning from and establishing relationships with people that have opposing views and also the international visibility of the Network and its being touted as an exemplary model of cooperation, come from the existence of the Network itself, while the benefits resulting from implementation of the Finnish TSM Standard remain unclear.

To some degree, the Network has been a prisoner of its own success as its early achievements raised expectations that mining would soon be accepted across Finland. Over time, the mandate of the Network shifted from creating something new to ensuring the continued responsible behaviour of companies. However, implementation of the Finnish TSM by member companies is slow and public opposition to mining continues to grow raising concerns about the effectiveness of the Network. Dialogue and relationship-building must be scaled-up and occur between Network members and the public at large now.

Spain has been more focused on what the standards represent and what they may accomplish looking at trust-building as an outcome. To some extent, the hierarchical nature seemed to appeal at least to the mining industry as the UNE provides a clear, assured process both for integration of the Canadian TSM and its implementation. The Spanish approach has an advantage over the Finnish Network in that it is a well-established organization that is not in danger of ceasing to exist. Since the Finnish government is not financially supporting the Network, and it must be self-sustaining, there is a real possibility the Network could disintegrate. As the Network, even more than the TSM Standard, has furthered trust among stakeholders with an interest in mining, its disintegration would be both a symbolic and figurative blow to the efforts of building societal SLO.

In Spain, companies appear hesitant to implement the UNE Sustainable Mining Management Standards because they are perceived as too costly and onerous in terms of data collection (there are more indicators in UNE than ISO) and their benefits are as yet unproven. There is also no separate certification for the COI, the whole UNE 22470:19 Standard needs to be implemented in order to obtain certification and it contains roughly 56 indicators. This in combination with the standards being voluntary, as one individual notes, makes implementation difficult:

> *If it is not required by law, it would be more difficult to engage companies* (Administration-SP1).

The Finnish Network, in contrast, included exploration and mining companies from its inception, so industry was instrumental in the decision to adopt the Canadian TSM and also helped design the implementation tools. Companies needed no convincing that the Finnish TSM was both the right solution and would be of benefit to them if implemented.

In Spain, mining companies need to view the utility of UNE as high and that social priorities matter as much as economic ones. Yet, this appears some way off as one individual notes:

> *The majority of companies are still reluctant to talk about transparency and communication* (Industry-SP3).

Because of the hesitancy, the success of the COI appears fragile:

> *This is a Standard and its power is based on confidence. It is contingent on how genuinely willing companies are to implement the COI in the way it is intended* (Industry-SP5).

Willingness to implement and the ability to implement are two different things, however. Communication that is both clear and empathetic is a skill, and like all skills, it needs to be learned. One of the benefits of the Network is that because participants regularly interacted exchanging views and problem solving together, they learned how to communicate about issues that were difficult and emotional with those of like minds and unlike minds, for example, what words and phrases work, which ones do not work and if there are sensitivities to pay attention to. This is a different type of learning than what was discussed earlier as this dialogue process involves learning on many levels, substantively, but also simply how to speak and listen to one another in a positive way and stay committed through difficult times.

Learning to communicate with people who have opposing views and working through the difficulties to resolve a problem was not part of the adoption process of the COI. As Mercer-Mapstone et al. (2017b) notes, dysfunctional communication will likely make situations worse, and it is understandable that the geologists and engineers on the ground would feel uncomfortable engaging in situations that could be negative. Without dialogue in this context, relationship-building and trust are not possible.

One of the surprising results is that while a network governance approach should be more likely to achieve and maintain societal SLO, this is not necessarily the case. The effectiveness of the Finnish Network depends on several factors: whether its narrative is a deeply held belief binding participants together in a common cause, its ability to be self-sustaining and its visibility to the broader society. Trust-building measures built into the process will always have positive results, but whether those results contribute to the desired outcome is not guaranteed.

The mining industry in Spain has more of an uphill battle. Garnering acceptance is left to the companies. With mining being a regional competence, the national government appears to have little interest in supporting

Table 2 Comparing networks and national standards

	Purpose	Implementation	Beneficiaries	3 SLO factors
Networks	Encourage dialogue, relationship- and trust-building internally to reach a consensus-based outcome.	The company's responsibility with oversight by a neutral party appointed by the Network.	The Network includes representatives of most stakeholder groups in Finland with an interest in mining. Those in the Network benefit by being involved in the process, and society (and industry indirectly) should benefit once the companies implement the TSM.	Dialogue: 'Learning' dialogue forms the basis of relationship--building. This only goes so far though and cannot overcome fundamental values. Relationship-building: Among participants, relationship--building keeps pace with learning and appears to plateau once learning stops. Trust: Companies are more likely to implement the TSM but societal trust and SLO ultimately depend on how well it is implemented.
National Standard	Provide a systematic procedure and objective indicators for the private sector to implement good practices which results in a reliably good outcome.	The company's responsibility with oversight likely at the regional or even provincial level in Spain.	As industry led the development of the standards, reputationally they should benefit at least among those involved. The benefits are seen once the companies implement the standards and improve their engagement.	Dialogue: 'Strategic' dialogue among those engaging in the UNE Standard development is the norm. Relationship-building: Although involving multiple stakeholder groups, adopting the TSM was the shared goal of all. There was no need to build strong relationships because the outcome was desired and pre-ordained. Trust: Many mining companies see little utility in the UNE Standards. Societal trust and SLO ultimately depend on TSM implementation.

mining-related activities. Legislation and regulation, as well as future oversight of the COI, depend on the regions. The option of a national government-led network bringing stakeholders together is logistically challenging, and given the present governance structure, extremely difficult. Having an industry-initiated national standard that seeks to improve societal trust through developing better dialogue and relationships both with communities and society is, for now, one of the only options available for moving forward. Although a national standard is a more traditional, hierarchical approach that leverages its success on outcomes, the process of adoption is transparent and inclusive. The potential desired outcome is more fragile and finely poised than the network governance approach, but it is still possible.

Table 2 below compares how dialogue, relationship-building and trust are achieved in a network versus a national standard.

In summary, the lessons for networks and societal SLO are the following:

- Learning oriented dialogue, relationship-building measures and a shared narrative must be central to the internal functioning of a network when it first begins and must remain so throughout its existence. However, depending on its purpose, the network may need to shift its focus outward and apply these trust-building measures to groups external to the network, or in the case of the Finnish Network, to society at large.
- Networks, especially those involved in bringing stakeholders together on contentious issues, should be representative of all interests throughout its existence. Trust-building outside the network is particularly sensitive to perceptions of legitimacy and fairness.
- Fulfilling the purpose of a network is crucial throughout all its phases. In Finland, the initial purpose of establishing a network and charting a path forward to ensure a responsible mining industry was fulfilled. However, the purpose of actually demonstrating to society that when industry follows the Finnish TSM, mining can be conducted responsibly and respectfully has not yet been fulfilled because of the lengthy implementation phase. This lag points to the limits of self-regulation rather than its benefits and decreases rather than increases societal trust.

Because the COI is so new and there is no information on implementation, the lessons learned are confined to those for networks. However, the Spanish mining industry could learn from the Finnish Network's successes and mistakes as it must now embark on its own journey to build trust through dialogue and relationship-building among the Spanish populace.

Conclusion

Two European countries with a desire to promote more responsible mining and achieve societal SLO each independently arrived at the conclusion that adoption of the Mining Association of Canada's TSM program would be the best way forward. Finland chose a government-led network to implement the program whereas Spain chose an industry-led national standard. The first includes trust-building measures as part of the process of deciding what instrument to adopt as well as its implementation, whereas the second relies on trust-building only as an outcome of implementation. While dialogue, relationships and trust are essential for societal SLO, and building them into a process and outcome should produce a better chance of attaining societal SLO than only building them into an outcome, the example of the Finnish Network shows the difficulties in maintaining dialogue, relationships and trust over time. Whether integrating them into a process results in a better outcome is not clear if they begin to be excluded from the process.

While Finland and Spain both assume the path to societal SLO is by way of building trust between industry and society, at least in Europe, it is not clear that the path to societal SLO is solely the adoption of international good practices, because neither the Network nor the national standards approach, at least so far, indicates an increase in acceptance. Although these are preliminary findings since there is little information on the Finnish implementation and none on the Spanish, what appears to be the case is that industry alone cannot garner societal SLO. It must be a joint effort between society, industry and government to engage in a continuous dialogue that over time will lead to relationship-building and trust.

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Exploring scale in social licence to operate: European perspectives

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ABSTRACT

This article explores the issue of scale in the social licence to operate (SLO) which, to date, is understudied. The community-company relationship is the original, and still predominant, conceptualization of the term with the less tangible society-industry relationship still not typically in focus. Although the literature distinguishes between community and societal scales, there is no research on why the distinction is important, how the two scales are integrated or whether they interact with and influence one another. Exploring scale in SLO is important for theoretical clarification of the concept, for better empirical understanding of the role mining plays in host localities and the broader society and for the potential to incentivize industry toward more responsible and sustainable practices. Europe's multi-layered governance structure combined with its push for more domestic mining activities provides an ideal crucible for debates of scale to play out. To investigate the community and societal scales in the European context within a single study, three main research questions guide the work: how do orientations toward SLO differ at the community and societal scales; how do these orientations influence the acceptance of mining at both scales; and how do these orientations interact and influence one another? Through quantitative analyses, we found that site level factors tend to be important predictors for local communities and more distant society, but broader societal benefits and costs are not important predictors at the local community scale, and are only significant at the societal scale in combination with local factors.

1. Introduction

This article is an exploration of the issue of scale in SLO where to date the literature has been unclear. Although the literature distinguishes between community and societal scales, there is no research on why the distinction is important, whether the two interact with and influence one another, and what this means for real-world practitioners. Community scale SLO is the original, and still predominant, conceptualization of the term (Prno, 2013; Martinez and Franks, 2014; Koivurova et al., 2015; Wilson, 2016). It has been modelled and studied in many different geographic, cultural and governance contexts (Thomson and Boutilier, 2011; Moffat and Zhang, 2014; Mercer-Mapstone et al., 2018; Lesser et al., 2021). Societal scale SLO, also referred to as national scale SLO, is not typically in focus being less tangible and only recently has become a main subject of study (Zhang et al., 2015; Jartti et al., 2020; Poelzer et al., 2020). Exploring scale in SLO is important for theoretical clarification of the concept, for better empirical understanding of the role mining plays in host localities and the broader society and for the potential to incentivize industry toward more responsible and sustainable practices. The latter two are crucially important because the topic of mining has evolved from one that is typically a sectoral discussion to one that is a very political discussion. The need for mining to operate with the acceptance of the public, in theory and in practice, now clearly transcends immediately affected stakeholders (Franks et al., 2014; Smits et al., 2017; Sícoli Pósleman and Sallan, 2019).

SLO is an analogy that equates the political risk challenges for a company at the community level with those at the government level (Cooney, 2017). Defining 'community' has been, and continues to be, one of the major difficulties underpinning the SLO concept with practitioners and academics assuming different perspectives. Practitioners have defined community to consist of local residents directly affected by a project, and this grouping also includes their linked 'international allies', plus institutional investors (Cooney, 2017). Academics view communities as social networks (Thomson and Boutilier, 2011;

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Suopajärvi et al., 2019). However one defines community, the bilateral relationship between community and company remains at the heart of the SLO concept for numerous reasons, not least of which is because industry recognition of the power of community-level actors to mobilise against their project and impose significant costs associated with delayed or abandoned extractive resource projects has led them to prioritise such interests (Franks et al., 2014; Parsons et al., 2014).

Embedded in the question of how to define community is the notion of scale, that community is not geographically constrained. What existed beyond community in the early days of SLO was very murky. Practitioners were the first to view SLO as something beyond the community-company relationship. In 1998, nine of the largest mining companies embarked on the Global Mining Initiative, which included a programme of internal reform and a rigorous study of the societal issues they had to face.[1] Ultimately this led to the Mining, Minerals and Sustainable Development (MMSD) project from 2000 to 2002 setting out guidance for the mining and minerals sector's contribution to sustainable development though the term 'social licence to operate' was never explicitly used. Since then, international good practice standards abound, such as the International Council of Mining & Metals (ICMM), the Canadian Toward Sustainable Mining Program (TSM) and the Initiative for Responsible Mining Assurance (IRMA), all with achieving and maintaining SLO being one of their stated purposes.

It took almost another two decades after the emergence of the concept for the academic literature to expand the concept and include not only the recognition of community interests but also broader societal interests. Not until Zhang et al. (2015) published a comparative case study of the social licence to operate of mining at the national scale in Australia, China and Chile was SLO as a concept beyond community concretised. This study demonstrated that the key predictors of the public's acceptance of the mining industry are distributional fairness, procedural fairness and confidence in governance. 'Beyond the community' was thus defined as the national or country level with future research emphasizing governance issues and the legal and regulatory system (Lehtonen et al., 2020; Poelzer et al., 2020). Contemporary research tends to obscure scale beyond community opting for terms such as SLO at the societal level (Dare et al., 2014; Moffat et al., 2016; Litmanen et al., 2016; Jartti et al., 2020) or simply societal SLO (Lesser et al., 2021). Why the SLO concept beyond the community scale has not typically been in focus is unclear; one supposition is the more nebulous and less tangible nature of studying governance and regulatory schemes, as opposed to community-company interactions, simply makes them more difficult to study. Another is that the mechanism of influence is predominantly through pressure on government to enforce the legal licence rather than direct action and disruption of operations.

Perhaps with the later introduction of the SLO concept to Europe, as opposed to Canada or Australia for example, the community-company conceptualization had less time to become entrenched allowing for more opportunities to study other aspects. It is also true that in Europe, mining is tied up in political debates, where acceptance from the broader society to further European Union (EU) and national ambitions have consistently been a key element in the raw materials discourse. As Europe is where debates of scale are playing out, it serves as an ideal crucible for this study. One example of this arises from the recent Russian invasion of Ukraine and the disruption of energy supplies. Ensuring access to critical raw materials has risen high on the European agenda to ensure a more rapid green transition and the concomitant production of materials for renewable energy projects. As mining is essential for the green transition, it has automatically become a societal issue. Its impacts and benefits, however, are experienced locally. Given this tension, mining provides a useful context to understand whether SLO as a predominantly local concept can be scaled up to invoke industry-wide change.

To investigate the community and societal scales in the European context within a single study, three main research questions guide the work: how do orientations toward SLO differ at the community and societal scales; how do these orientations influence the acceptance of mining at both scales; and how do these orientations interact and influence one another?

This paper is organised into five sections, the first introducing the problematisation of scale in the SLO concept. Section two outlines the methods used which include a literature review and survey, the framing of SLO perspectives and regression analyses to test the affects within and between scales. Section three discusses SLO theory, specifically literature addressing the community scale, the societal scale and attempts at integrating the two. Section four presents the results of the principal components analysis, introduces the SLO frames and also presents the regression analyses. Section five validates the distinctions between community and societal scales and discusses the effects of scale on acceptance using the concepts of horizontal and vertical diffusion.

2. Methods

2.1. Literature review and survey

Starting from the assumption that distinct community and societal levels of SLO exist, we conducted a literature search to identify the main factors of SLO at the community and societal levels and tested those factors through a survey of 278 people. The literature selected was based on the authors' knowledge of the most relevant articles and those most cited, the supposition being the latter indicates widely accepted findings. The factors of community SLO and societal SLO were then turned into the survey questions answering the first research question of this paper, whether or not there are distinct community and societal orientations toward SLO. Annex A provides an overview of the factors identified and the corresponding survey questions. A principal component analysis (PCA) was then undertaken on the relevant survey questions to ascertain whether distinct community and societal perspectives on SLO in Europe exist, with a regression analysis performed to test the relationship between those perspectives.

The online survey was created in Webpropol in September of 2019 and ran for two months, the duration determined by the necessity of the data feeding into future deliverables of a research project, using a snowball sampling method to reach people with some knowledge of, or experience with, mining activities across the lifecycle. The survey was initially written in English and distributed via email to a wide range of individuals: academics, public officials, representatives from NGOs, industry representatives, students, and community representatives. Given the low response rate, it was decided to translate the survey into six additional languages (Finnish, Swedish, German, Polish, Portuguese, and Spanish) and extend the deadline by one month. Ultimately the survey ran for two months in seven languages for a total of 278 responses. As shown in Table 1, respondents tend to be older than the average age in the European Union (EU), except in the German survey where they are predominantly university students; researchers are the most represented group, with industry having a strong presence only in the Spanish survey; and civil society, while a small group in real numbers, in terms of percentages, tends to be in the top two or three most represented sectors.

Given the small sample size for each individual language, the results from all the surveys were then combined from Webpropol into a single data set within the Statistical Package for Social Sciences (SPSS).

To ensure the adequacy of the survey sample, and that a data reduction technique such as a PCA is appropriate, two different tests were run. The Kaiser-Meyer-Olkin (KMO) test for sampling adequacy returned a value of 0.817 (a value between 0.8 and 1 indicates sampling is adequate). The Bartlett's Test of Sphericity for the sample is .000 (less than 0.05 indicates the data set is suitable). The PCA itself uses a

[1] MMSD website https://www.iied.org/mining-minerals-sustainable-development-mmsd accessed 15 May 2022.

Table 1
Response distribution.

Survey languages	No. of responses	Average age	Sector (top 2)[a]
English	86	42	R 35.62% PA 15.07%
Finnish	62	52	R 34.43% RT 18.03%
German	50	22	S 70% CS 6.25%
Portuguese	30	52	R 35.62% MI 6.25%
Spanish	19	39	PA 23.08%, S 23.08%
Polish	18	48	MI 52.63% R 26.32%
Swedish	13	54	R 23.08% PA/CS 15.38%

Responses were obtained from the following countries: Austria, Bulgaria, Croatia, England, Estonia, Finland, France, Germany, Ireland, Italy, Poland, Portugal, Romania, Spain and Sweden.

[a] Sector: CS = civil society, MI = mining industry, PA = public administration, R = researcher, RT = retired, S = students.

correlation matrix and unrotated factor solution based on Eigenvalues greater than 1 with the Varimax method used for a rotated solution.

2.2. Framing perspectives in the SLO discourse

While there is literature conceptualising and analysing SLO at different scales, there is little empirical work that explores SLO within and between scales. Before delving into differences between scale, however, it is necessary to flesh out why there are different perspectives on SLO at the same scale; for example, why at the community level do people have different interpretations of the concept? One explanation is that SLO is said to be simultaneously contextual and values-oriented (Prno, 2013; Meesters and Behagel, 2017) implying that what one experiences and pays attention to interacts with what one believes. In that light, SLO can become a type of 'frame' for an individual or a group mirroring the interplay between local experience and personal values.

In the social science academic literature, frames are "underlying structures of belief, perception and appreciation" (Rein and Schön, 1996) and they define what counts as relevant for attention and assessment (Perri 6, 2005; see also Kingdon and Stano, 1984). How certain issues are perceived and discussed, or not (Cairns and Stirling, 2014), depends on one's particular frame, which explains why the same issue can be interpreted and discussed in different ways. Frames promote different goals, lead to different solutions and evaluate outcomes in different ways (Beland Lindahl et al., 2018). Frames can also lead to conflicts depending on how people experience, interpret, process and represent issues, relationships and interactions (Dewulf et al., 2009).

This is of particular importance for mining and mineral resources governance, which is a highly contested sector as whole and characterized by conflicting paradigms and trade-offs (Nickless, 2017; Ayuk et al., 2020). Conflicts around the social acceptance of mineral extraction often act as a driver of the societal and civil-society discourse and its various manifestations, such as protests against or in favour of mining activities and companies and also extra-legal manifestations such as referendums and petition drives. Understanding that different framings of SLO, meaning what is important to an individual to grant an SLO, is a reflection of individual values is a crucial first step for projects to achieve and maintain SLO and to, if not avoid conflict, then to be aware of why it is happening and how to resolve it.

Frames are not static as they can adapt and change significantly over time reflecting social, cultural, environmental and economic priorities (Davies et al., 2016; Dewulf et al., 2009) and diffuse into different discourse arenas (Le Meur et al., 2013). Frames can diffuse horizontally (influence on other localities facing similar situations or vice versa) and vertically (influence on policy design and implementation at upper political and administrative levels or vice versa) (Le Meur et al., 2013). Thus, frames are useful to understand SLO perspectives at the community level and separately also at the societal level, as well as how these community and societal perspectives influence one another.

2.3. Scalar interactions and influences

The frames are divided into those with a community orientation and those with a societal orientation with the community frames being:

- Frame 1: Companies share revenue, exceed legal requirements and help communities realise their future vision
- Frame 4: Community empowerment and company responsiveness
- Frame 5: Responsible and self-regulating companies

The societal frames include:

- Frame 2: Corporate accountability and societal acceptance
- Frame 3: Fair regulatory process and good governance
- Frame 6: Economic growth

Regression analyses, using Pearson's R correlation coefficient, tests the second research question: if there are distinct community and societal orientations toward SLO, how do they influence the acceptance of mining at the community and societal levels? The acceptance of mining at both levels are the dependent variables based on a Likert scale survey question asking respondents to rate how mining affects communities and how it affects society in general. Durbin Watson test statistic values are all within the acceptable range of 1.5–2.5 ensuring the predictors are significant. All Tolerance scores are between 0.999 and 1.000 ensuring no multicollinearity.

To answer the third research question, how the community and societal orientations interact with and influence one another, regressions and the same dependent variables again were used. To gauge the societal frames' influence on the community frames, the societal frames were layered one at a time into the three community frames and a regression run with the same dependent variables. The identical process was used in reverse to test the community frames' influence on the societal frames. Frames 4 and 6 are the strongest predictors positively and negatively and hence the first layered into the analyses.

In summary, the regressions test the following:

- Whether people with a community orientation perceive mining to benefit communities and society
- Whether people with a societal orientation perceive mining to benefit communities and society
- The degree to which the community frames influence the societal frames when considering how mining benefits communities and society, and lastly,
- The degree to which the societal frames influence the community frames when considering how mining benefits communities and society

3. Theory

Conceptually SLO applies to both community and society. At the community scale, SLO generally stresses the importance of relationship and trust-building measures between local community members and other stakeholders that can affect its profitability (Thomson and Boutilier, 2011; Prno and Slocombe, 2012). There are four main themes: (1) the mechanism and factors of SLO (Thomson and Boutilier, 2011; Prno, 2013; Moffat and Zhang, 2014), (2) how companies must behave to achieve and maintain ongoing community acceptance (Parsons et al., 2014), (3) its connection to politics and legal licenses (Morrison, 2014; Smits et al., 2017; Poelzer et al., 2020) and (4) criticisms of SLO (Owen

and Kemp, 2013; Parsons et al., 2014).

Elaborating on the themes reveals there are many gradations of relationship building between community and company. What first starts as a purely transactional relationship should ideally over time grow into one that is institutional (Thomson and Boutilier, 2011). SLO can, however, also be lost resulting in no relationships, transactional or otherwise, between community and company. Parsing the mechanism of SLO reveals three core elements, which are social infrastructure, contact quality and perceived procedural fairness all of which are significant predictors of trust (Moffat and Zhang, 2014). Further parsing the elements leads to five critical factors of SLO: context is key, a social licence is built on relationships, sustainability is a dominant concern for communities, local benefits provision and public participation play a crucial role and adaptability is needed to confront complexity (Prno, 2013). What a company needs to consider to achieve and maintain an SLO from a community dominates the literature. To summarise, companies must have ongoing communication with affected operational stakeholders as meaningful dialogue is crucial (Nelsen, 2006; Koivurova et al., 2015; Mercer-Mapstone et al., 2017) transparent disclosure of information to host communities is essential (Owen and Kemp, 2013); and strengthening community development agreements would be beneficial (Wilburn and Wilburn, 2011). Social licence, in conjunction with political and legal licences, has been a recent topic of interest especially how input, throughput and output legitimacy function across the three licences and the potential role of government in co-shaping a SLO (Smits et al., 2017; Poelzer and Yu, 2021). Criticism of SLO highlight problems with the concept notably that it allows for the marginalisation of stakeholders whose concerns are not deemed legitimate (Parsons et al., 2014), and although it may be positive for social issues, it starts and ends with the business case (Owen and Kemp, 2013; Franks et al., 2014).

In the literature, societal SLO applies to the national or country level and emphasizes governance issues, particularly those involving the legal and regulatory system (Zhang et al., 2015; Lehtonen et al., 2020; Poelzer et al., 2020). There is much less literature at the societal scale but there is growing interest in the topic. Similar to the study of the critical elements of community SLO, at the societal scale, a study by Zhang et al. (2015) identifies the key predictors of the public's acceptance of the mining industry at the country level, specifically Australia, China and Chile. These are distributional fairness, procedural fairness and confidence in governance (Zhang et al., 2015). However, the key predictors are not very strong. Viewing SLO from the prism of governance across the three themes of institutions, corporate-community engagement and sustainability, SLO is shown to be best understood as a tool to address significant problems and an indicator of gaps in the legislative framework (Poelzer et al., 2020). In addition to the extractives industry, SLO at the societal scale is studied in different sectors such as nuclear waste management with similar findings emphasizing the state's role (Lehtonen et al., 2020).

There is research which posits connections between the community and societal scales of SLO. From the industry perspective, the social licence is based on the degree to which a corporation and its activities meet the expectations of local communities, the wider society, and various constituent groups (Gunningham et al., 2004), and even more strongly, that corporations actually need a licence from regulators, society and local communities (Parsons et al., 2014). From a theoretical perspective, the SLO Scalar model is the first to introduce a singular model integrating community and societal scales (Lesser et al., 2021). Using forestry as a case study, the linkage between community and societal scales is made explicit as social licence is conceived of as a continuum of multiple licences achieved across various levels of society (Dare et al., 2014).

4. Results

The PCA on the relevant survey questions results in six groupings of responses, here termed 'factors', shown in Table 2. Statistically, the significance of the factors is in descending order starting with Factor 1. The responses within each factor were then summarised and transformed into SLO Frames (see Table 3).

The frames answer the first research question and show there are

Table 2
Principal components analysis.

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Ensuring part of the profits are reinvested in society (.813)	Mining companies have social acceptance for their operations (.760)	Legal and procedural fairness (society believes government and regulations are trustworthy and industry observes the laws) (.758)	A process that gives equal voice to all interested actors (.824)	Keeping things as they are (.706)	Ensure responsible mining (.691)
Sharing the revenue from resources development with the local community (.794)	Acceptance for mining exists at the national, regional and local levels (.742)	Perceived procedural fairness (the community believes the company follows the laws and treats them respectfully) (.722)	Those most affected by a mining project should have the most power to affect the outcome (.725)	Trust in the mining industry to regulate themselves (.618)	Economic growth (.525)
Distributional fairness (benefits from mining are distributed fairly to society) (.684)	Mining companies are accountable to both government and the public (.581)	Pre-established, unbiased dispute resolution processes (.690)	Action in response to community concerns (.625)		
Contact quality between company and community (.639)	Companies follow the existing legislation (.577)	Confidence in governance (people trust the government and will not politicise projects and regulate the mining industry according to law) (.680)			
Companies develop and use voluntary corporate social responsibility standards/ sustainability protocols in addition to legal tools (.604)	Companies voluntarily go beyond what is required by legislation (.532)	Government capacity to regulate the mining industry (.516)			
Social benefits (more than money, the community believes the company will help realise their future vision (.581)	Companies develop an on-going relationship with the general public and government (.511)				
Companies develop an on-going relationship with the general public and government (.536)					

Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 7 iterations.

Table 3
SLO frames

Frame 1: Revenue sharing and corporate social responsibility	Companies should share revenue with both communities and society, and good communication to negotiate this distribution is essential. The company must go further with communities, however, and help realise their future vision. Companies need to go beyond legal requirements and use voluntary corporate social responsibility standards and sustainability protocols.
Frame 2: Corporate accountability and societal acceptance	Legislation and accountability are the foundations of societal SLO and companies should not only go beyond existing legislation but be more communicative with the public at large.
Frame 3: Fair regulatory process and good governance	Processes and capable bureaucrats are valued. Legislation and regulation are seen as trustworthy and ensure that industry observes the laws. There is government capacity to regulate the mining industry but also recourse for grievances.
Frame 4: Community empowerment and company responsiveness	Affected communities should have more power to influence the outcome of a project. Companies take prompt action in response to community concerns.
Frame 5: Responsible and self-regulating companies	The status-quo is good and mining companies should be responsible for their behavior and take proactive action to pre-empt problems with communities. Additional regulation is not needed.
Frame 6: Economic growth	Mining is inherently positive, but the largest benefit is economic growth and it must be there for acceptance.

distinct concepts of community and societal SLO in Europe. The community-oriented frames (1, 4 and 5) emphasise reinvestment in communities and good communication to negotiate distribution; the desire to see companies embrace CSR and exceed legislative requirements; the belief that communities should be more empowered to influence project outcomes; and company proactiveness to community concerns. The societal frames (2, 3 and 6) emphasise the importance of legislation and accountability, government capacity and capability, societal acceptance and economic growth. The key theoretical assumption underlying the societal frames is that the further away from a project, the more a person will be motivated less by site level issues and more about the benefits and costs to the wider society. Generally the idea of the frames is not that one frame applies to an individual or group of stakeholders, but rather that these frames exist across Europe and are likely to be present in every mineral development project. Individuals may also simultaneously share more than one frame and move between frames.

The first regressions test the frames to see if having a community or societal orientation toward SLO predicts how beneficial mining is for communities. Using community acceptance as a predictor, we see that all six frames have some influence on whether mining is perceived to be beneficial or not for communities. The community frames are strong predictors of both the benefits and detriments of mining at the community scale. In general, people with a community orientation tend to see mining as beneficial for localities. 'Companies share revenue, exceed legal requirements and help communities realise their future vision' (Frame 1 = 0.340) is the strongest positive predictor with 'Responsible and self-regulating companies' also a positive predictor (Frame 5 = 0.179). This is not the case with the 'Community empowerment and company responsiveness' frame as it is a very strong negative predictor (Frame 4 = −0.457) indicating deep dissatisfaction among those who think communities should be able to decide their own future and want the ability to say no to mining projects. The societal frames are mainly weak predictors of the benefits or detriments of mining at the community scale. The exception to this is 'Economic Growth' (Frame 6 = 0.365) which is a very strong predictor that mining benefits communities. Table 4 presents the results of the dependent variable, Mining Affects Community, in relation to all six frames.

The next set of regressions test the frames to determine if having a community or societal orientation toward SLO predicts how beneficial mining is for society. Using societal acceptance as the dependent variable shows that with the exception of 'Economic growth' (Frame 6 = 0.419), the societal frames are extremely weak predictors. Although it should be noted that this frame is an even stronger positive predictor at the societal scale. The community frames tend to be stronger predictors of the benefits of mining for society, 'Companies share revenue, exceed legal requirements and help communities realise their future vision' and 'Responsible and self-regulating companies' (Frame 1 = 0.192 and Frame 5 = 0.104 respectively). The 'Community empowerment and self-determination' frame (Frame 4 = −0.397) is strongly negative also at the societal scale although not as negative as the community scale. 'Fair regulatory process and good governance' is not statistically significant suggesting that at the societal level, there is no relationship between legislation and how mining is perceived to benefit society. Table 5 presents the results of the dependent variable, Mining Affects Society, in relation to all six frames.

Assessing whether the community and societal frames influence one another regarding the perception of benefits at the community level, the community frames have a much greater influence on the societal frames (see Annex C). When 'Community empowerment and company responsiveness' is layered into the societal frames, it shifts 'Fair regulatory process and good governance' to become statistically significant and weakly negative (−0.086). The addition of 'Companies share revenue, exceed legal requirements and help communities realise their future vision' shifts 'Corporate accountability and societal acceptance' to become statistically significant and weakly positive (.076), suggesting those who see the fair distribution of monetary and social benefits at the local and societal levels also see societal SLO as being necessary for mining to be viewed as beneficial for communities. Testing whether the societal frames influence the community frames, only 'Economic growth' affects the community frames and weakly so. The only movement is that 'Community empowerment and company responsiveness' is very slightly lower.

Assessing whether the community and societal frames influence one another regarding the perception of benefits at the societal level, there is little effect at all. The only change comes from the addition of 'Community empowerment and company responsiveness', which causes that frame to become even more negative (−0.397 vs −0.401). The societal frames all stay the same. Testing the reverse, the societal frames are found to have no affect at all on the community frames. This is consistent with the earlier results indicating an ambiguity about the importance of mining for society and what is important for there to be a societal SLO. It also shows that beliefs around societal SLO and mining tend to stay at the societal level and have no influence on the community level.

Table 4
Mining affects community.

	Standardized Coefficients			Collinearity Statistics	
	Beta	T	Sig.	Tolerance	VIF
Frame 1	.340	7.777	<.001	.999	1.001
Frame 2	.075	1.723	.086	.999	1.001
Frame 3	−.077	−1.763	.079	1.000	1.000
Frame 4	−.457	−10.464	<.001	1.000	1.000
Frame 5	.179	4.086	<.001	1.000	1.000
Frame 6	.365	8.346	<.001	.999	1.001

Table 5
Mining affects society.

	Standardized Coefficients			Collinearity Statistics	
	Beta	T	Sig.	Tolerance	VIF
Frame 1	.192	3.956	<.001	.999	1.001
Frame 2	.092	1.904	.058	.999	1.001
Frame 3	.000	−.008	.994	1.000	1.000
Frame 4	−.397	−8.189	<.001	1.000	1.000
Frame 5	.104	2.154	.032	1.000	1.000
Frame 6	.419	8.638	<.001	.999	1.001

5. Discussion and conclusions

5.1. Validating scale

Contrary to much of the literature, SLO is not purely a local phenomenon but one that permeates broader society too. The SLO frames exhibit distinct perspectives on SLO at community and societal scales and this has a bearing on whether mining is seen as beneficial. People who see mining as positive at both scales are likely to focus on the community-company relationship and economic benefits; however, while relationship-building is important, economic growth is the single most important factor for social acceptance.

The community frames validate existing research on SLO at the community scale where there is consensus on the importance of the bilateral community-company relationship, local benefit distribution and fairness, contact quality, and community empowerment (Thomson and Boutilier, 2011; Moffat and Zhang, 2014; Martinez and Franks, 2014; Mercer-Mapstone et al., 2017; Koivurova et al., 2015; Suopajärvi et al., 2019). What is new is that they group these elements into distinct perspectives. What is also new is the addition of the 'Responsible and self-regulating companies frame' as a particular orientation toward SLO. There are individuals in Europe who believe mining companies behave responsibly and that no additional regulation is necessary. However, it also implies that companies should be responsible and accountable for what happens at a project site and more proactive both in avoiding problems and building strong community relationships.

The societal frames strongly emphasise that for there to be societal acceptance of mining activities in Europe, mining has to contribute to economic growth. More weakly, they also suggest the importance of government capacity to regulate industry (Poelzer et al., 2020) and that companies at a minimum must follow existing legislation and regulations while simultaneously being held accountable outside of the legal framework in ways that may or may not exceed requirements. The weakness of these frames points to the uncertainty around the concept of societal SLO (Zhang et al., 2015). Those with a societal orientation are less sure of their beliefs around the benefits of mining, which is understandable given how diffuse the notion is and the uncertainty as to what the actual products are from mining. The real-world implication of this is that the industry-society relationship is weak and using societal SLO as a means to change industry behavior is unlikely to be effective. As a local concept, SLO is powerful as the possibility of community opposition to a project has forced companies to prioritise community interests. However, as a societal concept, SLO is too diffuse and weak to have a similar impact on industry.

5.2. Interactions and influences

To illustrate interactions across scales and influences between them, we turn to Pierre Le Meur et al. (2013) concept of horizontal and vertical diffusion, which he used to explain the influence of Impact and Benefit Agreements on company-community-state relationships. Le Meur et al. (2013) argues that debates around mining are influenced through "horizontal diffusion" (influence on other localities facing similar situations) and "vertical diffusion" (influence on policy design and implementation at upper political and administrative levels) and may occur in a "positive" way furthering change in line with a given intent, or in a "negative" way, making substantive change less likely. In this article, horizontal diffusion explains intra-scalar effects, specifically the strength of the relationship between a community perspective on SLO and community acceptance, and in reverse, the strength of the relationship between a societal perspective on SLO and societal acceptance. Vertical diffusion explains inter-scalar effects, meaning the strength of the relationship between a community perspective on SLO and societal acceptance, and conversely, the strength of the relationship between a societal perspective on SLO and community acceptance. Although Le Meur separates the mechanism of horizontal and vertical diffusion from their effects, whether they are positive or negative, we have chosen to combine these ideas. In this vein, horizontal diffusion can be either positive or negative; for instance, the 'Companies share revenue, exceed legal requirements and help communities realise their future vision' is positive because it is a strong predictor of community acceptance while 'Community empowerment and company responsiveness' is negative because it is a strong predictor of the lack of community acceptance. Both, however, exemplify horizontal diffusion.

Across the community scale, horizontal diffusion is evident as all of the community frames are strong predictors of acceptance or the lack thereof. The discourse around mining and SLO is anchored within communities, and this is true whether a project is supported or opposed. Validating much of the SLO academic literature, the community frames show that how mining activities and company behavior are perceived at the community level is crucial for determining whether a project will have SLO. Horizontal diffusion at the societal level is fairly weak except for the 'Economic growth' frame, which is a strong predictor, and notably, it is the strongest predictor of acceptance at both the community and societal scales. The other societal frames have little to no bearing on societal acceptance suggesting that at least in Europe, aside from economic growth, the factors comprising societal SLO are unclear as are opinions around mining. At least in the context of mining, SLO as a local concept cannot be scaled up to a societal concept and therefore may not be the best mechanism to leverage industry-wide change. If the European Commission desires to restart mining on a grand scale, these results indicate that messages around supply security, the energy transition and climate change are unlikely to sway the public. Instead, the focus should be on the economic benefits of mining for every European. This may also help explain why the adoption of international good practices focusing on the behavior of industry, such as the Canadian Toward Sustainable Mining program in Finland and Spain, is not increasing public acceptance (Lesser, 2021). Demonstrating the equitable distribution of benefits to society at large, however, is a clear challenge as there will never be company to society agreements. Project-based benefits will always stay at the local level, which explains the strength of horizontal diffusion at the community scale.

The influence of the community frames on the societal frames, whether the outcome is mining benefitting communities or society, indicates upward vertical diffusion both positively and negatively. When there are strong relationships between a community and company, this positively affects the belief that industry is accountable and of societal acceptance in general. When the relationship between community and company is not strong, as is the case with those in the frame that believe communities should be more empowered, this has a negative effect on the perception of the regulatory system being robust and fair and civil servants being capable. This legislative fame is notable in that it is statistically weak apparently contradicting the survey with its emphasis on the importance of government and good governance in Europe. While people see legislation as important, it is not in itself predictive of mining being viewed as beneficial either at the community or societal scale. One explanation is that those who see mining as beneficial and those who do not still want to see the system operate properly. Except for 'Economic growth', the societal frames have very little influence on the community frames, at either the community or societal scales, indicating minimal downward diffusion. As opposed to community benefits, there is much

less clarity about the societal benefits of mining resonating with the findings of Zhang et al. (2015) that the strength of the key predictors of the public's acceptance of the mining industry were found to be relatively low. As most societal questions need to be raised at the community level first, such as revenue and benefit distribution, legal and procedural fairness and economic development, it is not surprising that the community frames have more influence on the societal frames. What is clear is that site level factors tend to be important predictors for local communities and more distant society, but broader societal benefits and costs are not important predictors at the local community scale and are only significant at the societal scale in combination with local factors.

CRediT author statement

Lesser, Poelzer, Gugerell and Tost are responsible for the conceptualization of the article. Lesser and Poelzer wrote the survey and conducted the statistical analysis. Gugerell and Tost reviewed the survey questions and contributed to the development of the SLO frames. Franks conceptualised and applied the idea of diffusion to explain the influences and interactions between scales. All five authors are responsible for the discussion, conclusions and editing of the paper.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

ANNEX A

Table Connecting SLO Literature and Survey Questions

Level of SLO	SLO Factor	Reference	Survey Item
Community	The degree of responsiveness to community concerns and development aspirations played a key role in perceptions of the legitimacy of the mining project … This highlights the importance of complaints and dispute handling processes and forum for relationship building.	Martinez & Franks	7 g: A process that gives equal voice to all interested actors 7i: Action in response to community concerns 8 h: Those most affected by a mining project should have the most power to affect the outcome. 9a: Pre-established, unbiased dispute resolution processes
	Credibility comes from openness and transparency in the provision of information and decision making	Thomson & Boutilier	7 h: Open communication between companies and affected actors
	Local communities expect that resource extraction should leave positive development legacies, in light of the private, and national benefits generated by the projects	Martinez & Franks	7j: Sharing the revenue from resources development with the local community
	For mining companies, it is increasingly evident that obtaining a formal licence to operate from governments and meeting regulatory requirements is no longer enough.	Moffat & Zhang	8e: Companies voluntarily go beyond what is required by legislation
	Mining companies should focus on establishing and maintaining high quality contact with their community stakeholders compared to a strategy focused solely on a high frequency of contact.	Moffat & Zhang	9 b: Contact quality between company and community
	Community acceptance of mining activities also depends on how community members perceive the procedures through which a mining company's decisions are made.	Moffat & Zhang	9c: Perceived procedural fairness (the community believes the company follows the laws and treats them respectfully
	(Speaking of Agnico Eagle's Kittilä mine) Supported and sponsored community activities, made numerous donations, formed cooperation groups, created synergies with the tourism sector and municipalities and improved communication overall.	Koivurova et al., (2015) (also Prno, 2013 and Esteves)	9d: Social benefits (more than money, the community believes the company will help realise their future vision)
Societal	As the Talvivaara conflict progressed, confidence in the authorities has significantly decreased … Condemnation of the authorities increased as the environmental problems of the mine remained unresolved.	Sairinen et al., 2017	7a: Government capacity to regulate the mining industry
	Even in mature mining regions such as Chile, where the state has a long history of mineral extraction and can boast progressively higher revenues from mining, public expectations that mining should make a greater contribution to development continue to challenge the legitimacy of the industry.	Martinez & Franks	7c: Economic growth 7k: Ensuring part of the profits are reinvested in society 9g: Distributional fairness (benefits from mining are distributed fairly to society.
	The most common influence of the legal on the social licence is that of direct empowerment … the relative power and influence of the local community may be connected directly to the extent to which legislation enables it to participate in decision making …	Gunningham et al. (2004)	7f: A fair legal system in the extraction of natural resources
	Research at both local and national levels has demonstrated that … confidence in governance are critical in building social acceptance of prospective and existing mining projects by local communities and the general public. (Confidence in governance refers to whether members believe that the regulatory and legislative arrangements are capable of ensuring responsible mining development.)	Zhang, Measham, Moffat	7d: Ensure responsible mining 8a: Mining companies have social acceptance for their operations 9e: Legal and procedural fairness (society believes government and regulations are trustworthy and industry observes the laws) 9f: Confidence in governance (people trust the government will not politicise projects and regulate the mining industry according to law)
	Nevertheless, in the light of the foregoing discussion, a comprehensive framework would need to consider the societal level of consent or agreement, as well as the community level.	Parsons and Lacey, 2012	8b: Acceptance for mining exists at the national, regional and local levels.

(*continued on next page*)

ANNEX A (*continued*)

Level of SLO	SLO Factor	Reference	Survey Item
	The way in which CSR is applied by companies is of major importance for increased social acceptance, which in the end may enable the mining company to obtain a SLO.	Ranägen and Lindman, 2018	8c: Companies develop and use voluntary corporate social responsibility standards/sustainability protocols in addition to legal tools.

The survey questions not included in the table.
7b: Trust in the mining industry to regulate themselves.
7e:Keeping things as they are.
8d: Companies follow the existing legislation.
8f: Companies develop an on-going relationship with the general public and government.
8g: Mining companies are accountable to both government and the public.

ANNEX B
Principal Components Analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.817
Bartlett's Test of Sphericity	Approx. Chi-Square	2636.151
	Df	351
	Sig.	.000

Rotated Component Matrix[a]

Component	1	2	3	4	5	6
question_10_row_1	.039	.140	.516	.170	−.451	−.065
question_10_row_2	.169	.288	−.070	−.192	.618	.286
question_10_row_3	.224	.174	.008	−.282	.337	.525
question_10_row_4	.030	.208	.195	.164	−.037	.691
question_10_row_5	.107	−.066	.152	.106	.706	−.052
question_10_row_6	.177	−.182	.265	.417	.023	.224
question_10_row_7	.001	.051	.088	.824	.051	−.033
question_10_row_8	.491	.207	.154	.234	.216	.157
question_10_row_9	.219	.126	.225	.625	−.161	.194
question_10_row_10	.794	.069	−.076	.198	−.144	.071
question_10_row_11	.813	.013	−.096	−.010	−.204	.184
question_11_row_1	−.031	.760	.074	.180	.101	.168
question_11_row_2	.025	.742	.150	.163	.042	.130
question_11_row_3	.604	.427	.018	−.022	.194	−.127
question_11_row_4	.073	.577	.308	−.252	−.104	.145
question_11_row_5	.475	.532	.080	−.009	.003	−.150
question_11_row_6	.536	.511	.048	−.135	.212	−.008
question_11_row_7	.293	.581	.089	.157	−.106	−.034
question_11_row_8	−.099	.184	.148	.725	−.029	−.179
question_12_row_1	.117	.175	.690	.082	−.011	−.323
question_12_row_2	.639	.197	.193	−.134	.266	−.145
question_12_row_3	.150	.118	.722	.085	.091	.067
question_12_row_4	.581	.003	.326	.031	.301	.141
question_12_row_5	.026	.105	.758	.173	.083	.168
question_12_row_6	.051	.088	.680	.134	.044	.267
question_12_row_7	.684	.004	.299	.039	.167	.127
question_12_row_8	.385	−.160	.085	−.287	.216	.364

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 9 iterations.

ANNEX C
Regression Analyses

All Frames - Mining Affects Communities

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.710[a]	.504	.492	1.25356	2.056

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	3.780	.077		49.260	<.001	3.629	3.931		
	REGR factor score 1 for analysis 4	.596	.077	.340	7.777	<.001	.445	.747	.999	1.001
	REGR factor score 4 for analysis 4	−.820	.078	−.457	−10.464	<.001	−.975	−.666	.999	1.001
	REGR factor score 5 for analysis 4	.313	.077	.179	4.086	<.001	.162	.464	1.000	1.000
	REGR factor score 6 for analysis 4	.640	.077	.365	8.346	<.001	.489	.791	1.000	1.000
	REGR factor score 2 for analysis 4	.132	.077	.075	1.723	.086	−.019	.283	1.000	1.000
	REGR factor score 3 for analysis 4	−.137	.078	−.077	−1.763	.079	−.290	.016	.999	1.001

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.598[a]	.357	.348	1.42107	1.890

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	3.784	.087		43.498	<.001	3.612	3.955		
	REGR factor score 6 for analysis 4	.642	.087	.365	7.379	<.001	.470	.813	1.000	1.000
	REGR factor score 2 for analysis 4	.133	d.087	.076	1.526	.128	−.038	.303	1.000	1.000
	REGR factor score 3 for analysis 4	−.153	.088	−.086	−1.733	.084	−.326	.021	.999	1.001
	REGR factor score 4 for analysis 4	−.833	.089	−.464	−9.373	<.001	−1.008	−.658	.999	1.001

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.687[a]	.472	.462	1.29071	1.990

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	3.782	.079		47.866	<.001	3.626	3.937		
	REGR factor score 6 for analysis 4	.639	.079	.364	8.097	<.001	.484	.795	1.000	1.000
	REGR factor score 2 for analysis 4	.133	.079	.076	1.681	.094	−.023	.288	1.000	1.000
	REGR factor score 3 for analysis 4	−.143	.080	−.080	−1.781	.076	−.300	.015	.999	1.001
	REGR factor score 4 for analysis 4	−.823	.081	−.459	−10.195	<.001	−.982	−.664	.999	1.001
	REGR factor score 1 for analysis 4	.594	.079	.338	7.523	<.001	.438	.749	.999	1.001

All Frames - Mining Affects Society

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.624[a]	.389	.375	1.15599	2.148

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	4.270	.071		60.346	<.001	4.131	4.409		
	REGR factor score 1 for analysis 4	.280	.071	.192	3.956	<.001	.140	.419	.999	1.001
	REGR factor score 4 for analysis 4	−.592	.072	−.397	−8.189	<.001	−.734	−.450	.999	1.001
	REGR factor score 5 for analysis 4	.152	.071	.104	2.154	.032	.013	.291	1.000	1.000
	REGR factor score 6 for analysis 4	.611	.071	.419	8.638	<.001	.472	.750	1.000	1.000
	REGR factor score 2 for analysis 4	.134	.071	.092	1.904	.058	−.005	.274	1.000	1.000
	REGR factor score 3 for analysis 4	−.001	.072	.000	−.008	.994	−.142	.141	.999	1.001

Mining Affects Society - Testing Community Frames

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.585[a]	.342	.332	1.19537	2.142

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	4.272	.073		58.384	<.001	4.128	4.416		
	REGR factor score 6 for analysis 4	.612	.073	.419	8.363	<.001	.468	.756	1.000	1.000
	REGR factor score 2 for analysis 4	.135	.073	.092	1.845	.066	−.009	.279	1.000	1.000
	REGR factor score 3 for analysis 4	−.008	.074	−.005	−.107	.914	−.154	.138	.999	1.001
	REGR factor score 4 for analysis 4	−.598	.075	−.401	−7.999	<.001	−.745	−.451	.999	1.001

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.615[a]	.379	.367	1.16402	2.159

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	4.271	.071		59.944	<.001	4.131	4.411		
	REGR factor score 6 for analysis 4	.611	.071	.418	8.574	<.001	.470	.751	1.000	1.000
	REGR factor score 2 for analysis 4	.135	.071	.092	1.895	.059	−.005	.275	1.000	1.000
	REGR factor score 3 for analysis 4	−.003	.072	−.002	−.045	.964	−.145	.139	.999	1.001
	REGR factor score 4 for analysis 4	−.593	.073	−.398	−8.149	<.001	−.737	−.450	.999	1.001
	REGR factor score 1 for analysis 4	.278	.071	.191	3.912	<.001	.138	.419	.999	1.001

a. Predictors: (Constant), REGR factor score 3 for analysis 4, REGR factor score 6 for analysis 4, REGR factor score 2 for analysis 4, REGR factor score 1 for analysis 4, REGR factor score 5 for analysis 4, REGR factor score 4 for analysis 4.
b. Dependent Variable: MiningAffectsCommunities.
a. Dependent Variable: MiningAffectsCommunities.
Mining Affects Communities - Testing Community Frames.
a. Predictors: (Constant), REGR factor score 4 for analysis 4, REGR factor score 2 for analysis 4, REGR factor score 6 for analysis 4, REGR factor score 3 for analysis 4.
b. Dependent Variable: MiningAffectsCommunities.
a. Dependent Variable: MiningAffectsCommunities.
a. Predictors: (Constant), REGR factor score 1 for analysis 4, REGR factor score 2 for analysis 4, REGR factor score 6 for analysis 4, REGR factor score 3 for analysis 4, REGR factor score 4 for analysis 4.
b. Dependent Variable: MiningAffectsCommunities.
a. Dependent Variable: MiningAffectsCommunities.
a. Predictors: (Constant), REGR factor score 5 for analysis 4, REGR factor score 2 for analysis 4, REGR factor score 6 for analysis 4, REGR factor score 1 for analysis 4, REGR factor score 4 for analysis 4, REGR factor score 3 for analysis 4.
b. Dependent Variable: MiningAffectsSociety.
a. Predictors: (Constant), REGR factor score 4 for analysis 4, REGR factor score 2 for analysis 4, REGR factor score 6 for analysis 4, REGR factor score 3 for analysis 4.
b. Dependent Variable: MiningAffectsSociety.
a. Dependent Variable: MiningAffectsSociety.
a. Predictors: (Constant), REGR factor score 1 for analysis 4, REGR factor score 2 for analysis 4, REGR factor score 6 for analysis 4, REGR factor score 3 for analysis 4, REGR factor score 4 for analysis 4.
b. Dependent Variable: MiningAffectsSociety.
a. Dependent Variable: MiningAffectsSociety.

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