



Inland Norway
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Master Thesis

What do we talk about when we talk about the Inland County?

Reports and strategy processes as tools for overcoming
barriers for innovation and transformative change.

Hva snakker vi om når vi snakker om Innlandet?
Rapporter og strategiprosesser som verktøy for å overkomme barrierer
for innovasjon og transformativ endring.

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Abstract

The concept of “green growth” has inspired nations, regions, and municipalities to update their strategies according to the international goal of climate neutrality by 2050. The Inland County is no different and published The Inland Portfolio in 2023. It is a report based on smart specialisation meant to highlight and increase focus on the competitive advantages residing within the county for completing the national goal of a 50% reduction in emissions by 2030. The chosen tool for handling the climate issue is innovation. The Inland County is one of the poorest counties in Norway regarding innovative activity. Despite this, the Inland Portfolio has a vision of the Inland as the “green circular growth county”. The research question for this thesis is:

«How can the Inland Portfolio function as a framework for initiating environmental innovation?»

By focusing on three regions in the county (Hamar, Kongsvinger and Nord-Gudbrandsdalen), we conducted interviews with important businesses and organisations to examine what barriers exist to innovation and how the actors perceived the strategy of the Inland Portfolio. We found that the report is perceived mainly as an overarching knowledge document but presents a significant change in how the policy framework in the region functions. By prioritising the manufacturing industry, the efforts are more transparent and send a message to all businesses that green transition and sustainable endeavours are the focus of the future of the Inland County. Nevertheless, there are many barriers, and they can mostly be summarised as proximity issues. The Inland Portfolio has not been well enough communicated to businesses and organisations, which signals that the barrier of cognitive proximity has not yet been handled. We propose a change in the RIS approach and the theory of local buzz and global pipelines. By establishing sub-RIS and regional pipelines, the potential of the different regions might be utilised more effectively.

Sammendrag

Konseptet «grønn vekst» har inspirert nasjoner, regioner og kommuner til å oppdatere sine strategier i henhold til det internasjonale målet om klimanøytralitet innen 2050. Innlandet er ikke annerledes og publiserte Innlandsporteføljen i 2023. Det er en rapport basert på smart spesialisering ment å synliggjøre og sette søkelys på konkurransefortrinnene som eksisterer i fylket for å fullføre det nasjonale målet om 50 % reduksjon i utslipp innen 2030. Innovasjon er verktøyet som er valgt for å ta hånd om klimakrisen. Innlandet er et av de dårligste fylkene i Norge når det gjelder innovativ virksomhet og aktivitet, men til tross for dette har Innlandsporteføljen en visjon om Innlandet som det "grønne sirkulære vekstfylket". Forskningsspørsmålet for denne oppgaven er:

«Hvordan kan Innlandsporteføljen fungere som rammeverk for å sette i gang miljøinnovasjon?»

Ved å velge tre regioner i fylket (Hamar, Kongsvinger og Nord-Gudbrandsdalen) har vi gjennomført intervjuer med viktige virksomheter og organisasjoner for å undersøke hvilke barrierer som finnes for innovasjon og hvordan strategien til Innlandsporteføljen ble oppfattet av aktørene. Vi fant ut at rapporten i hovedsak oppfattes som et overordnet kunnskapsdokument, men at den presenterer en viktig endring i hvordan det politiske rammeverket i regionen fungerer. Ved å prioritere produksjonsindustrien blir innsatsen tydeligere og sender et budskap til alle virksomheter om at grønn omstilling og bærekraftig arbeid er i fokus i fremtidens Innlandsfylke. Likevel er barrierene mange og kan stort sett oppsummeres som nærhetsproblemer. Innlandsporteføljen er ikke godt nok kommunisert til virksomhetene og organisasjonene, noe som signaliserer at barrieren for kognitiv nærhet ikke er håndtert ennå. Vi foreslår en endring i RIS-tilnærmingen og teorien om lokal «buzz» og globale «pipelines». Ved å etablere sub-RIS og regionale «pipelines» kan potensialet til de forskjellige regionene utnyttes mer effektivt.

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This thesis marks the end of two years of hard work and steep learning curves. We have gained a personal experience of the Dunning-Kruger effect and a new understanding of how working in teams can be both inspirational and frustrating, even bitter at times - notable examples include titling the paper, and a passionate debate over whether we should refer to the region as Innlandet or the Inland County!

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Table of contents:

1.0 Introduction	1
1.1 <i>The Inland County – “We own the forests” (Borli, 2015)</i>	3
1.2 <i>The Inland Portfolio</i>	4
1.3 <i>Purpose and Research Question</i>	5
2.0 The Case of The Inland Portfolio	7
2.1 <i>The Process</i>	7
2.2 <i>The goals and objectives</i>	10
3.0 Theoretical background	12
3.1 <i>Regional Innovation Systems</i>	12
3.1.1 <i>The different types of RIS</i>	14
3.1.2 <i>Local buzz and global pipelines</i>	15
3.2 <i>Green Regional Path Development</i>	17
3.2.1 <i>The role of geography in green restructuring</i>	19
3.2.2 <i>Circular value chains and environmental innovation</i>	21
3.3 <i>Proximity</i>	25
4.0 Methodology	28
4.1 <i>Research design</i>	28
4.2 <i>Choosing Informants</i>	28
4.3 <i>Data collection</i>	30
4.3.1 <i>Semi-structured interviews</i>	30
4.3.2 <i>Document analysis</i>	32
4.4 <i>Thematic Analysis</i>	33
4.5 <i>Reliability, Replicability and Validity</i>	34
4.6 <i>Ethic considerations</i>	36
5.0 Results and Analysis	37
5.1 <i>Barriers to Innovation in the Inland County</i>	38
5.1.1 <i>Daily activities and a minimal sense of urgency</i>	38
5.1.2 <i>The challenges of competency</i>	41
5.1.3 <i>Cohesion - “bringing the team together”</i>	43
5.2 <i>Perception of the Inland Portfolio</i>	45
5.3 <i>Strategic vision</i>	47
5.3.1 <i>Circularity and Transformation Talks</i>	48
6.0 Discussion	51
6.1 <i>Sub-Regional Innovation System</i>	51
6.1.1 <i>Contextual information</i>	51
6.1.2 <i>Sub-RIS</i>	53
6.2 <i>Policy effects on innovative capabilities</i>	58
6.3 <i>The Challenges of Proximity</i>	61
6.3.1 <i>Discussion musings on proximity</i>	64

7.0 Conclusion	67
Bibliography	69
Attachments	76
<i>Attachment 1 – Categories and Codes (in Norwegian)</i>	76
<i>Attachment 2 – Consent form (in Norwegian)</i>	78

1.0 Introduction

The regional authority of the *Inland County* (fylkeskommune - hereafter called “the Inland County Municipality”) is the institution that is elected between the national state and the municipalities. They oversee and work on fulfilling the goals set by the state and managing the tasks that are too big for one municipality but too small for the state. The County Municipality oversees setting the agenda and ensuring sound strategies for the county concerning regional development, ensuring coherence within. Producing reports about the possibilities, challenges, and opportunities is one of the main areas of concern for the county municipality (Innlandet-Fylkeskommune, n.d.-a). The County Municipality can be seen as the agenda setter and is responsible for establishing a framework for the regional innovation system (see Chapter 3.1).

Due to the climate issue, international attention is directed towards transformation and transition. Since the Rio+20 Conference in 2012, the international community and policymakers have advocated for a fundamental shift in the structure of society (Hoffmann, 2016). The need for countries to reflect and change their “old way of life” to a green, sustainable form of governing, producing, and thinking has become a significant policy question. The *European Union* (EU) has chosen mission-oriented policies to tackle grander environmental challenges, like *Horizon Europe’s* mission on climate change (European-Commission, w.y; Mazzucato, 2018). The clear goals for how the world must work together to become climate-neutral by 2050 have caused changes in policy arrangements. The strategies, tools, and initiatives for the future can be described as *green growth*. This is a concept that has been defined in many ways. The Organisation for Economic Cooperation and Development (OECD) states that:

“Green growth ... is about fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. It is also about fostering investment and innovation which will underpin sustained growth and give rise to new economic opportunities ... policy action requires looking across a very wide range of policies, not just explicitly “green” (i.e., environmental) policies” (OECD, 2011, p. 18 in Smulders et al., 2014, p. 424).

The United Nations Environment Programme (UNEP) have another definition of the green economy, which is an economy that results in “*improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities*” (UNEP, 2011, p. 16 in Smulders et al., 2014, p. 424). Existing assets, actors, and systems are essential to consider when working toward solutions to this grand challenge. To this end, the regional context is known to hamper or promote transformative change, and considering it when planning solutions is critical (Bugge et al., 2021).

As the task of the county municipality is to carry out what the national politicians decide, it is pertinent to include that the climate policies for Norway are argued to have taken a turn towards a more national approach in their latest White Paper 13 as opposed to the more international, economically focused approach of the past. The focus on innovation, transformation, and the transition to a green society is made evident by the framing of the issue in White Paper 13 (Tallarico, 2023). The regional interpretation of this focus can be seen in the reports and efforts constructed by the County Municipality in the Inland. Especially when it concerns industry development, the county municipality ensures a climate for business development and establishment. Their focus on sustainability has become more apparent. On the official website of the Inland County Municipality, they state: “*We are particularly concerned with green industries, and we believe that interaction with good competence environments in Europe leads to more development in the hinterland*” (Innlandet-Fylkeskommune, n.d.-a). This can be seen as a turn towards more focus on green growth, transformative change, and environmental innovations (see Chapter 3.2).

Many countries and regions have updated their national and regional policies and strategies because of this increased focus on transformational and transitional policies. The Inland County has published the *Inland Portfolio* (IP), laying out and explaining the strategy and goals for the county up to 2030. An important focus in this new strategic plan is the need to increase the innovative efforts in the regions and reach the goal of becoming, quote, “*the circular green growth county*” (EY, 2023, p. 10). It is a smart specialisation strategy that focuses on the already existing

competitive advantage in the county and creates a strategy meant to strengthen the existing potential. In this thesis, we wish to show how the Inland County has planned and operationalised the strategy and examine how it can help overcome existing barriers to innovation and transformative change.

1.1 The Inland County – “We own the forests” (Borli, 2015).

The Inland County is the single largest county in Norway, with 46 municipalities, ten regions, and spanning 52 072 km² in total, making it larger than even the neighbouring country of Denmark (innlandsstatistikk, n.d.-c). Half of this area is woodlands, 24 940 km² as per 12. June 2023, with a variation between Lom municipality’s 10% coverage and Nord-Odal’s nearly 80% coverage (Innlandsstatistikk, n.d.-b). The county is also only second to Trøndelag in areas covered by bogs, with 4 340 km². Per 2023, only 2% of the whole county is considered a built-up area, with significant variation between the municipalities. 4% is farmland, yet it accounts for 30% of the country's total agricultural production (Innlandsstatistikk, n.d.-b, n.d.-d). Almost half of the 376 304 people (as of 1. January 2024) (innlandsstatistikk, n.d.-c) living in the county live in the five biggest cities: Hamar, Lillehammer, Gjøvik, Elverum and Kongsvinger (innlandsstatistikk, n.d.-c).

This brings us to the largest core business industries: agriculture, forestry, fishing, construction businesses, and trade. Tourism also plays a significant role in the county, with some of Norway’s strongest “brands” within tourism located in the Inland. (innlandsstatistikk, n.d.-c). Only 6% of the total value production and 2,3% of the mainland export in Norway originates from the Inland County, making it the least export-intensive county in the country. The construction industry is the largest one in the county, and tourism is one of the most important employment opportunities and presents the biggest potential for local value creation. However, the companies in the county only receive one-third of the average subsidy per company, as opposed to the rest of the regions in the country (EY, 2023). The county is also at the bottom regarding patenting applications (EY, 2023).

Much of the workforce, about 40%, works in the public sector, with most of the workforce employed in the municipality sector. Service businesses such as trade, hotels, and restaurants make up the largest proportion of the workforce in the private

sector, with 16% working here. A further 9% work in finance, business services, the manufacturing industry, and the mining sector, with another 9% working within construction (Innlandsstatistikk, n.d.-a). This shows that there are few private businesses outside of service-related industries and that most people work in the public sector, maximising the responsibility for private innovation to the few businesses in the county. This can be one of the reasons why the IP supports an increased focus on collaboration and cooperation for increased innovative efforts (see Chapter 2.2).

1.2 The Inland Portfolio

The IP argues that the county has significant potential despite the factual statements above. This potential is thus essential to reach national transformational and transitional goals and international goals within 2050. It is a collaborative project between the Inland County Municipality, the County Governor of the Inland, and Innovation Norway. They hired Ernst & Young (EY), the portfolio authors, to collect data. The project was inspired by the project “Green Region Vestlandet,” which is a project that led to a similar report on the possibilities for the Vestland region (Innlandsporføljen, n.d.).

The report states that the greatest potential lies at the interface between energy, sustainability, and technology. Based on the innovative projects examined by the EY, it outlines 14 hubs and four value propositions. The value propositions are the *green mainland industry*, a *national hub for agricultural technology*, *leading circular biohubs*, and *Tech Valley* (EY, 2023). A hub has been defined as a place where several businesses exist in an interdependent network, cooperating by providing the necessary resources for each other. One business cannot survive without the other (interviewee, Group 2).

IP is a strategy based on smart specialisation, which is the preferred strategic planning tool for municipalities and counties as set by the European Union (EU) and the Norwegian state (Regjeringen, w.y). Smart specialisation is about identifying a territory's competitive advantages that match its position compared to others. The efforts aim to promote those advantages and identify the potential for collaboration,

knowledge, and technology exchange within and with other stakeholders outside the territory (Esparza-Masana, 2022).

1.3 Purpose and Research Question

The Inland County is one of the regions in the country with the lowest innovation activities, around 2% (Forskningsradet, 2023). Therefore, we want to gain greater insight into what aspects and characteristics hinder or promote development and innovation. As mentioned in the previous subchapter, the potential for the county to gain a more prominent position in the national context is present. Because the IP is a strategy for reaching the vision of becoming the “green circular growth county,” we have chosen to understand “innovation” as “environmental innovation,” which will be discussed further in Chapter 3. For this reason, our research question is:

«How can the Inland Portfolio function as a framework for initiating environmental innovation? »

Furthermore, we also have three working questions:

WQ1: Which barriers exist for innovation in the Inland County?

WQ2: How do the actors in the county perceive the Inland Portfolio?

WQ3: Is it a strategy for the whole region?

Following the article by Hauge et al. (2023), which identifies Hamar as a motor region and Kongsvinger as a sponge region, we have been influenced by their research and chosen to take point in those two regions. Because the IP is an industry strategy, choosing these two regions makes sense because the industry is strong in both regions and the hinterland. We have also chosen to include a region that functions as a declining region, Nord-Gudbrandsdalen, because it is the region with the lowest levels of population growth and employment development (kartlagt, 2023). In addition, the three regions are three out of four regions outlined in the portfolio (see Chapter 2.1). One of our working questions is to understand whether the whole region is represented and can participate in the strategy and goal of becoming the “circular green growth county.” By more closely examining these three regions, we hope to establish constructive viewpoints and conclusions to increase the success of future work with the portfolio and innovation in general.

The choice of theoretical approaches has been made based on what the IP represents and how it is intended to function for the industry and the county's regional competitiveness. We have conducted an iterative process and constantly changed the theoretical aspects based on our data and analysis results. In addition, many of the choices have been made because of the data collection results.

There is no good English word for “virkemiddelapparatet,” the funding system and instrumental agencies established to support existing businesses and organisations and enable the establishment of new businesses in Norway. Organisations like Innovation Norway are part of the “virkemiddelapparat.” We have chosen to refer to this apparatus as “the funding and instrumental agencies” throughout this thesis.

2.0 The Case of The Inland Portfolio

The Inland Portfolio (IP) was established within the framework of a project called “Biovalley” (Innlandsparteføljen, n.d.), a regional partnership meant to be a driver for the establishment, investment, frameworks, and knowledge sharing for green industry and green restructuring in the Inland County (Biovalley, n.d.). Innovation Norway was the initiator with local businesses and central clusters from the bioeconomy and manufacturing industry to begin the “IP” project. It was also inspired by the work done in Vestland County (Innlandsparteføljen, n.d.), where “the Vestland Portfolio” was published in 2021 together with Innovation Norway (Grønn-region-Vestland, n.d.). The experiences from this project showed that green restructuring happens “*faster, better and easier*” when the industry and public actors cooperate on specific projects (Innlandsparteføljen, n.d.).

2.1 The Process

The work started in October 2022, and during the seven months it took before the portfolio was launched, members of the project talked with and visited over 180 businesses, competency milieus and clusters in the county (Innlandsparteføljen, n.d.). Some of the most critical aspects of this process are the efforts to ensure anchoring within the businesses, taking the time to ensure that the businesses understand that it is good for them and time-consuming (Respondent, Group 2). EY used the local innovation organisations to find relevant actors to interview, and they acted as the local navigators for the project (Respondent, Group 2). The project is based on bottom-up methodology and is a smart-specialization strategy. They used what they call the “future-back methodology” (see Figure 1), where they, in essence, conducted an iterative process when working on the project.

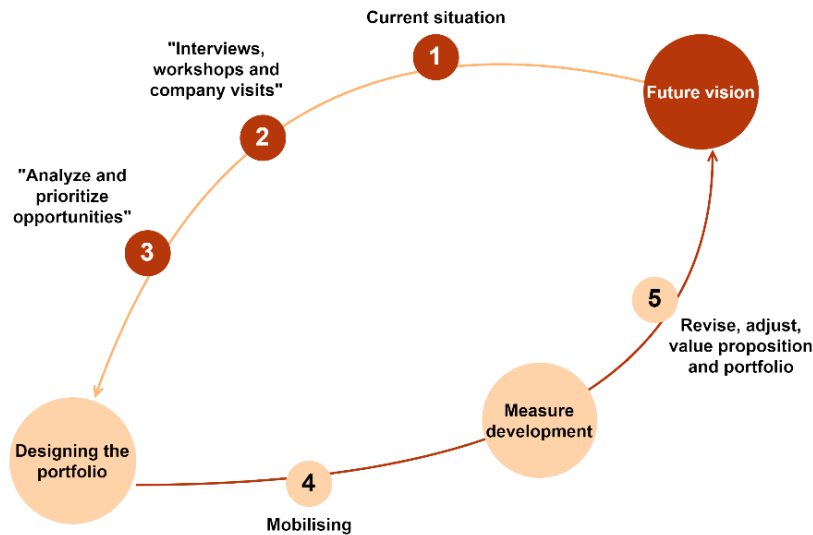


Figure 1: Future-back methodology (EY, 2023, p. 21)

Over 200 innovation projects were considered during the project’s creation process (EY, 2023), and those included in the portfolio were selected by the County Municipality, the Inland County Governor, Innovation Norway and EY together (Innlandsporteføljen, n.d.). The energy and efficiency of the power grid are pointed out as crucial for the execution of the hubs in the portfolio, and the cooperation and collaboration between the different actors are said to need improvement:

“There must be closer and more early-phase integrated planning between project developers, network companies and the energy companies in the connection process and the maturity assessments of the hubs. We have to find new models that find the solutions together” (EY, 2023, p. 13, our translation).

The portfolio outlines the current situation according to four key indicators: value creation, employment, exports and emissions (EY, 2023). This could mean the IP is a status report on the county’s regional innovation system (see Chapter 3.1). The smart specialisation strategy and the focus on circularity and symbiosis within the process of execution of the portfolio can be understood as a wish for more cooperation and collaboration (see Chapter 3.2). It is especially clear in this quote:

“We must prioritise and gather around the greatest opportunities for value creation and think more on joint housing- and labour-markets. A win for one

location is also a win for the neighbour. We must establish a joint effort to increase the pace, implement priorities and realise the inland portfolio – we must build the Inland County together” (EY, 2023, p. 5, our translation).

The process was thought to work in a specific order where “*setting the team and the rig for the inland portfolio*” was the first step, followed by “*review instruments to support selected projects*”, “*strategy for marketing and positioning*”, “*follow-up of goals*”, and “*review portfolio and identify new hubs*”. The authors of the portfolio separated the county into four regions where Valdres, Gjøvik and Hadeland were one region, Gudbrandsdalen another, Hamarregionen the third, and Kongsvinger and Østerdalen were the fourth. It is unclear whether this divide is considered in context with the four value propositions: the *green mainland industry*, the *national hub for agricultural technology*, *leading circular biohubs*, and *tech valley*. A map in the portfolio (see Figure 2) can be understood as a separation of efforts according to which value proposition the different businesses and organisations have the potential to participate in. However, it is not clear if this is the intention.

Næringslivet vil drive utviklingen og skal vi lykkes må nøkkelaktørene på banen



Figure 2: The industry will drive the development, and if we are to succeed, the key actors need to be part of it (EY, 2023, p. 112).

2.2 The goals and objectives

The portfolio is a report on the most prominent innovation projects which can help fulfil the vision of becoming the “*green circular growth county*” (EY, 2023, p. 10). The business idea behind the Portfolio is to decrease emissions (Respondent, Group 2), and the way to reach the goals is by creating “hubs” where organisations and businesses that can cooperate will do so to thrive and survive. In the report, 14 hubs are outlined as the point of departure for further work, and it is stated that:

“The hubs open the way to thinking bigger than individual innovations. The hubs preferably have a vision and plan towards 2030 that contains several innovation projects dependent on each other and which create added value from coexistence” (EY, 2023, p. 76, our translation).

It is pointed out that the Inland County has unique characteristics and competitive advantages in some carefully chosen industries that may bring momentum to a decarbonising society. Four areas were selected as the most promising, wherein the Inland County is noted to have advantages. These are *energy-effective industrial processes, circular economy in the construction industry and wood, industrial production because of the available space and competencies already existing, and the national move away from gas and oil*. Inland County has significant possibilities in the bio-industry and batteries that can provide essential opportunities and solutions as the country changes to renewable energy. The portfolio is estimated to contribute 15,5 billion in increased value creation and 5,400 new green jobs through investments worth 49,9 billion, making it a green growth initiative (EY, 2023).

Nevertheless, the absence of a strategy for new-renewable energy in the county is seen as needing immediate action, and it is pointed out that solar and bioenergy have the best momentum in the county. In addition, it is pointed out that the forests bind twice as much as the total emissions in the county, and the county is responsible for 7% of the total emissions in Norway. Almost 80% of the total emissions come from agriculture and transportation, where most of the efforts to cut need to be prioritised. From 2021 to 2022, the Inland County had the largest decline in establishments compared to other counties, with a decline of 22,4%, and obtained

2% of the EU funds in Horizon Europe in 2022. The capacity of the railway is also mentioned as a barrier to more growth (EY, 2023).

After the Portfolio was launched on June 6, 2023, and up to the end of our data collection in April 2024, nothing more has happened with the strategy's realisation. It was mentioned in one of the interviews that maybe something would happen in connection with the upcoming Mjøss conference, but it is impossible to access any information on this.

3.0 Theoretical background

In the following sections, we will describe the theoretical background that will influence our analysis later in the thesis. We will first present the approach of *regional innovation systems*, then move on to *green regional path development* before we go through *proximity*. The visual representation of the order in this chapter can be seen in Figure 3:

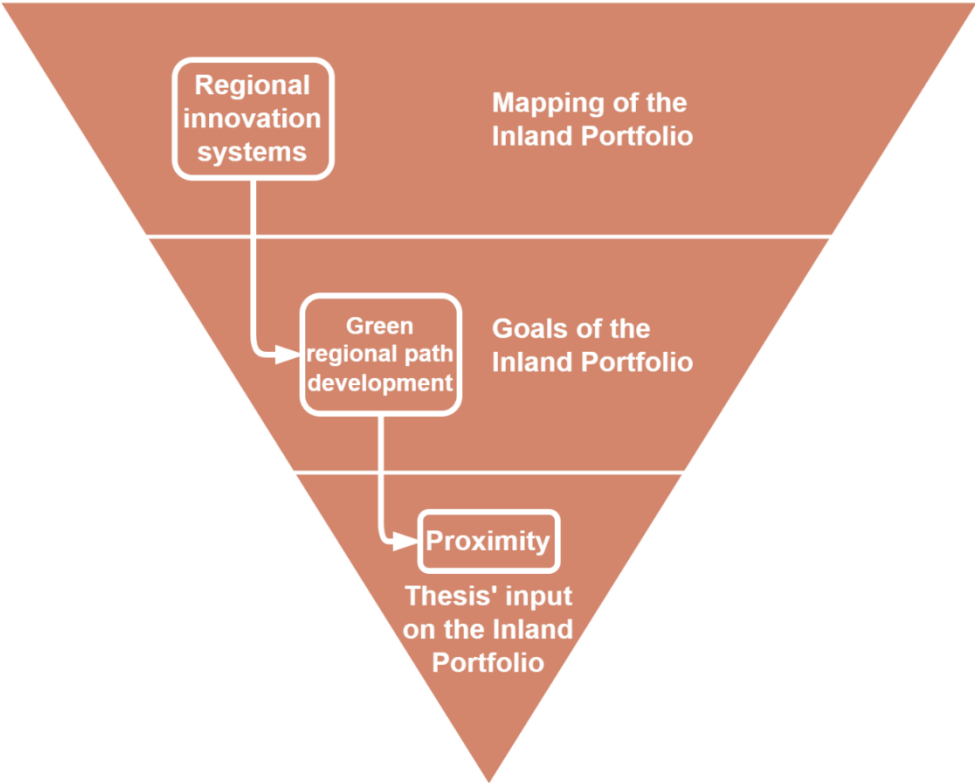


Figure 3: Approach to the theoretical chapter.

3.1 Regional Innovation Systems

Innovation can be understood as the existence of larger systems of different natures. Theories such as *national innovation systems* (NIS) (Lundvall, 2007), *technological innovation systems* (TIS) (Bergek et al., 2008), *sectoral innovation systems* (SIS) (Geels, 2004), *mission-oriented innovation systems* (MIS) (Hekkert et al., 2020) and *regional innovation systems* (RIS) (Asheim et al., 2019) are some of the major theoretical approaches to understanding innovation within systems. This thesis will focus on RIS.

The theory of RIS is built on the idea that three core elements (actors, networks, and institutions) are interdependent and can create synergies that can produce more than if they worked in isolation. For innovative activities to occur, the RIS approach sees

networks and links between actors that enable knowledge flows and the sharing of resources as vital. One of the key arguments for this approach is that:

“Innovation does not take place in isolation but should be understood as the outcome of interactive learning in localised innovation networks that are embedded in specific sociocultural settings” (Asheim et al., 2019, p. 3).

When the RIS approach was first presented, the focus was on ensuring competitiveness. Schumpeter, the so-called “father of innovation”, saw it as “*the engine of capitalism*” and the source of economic and social change (Asheim et al., 2019, p. 7). This view on innovation puts a new focus on the interactive process behind it, where actors and organisations play a strategic role. These actors and organisations may be universities, public and private research organisations, firms, public and private policy agencies, and technology transfer organisations. However, the linkages and interactions must be long-term and systemic to qualify as an innovation system (Asheim et al., 2019). Innovation can be defined as:

“the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations” (OECD/Eurostat, 2005, p. 46).

This is a broad definition, and the fourth edition of the Oslo Manual has updated it to express the importance of implementation:

“Innovation is more than a new idea or an invention. An innovation requires implementation, either by being put into active use or by being made available for use by other parties, firms, individuals or organisations” (OECD/Eurostat, 2018, p. 44).

Since innovation does not happen in isolation, *clusters* are one of the key systems of organisation in which firms collaborate and develop new knowledge and their innovative capabilities. Clusters can be understood to develop competitive advantages in their affiliated firms, which all have some relation to each other

(Asheim et al., 2019). The firms that constitute clusters share a spatial relation that includes what can be called “*fields of interest*” but also includes a geographical aspect (Bathelt et al., 2004, p. 32). The cost-effectiveness of specialisation makes it difficult for singular firms to stray away from their specialised knowledge base to perform more radical knowledge creation. Multidivisional firms who operate in a broader range of markets do - in comparison - not suffer from this challenge and can combine their pieces of knowledge to gain advantages, but have the “ironic” (Eccles, 1983:28, in Bathelt et al. 2004 pp.34-35) problem of internal transactions in firms being seen as more difficult by managers than external transactions (Bathelt et al., 2004, pp. 34-35).

3.1.1 The different types of RIS

The RIS approach is linked with the different paths of development that exist in regions. Exterior factors like financial crises, globalisation, digitalisation, and grand challenges like the climate crisis highly influence development opportunities. The literature differentiates between three types of RIS with different potential for development: *organisationally thick and diversified RIS*, *organisationally thin and specialised RIS*, and *organisationally thin RIS* (Asheim et al., 2019).

Organisationally thick and diversified RIS are characterised by many firms, open knowledge networks, several kinds of knowledge organisations, and a heterogeneous industrial structure. This type is mainly found in metropolitan areas such as Oslo, Norway. These conditions allow the industries to branch out into related fields, create new industries and allow for more development built on existing competencies. Because of the diversified characteristics, this type of RIS offers favourable conditions for related and unrelated *path diversification* and *path creation* (Asheim et al., 2019).

Organisationally thin and specialised RIS have strong clusters in one or more industries only, and the different kinds of knowledge organisations have education and research custom-designed for the narrow industrial base. The networks are mostly closed and regionally inter-firm and inter-organisational. This type of RIS is more prone to lock-in due to the narrow and specialised knowledge that is developed. This also makes it harder for industrial path development. The conditions

are unfavourable for more radical development due to the lack of internal diversity, which is critical for *new path development*. Therefore, this RIS type mainly supports *path extension*, *path upgrading* and *related path diversification* (Asheim et al., 2019). A Norwegian example may be Kongsvinger or Raufoss.

Organisationally thin RIS have no clusters or weakly developed clusters. Only a few different kinds of knowledge organisations exist, and there are few local actors, and the knowledge flow is sparse. This type is often found in peripheral regions, and the necessity for actors with external knowledge links is important for the possibility of *new path development*. These characteristics primarily support *path extension* and *path upgrading* (Asheim et al., 2019). A Norwegian example may be Nord-Gudbrandsdalen.

This way of differentiating between types of RIS is helpful in many instances. For example, it may point out a region's characteristics, which can provide insight into what the region excels in and where the shortcomings lie. However, the historical development and how RIS develops over time is a perspective that has gained more prominence. The *path dependence* approach sheds light on how the current situation is influenced by former industrial development. It is a way to see development “as ongoing processes that are internal to the economy itself” (Asheim et al., 2019, p. 46). It also strengthens the power that policy interventions can exert over transformation in economic systems, which, according to evolutionary views, have the power to “transform itself from within” (Uyarra and Flanagan, 2013, p. 151 in Asheim et al., 2019, p. 46).

3.1.2 Local buzz and global pipelines

However, this tells us very little about the nature of knowledge creation, which can be understood through the ideas of *local buzz* and *global pipelines*. Local buzz refers to internal communication that naturally contributes to the “ecology” of the general concept of clusters (Bathelt et al., 2004, s 38). Natural knowledge sharing comes through participating in the so-called ecology, engaging in social dynamics and culture, and forming relations between firms. This natural knowledge sharing does not rely on codified information but instead comes from the understanding developed by participating in the ecology (Bathelt et al., 2004, s.39).

This can be seen in comparison with Granovetter's (1973) conceptualisation of strong ties. He believes that by forming strong bonds with some actors, you can create a network where information flows relatively freely, but only with the actors you have strong ties to. The information cannot travel very far. He points out the importance of weak ties and bonds to external actors that are not a part of everyday activities. These actors can provide new knowledge that can flow through the network of strong ties. The actors with this position are called bridges (Granovetter, 1973). Weak ties can again relate to what Bathelt et al. (2004) call *global pipelines*. Compared to local buzz, global pipelines relate to the information created outside the cluster that enters the ecology through codified information created in other clusters or knowledge-based institutions (Bathelt et al., 2004, p. 40). Pipelines are, however, not "free" compared to the ecological way local buzz happens. Instead, they require active participation with deliberate intent and investments to be productive (Bathelt et al., 2004, p. 43). Arguments state that digitalisation has made this type of knowledge flow irrelevant. Nevertheless, in some sectors like the manufacturing industry, which is highly influenced by doing, using and interacting (DUI) (Jensen et al., 2007) between employees, we view it as crucial for this thesis.

An important point in the RIS approach is that innovation happens in the interactive learning processes in localised networks embedded in specific socio-cultural settings. The empirical evidence also shows that firms with research and development (R&D) and experience-based knowledge are the most innovative. However, without a connection to global knowledge networks, the new knowledge developed at "home" will be less influential (Asheim et al., 2019). It can be argued that thick and specialised RISs have strong ties/local buzz and weak ties/global pipelines. Cultivating these aspects in thin and specialised RISs is crucial because of the potential for increased innovative activity. Therefore, in thin RISs, the potential impact of having more strong ties/local buzz and establishing weak ties/global pipelines could be significant.

3.2 Green Regional Path Development

Climate change and its impact have led to many countries facing the challenges of performing a green restructuring of their societies, economies, and policies. Most countries and regions nurture new green industries to solve the grand challenges of climate change and encourage a change towards more sustainable processes and products in existing industries. Social and institutional pressures drive these efforts of organisations and governments to work towards transitioning to a greener economy. Innovation is considered the key to solving these grand societal challenges, and the development aims to optimise the use of resources or reduce negative environmental impacts (Schot & Steinmueller, 2018).

Shifts towards sustainability are known to be done by replacing existing technologies with more sustainable ones, switching linear economic structures to a more circular economic model, and generally aiming to change habits in production and consumption. Trippi et al. (2020) define green restructuring as “*the notion of green path development*” (Trippi et al., 2020, p. 189). The *evolutionary economic geography* (EEG) suggests that regional paths are influenced by historical industrial development and emphasise the local pre-conditions and processes in the region (Trippi et al., 2020). This can be seen in comparison with the path dependence approach mentioned in Chapter 3.1.1.

Expectations and visions for the future are important aspects under-prioritised when examining new path development. It is not only past experiences that affect ongoing innovation activities but also how the predicted future outcomes are communicated. This will steer activities and investments, and articulating where the desired outcome lies is thus essential for the success of new path development. The development of expectations and visions does not happen in isolation but is shared through the network or systems and can benefit from close *geographical proximity* (Hassink et al., 2019). Trippi et al. (2020) focus on four primary forms/typologies when explaining how regional structural change can occur when a region attempts green restructuring. This can be influenced by the six different paths a region can take, according to Asheim et al., 2019: *path extension, path upgrading, path importation, related and unrelated path diversification, and path creation*.

One typology is *path renewal* by “greening” of existing industries. These processes refer to intra-path changes, like introducing green technology or new eco-efficient practices in existing sectors through organisational or business model innovation. The second typology is *path diversification*, where knowledge or other assets from existing green industries are transferred or brought into green industries in the region. It can be related and unrelated to the existing economic structures (Tripl et al., 2020). An example of this can be the diversification from oil and gas, a “dirty” industry, to the offshore wind industry in Norway. The third typology is new green industries from *path importation*, where green industries new to the region establish themselves (Tripl et al., 2020). The fourth is *path creation*, meaning an entirely new green industry arises (Tripl et al., 2020).

Hassink et al. (2019) suggest focusing on creating, recreating, and altering paths and the agency's role when starting a new path development with a multi-actor approach. They define agency as “*actions or interventions by actors producing particular effects*” and further distinguish types of agencies as firm-level agencies and system-level agencies (Hassink et al., 2019, p. 1638). Firm-level agency exerts influence over one firm or organisation, while system-level agency stimulates “*outside its institutional and organisational borders*” (Hassink et al., 2019, p. 1638). The system-level agency is similar to other conceptualisations, like institutional entrepreneurship, and it means to “*mobilise resources, competence, and power to create new institutions or to transform existing institutions*” (Sotarauta & Pulkkinen, 2011, p. 98 in Hassink et al., 2019, p. 1638).

Regions that have highly diversified industrial structures and a flourishing entrepreneurial climate have the potential to offer good conditions for green path creation by restructuring the diverse skills, knowledge, and assets through derivative activities (Tripl et al., 2020). Like the organisationally thick and diversified RIS, the same Norwegian example can be used here: the metropolitan area of Oslo. Strongly developed mature industrial structures may impede new paths and renewal in the region because of strong vested interests. At the same time, poorly developed industrial structures and the lack of capable assets in a region may do the same. Establishing or creating inter-regional connections may be necessary for enabling green restructuring and path creation. A region's organisational support structures

and institutional configuration have often evolved simultaneously and adapted to economic structures. By examining the research and education programmes, skill base, policy approaches and informal institutional setup of a region, one can see if they are aligned with green restructuring. If not, the organisational and institutional setup must change for green path development (Tripl et al., 2020).

3.2.1 The role of geography in green restructuring

Hansen and Coenen (2015) refer to sustainability transitions as geographical processes. Economic activities happen on a local, national, and global level. They follow the *economic geography* (EG) because of its long tradition of explaining the uneven technological change and innovation landscape. EG is also a theoretical approach that considers more than just economic issues; it also focuses on institutional, social, and cultural dimensions (Hansen & Coenen, 2015). “Greening” is a problem on every geographical level, and understanding the specificity of a place is therefore important. Countries have naturally different ways of functioning in many aspects, and the same applies to their regions. According to Tripl et al. (2020), the regional paths are created by past industrial development, inherited economic structures, and local knowledge circulation, which naturally vary across countries and regions.

Hansen and Coenen (2015) raise the question: “*Why do transitions occur in one place and not in another?*” (p. 93). Why are some economies locked in on their development paths while others can change? Their answer consists of place specificity and spatial relations between the actors in a network as key elements to grasp the differences in sustainability transitions. To understand the transition processes of different geographical areas, it is essential to understand how geography influences the direction of evolution and innovativeness in the economic system. Relations should not be examined only between firms and nations but also from multiple levels and perspectives concerning flows of capital, knowledge, people, and other relevant assets. According to Hansen and Coenen (2015), informal institutions greatly influence both the development and diffusion of environmental innovations and affect the decisions made by economic actors. Analysing local norms, values, and cultures of cooperation is also invaluable for a better understanding the local regions’ historical and contextual background and its

potential for a green economic transition (Hansen & Coenen, 2015). Regional sustainability transition policies are often about green growth, a term that combines ecological goals with economic competitiveness, where policies aim to stimulate industrial development of green industries. In this instance, regional policy is better equipped because of the knowledge of space-specific conditions and the ability to adjust policies better suited for the area (Hansen & Coenen, 2015).

In addition to human capital, networks, and knowledge agents, the importance of entrepreneurial capital and competencies about business models, risk capital, and resources for successful entrepreneurs have been acknowledged in the literature. Metropolitan areas have the necessary support system for creating or sustaining this social-institutional context. Specialised and peripheral regions do not have the necessary support systems, as they lack the variety of knowledge, resources, knowledge-intensive business services, access to risk capital and “smart money” (Grilitsch & Hansen, 2019, p. 2165).

By supporting the growth of a specific industry, a region can experience *positive* and *negative lock-in*. The positive lock-in happens when there is a self-reinforcing character of the resources supporting a specific industry's growth. The negative lock-in happens when the context changes, and that growth hinders the region from moving into new fields. There is also a difference in the types of lock-in, namely *cognitive lock-in*, relating to the way of thinking; *functional lock-in*, which relates to the production system; and *political-institutional lock-in*, where vested interests hinder development (Grilitsch & Hansen, 2019).

For green change to happen, the sustainability of the transitional process must be considered alongside the geographical processes that affect possibilities or restrictions upon possible actions. These challenges can only be overcome through collaborative, innovative efforts, where economic actors cooperate through their shared interest in new path development towards green change (Grilitsch & Hansen, 2019).

3.2.2 Circular value chains and environmental innovation

The *World Commission on Environment and Development* established in 1987 that sustainable development was “*meeting the needs of the present without compromising the ability of future generations to meet their own needs*” (UN.General-Assembly, 1987, p. 154). What has influenced the world's developmental path to the point we are at today is the linear value chain “*take, make and dispose*” (Jørgensen & Pedersen, 2018, p. 105). Today's concern amongst many firms, organisations, and states is converting to a circular value chain that uses materials repeatedly. The circular economic paradigm states three responses to the “take, make and dispose” issue: firstly, we need to use resources that do not exhaust the stock. Secondly, we must design products, services and processes that do not depend on scarce resources and enable reuse. Lastly, we must upcycle resources, meaning that the quality needs to be higher to ensure that reuse is possible as often as possible (Jørgensen & Pedersen, 2018).

The need to think, act and produce differently presents a new focus on restoring the wealth we have borrowed from nature (Bocken et al., 2016, p. 308). Business models define how a company executes their business and are seen as important drivers for innovation. The move to the circular economy model can be viewed as a radical step and will affect the existing business models (Bocken et al., 2016). The policy initiatives, strategies, and tools all point toward a circular economy and sustainable transformation of society to solve the grand challenge of climate change and its consequences. One company cannot do this task alone, and the need for collaboration is becoming more visible (Jørgensen & Pedersen, 2018). This starts a new conversation of collaboration vs. competitive advantage, nevertheless:

“A successful business model creates, delivers and captures value. However, a successful business model also involves collaboration with various stakeholders” (Jørgensen & Pedersen, 2018, p. 124).

Managers face the issue of competition vs collaboration daily. With sustainability transformations, this situation becomes more complex because of the complex nature of sustainability transitions. It requires more innovative efforts, which is an

uncertain process (Kanter, 1988). The *United Nations Environment Programme* (UNEP) has defined environmental innovation (eco-innovation) as:

“the development and application of a business model, shaped by a new business strategy, which incorporates sustainability throughout all business operations based on life cycle thinking and in cooperation with partners across the value chain” (UNEP, 2014).

This definition points to many of the arguments Jørgensen and Pedersen (2018) raised on moving away from the linear value chain and towards the circular value chain. This thinking can also be called “*green growth*”, a much-discussed ideal. The thought that we can achieve environmental sustainability and, at the same time, stimulate growth has no empirical evidence to back it up. No empirical evidence supports that green growth can be successful in the time frame given: carbon neutrality by 2050 (Hickel & Kallis, 2020; Hoffmann, 2016). The intention is that stricter environmental policies will cause a spillover in unrecognised opportunities, increasing productivity and enhancing growth, more commonly known as the “*Porter Hypothesis*” (Smulders et al., 2014, p. 425). Nevertheless, efforts to increase eco-innovation and create a more circular value chain are still being made in policy initiatives.

3.2.2.1 Barriers for eco-innovations and transformative change

If there is no empirical evidence that we can achieve green growth, it becomes necessary to examine the existing barriers to such efforts more deeply. Access to capital and finances is a classical issue for all innovation and innovation activity types. However, it has been uncovered that when it comes to eco-innovation, financial constraint has significant and even adverse effects on the probability of introducing eco-innovations. This is mainly because of the immaturity of the green markets, the longer payback period, which requires greater financial commitment, and the fact that these innovations aim to reduce pollution, which may lead to suboptimal investment levels. This is especially true for breakthrough innovations which have a high technical risk. The possibility for *path dependence* and *lock-in* is also significant because of high switching costs and network effects. The absence of

stable markets and lack of credible institutional context cause uncertainties and risks to rise for eco-innovation investments (Ghisetti et al., 2017).

In addition to the financial issues that can be coupled with eco-innovations, the nature of this type of innovative activity has some challenging characteristics. The need for a firm’s capability profile to be updated regarding knowledge creation and technology development is higher in eco-innovations than in traditional innovation. The need to restructure the organisational set-up of the firm may be inevitable due to the untraditional technological scope that eco-innovations require. At the same time, eco-innovation has a second externality problem besides unwanted diffusion. Customers are typically not willing to pay more for a product even if it is sustainable, and market imperfections such as organisational inertia, control problems, and asymmetric information can cause companies not properly to understand and identify profit opportunities. This causes eco-innovation to rely heavily on policy intervention to increase attractiveness, both from the customer's side and the firm's (Stucki, 2019). The potential barriers are presented in Figure 4:



Figure 1. Types of green innovation barriers.

Figure 4 (Stucki, 2019, p. 1246)

As Figure 4 shows, a political framework that either financially internalises the costs, imposes a limit on pollution levels on the demand side, or financially supports eco-innovation activity on the supply side can be a saviour for the externality issues in the market for green products (Stucki, 2019).

The need for a transformation of systems to ensure a more sustainable future has been thoroughly examined by Schot and Steinmueller (2018). They stress the role policy practices play in such a transition and the importance of a joint venture in the practices of the existing frames. A frame is:

“Interpretations of experience, ordering of present circumstances and imaginations of future potentialities that create the foundations for policy analysis and action and shape expectations concerning potentials and opportunities” (Schot & Steinmueller, 2018, p. 1554).

The grand challenges of climate change have been framed into an issue for science, technology, and policy, which means that innovation has been framed as the saviour for all challenges related to climate change; *“greener production, increased social justice, a fairer distribution of welfare, sustainable consumption patterns and new ways of producing economic growth”* (Schot & Steinmueller, 2018, p. 1561). Schot and Steinmueller (2018) do not name the potential erosion of the power of the nation-states as the biggest challenge in this endeavour, but whether the states can manage the externalities generated by green growth. Furthermore, they say the current policies *“are unfit for addressing the environmental and social challenges”* (Schot & Steinmueller, 2018, p. 1562). By analysing market and system failures in a transformative change framework, one can provide a strong narrative for transformation. Schot & Steinmueller (2018) highlight four types of failure: *“directionality, policy coordination, demand-articulation, and reflexivity”* (p. 1562).

Directionality refers to the lack of means for making social choices over other developmental pathways. The transformative framework requires a collective direction and priorities, and it is crucial to experiment with different directions without choosing “sides” too quickly. The governance of transformative innovation requires nurturing opportunities to challenge the dominant views in the current system while negotiating the different ones before choosing specific ones (Schot & Steinmueller, 2018).

Policy coordination refers to the inability to coordinate policies from different domains horizontally. Since transformative change encompasses the transformation of many systems, including social and economic structures, the efforts require coordination between all policies. This also means the potential for multi-level policy coordination failures between local, regional, national, and international policy is present. A “whole-government approach” is thus necessary (Schot & Steinmueller, 2018, p. 1563).

The focus should be on improvements while constructing the different pathways and experimentation. This can be accomplished through strategic niche management, which is used as a tool for coordination within innovation policy (see Schot & Geels, 2008). This can create better *demand-articulation* as experimentation forces actors to embrace uncertainty and accept failure, increasing the learning potential. Doing so focuses on articulating expectations and visions, which can create new markets (Schot & Steinmueller, 2018).

Lastly, *reflexivity failure* entails the capacity for actors to monitor, anticipate and be involved in the self-governance process. It is about nurturing the ability to view oneself from a distance, evaluating the embedded routines that concentrate on optimisation when transformative change is necessary. The necessity to include science and technology in politics and not just policy, as well as nurturing experimentation to find new pathways and challenge the incumbent firms and regime actors, is vital for managing transformative change (Schot & Steinmueller, 2018).

3.3 Proximity

Policy coordination and efforts promoted towards enhancing the success of the green transition are an important part of managing the possible failures given account in the previous sub-chapter. Knowledge diffusion and creation are essential for ensuring cohesion when executing efforts. The idea that local, sticky and tacit knowledge can only be diffused amongst co-located firms may not be the case (Bathelt et al., 2004). On the role of geography, Boschma (2005) views it as “geographical proximity” and examines whether the geographical component and co-location are the success factor or if other types of proximity can have a similar effect on interactive learning and innovation. He identified five dimensions of proximity: “*cognitive, organisational, social, institutional and geographical proximity*” (Boschma, 2005, p. 62).

Cognitive proximity relates to the knowledge base and knowledge level within each actor. When an actor searches for new knowledge, an uncertain process that can bring about unexpected results, they search near the existing knowledge. This means that the knowledge is tacit, difficult to imitate and firm-specific. Seeing as knowledge creation and learning are about combining abilities that are diverse and

complementary, there is a need for bringing different organisations together. Effective knowledge transfer, however, requires the ability “*to identify, interpret and explore the new knowledge*”, known as absorptive capacity (Boschma, 2005, p. 63). The need to have a cognitive proximity that is close enough to understand, communicate and process the information successfully is necessary. Simultaneously, there also needs to be a cognitive distance so that the information is not viewed as redundant or can cause unintended spillovers (Boschma, 2005).

Organisational proximity is “*the extent to which relations are shared in an organizational arrangement, either within or between organisations*” (Boschma, 2005, p. 65). More specifically, it entails the autonomy and degree of control in organisational arrangements such as networks that can be either loose, non-existent, or hierarchically structured. Too much organisational proximity can be seen when the exchange relation is too specific, as strong ties cause an inward-looking system. Alternatively, the lack of flexibility seen in hierarchically structured intra- and inter-organisational networks can have the same effect. Going outside established channels is necessary when searching for novelty, and loose coupling is seen as the best for innovation. Organisational proximity can help control uncertainty and opportunism in knowledge creation inside and between organisations. This is closely related to cognitive proximity because it can be achieved through organisational arrangements (Boschma, 2005).

Social proximity is defined as “*socially embedded relations between agents at the micro-level*” (Boschma, 2005, p. 66). This relates more to trust-based relationships and arguably reduces opportunistic behaviour. It encourages the exchange of tacit knowledge and creates a lasting relationship about more than simply reducing costs or solving a problem. Too much social proximity, however, can lead to underestimation of opportunities and lock-in of routines that can harm innovation and learning by denying new actors access. The need to maintain social distance and social proximity can positively affect innovative performances (Boschma, 2005).

Institutional proximity relates to the values, norms, habits, laws, and rules organisations use to coordinate their actions. It encompasses the culture and the rules, making it an enabling factor that provides a basis for “*economic coordination*”

and interactive learning” (Boschma, 2005, p. 68). Institutions regulate the interactions and relations between groups and individuals, meaning that an institutional system is complex and change is difficult. Significant changes can upset the system's functioning; therefore, changes are often non-existent or small and localised. Therefore, too much institutional proximity can be damaging because of lock-in, but too little can cause chaos to the collective action due to a lack of cohesion. Thus, there must be a balance between stability, openness, and flexibility. It functions more as a facilitating proximity where structures are provided to develop better organisational arrangements for innovation and interactive learning. If the institutional proximity is low, social proximity can sometimes take over (Boschma, 2005).

Geographical proximity has been narrowly defined as “*the spatial or physical distance between economic actors, both in its absolute and relative meaning*” (Boschma, 2005, p. 69). This is necessary to separate it from the other dimensions of proximity. It is argued that by being co-located, one can benefit from experiments in transparent clusters. Because there is no need for relations between local firms, they can benefit from external economies by agglomeration. However, imitative learning cannot take place without the ability to absorb external knowledge. Geographical proximity is not a prerequisite for interactive learning but facilitates cooperation. The need for other dimensions of proximity increases the ability and chance of interactive learning to take place. Social networks based on social proximity with common experiences have been found to produce the most knowledge. Some networks require geographical proximity as a necessity for membership. However, the spatial dimension stimulates the formation of other dimensions of proximity because it is more face-to-face contact between the actors. Too much geographical proximity can cause lock-in, especially in specialised regions. This is not caused by spatiality alone but by a lack of openness to the outside world. Geographical proximity may enhance interactive learning indirectly, but it cannot be achieved without the assistance of other dimensions (Boschma, 2005).

4.0 Methodology

This chapter will entail the methods and approaches used to examine the research question of how the Inland Portfolio (IP) can function as a framework for initiating environmental innovation (eco-innovation) in the Inland County. We have used qualitative interviews as our primary source of data collection but have also depended much on the IP for contextual data, as the report is the reason behind many of the questions. This will now be explained and discussed in greater detail.

4.1 Research design

Choosing a framework for collecting and analysing data is vital, and the research question should decide the design and strategy. The research design most suitable for this thesis is a comparative design because one of the working questions hypothesises that not all parts of the Inland County are included in the strategy presented in the IP. This design involves studying two or more cases and implies that social phenomena can be understood better when compared to others. The comparative design was applied to a qualitative research strategy, which involved conducting semi-structured interviews with actors from three regions in the county. This makes the design a multiple-case study. This occurs when the number of cases studied exceeds one, and it is argued that it improves theory-building. The causality in multiple-case studies can be more generative (Clark et al., 2021), and the intention of writing this thesis is to understand the political strategies of the county municipality and examine whether public reports and strategies can change and create the best course of action for the Inland County. At the same time, the purpose is to understand how it can work as a framework for more environmental innovation.

4.2 Choosing Informants.

The Inland County is separated into ten regions and has 46 municipalities (Innlandet-Fylkeskommune, n.d.-b). Because of the large number of municipalities and regions, we had to choose a selection of regions due to the time and resource restrictions we were under as master students. The goal was to learn how a report can function as a framework for initiating more eco-innovation and acquire more knowledge on what barriers to innovation exist in the county. Seeing that the IP is mainly a manufacturing industry strategy and process document, we conducted the selection of relevant sites

for the data based on two reasons. Firstly, Hamar, Kongsvinger, and Gudbrandsdalen are three of four regions explicitly mentioned in the Portfolio when presenting the six key industries for green transition and innovation in the County, see Figure 5. The hypothesis that the actors in those regions knew about the portfolio guided the choice.

1/6: Industrien i Innlandet er lokomotivet for eksport

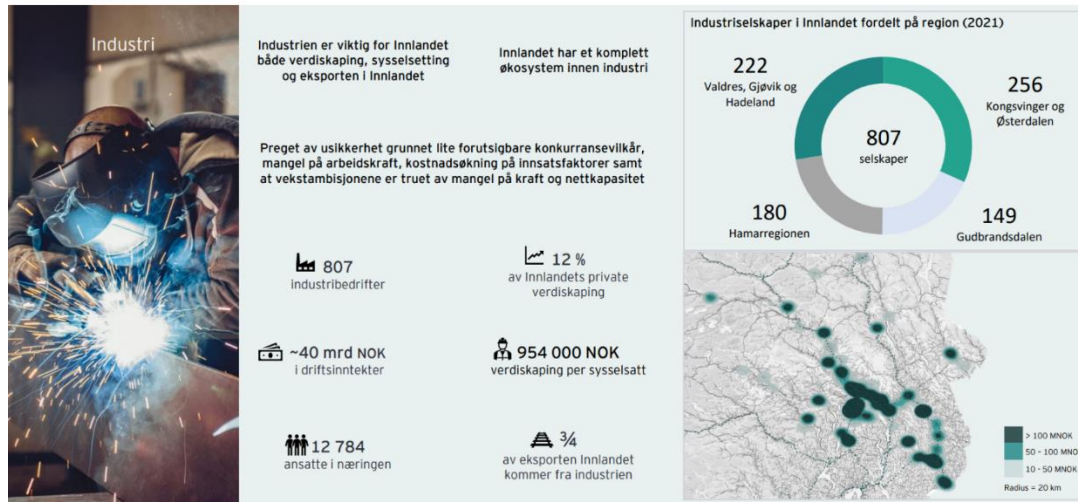


Figure 5: Manufacturing Industry in the Inland County is the locomotive for export (EY, 2023, p. 38)

In addition, an article written by Hauge et al. (2023) singled out Hamar as a motor city, meaning it impacts the hinterland positively, and Kongsvinger as a sponge city, meaning it draws much away from the hinterland and towards Kongsvinger (Hauge et al., 2023). Because of data from the project *REDINN* depicting Gudbrandsdalen as one of the regions in Norway with the lowest levels of population growth and employment development, we chose to examine this region and call it a “declining region” (kartlagt, 2023, 2024). This is relevant because one of the intended effects of the portfolio is to strengthen some areas to ensure a positive effect on the hinterlands (Respondent, Group 2).

We wanted data from both actors in the different regions and actors without geographical affiliations, which had been instrumental in creating the IP. We chose to divide the informants into two groups, hereafter named Group 1 (A (*Hamar*), B (*Kongsvinger*), C (*Gudbrandsdalen*)) and Group 2 (*Other Actors*) to divide the different actors. Group 1's informants are all organisations and firms, while Group 2 comprises

public actors and cross-regional organisations. The table below shows how many informants we interviewed from each group and sub-group.

Overview of informants			
Group 1			Group 2
Hamar (A)	Kongsvinger (B)	Gudbrandsdalen (C)	Other actors
Organisation A-1	Organisation B-6	Organisation C-10	Actor 1
Organisation A-2	Organisation B-7	Organisation C-11	Actor 2
Organisation A-3	Organisation B-8		Actor 3
Organisation A-4	Organisation B-9		Actor 4
Organisation A-5			Actors 5 & 6

Table 1: Overview of informants and the grouping

For the groups Hamar, Kongsvinger, and Gudbrandsdalen, we wanted to interview organisations that have a prominent place in value creation in that region. Because the work with the IP is still relatively new, we did not single out actors mentioned in the main report or focus on one “hub”. The choice was made based on which actors existed in the region, as well, of course, on who was willing to talk to us. The sample from Gudbrandsdalen is lower than we had hoped for, which can influence the external validity of our analysis and results.

4.3 Data collection

We have collected data from several places to ensure a thorough analysis. We conducted semi-structured interviews with selected organisations and actors and a simple document analysis of the IP’s main report. We chose more than one collection method to ensure that several perspectives could be included and that the interviews could entail more questions about the interviewees' perspectives. The following sub-chapters will entail a more detailed rendering of the process behind the different types of data collection.

4.3.1 Semi-structured interviews

Our data is mainly collected through semi-structured interviews to obtain as much information as possible from the interviewees and to allow and encourage them to

give a detailed response. This type of qualitative interview provides the flexibility and exploratory dynamic required when researching issues and concepts where depth and reflections are of interest to the interviewees. The semi-structured interview gives the freedom to ask questions according to the progression of the conversation and provides a list of topics that need to be covered. Ensuring that the same wording is used in every interview is important for analysing and comparing the responses. To ensure this, an interview guide or a list of questions was used in every interview. Because of the semi-structured nature, however, there was no need to stick to a strict order. It gives the interviewer the freedom to ask follow-up questions, vary the order, and alter the wording of the questions (Clark et al., 2021).

4.3.1.1 The interview process

We conducted 15 interviews with 16 different interviewees. They were intended to be completed within 30 minutes. However, most of them lasted somewhere between 20 and 40 minutes. The one interview with two interviewees lasted 67 minutes. We planned to conduct 19 interviews; however, the four remaining were not available within the data-collection period, and we decided that we did not want to spend time collecting more data when we reached a saturation point. The four organisations we did not interview belonged to Group 1, the sub-groups A and B, which we deemed extensive enough.

We created one interview guide for Group 1 and another for Group 2. The two guides shared a common theme: the IP. Group 1 had some additional themes which were only relevant to them. We wanted to understand how the different organisations worked with development and innovation, understand their barriers, and determine what type of help they needed more generally.

To find interviewees, we sent emails to those companies and organisations that were the most prominent and well-known in the different regions and attempted to contact relevant actors of the manufacturing industry, which is the focus of the IP. After we received positive responses, we sent them a consent form which contained more information and required their signature. Many did not send their forms back. Nevertheless, everything was planned and consented to over email, and we did not pester them with returning the consent form. During the interviews, it was necessary

to listen attentively, confirm their perspectives no matter our personal views, and ensure they knew we were interested in their honest response.

We used nettskjema.no to store the data and safely use the integrated transcription tool. Nettskjema.no is an online survey tool developed by the University of Oslo that offers the possibility to create, store, and manage surveys and data collections. Their app, *diktafon*, which records interviews and directly uploads the recording to the connected survey form on the website, is an easy and safe way for data collection and storage (Nettskjema, n.d.). There were some misspellings in the transcriptions, and they did not differentiate between the interviewers and the interviewee. Therefore, we had to go through every transcription and separate the answers from the questions. We used NVIVO as our analysis tool to find the main groupings of results and make navigating the data easier.

Because we are researching a Norwegian county, the interviews and all other communications with the informants were conducted in Norwegian. The quotes and extracts used in this thesis will be our translations. This can lead to some intentions being lost in translation and our understanding of what the interviewees' statements mean for us as researchers. We have attempted to render the interviewee's statements and opinions as clearly and honestly as possible. The challenge may be that the intention behind the interviewees' answers may be lost in a literal translation rather than a pure "free" translation. We see this as a strength, as some informants were worried about their anonymity and our advisor, who has worked closely with actors connected to the report, cannot understand who said what.

4.3.2 Document analysis

Much of the data collected is derived from the IP, an official document produced by several municipality agencies. It is a county strategy and analysis of the value creation possibilities for the Inland County. This official document inspired the thesis's theme and has been valuable in deciding what to examine more extensively.

Documents are materials that can be read, have not been produced specifically for social research, have been preserved, and are relevant to social researchers. They can link the "*chains of meaning*" that exist because documents do not exist in isolation and are a part of the larger reality and meaning of the social world (Clark et

al., 2021, p. 498). Documents are an active part of the situation and issues that they are produced in, and they “...enter into a number of concrete practices and in themselves contribute to shape these practices” (Asdal & Reinertsen, 2022, p. 4).

4.4 Thematic Analysis

We conducted our formal analysis after the data was collected using NVivo as our analysis tool. Several strategies are available for analysis when conducting qualitative data, and they almost always entail an iterative process. This means that the analysis and data collection happens in an interplay. Some of the data is collected and analysed before moving on to collecting more data. The previous analysis will guide the data collection (Clark et al., 2021). We collected our data in a short amount of time, causing us to focus on the collection before moving on to analysis. However, our focus was to ensure that the data functioned as the force of the thesis and that the data we collected needed to be the interviewee's thoughts on the different themes we wanted information about. We wanted to ensure that the questions in the interview guide were coherent to the research question, and we found theories we initially thought would help our analysis. Nevertheless, the empirical data and the data analysis were the guiding principles of the theoretical approach.

We chose to conduct a thematic analysis based on the argument explained above, which is that the themes and perspectives of the interviewees would be the central part of the thesis. This was done by coding each interview in NVivo before identifying themes within those extracts and developing them further into categories, forming the backbone of the analysis chapter. This was conducted using a selective-inductive-deductive method to ensure realistic data coding. We created codes that were quotes from the interviews to ensure that the essence of the interviewee's answers was included properly and not reformulated interpretations. Moving on to creating categories, our interpretations took a more influential role, and we created ten categories that summarised those codes that resembled each other. The codes and categories could then be compared with theory and research, allowing us to analyse how empiricism relates to existing knowledge. After working with the analysis for some time, we merged two categories and ended up with the final 9. The categories are:

- The Inland Portfolio
- Daily routines
- Minimum sense of urgency
- The Inland as the “silent pupil”
- The challenges of competency
- The funding and instrumental agencies
- Bring the team together
- Circularity
- Transformation talks

All codes and categories can be found in *Attachment 1 – Categories and Codes (in Norwegian)*.

4.5 Reliability, Replicability and Validity

Reliability, replication, and validity are the most important criteria for evaluating research. Discussions exist about whether these evaluation criteria are relevant for qualitative research because of the focus on measurement, which is not a preoccupation in this type of research. However, reducing the emphasis on measurement issues and seeing these criteria qualitatively can prove their importance nevertheless (Clark et al., 2021).

In their original sense, reliability is concerned with the consistency of the results. Would the same study produce the same results if repeated under the same circumstances? As for replication, the concern is ensuring the process is transparent so it can be conducted again. The importance lies in explaining exactly “*how it was designed, who was involved, what data was collected, and how it was analysed*” (Clark et al., 2021, p. 40). Validity might be the most important as it concerns the integrity of the conclusions. There are several aspects of the validity criteria: internal validity is concerned with the causality of the variables. Can we be sure that the independent variable is causing the variation identified in the dependent variables? External validity encapsulates the generalisability of the study. Suppose the study results are accurate for the respondents who participated. In that case, they should also be true for the wider population represented by those participants for the study to be externally valid. As for ecological validity, the concern is whether the finding can be applied to the social settings of people’s everyday lives. Considering how the data

collection activity might have interfered with the results is essential. The inferential validity concerns whether the design and the analysis are the right approach to allow the conclusions generated by the study (Clark et al., 2021).

Reliability in qualitative research can be divided into external and internal reliability (Clark et al., 2021). The external reliability is whether the study can be replicated or not. For our study, external reliability can be valued as a medium. This is because the questions and themes we wanted information from are about culture, values, and points of view, which are constantly changing. In addition, our central theme is a strategy and project that has just been implemented and is constantly evolving. Our findings are a snapshot of the reality that exists now. In addition, because we used semi-structured interviews, it could prove not easy to ask the same follow-up question because we let the interviewees control the conversation. However, Clark et al. (2021) state clearly that "*it is impossible to "freeze" a social setting*" (p. 363). This can cause external reliability to be lower in qualitative research than in quantitative research. Because we have interview guides used for every interview and it is possible for other students to conduct the same research, we have judged the external reliability to be medium as for the internal reliability, which is concerned with the extent of agreement between researchers on the findings (Clark et al., 2021). We wanted to ensure that we both had time to analyse the data separately so that all opinions could be voiced and solved by separately analysing the data before discussing them.

Validity can also be divided into external and internal validity in qualitative research. Internal validity is about the analytical insights achieved from the study, while external validity is about whether the specific findings can be generalised (Clark et al., 2021). Our concern with the thesis was not to create generalisable data (Clark et al., 2021). Nevertheless, we wanted to confirm or deny the theories' relevance and, if possible, realise that certain aspects of the theories could be changed to express the situation we have collected data about more clearly. However, critiques of the validity of qualitative research are that it is "*too subjective, difficult to replicate, difficult to generalise and not sufficiently transparent*" (Clark et al., 2021, p. 369).

4.6 Ethic considerations

The thesis has several steps to ensure ethical conduct. Voluntary participation and informed consent are made clear to the interview subjects by informing them that if they do not wish to participate, we will make sure not to include their work, as well as to give all interview subjects a paper of consent which informs what the interviews will be used for, and all the rights they have as interview subjects. All interview subjects are given anonymity, as seen in Chapter 4.2, where nothing but where they are from and if they are part of an organisation or considered an actor is identifiable information. This is also something they were asked to confirm explicitly. Some interviewees expressed a concern with using the region they are from as an identifying marker. Therefore, we have decided to use only groups (Group 1 and Group 2) as separating markers when referencing quotes in the rest of the thesis.

We believe the potential for harm to be minimal (see Chapter 4.3.1.1). However, certain interviewees may not want their confidentiality broken as they voice personal opinions on complex political matters. This has been disclosed to informants and has been taken into consideration. Our results will be done as transparently as possible, with efforts such as not utilising AI language models like ChatGPT or equivalents to write any sections of our paper. Another aspect to consider is that it will be difficult to use direct quotes because we conducted the interviews in Norwegian but are writing in English. This might work in favour of the interviewees because we will have to translate the things being said, and it might be more challenging to recognise ways one might formulate sentences and manners of speaking.

5.0 Results and Analysis

This chapter will present the results from our data collection in a manner meant to convey the so-called “history” that the interviewees have with the Inland Portfolio (IP) and their experience of the barriers to innovation in the county. These results will be analysed and placed in context with the existing literature and theory on the subjects to establish a basis for further discussion. We will explain how the results can answer the three working questions and how those are part of the primary research question (see Figure 6).

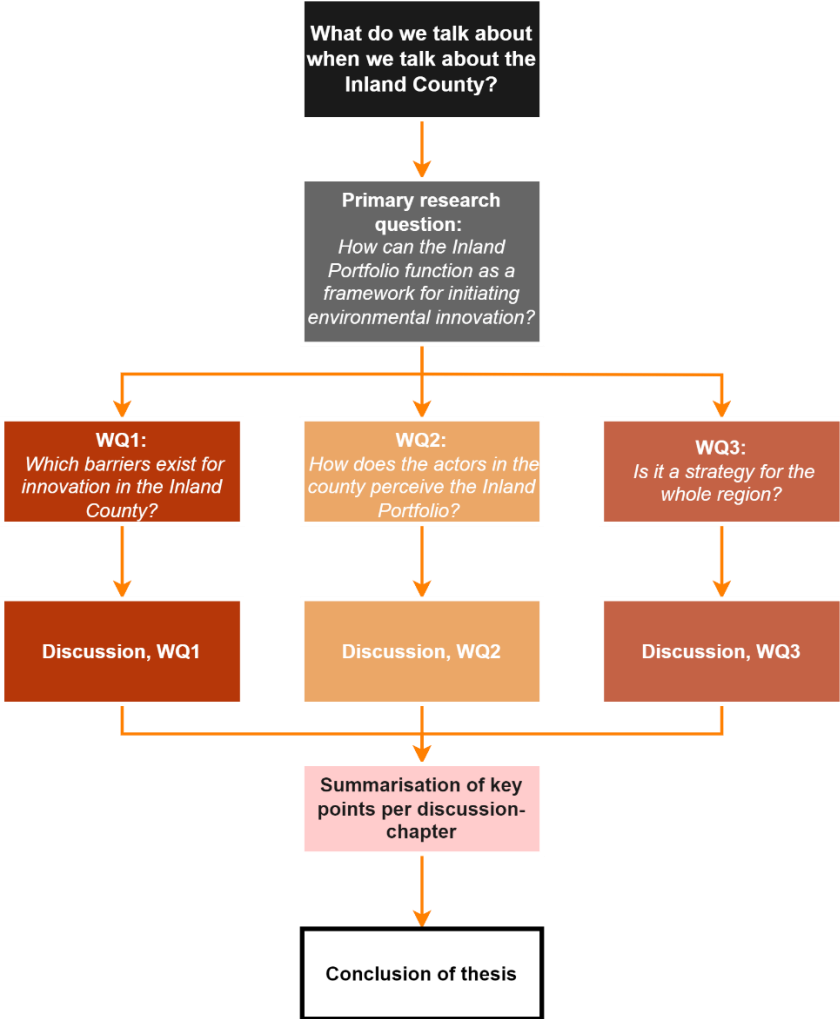


Figure 6: Build-up of the thesis

As can be seen from Figure 6, the chapter will be structured to answer one working question in each sub-chapter. The structure will also be followed in the discussion chapter. Out of 103 codes, we established nine categories, which will be the content of this chapter. The codes and the primary categories that form the basis for this chapter can be found in Attachment 1—*Categories and Codes (in Norwegian)*.

5.1 Barriers to Innovation in the Inland County

Time and resources are the most mundane barriers expressed in almost all the interviews. This is mainly mentioned in the context of daily activities. In addition, the challenges of competency are mentioned in several different ways. Both are challenges to having access to good competency workers. Knowledge and competency in innovative activities are complex and challenging for businesses to make clear. This can be seen in comparison with the fact that there is no agreement on which definition of innovation is correct. In addition, the lack of ordering competency is mentioned as a barrier to help from the funding and instrumental agencies. Another barrier is that the county is enormous, and the old borders are still influential for a more cohesive culture and cooperation between the different regions. The following sub-chapters will examine and analyse these barriers in more detail.

5.1.1 Daily activities and a minimal sense of urgency

Most businesses do not have the time to branch out of their daily activities (Respondent, Group 2). They survive on the results they can produce from day to day, and setting aside resources and efforts that might give them an advantage in the future but also might create losses they cannot take is hindering them. This can mean cognitive lock-in, as mentioned in Chapter 3.2.1 (Grilitsch & Hansen, 2019). How the businesses think hinders them from actively participating or searching for other venues to move into. This includes searching for new knowledge to help diversify existing assets and believing that even though things take time, they will be worth it.

The Inland County has mostly small and medium-sized enterprises (SMEs), which can be both advantageous and disadvantageous (Innlandsstatistikk, 2024). “*An advantage is that you are quicker and smaller and can transform quickly and much faster, but the disadvantage is that you lack capital and, in a way, the drive to do so*” (respondent, Group 2, our translation). This is mainly concerned with the issue of time and resources. The belief is that if the business does not have an innovation department or a person responsible for initiating and creating a culture for innovation, then it will not happen (Respondent, Group 1). The same challenge relating to resource access was made in this context. However, if we follow Bathelt et al. (2004) and Granovetter (1978), as mentioned in Chapter 3.1.2, a business can achieve the

necessary conditions by participating in a network or multiple networks. Many of those organisations interviewed mentioned several partners; however, they did not utilise all the potential in those partnerships. They were primarily used concerning a project or out of necessity to accomplish necessary tasks for operational goals, causing us to understand it as a lack of social proximity. Time and resources are also barriers to networking, which can be interpreted as a lack of local buzz on the level of the organisations. This can be understood as a barrier.

The interpreted intended consequences and goals of the IP are that it will enable businesses to look “*beyond*” and “*raise their gaze*” (Respondent, Group 2, our translation). As Hassink et al. (2019) point out, see Chapter 3.2, it is vital to have expectations and a clear vision for the future when creating a new development path. The IP is initiating a type of change that is too big for one company to handle alone. Jørgensen and Pedersen (2018) highlight the extensive need for cooperation and collaboration when shifting from a linear value chain to a circular one, as discussed in Chapter 3.2.2. The cooperation and mutual dependence strategy presented in creating “hubs”, see Chapter 2.2, is proposed to mark a significant change in how businesses conduct their day-to-day activities. Following one of the key arguments for the RIS approach, see Chapter 3.1; we can understand that this cooperation and circular value chain focuses on increasing interactive and localised learning. The main report from the IP also clearly states that:

“We have seen that the future of business development lies in co-locating companies and people to share resources, infrastructure, expertise and energy. This applies to industrial processes and cities to create arenas to facilitate new creation and innovation” (EY, 2023, p. 10, our translation).

The lack of effect in the energy system concerns many interviewees and can be considered a “shock”, often referred to as a possible source of innovation (Aasen & Amundsen, 2017). This may create a sense of urgency for businesses to think differently and cause a common idea of change necessary for survival. The IP is attempting to ensure more cooperation as a means for survival and as a means for green growth, seeing the quote together with the lack of effect. However, it may also cause international investors to choose more secure sights to establish factories or

premises (Respondent, Group 1). One interviewee brought up the importance of long-term perspectives as one of the things the funding system in the Inland County is seemingly missing. Several of the organisations and businesses in the county have international investors and owners. Without long-term perspectives, they can choose to “*wipe the factory off the map*” if production cannot be guaranteed (respondent, Group 1, our translation).

It has also been made clear from the data collection that the idea that the hubs are meant to release some of the troubles of the energy-efficiency problem has not been communicated clearly. One interviewee even said:

“So, there I would say that if it has been communicated, then I would like those who have claimed that this is the case to contact me, because then I would like to hear what they think. [Out] of interest” (Respondent, Group 1, our translation).

This can be viewed as an attempt by the county municipality to facilitate adaptability to exogenous changes. Energy efficiency is uncertain in the county's future, and many more exogenous changes will appear as one moves forward. It is crucial to “*ensure adaptability*” (Respondent, Group 1, our translation). This points clearly to the county's sense of urgency to change and transform, but the lack of action can be seen as a difficulty in prioritising where the urgency is the biggest.

Nevertheless, it has been said that “*there needs to be a change from attitude to action, otherwise you are moving towards destruction*” (Respondent, Group 1, our translation). A study conducted on regional cooperation in the Lillehammer region by two master students concluded that the level of cooperation was low. However, the individual organisations knew that increasing cooperation was advantageous. Still, they did not participate in the existing opportunities (Hopland & Brusset, 2022). This can be true for the regions examined in this thesis as well. Moreover, the change from attitude to action can be closely linked to day-to-day necessities. There is a need for both firm-level agencies and system-level agencies to ensure the transition to action.

In the case of the Inland County, the facilitating powers of geographical proximity might be more of a concern than Boschma (2005) discusses in his paper (see Chapter 3.3). The county's challenges with energy access are an issue for energy-intensive manufacturing industry development, and the focus now is on “*industrial symbiosis*” to increase energy efficiency (EY, 2023, p. 13). This all points to a need for a change in the current business models and the day-to-day activities and strategies.

To summarise, businesses and organisations have trouble devoting time and resources to anything other than what ensures their survival here and now. They must produce what ensures survival, not follow the uncertain. However, the lack of capacity in the energy system should be conveyed as a more significant part of the IP, as this provides a long-term perspective that the informants have pointed out as a current barrier to innovation.

5.1.2 The challenges of competency

Knowledge is one of the key aspects of innovation. When the Inland County has poor innovative performance coupled with few research and education institutions, it might be reasonable to conclude that access to knowledge is a barrier. This is something that has been challenged, however. The Inland County has some of the country's poorest regions in most aspects, “*but if you take away the outliers, we are not as bad as it seems in total*” (Respondent, Group 2, our translation). The education institutions are seemingly open to collaboration with the business sector, and the County Municipality has a separate measure, FORREGION (Innlandet-Fylkeskommune, n.d.-a), that works exclusively with encouraging businesses to utilise more knowledge and research in their innovative activities. It has, however, been pointed out that there is a lack of a proper arrangement which makes it easier for businesses to participate in research and science (Respondent, Group 1).

Specifically highlighted in the interviews is taking advantage of bachelor and master students writing their thesis on behalf of the business. However, those actively participating in international networks and education institutions say they have good access to competent workers. Some even say that the cost of participating is repaid “*by 100 times*” (Respondent, Group 2, our translation). The lack of access to a

workforce of relevant competency has been communicated as a barrier for the county, with one interviewee saying: “*If there is a master’s disease here, then it is a deficiency disease*” (Respondent, Group 2, our translation). The statistics show that the educational level for adults is, on average, lower than the national average but is steadily increasing (Innlandsstatistikk, n.d.-e). When informants say that competency and education are barriers, it is difficult to understand what they mean.

As mentioned in Chapter 3.3, absorptive capacity is necessary for the successful flow of information and knowledge. This need for absorptive capacity speaks to the “*lack of ordering competence*” (Respondent, Group 2, our translation) that the businesses have, according to the data: “*They do not know what to ask for*” (Respondent, Group 2, our translation). This is also true when it comes to funding applications. It has been pointed out several times that the applications require unique competencies to be good enough for approval. This is something that the business may need to ensure success, and therefore, many do not apply at all (Respondent, Group 1). The lack of understanding of the pre-existing system and the perceived bureaucratic “red tape” that the businesses need to go through to apply for funding and grants is a barrier to more active participation. The need to ensure that the benefits are explicit may lie in the way it is presented because when the issue of businesses understanding “*what is in it for me*” (Respondent, Group 2, our translation) comes up, it most likely is because they lack the absorptive capacity to understand what is being communicated fully. This is an issue for both sides because those inside the system must communicate in a way businesses can understand.

5.1.2.1 The concept of innovation

The issues of communication and absorptive capacity became most apparent when the informants were asked what innovation was. Even though policies are more focused on change and innovation, it is sometimes difficult to understand how the actors may understand the concept of “innovation”. Different types of innovation are based on the level of newness: radical innovation is new to the world. In contrast, an innovation new to a business or an organisation and bringing something new to the market can be defined as disruptive. Small, continuous changes can be defined as incremental innovation. What is common for them all is that it needs to be implemented and used to count as an innovation (Aasen & Amundsen, 2017).

The collected data has revealed that there are two contradicting statements as to what the organisations and actors understand innovation to be: “*Innovation is new, unique and ground-breaking*” (Respondent, Group 1, our translation) and “*Innovation is not necessarily ground-breaking*” (Respondent, Group 1, our translation). This can mean that the first statement follows the radical and disruptive definitions of innovation while the latter follows the incremental definition. Some respondents had a vaguer definition, saying innovation is “*everything different*” (Respondent, Group 1, our translation).

Some informants also point out that some organisations and businesses innovate a lot without knowing it, leading to the belief that they might follow the radical/disruptive definition without accounting for the incremental ones. What is apparent is that there is a general understanding that innovation is “new and useful”. The saying “*new, useful, utilised*” (nytt, nyttig, nyttiggjort) (Respondent, Group 1 and 2, our translation) was mentioned four times in those exact words across all 15 interviews. The difference in how the actors understand the concept of innovation can influence how they view their work, especially with the IP. If they only think of innovation in radical/disruptive terms, they may believe they have no experience with innovation and become alarmed or dismayed by the ambitious goals.

5.1.3 Cohesion - “bringing the team together”.

One of the things brought up as a barrier in the county is the “*internal bickering*” (Respondent, Group 2, our translation). Attachments and feelings of belonging to specific regions or parts of the county are said to be more prominent barriers for the local municipalities than one would think. There is an understanding from several organisations that the thought of competition is high within the county. It is argued that this way of thinking needs to transition to “*the Inland against everyone else, and not municipality against municipality*” (Respondents, Group 1 and 2, our translation). This is something the IP is communicating quite clearly when saying:

“The hubs open the way to thinking bigger than individual innovations. The hubs often have a vision and plan towards 2030 containing several innovation

projects that depend on each other and create added value from coexistence”
(EY, 2023, p. 76, our translation).

The quote speaks mostly to businesses, but seeing it in context with the data, it can also be interpreted to mean the municipalities. There are already many clusters and formal networks in the county. When asked why they exist, several informants say they “*collaborate because we want to contribute*” (Respondent, Group 1, our translation). This can be interpreted to mean that there is a culture of cooperation. Nevertheless, there seems to be still a divide between the two old county boundaries, Hedmark and Oppland, which may be a cause for the internal bickering referred to earlier in this sub-chapter. Even though several interviewees mention that the willingness to contribute and cooperate exists, they still state the importance of more collaborative and cooperative efforts. This can be interpreted as a wish for a more cohesive system-level agency across the new county or a statement for a more cohesive firm-level agency. The multitude of municipalities in the county has been brought up in this sense, where there is an apparent lack of cohesion in the way every municipality works towards immigration politics and employment. What naturally follows is a difference in how the different firms choose to work to attract new knowledge and form networks methodically.

Hansen and Coenen (2015) clearly state, as mentioned in Chapter 3.2.1, that regional policy is better equipped for regional sustainability transitions due to local knowledge. If we see this with the statement that “*jobs do not follow municipality borders*” (Respondent, Group 1, our translation), it becomes relevant to discuss whether there should be sub-regional systems of innovation to increase the local buzz and cooperation before relating it to the bigger RIS. As mentioned in Chapter 3.1, Trippi et al. (2020) argues that regional paths are affected by past industrial development, inherited economic structures, and local knowledge circulation, which naturally varies across regions. Considering that the Inland County has ten regions, it could be helpful to start by increasing collaborative efforts inside each region before attempting to change the strategies and systems across the county. As mentioned in Chapter 2.1, the IP might have suggested dividing the regions into only four, which still validates the argument for sub-RIS. This could increase the efforts to concentrate on where value creation has the most significant potential and use that momentum,

which aligns with smart specialisation. “*We need to trust that reinforcing those areas will bring a positive spillover effect on the hinterlands*” (Respondent, Group 2, our translation). Using Hauge et al. (2023) arguments, it might be possible to create several motor cities like Hamar around the county.

5.2 Perception of the Inland Portfolio

Naturally, one of the core categories discussed in the interviews for the thesis was the IP. The Interviewees' relationship to this concept says a lot about how the strategy has been communicated, interpreted, and reacted to since its release in 2023.

The interviewees understand the IP to be, at its absolute core, an “*overarching knowledge document*” (respondent, Group 1, our translation). This is to say that while the name and the execution may, in practice, be different from former strategic documents on the county's “current” situation, it is still such a strategic report. To some informants, this means that it is “*just a new thing*” to refer to for the existing funding agencies and instrumental organisations (respondent, Group 1 and 2, our translation). Several informants point out that the goals of the IP are indeed goals they are working towards but have had minimal insight or relation with building the actual strategy. This could be viewed as a reflexivity failure issue, as mentioned in Chapter 3.2.2, because the actors view the IP in the context of the current regime and frame, perhaps as a strategy for optimisation. Like those interviewees (Group 2) who have worked very closely with the process of creating the IP, we would argue that it is a strategy for transformative change and a way to uproot some of the routines, which in this “new world” is holding the county back.

Several considerations are considered for the IP to be understood as an effective strategy. The simple but somewhat nebulous concept of “action” is key. Action in this context can mean not just saying “stuff happens” but also providing concrete proof to observers that stuff is indeed happening. The cognitive and institutional distance (see Chapter 3.3) seems too far, causing a dissonance between the communicated intent of the IP versus the communicated operational plan. To this end, the informants point to the use of already existing “instances” (organisations, institutions, and agencies) rather than the establishment of new “instances”. The fear that the IP will create

“another new” funding and instrumental system is present in many interviews. In context with the previous point, we can understand this to mean a desire to see action through interacting with pre-existing, established “instances” to achieve the goals of the IP in collaboration with the different actors in the county.

The regional authority struggles with creating a shared understanding with businesses and organisations possibly affected by the IP due to the widely different knowledge bases on the strategy. By there having been a stand-still in the communication of the IP's operationalisation, they have also lost some of their momentum. This has been pointed out as an important aspect of publicly driven innovation activities to exploit for a better chance of success (respondent, Group 2, our translation). This can be interpreted as too little institutional proximity because the values and norms of the IP have not been established, and the lack of cohesion created by the individual region/firm's interpretation of the official document has led to chaos.

There is a series of challenges to the concept of IP, as presented by the interviewees, and the strategy's potential. The keyword, both stated implicitly and explicitly by interviewees, is ambitious, with many informants noting that some of the suggested goals of the IP are somewhat enthusiastic compared to the difficulties facing the county. Some interviewees believe it to be realistic and within the realms of reality, while others see the goals as simply too ambitious. There is a clear difference between the two groups, where Group 1 mostly agrees on the latter.

Several interviewees point out both explicitly and throughout their experiences with the IP that its attempt at prioritisation leaves out parts of the Inland County, both geographical regions and sectors. As one interviewee says: *“It is not relatable to all the Inland County, and for some it is foreign. It is relevant for the county, but not for all of the county”* (respondent, Group 2, our translation).

It can also be interpreted by the IP that businesses and organisations working in the manufacturing industrial sector need to transform their business models to participate in and fulfil the IP's strategic goals successfully. The need for a more circular value chain lies in the vision for the IP: *“the inland county as the green circular growth*

county” (EY, 2023, p. 1, our translation). As Stucki (2019) mentions (see Chapter 3.2.2.1), the need to have policies that support the transition from a linear value chain to a circular value chain and support eco-innovation is invaluable. The risks are considerably higher with this type of work. Several interviewees pointed out how the County Municipality prioritised, invested, and clarified that the beginning (with the creation of hubs) could positively affect the county. As presented theoretically in Chapter 3.2, the framework signals a transformation in business models and processes. However, the framing has not been established, and the externalities are not adequately handled. The IP provides a new direction for the industry to ensure a move towards a green, circular growth county. However, the absorptive capacity and cognitive proximity have not been established and conformed. The IP presents an opportunity for experimentation, but this has not been communicated to the actors in Group 1, which can signal a directionality failure, see Chapter 3.2.2.1. In addition, Stucki (2019) points out the externality issues accompanied by eco-innovations, where financial policy initiatives are essential for addressing those issues. The IP has a financial policy initiative, but this is to increase participation in networking and learning events. As far as the interviewees know, there is no financial support for participating in the strategy except by applying for funding from the existing funding and instrumental agencies.

In summary: The respondents have different views and relations to the IP, yet Group 1 and Group 2 come to the same conclusion of insecurity as to “what comes next”. The cognitive proximity of the different actors is not close enough, which can cause a lack of cohesion and understanding of what the strategy represents and how it is intended to work. This can be why some deem it too ambitious and why Group 1 is concerned about not using the existing local system. This local concern can, as explained in Chapter 3.2, be a good point for further discussion.

5.3 Strategic vision

Almost all interviewees repeatedly describe the Inland County as “*the silent pupil*”. The perpetuated sentiment is that the typical “shy innlending” does not speak proudly about their achievements but instead could be described as stable, somewhat timid, and sceptical. This attitude toward oneself makes it challenging to prove to others that “we” are worth investing in and makes building for opportunities contradictory to

this self-perceived cultural identity (Respondent, Group 2). One of the megatrends pointed out in the IP, made visible by the employment and population growth, is the weakening of the districts (EY, 2023). Too many small entities that do not collaborate make up the paradoxically gigantic county, seemingly creating cultural challenges from a perception of the county being too fractioned. Some interviewees believe this may be due to differences between the old counties, Hedmark and Oppland. The Inland County is still a “young” county compared to these former counties, having only been merged for four years.

Insufficient social proximity between the regions creates communication difficulties (see Chapter 3.3). The competitor is understood as businesses and organisations in other regions within the county and not in other countries or other national counties. There is also seemingly a lack of trust and willingness for cooperation. According to Jørgensen & Pedersen (2018), creating a sustainable and circular business model is a job one actor cannot do alone (see Chapter 3.2.2). The IP encourages cooperation, and a core part of the strategy is that businesses that profit from one another should be a part of a hub. A hub in this context can be understood as a network of businesses mutually dependent on each other for survival (Respondent, Group 2). In addition, there is a common understanding that competing with metropolitan areas like Oslo is unachievable for the businesses located in the county, which can be a devastating “fact” for the efforts made by local businesses. The perceived absence of a culture of “*the Inland County against the rest*” is thus detrimental to the county’s potential (Respondent, Group 2, our translation).

5.3.1 Circularity and Transformation Talks

One of the exogenous factors that have most likely affected the symbiotic hub creation due to the IP is the European Union (EU) taxonomy. This has caused many to experience a sense of urgency to change their current value chain towards more circularity in using materials and ways of conducting processes. The hubs presented in the IP are supposedly symbiotic in that the participants will use each other's “waste” to fulfil their own needs and requirements for production. The need to take advantage of the whole value chain is present in the strategy, and “*the governing thought is that we need to use and exploit our remains and waste*” (Respondent, Group 2, our translation).

Suppose the portfolio is also understood to encourage changes in the existing business models that the firms have to a more sustainable and circular model. In that case, we can argue that the effort is in line with more eco-innovation as understood by the definition provided by UNEP (see Chapter 3.2.2). A potential barrier may be that to ensure the proper policy intervention, there needs to be a cohesive multi-level policy coordination to provide the appropriate amount of support for this type of effort (see Chapter 3.2). The great distances between the potential partners may also hinder circularity. As transportation is one of the most emission-rich sectors in Norway (Meld-St-13, 2020-2021), it becomes challenging to condone more transportation to ensure more circularity. The geographical proximity once again becomes more apparent. The lack of empirical evidence to support the green growth hypothesis increases the uncertainty and risks associated with the system's transformation.

Nevertheless, the IP supports shifting from the “*take, make and dispose*” dichotomy to a more circular value chain. According to Ghisetti et al. (2017) and Stucki (2019), the barriers to this work are primarily financial and political, as mentioned in Chapter 3.2.2. It can be argued that the political aspect of the discussion has, at the very least, begun to move in the right direction with the introduction of the IP. However, the financial aspect is more complicated. This will be discussed further in Chapter 6.

When interviewees were asked what they needed to ensure more knowledge sharing and innovative activity, it was pointed out that active collaboration within the business/organisation as a cultural concept is essential. They must start with internal attitudes and business culture to achieve more cooperation and horizontal working. This can be supported by “*clearly engaged leaders participate*” (Respondent, Group 2, our translation) when discussing competency workshops and developmental events. One interviewee said it quite well: “*We cannot define the box but define the goals*” (Respondent, Group 2, our translation).

However, personnel and capital are still perceived as significant challenges. Competition versus collaboration is perceived to be a complex problem to navigate through. According to Jørgensen & Pedersen (2018), every business struggles with this, as mentioned in Chapter 3.2.2, but the benefits outweigh the disadvantages. It

was also pointed out that SMEs are quicker to transform because of their flexibility with the short hierarchy. It might all boil down to be about daring to make changes in time and acting before the fear of destruction becomes real.

6.0 Discussion

This chapter is dedicated to the primary research question, “*How can the Inland Portfolio function as a framework for initiating environmental innovation*”? The findings from the analysis in Chapter 5 will be thoroughly discussed in 3 different sections, each corresponding to a working question related to our research. Chapter 6.1 will delve into the current RIS's strengths and weaknesses and how the Inland Portfolio (IP) proposes changes to the existing regime. Chapter 6.2 will explore how the IP, as a policy report and strategy process, can influence innovative capabilities in the Inland County. Chapter 6.3 will tackle the challenges of proximity, as presented in Chapter 5, and their relation to innovative efforts found within the county. The discussion will be succinctly summarised in the conclusion of the thesis, where suggestions for further research will also be presented.

6.1 Sub-Regional Innovation System

The Inland County's interior regional diversity raises concerns about how innovation efforts can be effectively implemented and communicated. Respecting the unique needs and characteristics of the different regions means that any strategy for the whole region must account for this, leading us to argue for utilising a *Sub-Regional Innovation Systems* (Sub-RIS) approach instead, summarised somewhat humorously as “*one size does not fit at all*” (in reference to Tödting & Tripl, 2005). This chapter will first address the differences between the three regions analysed by this thesis before presenting in detail the arguments for Sub-RIS. The sub-chapter will conclude by summarising the key arguments before leading to chapter 6.2.

6.1.1 Contextual information

According to the definitions of the different RIS stated by Asheim et al. (2019), we can surmise that the Inland County is an organisationally thin and specialised RIS (Chapter 3.1.1). This characterisation is primarily due to the lack of internal diversity and the minority of clusters, mainly in mature industries, with exceptions like the VR cluster in Hamar. However, it is important to note that the three different regions, each with their unique characteristics and challenges, can be characterised as other types of RIS when compared, which helps to explain some of the difficulties in coherence evident in the results and analysis.

As the Inland itself, the Kongsvinger region can be characterised as an organisationally thin and specialised RIS. This is because of the strong clusters and the presence of a specialised education institution, with the CREDS institution connected to the Inland Norway University of Applied Sciences (INN). The region also has formal networks, such as *Sør-Hedmark næringsshage* (South-Hedmark business development centre), *7sterke* (7 Strong), and *Klosser Innovation*. These are represented by a narrow industrial base where manufacturing is the leading industry of interest.

The Hamar region issues more discussion. It can be argued that it is not organisationally thin and specialised because of the open knowledge networks and the many different firms in the various industries. There is also a large concentration of formal networks in the Hamar region, such as *NCE Heidner Biocluster*, *Klosser Innovation*, *Vrinn*, *Hamarregionen/Park*, and *Norwegian Wood Cluster*. However, these do not have heterogeneous industrial structures, likely due to the RIS that the Inland County can be analysed as. There are few education and research organisations, and INN is the only educational institution. They have, however, a strong industrial base connected to technology and data, where they have been recognised as the “*national leader*” (Respondent, Group 1, our translation). Seeing how Hauge et al. (2023) have characterised Hamar as a motor city because of “*high levels of positive intra-regional and extra-county commuting on the one hand, and high levels of positive extra-regional and extra-county migration on the other hand*” (p. 6400), it becomes a question whether the Hamar region can be identified as an organisationally thick and diversified RIS.

According to the definition by Asheim et al. (see Chapter 3.1), Nord-Gudbrandsdalen is quite clearly an organisationally thin RIS. This is because of the lack of education and research institutions and only one weakly developed cluster in the recreational industry. They have Skåppå, an innovation organisation, and Rekreasjonsklyngen (the recreation cluster), both located in Vågå.

The IP is a smart specialisation strategy based on the unique competitive advantage regions have over one another. Ensuring a coherent investment in each region's possibilities before linking it all together for the county's betterment could improve the

IP's efforts and effectiveness. Given the diversity of the county presented above and in Chapter 1.1, we propose a different approach; rather than generalising the diverse and significant differences found between and within regions, the strategy could adopt a Sub-RIS approach that respects the unique qualities of the differing regions, and thus strengthens the smart specialisation approach. This will allow each particular sub-region within the county to exploit their competitiveness and build a system that works for them. We would argue that it is almost impossible to include all differences in one strategy for the county.

6.1.2 Sub-RIS

An essential point in the RIS approach is that innovation happens in the interactive learning processes in localised networks embedded in specific socio-cultural settings (Chapter 3.1.2). This points to a need for localised knowledge that we can argue exists in local innovation firms. For Kongsvinger and Hamar, it would be Klosser, and for Gudbrandsdalen, it is Skåppå. The way Kongsvinger has organised its innovative efforts - by cooperating between the six municipalities and giving the industry development responsibility to Klosser - ensures a holistic approach to the innovative efforts. Whether through path creation or path extension (see Chapter 3.1.1). This gives the argument for utilising sub-RIS more depth. The empirical evidence further shows that firms with research and development (R&D) and experience-based knowledge are the most innovative. Still, without a connection to global knowledge networks, the new knowledge developed at home will be less influential (Asheim et al., 2019). We would argue that this is also true on the regional level.

Using a sub-RIS approach in each region based on smart specialisation and connecting them to the broader RIS, which entails the whole county, one can argue that some connections to outside knowledge networks will be more structured. One of the IP goals is to increase participation in EU-related innovation arrangements, like The Regional Innovation Valleys Programme (European Commission, 2023). We argue that sub-RIS will enhance the focus on each region's capabilities. We have created a visual representation of a sub-regional innovation system can look like in Figure 7.

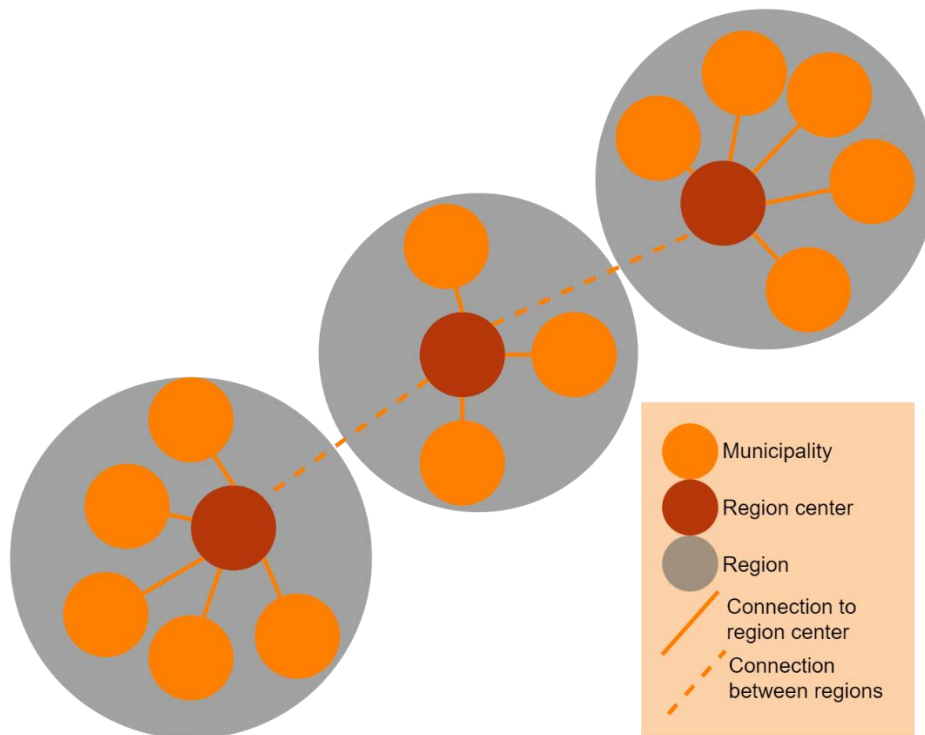


Figure 7: Sub-RIS network structure

Figure 7 showcases the relationship between municipalities, region-centre municipalities (think Hamar municipality and Kongsvinger municipality) and regions based on what we have seen from our analysis. There are relatively few connections between the municipalities of the different regions as most cooperative efforts are limited by geographical questions (“the one-hour barrier”) and local affiliation. We, therefore, propose to take Bathelt et al. (2004) arguments about local buzz and global pipelines down to a regional level. Instead of global pipelines, we might need regional pipelines between the different region centres to increase the knowledge flow. This can be supported by the IP dividing the county into four regions (see Chapter 2.1).

According to Hansen and Coenen (2015), place specificity and spatial relations are important factors when searching for reasons for a successful transition or a lack of one. We can understand geography's role in transition work by examining the relations between actors in a network and the flow of capital, knowledge, people, and other relevant assets. Inland County is a large county with only a few academic institutions (see Figure 8).



Figure 8: Geographical and organisational regions and local research institutions (EY, 2023; Innlandet-Fylkeskommune, n.d.-b).

As Figure 8 shows, in the Kongsvinger and Hamar regions, the only academic institution is INN. In the Gudbrandsdalen region, the closest academic institutions are in Lillehammer, Stor-Elvdal and Tynset, which are wholly different regions according to the official map from the Inland County Municipality (Innlandet-Fylkeskommune, n.d.-b). The difference of opinion on access to competency and knowledge shown in the data, mentioned in the context of the availability of education and research institutions (see Chapter 5.2), can also be viewed in the context of lack of coherence. In the three regions examined, there is a general agreement that access to competency is a barrier to more innovation. The fact that some said they have access to good competency workers and that the education institution uttered an

opinion of maybe being “too available” leads us to believe that it comes down to the willingness and efforts made by the businesses and organisations. There seems to be a belief that research is not something the businesses in the county have the time or the resources for, yet they state a need for more of it. The barrier might then lie in its perceived use and a lack of understanding and knowing how, for example, an internship could work.

The complex and risky nature of green transition and eco-innovations also implies that more coherent and locally connected strategies and processes can create a more predictable framework for businesses and organisations. By giving in to the bottom-up, smart specialisation methods for ensuring growth in a region, engaging every part of each region in the complex endeavour of transformative change could be fruitful.

One of the success factors in the Kongsvinger region, causing them to move away from certain destruction after the financial crisis of 2008, was their coordinated effort by giving responsibility for business development to one actor. This actor thus has the responsibility for both public and private sector projects. This created a coherent and clear layout of a system of innovation and innovative activities, making it easier for businesses/organisations to know who to ask for help. This can be compared to Nord-Gudbrandsdalen, where the perception is that the private sector and the public sector do not collaborate on innovative projects. Simplified, they are more separated. However, there is only one innovation organisation in the area, which means they are the only “door in” with the municipalities. This could be a way to structure the sub-RIS, where one actor will be the bridge between the strong ties inside the sub-RIS and the regional pipelines between them.

As mentioned in Chapter 5.1, the strategy is not for the whole region. This has been pointed out as both a good thing and a bad thing. It is “good” because it gives a clear prioritisation of where the efforts should be, and it provides a more narrow and focused approach to the strategies of the county municipality. According to Hassink et al. (2019), this is necessary for the success of new path development. However, it might also cause political-institutional lock-in because it creates vested interests (Chapter 3.2.1). It is “bad” because some regions are left out and cannot be a central

part of reaching goals they are already working with. By strategically utilising a sub-RIS approach with established regional pipelines and arranging the complex and “impossible” networks, the hope of positive effects on the hinterlands might also be able to travel further into other regions. The necessity to have strong and weak ties is of immense importance for knowledge to travel. This is something that a strong policy framework can, at least, facilitate and maybe even initiate.

One of the more interesting findings is that the responses from those in the Kongsvinger region and those in the Nord-Gudbrandsdalen region were quite similar when asked about knowledge of the IP and how involved they felt. We could surmise that the Nord-Gudbrandsdalen might feel “left out” because of the weakened position of a manufacturing industry with a more significant place in other regions. The fact that the Kongsvinger region also felt “left out” is more surprising. The local innovation organisations were the local navigators helping EY decide who to interview in the different regions. This might have something to do with it. Some informants have uttered questions about the choices of businesses included in the report, and many have difficulty understanding what they are. They become confused once they believe they grasp the strategy because it does not match their knowledge. The cognitive proximity is perhaps too far regarding the reasoning behind the decisions.

In summary of Chapter 6.1, we can see that the diverse and unique regions of the Inland County have a breadth of distinct qualities and challenges that must be respected. Facilitating smart specialisation on such a grand scale requires a region-specific focus. Focusing investments should be considered to further competitive and comparative advantages before “linking it all together” at the county level. A *sub-RIS approach* can leverage the unique local knowledge bases and pre-existing ties within each region if it is facilitated by local innovation organisations who know the “lay of the land”. As per the RIS approach, this local embeddedness is crucial for interactive learning processes and innovation. Such an approach towards enabling structured connections to external knowledge networks allows for a more structured approach to connecting regional capabilities to global and extra-regional knowledge networks. This may address identified connectivity challenges, facilitate regional pipelines and knowledge flow, and provide a coherent framework for innovation efforts.

6.2 Policy effects on innovative capabilities

The IP has faced challenges in effectively communicating its intended vision to its recipients, establishing a sense of local ownership, and creating commonly agreed-upon coherent strategies for enhancing innovative capabilities within the county. This chapter will review the communication challenges around the IP, the contradictory understandings of the IP's objectives, the need for more explicit articulation for intended innovation pathways, the lack of local anchoring, and the limitations of a technocratic and technology-focused approach.

The IP is intended as an organisational innovation for the Inland County Municipality's approach to regional development, but this has seemingly not been communicated thoroughly enough. It represents new methods in business practices, workplace organisation, and external relations, which have been translated from the experiences in Vestland County and put into the context of the Inland County. The problem is that those actors who frequently communicate with the County Municipality see its value; this might be because their absorptive capacity is comparable. However, due to reasons like geographical location, others do not have the traditions nor incentives to have a constant and frequent flow of communication with the County Municipality. It may not be difficult to understand why the report and strategy communication might have been less successful than hoped for and intended. Nevertheless, the lack of coherence in understanding the IP should have been corrected since its release. The fact that there does not seem to have been an attempt at correction could be because of the loss of momentum in the continuous work with the strategy. Quote, "*Nothing has happened since its release*" (respondent, Group 1, our translation). These communication challenges lead to contradictory understandings of the IP's objectives.

The contradictory understandings caused by the IP supposedly intended to be understood as prioritising the manufacturing industry rather than mapping the four unique value propositions further complicate the communication problems. While the manufacturing industrial prioritisation coincides with the understanding that certain interviewees point out as the manufacturing industry's multiplicative dimensions, this cannot be directly inferred from the IP itself. The prioritisation is not unfounded, however. Industrial workplaces can serve as "cornerstone companies" to local

settlements, leading to other jobs that facilitate the industrial businesses' and workers' needs. The focus on the manufacturing industry has been supposedly made based on which of the county's existing competitive advantages it has. It was also clearly pointed out that *“those who work need to create more value per person, and we do not have a need for complete transformation, but we need to work differently”* (respondent, Group 2, our translation). One thing that's important to consider is what the value creation per person in the manufacturing industry means. One interviewee pointed out that the value per person in the manufacturing industry is higher than in other types of industries. It might be necessary to ask if automation and digitalisation allow fewer people to do the work in which the value is measured. Several interviewees have mentioned this in criticising the goals of the IP, that the perceived goal of 10,000 more jobs in the manufacturing industry might not be achievable. It may thus be necessary to extend the value chain to create more jobs in the industry. It is unlikely that the existing industry can accommodate this level of expansion, but there is room for broader discussion on this point. The IP specifies 10,000 new green workers, which could include turning previous “non-green” workers green. It is unclear whether it is intended to stimulate path extension, path upgrading, related path diversification, or even path creation (see Chapter 3.1.1). One interviewee said quite clearly: *“We need different competencies and knowledge-workers, not necessarily more jobs”* (respondent, Group 2, our translation). This is a clear example of the chaos around and within the strategy and process.

How the IP's intended goals and innovation pathways are articulated leaves the operationalisation and actual working strategy unclear. This might especially be the case on how many jobs the portfolio wants to be made. Both 5400 and 10,000 are numbers mentioned when the IP articulates plans for new jobs to come out of a successfully carried-out strategy. Several interviewees raised questions about how these jobs would be created. The most likely approach would be through related path diversification and path extension to prioritise supporting pre-existing firms and local industrial needs. This argument can be made from quotes from the interviews, where it was made clear that the Inland County already has the potential to achieve its goals, but changes in how businesses are conducted must be made. The County Municipality says the industry must be transformed with the IP strategy, which we can understand as path creation. However, the industry understands it as an

improvement and change in implementing already established working methods. However, if the IP is seen as a move towards a green transition, the theory would argue that path creation is necessary; see Chapter 3.2. The establishment of global or regional pipelines must be done deliberately with intent and investments to ensure productive results. This is required to ensure the proper flow of new knowledge into the regions (see Chapter 3.1.2).

The lack of local anchoring has made operationalising the strategy into action perceived as ineffective. The common impression is that the existing innovation organisations, funding, and instrumental actors have not been given the proper mandate to be the local guides for participation in the strategy and goals presented by the IP. A fear is that the County Municipality will become a new funding and instrumental actor in the already existing system, which is perceived as overwhelming. The communication we can identify from the data is that the hubs receive emails about upcoming events and new directives. However, the proper understanding and strategy have not been explained in detail to those intended from the County Municipality side to either be a hub or part of a hub. The local anchoring has not been established, creating difficulties for the local actors. This has been uttered most clearly by those belonging to the Kongsvinger region. This might be a consequence of the geographical location, as the County Municipality's offices are in Hamar, and the distance is considerable. The same understanding can be found in Nord-Gudbrandsdalen. This is not a document they know of; they view it simply as a new directive they must refer to when applying for funding.

The focus on a technocratic and technology-focused approach may present further limitations. The local innovation organisations played a crucial role in guiding EY as they identified which businesses and organisations to engage with during the data collection process for the IP. These organisations were seen as trusted sources of local knowledge, helping to identify which businesses in their respective regions were relevant to the project. From our understanding, however, this means that organisations that are not part of the local innovation organisations may not be as widely represented in the IP results. Additionally, it is interesting to consider how businesses and organisations in these regions perceive the role of the County Municipality as a new player in an already complex network of instrumental and

funding agencies. This all plays into the operationalisation of the IP and the lost momentum by not having done anything since the launch. Thus, it is difficult to understand what this IP is and what it will mean for the businesses and organisations in the Inland County in the coming years. What might be the case for the IP and the Inland County is that they follow some of the issues presented by Hoffmann in Dale et al. (2016).

“The approach is largely reduced to a technocratic and technology-fetishised one, because changing technologies is much easier than altering societies and their socioeconomic drivers” (Hoffmann, 2016).

As mentioned in Chapter 3.2.2, this is an apparent reflexivity failure because there is an unarticulated disagreement about whether the IP optimises the current regime or is a strategy for transforming it.

The overall argument is that the IP, while intended as an organisational innovation itself, has faced challenges in effectively communicating its vision, aligning stakeholder understanding, and establishing local ownership and coherent strategies for enhancing innovative capabilities within the county.

6.3 The Challenges of Proximity

The various dimensions of proximity (cognitive, institutional, geographical) and energy-related issues intersect to create multifaceted challenges for innovation in the Inland County. These challenges require a multi-pronged approach to find relevant solutions. This chapter will detail the previously mentioned dimensions and how they affect innovation difficulties in Inland County. Sub-chapter 6.3.1 presents some of our opinions on how this can be understood outside of the scope of our thesis, which might influence future research.

One of the most apparent difficulties lies in the cognitive proximity of the definition of what we here can call regular innovation. Seeing as the most common understanding of innovation is that it is new and valuable, which is a definition quite too broad for any operationalisation. Furthermore, because the other definitions found contradictory statements of whether innovation needs to be radical, it may also cause

the work and methods behind innovative activities to be at odds with each other. Suppose businesses need to cooperate and collaborate to produce more eco-innovations. In that case, the fact that regular innovation is understood in such different terms and measurements makes for a complex starting point. This can be linked to cognitive proximity and absorptive capacity, which must be widened for businesses to communicate. This is also true for the IP, seeing as much of the data shows difficulty in understanding the intended effects, which confuses the message intended to be made by this report: that the Inland County needs to go through the green transition. This is a complex message because the Inland is already quite sustainable and “green”. Instead, the difficulty lies in developing the green *manufacturing* industry, being the opposite problem of the Vestland Portfolio (mentioned in Chapters 1.2 and 2.0). The importance of a complete and coherent articulation of what this is meant to entail regarding what the businesses need to do is explicitly a barrier to innovation and reaching the goals of green regional path development.

The framework that the IP is presenting can also be seen as a solution for the problems that can be associated with transformative work and eco-innovations. It is a clear report and knowledge document. However, it does not properly address the aspect of financial uncertainty that plays a prominent role in this type of work. There needs to be a more significant focus on how funding agencies can relieve the burden of eco-innovations and transformative work so businesses can adequately use the framework. There are currently no financial incentives to participate in the IP, leading businesses to judge that they cannot afford to make such radical changes. As discussed in Chapter 3.2, financial incentives are most important when conducting eco-innovation and transformative change. The county primarily has SMEs, which is an advantage for change. However, transformation can be a barrier due to the lack of financial assistance connected to the IP and the lack of internal agglomeration. These challenges can be understood as challenges of institutional proximity.

The challenges of institutional proximity manifest as a perceived lack of support mechanisms and incentives tailored towards performing eco-innovations and transformative work. The fact that the IP presents a smart specialisation approach and has used a bottom-up approach signals that the intentions and desired goals of

the report are rooted in the capabilities of different businesses and organisations. It seems that it has been presented in a way that makes sense to those working within the system and has not been phrased in a way businesses can understand. This will hopefully be solved when the operationalisation of the IP has been made clear. It may also be a barrier that the narrative of the IP is reliant on making people who usually do not speak use each other. The businesses do not follow this narrative because their sense of urgency lies elsewhere. A lack of institutional proximity can cause this. The policy framework has previously not been clear on its priorities, and the new area the IP presents can be confusing when the absorptive capacity is not well established.

As Boschma (2005) details on geographical proximity (see Chapter 3.3), it is not as crucial in isolation as other types of proximity but can function as a facilitating proximity. However, with the guiding principles of climate neutrality and the goal of a 50% reduction of emissions, geography's distances and transport aspects might play a more significant role now. Transportation is one of the most emissions-rich entities in the Inland County (EY, 2023), and one of the strategies for cutting the emissions in that sector is by co-locating businesses that are dependent on one another for materials and parts, as well as increasing the usage of trains, biogas and electric vehicles. One of the things that has been mentioned several times in our interviews is that the knowledge that transportation is emission-rich hinders businesses from cooperating. That barrier might become smaller by creating hubs and shortening the distances between entities that should and could cooperate. The EU taxonomy has just begun to sink in with more business. Given that the industry in the Inland County is already considered green, the focus is more on transforming business models and practical execution. This is especially interesting when digitalisation has argued that geographical proximity is becoming less influential for cooperation because of the possibility of virtual spaces (Haefner & Sternberg, 2020). According to our data, geographical proximity might be a more decisive dimension because of natural factors, for example, the mountain area and national park *Rondane*, that physically separates Gudbrandsdalen and Østerdalen (Thorsnæs & Bloch-Hoell, 2023). The attitude towards cooperation and collaboration is that it is more tiresome because of the difficulties of meeting in person.

A sub-RIS approach can partially address this because knowledge transfer is most important for more innovation. If digitalisation can function as argued for between the different regions and functions as a more prominent tool for the regional pipelines, then more co-location and a focus on geographical proximity will play a more significant role in the local buzz.

Another aspect of this is the energy situation. The power situation is quite dire in some regions, and the possibility of offering power to new businesses has become a significant selling point and competitive advantage for some regions in the Inland County. However, it is not a lack of power but a lack of effect. This is something that the Inland County Municipality wants to address by creating these hubs to ensure that those who can cooperate and be dependent on one another for more value creation can also share the effect equally among them to relieve some of the strain. However, this has not been communicated to those businesses said to be a hub—strengthening the argument for a need for more cognitive proximity and composed absorptive capacity.

The barriers to innovation in the Inland County are multifaceted, encompassing cognitive, institutional, and geographical dimensions of proximity and energy-related challenges. Differing perceptions of "innovation", a perceived lack of tailored support for eco-innovations, and the need for co-locating businesses for sustainable transportation contribute to these barriers. Efficient energy utilisation and the creation of business hubs are also crucial for overcoming these challenges. A comprehensive, multi-pronged approach addressing all these intersecting dimensions is essential to foster innovation in the Inland County.

6.3.1 Discussion musings on proximity

The research and theories on organisational psychology have not been a prioritisation for us, however it does become relevant when the barriers and issues found to be important when working with public policy reports and strategies. We have surmised that the most important barriers can be seen within the proximity framework and its different dimensions, and it has caused us to visually present a model of how we believe these issues can be viewed within, see Figure 9. We see it

as relevant for future research and would like to use it to summarise some of our thoughts and opinions.

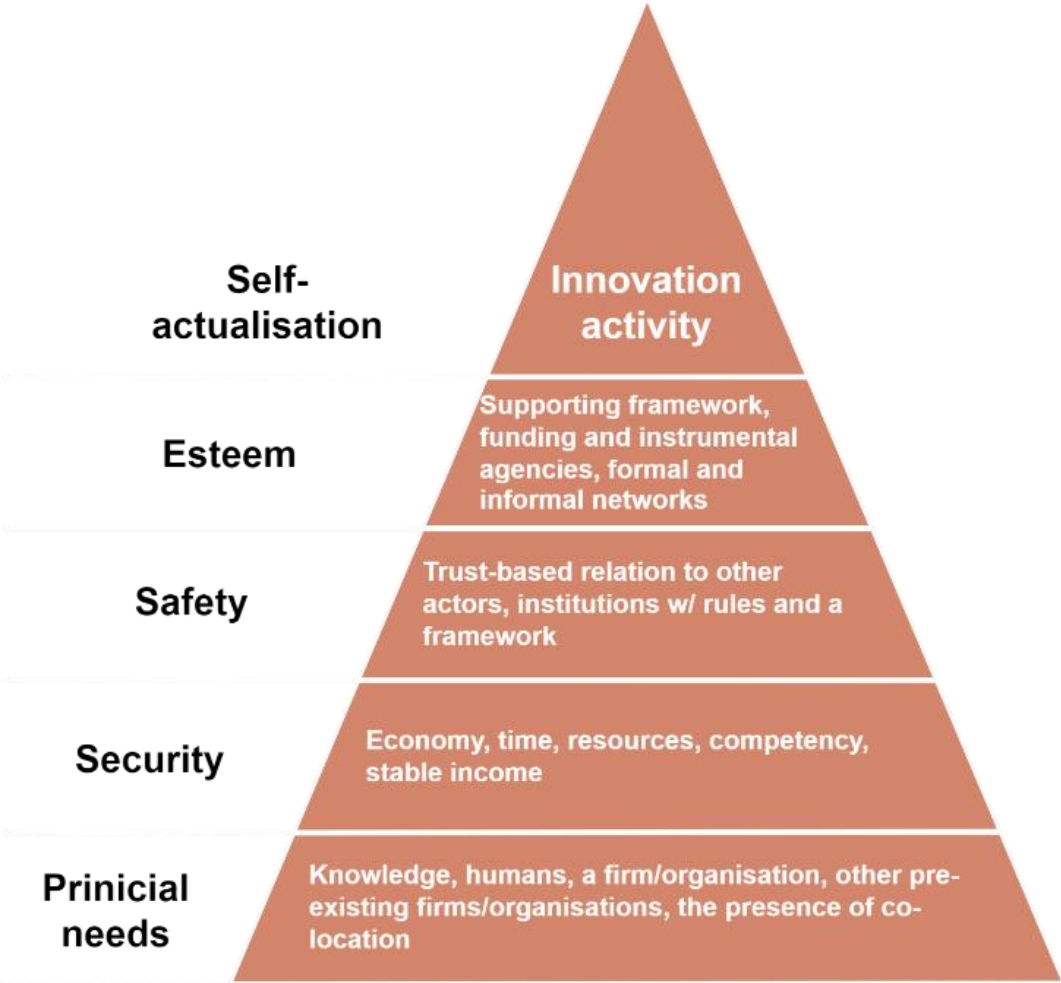


Figure 9: Organisational needs and proximity dimensions for Innovation activity

We believe that because eco-innovations are more complex than general innovative efforts, more security is necessary for each organisation and business to feel a need to participate and trust in some success. Figure 9 visually encompasses the levels of presence from certain instances and initiatives to reach the top of the pyramid. This has been made by taking inspiration from Maslow's hierarchy of needs and translating it to organisational psychology in a proximity framework. The bottom two are more focused on the basic and principal needs, like materials to have a physical presence and things that need to be in place for an organisation to exist. However, looking at the top three, the need for a more inclusive presence of organisational, social, institutional, geographical, and cognitive proximity becomes apparent.

We believe that if the IP is viewed within this hierarchy of needs, according to the issues outlined in the previous discussion chapters, they can work more cohesively to successfully implement the strategies and work methods necessary for completion and implementation. By filling this out with more detailed information from each region and utilising the approach of sub-RIS, the necessary aspects which we have argued are missing from the initial work with the report can be rectified. This might ensure that the cognitive proximity is close enough and that the absorptive capacity is adapted and conformed (Brown & Duguid, 1991; Büschgens et al., 2013; Cohen & Levinthal, 1990; Grant, 1996; Shanker et al., 2017).

7.0 Conclusion

The Inland Portfolio (IP) is a report and strategy process created by the regional authority in the Inland County and can be perceived as an organisational innovation. It is a strategy meant to increase the efforts in the county to become a green circular growth county, and it is not a strategy for the whole county. It prioritises some areas over others and is intended to strengthen the areas with the potential for most value creation. The need for innovation is apparent; however, it is difficult to initiate. There are many barriers to innovation, but perhaps the clearest barriers are those we can categorise as cognitive proximity. Without a shared understanding of what innovation is, what work needs to be done, and where the true sense of urgency lies, the hopes for the county may be challenging to hold on to. The IP is a clear message for the county's private and public sectors on how they should be moving towards sustainable and green growth. Nevertheless, it is not perceived as more than an overarching knowledge document that complicates the support it needs to be implemented.

The IP can function as a framework for initiating environmental innovation by clearly stating goals, objectives, and visions for the future as they have done. It can also create a framework by establishing norms, rules, and values following green growth, transformative change, and transitional work, which we would argue has not been done successfully. However, a lot might improve if the operationalisation can be made and communicated to the businesses in a way that matches their absorptive capacity. Nevertheless, the most important part is that it is missing a financial support plan. Without it, the goals of the IP might not be realised in the given time frame.

We have contributed to policy by suggesting a new way to analyse and approach the regional innovation system and by listing the barriers to why innovation is low in the county and in what way policy initiatives can tackle and correct them.

We have contributed to theory by suggesting a new way to view the local buzz and global pipelines approach for a regional setting and by discussing the aspects of green growth as a possibility for more cohesive work within a RIS.

We have contributed to research by examining the Inland County as a region rather than one town or region. We have attempted to clarify how the regions work together and what aspects hinder further development.

Conducting more research on the funding system and its structure would be interesting. It has been clear from the data collected for this thesis that there are several actors and that they do exist in a partnership and need each other, but how and why is not clear for the businesses and not always even for the actors in the funding system. Making a map of the actors and understanding how a sub-regional innovation system can function needs more research. In addition, we highly recommend that someone further research how the IP affects the county's future. The ideas and goals are something the county needs, and examining more closely how the process develops further can be essential for further research on public processes and policy initiatives. It might also be interesting to examine further why so many organisations/businesses state a lack of proper arrangements for utilising more research and education in their work when the possibilities to do so exist and are actively searching for cooperation.

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Gyldendal Akademisk.

Attachments

Attachment 1 – Categories and Codes (in Norwegian)

<p>Kat. 1: IP. Er ullent, vanskelig å forstå hva som skal oppnås</p> <ul style="list-style-type: none">• Forankring i handling, fortsette å få folk og engasjere seg• Tørre å si at ikke alt skal prioriteres• Ambisiøst, men realistisk• For ambisiøst• Gjort en prioritering• Industrien har en multiplikasjonsdimensjon• Innlandsporteføljen som overordnet kunnskapsdokument• IP burde ikke bli en ny instans, bruke det som er• IP er bare en ny ting å henvise til• IP er perifer• IP er relevant for Innlandet, men ikke hele innlandet• Jobber med ideene fra IP, men har likevel ikke noe forhold eller innsikt i det• Kun en industrisatsing• Må bygge om foretningsmodellene sine• Trenger annerledes kompetanse, ikke flere arbeidsplasser• Vise gjennom å gjøre• De som jobber skal få mer verdi per hode• Vi skal bli flinkere til å jobbe annerledes, ikke bygge om på nytt	<p>Kat.2: Næringshagene og innovasjonsselskapene er veiledere med lokal kunnskap</p> <ul style="list-style-type: none">• Samarbeidspartnere etter type prosjekt• Bedriftene må lede an• Fordelen å være så nære bedriften som mulig• Fasiliterende• Fikk kraft gjennom koordinerer i arbeidet• Ikke skille næring og offentlig sektor såpass hardt• Innovasjonsselskap tar privat sektor, ikke kommunesektor i hovedsak• Kun rigga mot kommunal sektor• Motor og drivkraft som aktiviserer bedriftene• Nødvendig å ha en som har hovedansvar• Samarbeidspartnere som blir del av prosjektet - nettverk• Utviklingsverskteder - flere aktører fra samme bransje samles• Være med å dytte i riktig retning• Være risikoavlastende med tanke på kapital og kompetanse• En dør inn, sammen med førstelinje til kommunen• Vanskelig å rekrutere til samarbeidssamlinger
<p>Kat.3: Innovasjonsbegrepet</p> <ul style="list-style-type: none">• Alt som er annerledes• Begrepet "innovasjon" brukes om mye forskjellig• Innovasjon er banebrytende, nytt og unikt• Innovasjon er ikke nødvendigvis banebrytende• Noen mye uten at de vet det• Nytt og nyttig	<p>Kat.4: Sense of urgency</p> <ul style="list-style-type: none">• Mangel på effekt• Går fra holdning til handling, eller så har du begynt på avviklingen• Sørge for å være tilpasningsdyktig• Tørre å gjøre endringer i tide• Viktig med et langsiktig perspektiv

<p>Kat.5: Samle laget, Innlandet mot resten</p> <ul style="list-style-type: none"> • Må tenke samordnet • Arbeidsplasser følger ikke kommunegrenser • Barrier i lokalsamfunnet og tilknytning som styrer mer enn vi tror • Der verdiskapingen er, bruke momentet • Klynger, fordi man tror på å bringe folk sammen • Må fremstå som mer enn bare en bedrift • Opptatt å utvikle hele regionen • Samarbeid fordi vi ønsker å bidra 	<p>Kat.6: Utfordring å få tak i kompetanse</p> <ul style="list-style-type: none"> • Bedriftene mangler bestillingskompetanse • Bedriftene skjønner ikke helt "what's in it for me" • Få høgskoler og forskningsinstitusjoner • Få opp FoU gjennom akademia • Hele tiden få fram nytten, det er et konkurransefortrinn • Mange har ikke nok folk til innovasjon • Mange vi jobber med, så vi har godt tilfang av kompetente medarbeidere • Mangler ordning som tørr å ta del i forskning • Må ha kompetanse for å skrive gode søknader • Scorer lavt på innovasjonshøyden • Tilgang på kompetent arbeidskraft er en barriere • Utdanningsenhetene er åpne i forhold til næringsliv • Utvikle gjennom kobling til forskning
<p>Kat. 7: Transformasjonssnakk er en nedoverbakke</p> <ul style="list-style-type: none"> • Aktivt medarbeiderskap som kulturbegrep • Horisontal jobbing for å lære • Ikke definert boksen, men definerte mål • Konkurransen kontra samarbeid er vanskelig • SMB-er er kjappere til å transformeres • Stor utfordring av personell og økonomi • Tydelig engasjerte ledere deltar 	<p>Kat. 8: Innlandet er den stille eleven i klassen</p> <ul style="list-style-type: none"> • Bevise at vi er verdt å investere i – bygge muligheter • For mange små som ikke jobber sammen • Forskjell på gamle Hedmark og Oppland • Megatrend med svekkede distrikter
<p>Kat.9: Hverdagsrutiner og "tåken"</p> <ul style="list-style-type: none"> • Gjør virkemiddelapparatet mer oversiktlig og mindre mystisk • Tenker dag til dag • Hjelp bedriftene med å løfte blikket • Det som er utfordrende, er å få det iverksatt • Etablerte bedrifter versus gründere • Lettere å engasjere de som har kjennskap til virkemiddelapparatet • Lite fokus tidligere, smalt nettverk • Offentlig sektor tar mer risk • Så mange nettverk at man aldri kan få oversikt • Ting tar tid • Hvis de ikke har noen som er konkret ute, så skjer det ikke 	<p>Kat. 10: Sirkulæritet</p> <ul style="list-style-type: none"> • Hub er en symbiose, avhengige av hverandre • Ingen empirisk bevis på at man kan få det bedre og være mer bærekraftig • Miljøstandardene til EU krever omstilling • Tankegangen på å ta vare på egne rester • Vanskelig å transformere når du har store avstander

Attachment 2 – Consent form (in Norwegian)

Vil du delta i forskningsprosjektet

“What do we talk about when we talk about the Inland County”?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å forske på barrierer for utvikling og nyskaping på Innlandet. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Formålet med denne prosjektoppgaven er å undersøke nærmere hvordan utvikling og nyskaping foregår i Innlandet fylket og på hvilken måte strategier og mål arbeides med i de ulike regionen. Vi ønsker å kartlegge forståelse og kunnskap om hvordan de ulike regionene har jobbet seg frem til den posisjonen de står i idag, og på hvilken måte fremtidige strategier og mål for fylket burde utarbeides for at alle regionen skal få spille på sine styrker. Denne prosjektoppgaver skrives som en masteroppgave for master i Innovasjon på Høgskolen i Innlandet, avdeling Lillehammer. Vårt foreløpige forskningsspørsmål er: *“How can the Inland Portfolio help overcome barriers for Innovation in the county, and is it a strategy representative of the whole region?”*

Hvem er ansvarlig for forskningsprosjektet?

Stine Lien og Giuseppe Calignano er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Utvalget er trukket fra Kongsvinger-regionen, Nord-Gudbrandsdal-regionen og Hamar-regionen, med muligheter for utvidelse til Lillehammer-regionen, på grunn av faglig tematisk relevans for vår problemstilling og oppgave. Tretti relevante aktører får henvendelsen, hvorav vi har fått deres kontaktinformasjon fra offentlige nettsider (f.eks. kommunale hjemmesider, klyngers nettsider) og personlig bekjentskap gjennom lokale nettverk.

Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det at du stiller til et intervju som skal vare i ca. 30 minutter. Spørsmålene vil omhandle temaer som utvikling, utfordringer, innovasjon og opplevd inkludering i øvrige organers avgjørelser. Intervjuet vil bli tatt opp med lyd og transkribert for videre analyse i arbeidet vårt med prosjektet. Dette vil bli lagret sikkerhet og slettet etter levering av prosjektoppgaven.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

De som vil ha tilgang til dine svar vil være Marita Tallarico (student) og Harald N. Ødegård (student), samt veiledere Stien Lien og Giuseppe Calignano.

Vi vil lagre all informasjonen i nettskjema, men transkriberingen vil utelate personspesifikke indikatorer som for eksempel navn, arbeidsplass og konkret arbeidsstilling. Hvilken region du jobber i vil være den eneste relevante opplysningen som vi ikke vil anonymisere. Transkriberingene vil bli puttet på en egen minnepinne.

Hva skjer med personopplysningene dine når forskningsprosjektet avsluttes?

Prosjektet vil etter planen avsluttes når oppgaven blir godkjent [19. juli. 2024]. Datamaterialet vil slettes ved prosjektets avslutning, senest 19. juli. 2024.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Høgskolen i Innlandet, avdeling Lillehammer har Sikt – Kunnskapssektorens tjenesteleverandør vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

- Høgskolen i Innlandet ved Stine Lien (62517250, stine.lien@inn.no) eller Giuseppe Calignano (61288424, giuseppe.calignano@inn.no).
- Vårt personvernombud: Hans Tangen (hans.tangen@inn.no).

Hvis du har spørsmål knyttet til vurderingen som er gjort av personverntjenestene fra Sikt, kan du ta kontakt via:

- Epost: personverntjenester@sikt.no eller telefon: 73 98 40 40.

Med vennlig hilsen

Prosjektansvarlig
Stine Lien & Giuseppe Calignano

Studenter
Marita Tallarico & Harald N. Ødegård

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet [*What do we talk about then we talk about Innlandet*], og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i intervju
- at anonymiserte opplysninger om meg, bortsett fra regionen jeg tilhører, brukes til prosjektet

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

(Signert av prosjektdeltaker, dato)