

Maren Aschehoug Esmark

Strengthening environmental, social and governance (ESG) reporting

Can the EU taxonomy and the Sustainable Finance Disclosure Regulation push eco-innovations?

Master's thesis in Technology Management

Supervisor: Fanny Hermundsdottir

June 2021

Maren Aschehoug Esmark

Strengthening environmental, social and governance (ESG) reporting

Can the EU Taxonomy and the Sustainable Finance Disclosure Regulation push eco-innovations?

Master's thesis in Technology Management
Supervisor: Fanny Hermundsdottir
June 2021

Norwegian University of Science and Technology
Faculty of Economics and Management
Dept. of Industrial Economics and Technology Management



Kunnskap for en bedre verden

Abstract

The EU strategy for sustainable finance and the recently adopted Green Deal puts the UN sustainability development goals as fundamental principles for EU's economic policy. Major changes are underway in the financial markets, and there is a significant growth in sustainable investments, within what is called ESG, environmental, social and governance. To meet the Paris Agreement's goal of limiting climate change to 1.5 C ° there is urgent need for change and innovation.

Next year, two important directives will be implemented in the EU and in Norway, the Sustainable Finance Disclosure Regulation and the EU taxonomy. The taxonomy is a comprehensive classification system for sustainability, according to which large companies must report. The standard is detailed and requires documentation of sustainability throughout the whole value chain. When all sectors are covered, it will highlight and reveal companies and products that have a negative environmental impact. Investors, banks and pension funds are expected to increasingly turn investments and capital towards sustainable business models.

The research question in the master's thesis is: How can new EU regulation on sustainability disclosures and EU taxonomy drive innovation in companies? What opportunities for change and possible barriers for innovation can this bring for companies?

The main findings come from 5 interviews with different people who represent both finance and business. The interviews were very interesting and informative and the informants were enthusiastic and had high expectations of how the new legislation can lead to changes in the coming years. The results from the interviews are combined with a document analysis, which includes a variety of articles, lectures, consultation input and reports from various state and private institutions, experts, media and consultants.

The results show quite clearly that it is mainly the financial market itself that drives the demand for sustainable investments. And it is expected that new legislation on sustainability reporting and a clear environmental standard will contribute to innovation and changes. Several important drivers are expected to move in the same direction, with increased demand from investors, new legislation that makes environmental reporting mandatory and technology and digital platforms that can be developed to measure sustainability and handle new business models.

Literature and theory refer to several drivers that contribute to innovation. Such drivers can be increased demand for sustainability from the market, legislation and regulations from the authorities and often in combination with new technology providing opportunities for the development of new business models. Several articles show that companies that are subject to environmental requirements, and companies that choose to be offensive on environmental reporting and that have sustainable business models, increase their competitiveness.

Typical obstacles to change and innovation are that the board, management and investors lack information and are unable to see the whole picture and have too few resources to change business strategy and initiate change and innovation.

Measurement and reporting on the company's own environmental footprint can provide companies, management, the board and investors with detailed information on the use of energy, raw materials, life expectancy and footprint. The assumption is that the introduction of such reporting can remove some barriers to innovation. ESG reporting could provide valuable information for the development of strategies, and increased access to capital and expertise. One strength is that the requirements and standard are the same within the EU and the Nordic region and that it is important for competition in the market.

Accounting systems and logistics are not prepared for new and sustainable business models and the thesis highlights a need for the development of accounting and logistics systems that account real environmental costs. Furthermore, it was pointed out that legislation and regulations must also be updated in order to be able to contribute to a circular and sustainable economy and business models, rental, repair, leasing and reuse don't have solutions when it comes to e.g. VAT, taxes and fees.

The thesis provides some nuances and elements that build on theories about which drivers that can contribute to sustainable innovation. Further research should look at what drivers that can support sustainable innovation and how barriers can be reduced.

Sammendrag

EUs strategi for bærekraftig finans og den nylig vedtatte Green Deal setter FNs bærekrafts mål som grunnleggende prinsipper for EUs økonomiske politikk. Store endringer er i gang i finansmarkedene, og investeringer innenfor bærekraft øker kraftig, innenfor det som kalles ESG, environmental, social og governance. For å nå Parisavtalens mål om å begrense klimaendringene til 1,5 C° så er det et enormt behov for omstilling, utvikling og innovasjon.

Det neste året skal to viktige direktiver implementeres i EU og i Norge; direktivet om bærekraftsrapportering i finanssektoren og EU taksonomien. Taksonomien er en omfattende klassifiseringsforordning for bærekraft, som store bedrifter må rapportere i henhold til. Standarden er detaljert og grundig og krever dokumentasjon på bærekraft gjennom hele verdikjeden. Etter hvert som alle sektorer omfattes, vil den synliggjøre og avsløre bedrifter og produkter som har negativ miljøpåvirkning. Investorer, banker og pensjonsfond forventes å i stadig større grad vri investeringer og kapital mot bærekraftige forretningsmodeller.

Forskningsspørsmålet i masteroppgaven er: Hvordan kan nye krav til bærekraftsrapportering og EUs nye miljøklassifiseringssystem (taksonomien) bidra til innovasjon i bedrifter? Gir dette muligheter for endring og hvilke hindringer kan det være for innovasjon i bedrifter?

Hovedfunnene kommer fra 5 intervjuer med forskjellige personer som representerer både finans og næringsliv. Intervjuene var svært spennende og lærerike og informantene viste stor entusiasme og hadde til dels høye forventninger til hvordan nytt lovverk kan føre til endringer de neste årene. Resultatene fra intervjuene er kombinert med en dokumentanalyse, som inkluderer en variasjon av artikler, foredrag, høringsinnspill og rapporter fra forskjellige statlige og private institusjoner, eksperter, medier og konsulenter

Resultatene er ganske klare på at det i stor grad er finansmarkedet selv som driver etterspørselen etter bærekraftige investeringer. Og at det er forventet at nytt lovverk på bærekraftsrapportering og en tydelig miljøstandard vil bidra til innovasjon og omstilling. Flere viktige krefter er ventet å trekke i samme retning, med økt etterspørsel fra investorer, nytt lovverk som gjør miljørapporteringer obligatorisk og teknologi og digitale plattformer som kan utvikles til å måle bærekraft og håndtere nye forretningsmodeller.

Litteraturen og teori viser til flere faktorer som bidrar til innovasjon. Slike faktorer kan være økt etterspørsel etter bærekraft fra markedet, lovverk og reguleringer fra myndigheter og gjerne i kombinasjon med at ny teknologi gir muligheter for utvikling av nye forretningsmodeller. Flere artikler viser at bedrifter som pålegges miljøkrav, og bedrifter som selv velger å være offensive på miljørapportering og som har bærekraftige forretningsmodeller, øker sin konkurransevne.

Typiske hindringer for omstilling og innovasjon er at styret, ledelse og investorer mangler informasjon, ikke greier å se helheten og har for lite ressurser til å endre forretningsstrategi og igangsette omstilling og innovasjon.

Måling og rapportering på eget miljøavtrykk kan gi bedrifter, ledelse, styret og investorer detaljert informasjon om bruk av energi, råvarer, levetid og fotavtrykk. Det kan derfor antas at innføring av slik rapportering kan fjerne noen hindringer for innovasjon. ESG rapportering kan bidra til å gi verdifull informasjon til utvikling av strategier, og økt kapitaltilgang og kompetanse. En styrke er at kravene og standarden er lik innenfor EU og Norden og at det er viktig for konkurransen i markedet.

Regnskapssystemer og logistikk er ikke forberedt på nye og bærekraftige forretningsmodeller og oppgaven synliggjør et behov for utvikling av regnskaps- og logistikksystemer som kalkulerer inn reell miljøkostnad. Videre ble det påpekt at også lovverk og forskrifter må oppdateres for å kunne bidra til en sirkulær og bærekraftig økonomi og forretningsmodeller, utleie, reparasjon, leasing, gjenbruk har ikke løsninger når det gjelder moms og skatter og avgifter.

Oppgaven gir noen nyanser og elementer som bygger oppunder teorier om hvilke faktorer som bidrar til bærekraftig innovasjon. Det bør sees videre på hvilke faktorer som ytterligere kan bidra til bærekraftig innovasjon og på hvordan hindringer kan reduseres.

Acknowledgment

I express my deepest respect and gratefulness to bureaucrats, politicians, and experts in the European Union, who have discussed, developed, and adopted the EU Green Deal. It's been very interesting and motivating reading and learning about the Taxonomy, the strategy for sustainable finance and the Green Deal.

Doing the interviews, I had great pleasure in talking to people with so much expertise and enthusiasm about environmental, social and governance reporting in general, and their expectations and positive attitude towards the Taxonomy.

It was quite optimistic believing I could write a master thesis combined with the fulltime job as CEO of The Norwegian Association for Nature Conservation / Naturvernforbundet. And it got more complicated with the full lockdown in Oslo due to the pandemic. But I have really enjoyed the process and valued every minute I could spend reading and learning.

Thank you to my very helpful and supportive supervisor, Fanny Hermingsdottir, who gave great advice and guided me through this. And thanks to our hardworking leader team and colleagues in Naturvernforbundet working every day to protect nature and stop climate change.

Heartly thanks to my beloved Sverre for being the most wonderful husband. And for keeping the family and house together. And lastly, thank you to Inga and Gro, who encouraged me to apply for MTM, and to Jo for sending me articles and turning my interest towards climate risk, sustainable finance and the taxonomy.

Holmlia, 31th May 2021

List of Figures	xi
List of Tables.....	xi
Abbreviations.....	11
Chapter 1 Introduction	12
1.1 Research question	12
1.2 Structure of thesis	13
Chapter 2 Background	14
2.1 Urgent need to tackle the climate and nature crises	14
2.2 The SFDR - Sustainability related reporting in the financial sector	15
2.3 The EU taxonomy	16
2.4 Sustainable finance in Norway.....	18
Chapter 3 Literature Review	20
3.1 The climate and nature crisis	20
3.2 Sustainability and innovation.....	21
3.2.1 Business model innovation.....	22
3.3 Drivers for sustainable innovations.....	22
3.3.1 Regulations as drivers for eco-innovations	24
3.3.2 Innovation friendly regulations	25
3.4 Disclosures and ESG reporting.....	26
3.5 Barriers for changes and innovation in business models	27
Chapter 4 Methodology.....	28
4.1 Research design.....	28
4.1.2 Research question.....	29
4.2 Data collection	29
4.2.1 Document analysis	29
4.2.2 Interviews.....	30
4.3 Sorting and analyzing data	32
4.4 Limitations and critical reflections on methodology	33
4.4.1 Validity and reliability.....	33
4.4.2 Ethical considerations	34
Chapter 5 Findings	35
5.1 Growing demand for ESG information and green investments.....	36
5.2 How can the SFDR and the taxonomy drive innovations?.....	37
5.2.1 Finance is the main marked driver and user of ESG information.....	37
5.2.2 ESG is about finance, business strategy and innovation	38
5.2.3 Obligatory and standardized ESG reporting can drive innovation	39
5.2.4 Technology and digitalization will help innovations	40

5.2.5	Internal factors in companies, catalyzed by ESG reporting, that can drive innovation	41
5.2.6	Accounting systems and regulations are not rigged for circular economy	43
5.2.7	The need for supporting regulatory means and industry initiatives	43
5.3	<i>Main findings in results</i>	44
Chapter 6	Discussion	46
6.1	<i>Drivers for innovation</i>	46
6.1.1	Regulatory push - The SFDR and the taxonomy	47
6.1.2	Regulations are innovation friendly	48
6.1.3	Marked Pull – the demand for green investments.....	49
6.1.4	Technology push – a driver for innovation.....	49
6.2	<i>Barriers for innovation</i>	50
6.2.2	Barriers in accounting systems.....	51
6.2.1	Governmental support could increase competitive advantage	51
6.3	<i>Proposals for further research</i>	52
Chapter 7	Conclusion	53
7.1	<i>Practicable implications for companies and governments</i>	53
7.2	<i>Implications for theory and further research</i>	54
References		55
Appendix Interview guide		61
Appendix intervjuguide		63

List of Figures

Figure 1 Total assets in the Norwegian financial sector

Figure 2 The three drivers for eco-Innovations

Figure 3 Research Question

Figure 4 Marked pull, regulatory push and technology push

List of Tables

Table 1 The categorizing of economic activity according to the taxonomy

Table 2 Characteristics of innovation-friendly regulations

Table 3 Documents assessed and their relevance to the study

Table 4 Informants and their role and type of firm or association

Abbreviations

BMI	Business model innovation
CSR	Corporate Social Responsibility
CO₂e	Carbon dioxide equivalents
DNSH	Do No Significant Harm principle
EC	The European Commission
ESG	Environmental, social and governance
EU Taxonomy	EU Taxonomy for sustainable activities (EU 2020/852)
GHG	Greenhouse gases
IFRS	The International Financial Reporting Standards
IPCCC	Intergovernmental Panel on Climate Change
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
NFRD	Non-financial Reporting Directive (EU 2014/95)
OECD	Organization for Economic Co-operation and Development
Paris Agreement	Agreement under the United Nations Framework Convention on Climate Change, 12.12.2015
PIE	Public Interest Entities
SASB	Sustainability Accounting Standards Board
SDG	The UN Sustainable Development Goals
SFDR	Sustainable Finance Disclosure Regulation (EU 2019/2088)
SME	Small and middle-sized entities
TEG	The Technical Expert Group on Sustainable Finance
UN	The United Nations
UNFCCC	United Nations Framework Convention on Climate Change

Chapter 1 Introduction

In 2015, by signing up to the Paris Agreement on climate change, nearly every country pledged to keep global temperatures well below 2C° above pre-industrial levels and try to keep it below 1.5C°. Governments and business are looking for ways to reach the climate targets and fulfill the Sustainable Development Goals. At the heart of this lies the need for investments and capital flows to shift towards sustainability.

The European Union are leading the way, with its plan for sustainable finance and the EU Green Deal. There is a growing and very strong demand for reliable information on especially climate and environmental information. Today, there is a chaos of different sustainability standards for reporting and disclosure of Environmental, Social and Governance (ESG) data. There is little transparency and it is hard for investors and stakeholders to know what is actually sustainable and what is just greenwashing.

A new era in the world of climate and environmental disclosures starts in 2021, with the implementation of the newly adopted EU-directive on sustainability reporting (SFDR) from the finance sector and the classification system called the EU taxonomy for sustainable economy. The SFDR is strengthening the mandatory reporting on environmental information from large enterprises and the taxonomy is setting a robust and measurable standard for what is sustainable and green activities.

Both will also be implemented in Norway. There are many expectations towards the new regulations. And there seems to be assumptions that the combination of extremely high demand for ESG investments and the SFDR and taxonomy will lead to radical changes in businesses and drive innovations, also on business model level. There are many questions on how this will be part of forming the coming years, and what can be done to ensure if the legislation has the wanted effect.

According to well established theory, regulations and regulatory measures can be important drivers for sustainable innovation.

1.1 Research question

This thesis aims to give some answers on the following research questions, directly linked to the coming regulation and standard:

How can new EU regulation on sustainability disclosures and EU taxonomy drive innovation in companies? What opportunities for change and possible barriers for innovation can this bring for companies?

The purpose of this study is to explore how new regulations on ESG reporting can be a driver for innovation. ESG reporting is in the context of the SFDR and the coming EU taxonomy, looking into what strategic opportunities it could catalyze and identifying some possible barriers.

The thesis is limited to only looking at what expectations Norwegian stakeholders have, mainly focusing on environmental reporting, and keeping focus only on the SFDR and the EU taxonomy.

1.2 Structure of thesis

Chapter 2 gives the background and the context, first describing the current ESG landscape, then looking in to the SFDR and the taxonomy.

The literature review in chapter 3 first briefly sets the context of the climate and nature crisis, for then to look at some traditional literature on sustainable innovation and how regulatory instruments can work as drivers for sustainable innovations and business model innovation. This is combined with a short look at literature on ESG and reporting standards. The methodology chapter gives first a short presentation of the research question and then presents the process of collecting data from document analysis and interviews, og the analyzing of the data. Results are presented in chapter 5 and discussed in chapter 6, and the conclusion and recommendations in chapter 7.

Chapter 2 Background

In order to understand the need for change and sustainable innovation, the chapter starts with a short intro of fundamentals for the EU regulations. For then to look at the ESG reporting landscape and dig down in the coming directive on sustainability reporting (SFDR) and the new classification system, the EU taxonomy. Using a table and figure explaining the content of the two new regulations and their implementation process. The literature review in chapter 3 looks at some traditional literature on innovation, for then to present articles on how regulatory instruments can work as drivers for sustainable innovations and business model innovation. This is combined with a short look at literature on ESG and reporting standards.

2.1 Urgent need to tackle the climate and nature crises

The EU Green Deal, adopted in December 2019 (EU COM 2019/640), is seen as a game changer in how governments can commit to meet the climate and nature crises.

The Paris climate agreement includes a commitment to align financial flows with a pathway towards low-carbon and climate-resilient development, and in Article 10, it reads: *Accelerating, encouraging and enabling innovation is critical for an effective, long-term global response to climate change and promoting economic growth and sustainable development*". (Paris Agreement, 2015, Article 10, page 15)

In December 2016, the EU Commission mandated a High-Level Expert Group to develop an EU strategy on sustainable finance. In their final report in January 2018, the Expert Group recommended a common standard for assessing what is sustainable economic activity on an EU level, and further proposed the framework for a detailed classification system, called the EU taxonomy. The principle is that the taxonomy will provide reliable information to investors, banks, and companies so that they are able to quantify to what extent a company is environmentally sustainable. (Lucarelli et al, 2020).

It is expected and signaled that other EU initiatives, economic plans, regulations etc will use the taxonomy as a guideline for ensuring a support to EU's ambition to be carbon neutral by 2050. This is thought to include updates of accounting regulations, public financial support, state financial support, public procurement guidelines and in EU bonds. It further reads in the EU Green Deal text that "new technologies, sustainable solutions and disruptive innovation are critical to achieve the objectives of the European Green Deal". (EU COM 2019/640, Article 2.2.3)

2.2 The SFDR - Sustainability related reporting in the financial sector

As part of the Green Deal, EU adopted a regulation providing rules on the publication of sustainability-related information in the financial sector, SFDR, in 2019. The directive aims for more transparency on sustainability within the financial markets, preventing greenwashing and ensuring comparability by setting a standard for accountability. The SFDR will strengthen the protection of investors and to improve the information provided to them on environmental and social issues, and to reduce the differences in this among the various actors.

ESG reporting is defined as companies reporting on environmental, social and governance issues, where the word governance also can be translated as owner management or owner leadership. (Finanstilsynet, oktober 2020)

The SFDR is a strengthening and comes in addition to the directive on reporting on non-financial information (NFRD), adopted in 2014. At that time the directive was proactive as it requires large companies to provide a series of social, environmental and governance disclosures (EU 2014/95). However, the Non-financial reporting directive does not require extensive information on ESG, and its effectiveness has been questioned. (La Torres, 2018). The NFRD is partly implemented in Norwegian law through the EEA agreement. (EØS-avtalen, annex XXII, Lovdata, 2021).

Most of the requirements in the new SFDR regulation will apply in the EU from March 2021 (EU 2019/2088), and the first mandatory reporting is required from large firms within July 30th 2022, reporting on activities in 2021. The directive is already transformed into a new law proposal in Norway, Lov om bærekraftsrapportering, and is planned to be adopted and implemented in Norwegian law by July 2021. (Ministry of finance, 2020). The proposed law is criticized for being imprecise and not sufficient to meet market needs. (Revisorforeningen, 2021)

Entities and firms will have to disclose information on how and to what extent their activities are associated with environmentally sustainable economic activities, by reporting the percentage of *"their turnover derived from products or services associated with economic activities that qualify as environmentally sustainable"*... and *.."the proportion of their capital expenditure and the proportion of their operating expenditure related to assets or processes associated with economic activities that qualify as environmentally sustainable"*.

Information must:

- be provided at both company and product level.
- be provided on environmental issues, social issues and corporate governance, ESG.
- be published on their websites, before entering into agreements with customers, and in periodic reports.
- shall present how sustainability risks is integrated in risk assessments and in investment advice.

- Present if there are any possible negative effects of investments decisions on sustainability.

The new SFRD regulation imposes a number of disclosure requirements on financial market participants and financial advisers. The expectations are high and some call this a “revolution” in the financial market (Fabian, 2021) and the final settlement for ending greenwashing.

The new requirements will lead to more companies doing non-financial and sustainability reporting. It is seen as an opportunity to expose sustainability and attract investors. It can force companies and business to change and to take action because the whole value chain now will have to be assessed and handled related to sustainability. The increased demand after green capital, will impact on companies through:

- Request for disclosures, reporting and data on ESG
- Alignment of the technical criteria’s will force companies to go for sustainable choices with their suppliers, resources, looking for more circular solutions.
- Access to capital, loans, financing will increase for those who satisfy the green criteria but be less available for those who don’t.

Reporting and disclosure of ESG data are in companies own interest, although carrying out analysis and screening according to the taxonomy can lead to increased costs, as it is assumed that it will subsequently attract investors and capital and more long-term investments.

Availability of data on ESG is today a barrier for green investments. This is for example highlighted in the “Roadmaps for competitiveness in the financial industry”. The taxonomy and SFDR will remedy this and provide such data.

2.3 The EU taxonomy

The High-Level Expert Group called for the creation of a technically robust classification system at Union level to establish clarity on which activities qualify as ‘green’ or ‘sustainable’, starting with climate change mitigation. The taxonomy regulation establishes the criteria for determining whether an economic activity qualifies as environmentally sustainable, aiming at setting the benchmark to what degree to which an investment is environmentally sustainable. (EU 2020/852)

The taxonomy translates policy goals into frameworks for investors and managers of capital. The EU Taxonomy is a list of economic activities assessed and classified based on their contribution to EU sustainability related policy objectives.

The taxonomy, the text of the law, was adopted in the summer of 2020. Until December 2020, the discussion on delegated acts, the same as regulations, was up for consultation. The hearing round gave 46,000 consultation inputs. The taxonomy will be effective from January 1st, 2022, and fully effective from January 1st, 2023. Different parts of the taxonomy will take effect at different times (Lowzow, A. 2021). The Financial Supervisory Authority of Norway is following up that the relevant EU legislation is implemented in Norwegian law and will follow up the institutions' adaptations to new regulations in this area. (Finanstilsynet, 2020)

The disclosure obligations supplement the rules on sustainability-related disclosures laid down in the SFDR. It aims to enhance transparency and give an objective point for assessing what is environmentally sustainable economic activities. The definition of 'sustainable investment' in the SFDR includes investments in economic activities that contribute to at least one of the six environmental objectives.

The six objectives are:

- Climate change mitigation
- Climate change adaptation
- Sustainable and protection of water and marine resources
- Transition to a circular economy
- Pollution prevention and control
- Protection and restoration of biodiversity and ecosystems

There are already 70 different activities covered by the criteria's, encompassing 7 sectors and 500 pages with attachments. The EU taxonomy demands several types of data:

- Income and turnover distribution per economic development
- Achievement measured against technical screening criteria on carbon intensity and criteria related to "do no harm"
- Data for handling social conditions
- Measure performance and identify those with a competitive advantage when there is strict carbon regulation.

The taxonomy looks at activities and products total life cycle and total footprint. It doesn't only look at direct impact on the environment and climate, but the entire company's business in a life cycle perspective. This includes raw materials, life expectancy, reparability etc. (Flanigan & Fadnes, 2020)

The SFDR only considers an investment to be a sustainable investment if it does not significantly harm any environmental or social objective. This is called the "Do no harm" principle in the taxonomy. The taxonomy offers no national possibilities for adaptation and is to be used «as is». It applies in practice to all listed and large companies. It is expected that within some years, smaller and medium sized companies will also be covered by this. This applies to both the taxonomy and the law on disclosures regulation.

The taxonomy gives the criterias for categorizing economic activities in a threefold division. An activity can be either:

Green	Neutral	Brown or red category
Sustainable and contributes significantly to one or more of the six objectives. And does not do any significant harm.	Does not contribute significantly or does not do significant harm to EU climate target and the six objectives	Activity that do significant harm to EU climate targets or the six objectives. Basically the companies the EU does not want to have in 2050.

Table 1 The categorizing of economic activity according to the taxonomy

2.4 Sustainable finance in Norway

The Norwegian financial sector has significant impact through both asset management and lending, with total assets of over NOK 8,000 billion in 2020. In comparison the Government Pension Fund Global is over 10,000 billion in 2020. The numbers show the very significant position of the financial sector.

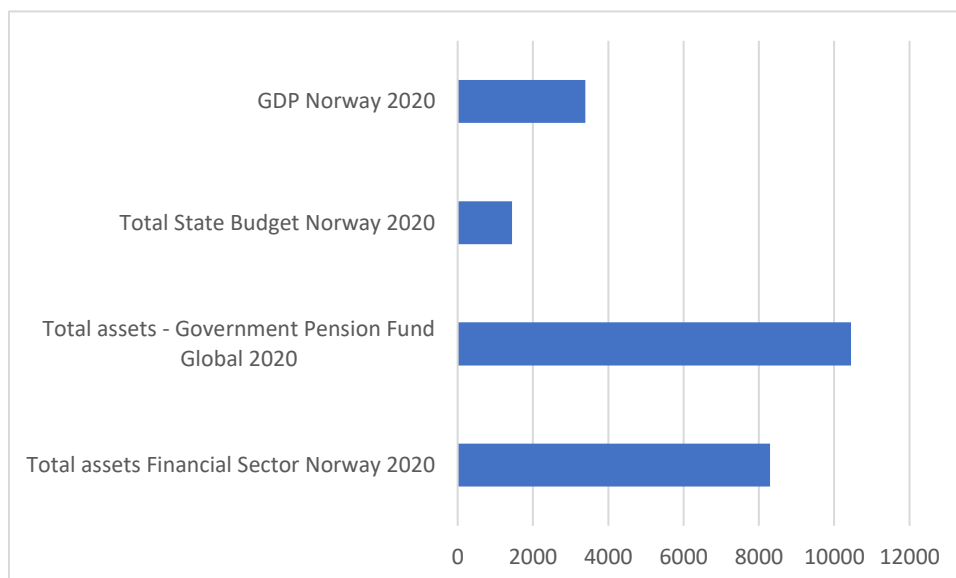


Figure 1 Total assets in the financial sector (Finans Norge) Government Pension Fund Global, Norwegian GDP and Norwegian State budget in 2020 (Statsbudsjettet 2021)

The Government's expert committee for green competitiveness launched their final report in October 2016, with recommendations on how Norway can adapt to become a low emission society while also creating value and new jobs. One of the ten recommendations the expert group gave where that "The state should initiate labeling and reporting systems that stimulates informed choices by consumers as well as businesses". (Hedegard & Kreutzer, 2016)

In 2018, Finans Norge published their "roadmap to sustainable finance", where they recommend the implementation of a common concept framework for sustainable finance.

“a common framework will make it possible to understand the climate effect and risk exposure for different activities, companies and products. This will enable the financial industry to better identify opportunities and risks, provide customers with a basis for comparison and help the authorities to follow up the financial industry's contribution to restructuring.”

Such common framework for what is green did not exist in 2018, but the report does mention the work that the EU expert group on sustainable finance had already started on formulating a common European conceptual framework, now known as the EU Taxonomy.

The financial supervisory authority of Norway is responsible for ensuring that relevant EU legislation is implemented in Norwegian law and will follow up institutions' adaptations to new regulations. Finanstilsynet, highlights in their Financial Outlook December 2020 the need for information about companies' climate and environmental impact, also mentioning the EU processes of establishing the classification systems for green investment products. (Finanstilsynet, 2020).

Finanstilsynet did a survey of listed companies' sustainability reporting, published in November 2020. The report shows that few Norwegian companies report on the financial consequences of risks related to sustainability and climate change, and few takes this into account when valuing assets and liabilities. Further it shows that climate risk reporting is limited, and the risks are generally not quantified. (Finanstilsynet, 2020).

The Financial Supervisory Authority proposed in a consultation note in January 2021 that the reporting obligations linked to both the regulation on the financial industry's duty to provide information on sustainability (EU 2019/2088), the taxonomy regulation (EU2020 / 852) and the Non-financial Reporting Directive (EU 2014/95) and §3.3.c of the Accounting Act are grouped in a new law on information on sustainability.

Chapter 3 Literature Review

In this chapter, first there is a short introduction to the climate- and nature crises, to set the context for what the new regulations and striving for. Secondly a presentation of some relevant literature on sustainable innovations, drivers for eco-innovation and then presenting how environmental regulations can be a driver for innovations. The classic theory of Porter and van der Linde and Rennings on drivers for sustainable innovation are presented in the context of regulations on ESG reporting. Some background theory on climate disclosures and ESG reporting, drawing the line from the early start in Eccles "One report" to the up to date summary by Bualley. In order to identify drivers, it is also needed to look briefly at barriers for business model innovation, using some relevant literature such as Saebi & Foss and Chesborough.

3.1 The climate and nature crisis

The last assessment report from the United Nations Intergovernmental Panel on Climate Change (IPCC), came late 2014, giving the state of scientific, technical and socio-economic knowledge on climate change. The headline conclusion is: *Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems.*

In 2015 the Paris Agreement on climate change was adopted and the 194 signing countries pledged to keep global temperatures "well below" 2C of pre-industrial levels and to "pursue efforts to limit the temperature increase even further to 1.5C". To reach the 1,5 C° goal, the annual global emissions in 2030 should be cut by 50% within 2030 and be net zero by 2050. (UN IPCC, 2018 and Rogelj, J., et al. 2018). Current adopted policies in the signing parties of the Paris agreement is not even near reaching the 1,5 goal, and unfortunately also far from the 2C goal. (UNEP 2020, SEI et al 2020)

Global greenhouse gas emissions continued to grow in 2019, reaching a record high of over 55 Gigatonnes CO₂ equivalents. This is more than 40% higher than the global emissions in 1990, which were around 38 Gt. Although CO₂ emissions did decrease in 2020 due to the Covid 19 measures and restrictions, the resulting atmospheric concentrations of major greenhouse gas continues to increase. (UNEP, 2020).

The loss of biodiversity is accelerating, and more species are threatened with extinction now than ever before in human history. In 2019, the intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) launched its dramatic report with 15,000 scientific references and 150 experts in the natural and social sciences from over 50 countries to evaluate how far the world has come - and how much there's left to go - in achieving key international goals ranging from the Sustainable Development Goals (SDG) and Aichi Biodiversity Targets, to the Paris Climate Agreement.

The next decade will be increasingly defined by the need to respond to the nature and climate crisis. Major social, environmental, health and economic challenges are typical “grand challenges”, being “wicked” in the sense that they are complex, systemic, interconnected, and urgent, requiring insights from many perspectives. (Mazzucato, 2018).

3.2 Sustainability and innovation

The term “sustainable” contain all three dimensions of ecological, financial and social sustainability, originally coming from the Our common future report from 1987 (WCED, 1987), defining sustainable development as: “Development that meets the needs of the present without compromising the ability of future generations to meet their needs”. There are many different definitions in literature (Franceschini & Faria, 2016).

An innovation is defined as *the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.* (OECD, 2005)

Innovation differs from invention by the additional condition of successful market introduction, meaning that the firm has both the value proposition to customers, but also the value creating constellation in which the firm connects to suppliers and acquires resources in a profitable manner. These elements are crucial for making sustainable innovations successful (Boons et al, 2012)

Sustainability innovations are a term that in academic literature often is mixed with eco-innovation, environmental innovation or green innovation (Franceschini & Faria, 2016). There are multiple definitions and all four terms are widely used. However, the first one using the word sustainable seems to go better with ESG, as in incorporate in it also the social dimension. A good definition of sustainable innovation is: *“The development of new products, processes, services and technologies that contribute to the development and well-being of human needs and institutions while respecting the worlds’ natural resources and regenerative capacity”* (Baumann et al, 2002, in Franceschini & Faria, 2016)

Theoretical and empirical research indicates that most companies seem to have potential for one or several business cases for sustainability, but the potential is often not recognized because of distorted accounting and management information systems. As a consequence, management is challenged to find approaches to realize potential business cases through adequate sustainability management. A business case for sustainability has to be created – it does not just happen. Sustainability potentials for business model innovations are often overseen, due to a lack of integration with processes of strategy formulation, lock in effects of established company’s business models. (Schaltegger et al, 2012)

Improving sustainability often implies change, innovation or adjustment of an entity in relation to its surroundings. Business model innovation is emerging as a potential mechanism to integrate sustainability into business. (Evans et al, 2015)

3.2.1 Business model innovation

A business model can be referred to as "the logic of the firm" or the "way of doing business" (Linder & Cantrell, 2000 in Bucherer 2012). In a simple form, it is explained by consisting of four elements, the value proposition, the operational model, the financial model and the customer relations. Business model as a term has gradually developed from electronic products and services, the term addresses all main aspects of businesses, not just the traditional and static definition of industry being products, resources, revenue and costs (Porter, 1980, in Bucherer et al 2012)

Innovation on business model can be defined as "a process that deliberately changes the core elements of a firm and its business logic". A business model innovation changes at least two of these four dimensions. Not just the technology, or the process, or the product, but their entire business model. An innovation that are just an improvement in technology or increased efficiency in process, is a so-called sustaining innovation. It is not a business model innovation. (Bucherer & Gassman 2013). If a firm produce fossil-based cars, it is a sustaining innovation if it starts producing electric cars. But if the firm starts renting out cars or start rebuilding old fossil cars into new electric cars, then the business model is innovated.

Business model innovation is seen as the preferred innovation type. It can represent an under-utilized source of future value, it's harder to copy by competitors and it can translate into a sustainable performance advantage and it can be a very powerful competitive tool. (Amit & Zott, 2010)

An innovation in business model is far harder for competitors to copy, as they normally would require considerable change in several systems and elements in a company. And a successful innovation in a business model also means that the companies long term strategies are changed, Including corporate culture and core competence and the working capacity.

Rennings 2000 formulates what he calls the double externality problem. It relates to environmental innovations and says that there are two types of positive externalities coming from eco-innovations. These externalities are new knowledge/positive research results, and externalities due to the positive impact upon environment. These externalities are positive effects of the innovation, but the company will not be able to capture the economic profit or value for it. Using the term "externality problem" indicates that these effects are negative, a better term would be "externality dilemma",

3.3 Drivers for sustainable innovations

Typical drivers for adopting sustainable innovations are external pressure from government and regulations. Studies confirm that regulations are important drivers for sustainability innovation. Firms subjected to regulations are more likely to innovate for sustainability (Doran and Ryan, 2021, Horbach et al, 2011). The importance of externalities like regulations to trigger environmental or eco-innovations is also lifted by other literature. (Diaz Garzia, 2015, Wang et al, 2019)

Porter and Van der Linde brought to a larger audience the debate about the relationship between environmental protection and economic performance. The so-called "Porter hypothesis" states that environment and competition are not incompatible and that properly designed environmental regulation can act as a trigger to innovation which will in turn make companies more competitive. (Heaton, 2000)

Sustainability targets, such as the Kyoto Protocol, require substantial innovations. (Rennings, 2000). It is now 20 years since Rennings wrote his article, and 25 years since Porter and Van der Linde. However, their theories on how various forces can catalyze for innovations are still valid. Both Rennings, and Porter and van Linde discuss in their articles various tools that are suitable for contributing to the development of and dissemination and adoption of sustainable solutions and environmental technology.

Three important factors will help drive eco-innovations, the push from new technology, the pull from marked demand and then the push from regulations. New technology, or technology used in a more efficient way can provide cost reductions and increased production efficiency, or give organizational and structural improvement. Consumers' environmental interest and preference for environmentally friendly products are an important driver for sustainable innovations (Rennings, 2000).

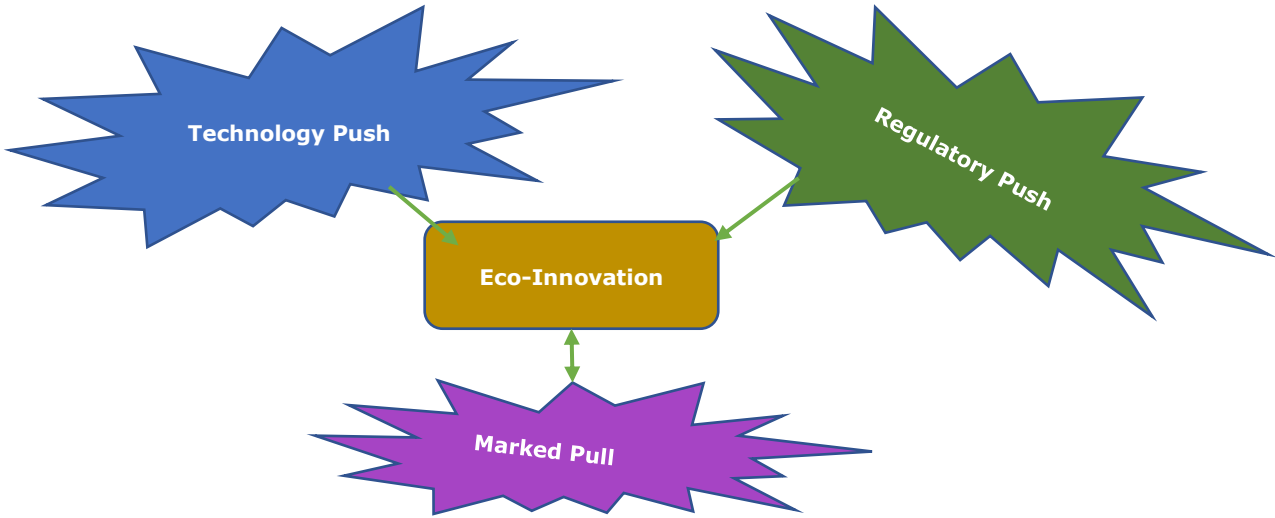


Figure 2 The three drivers for eco-innovations Rennings 2000

3.3.1 Regulations as drivers for eco-innovations

To protect the environment, ensuring cut in GHG gases and protecting ecosystems and biodiversity, governments use a wide range of regulations and policy tools. Such regulations and policies directly affect firms decisions, on a production level, related to resource reallocation, capital investment, innovation incentives, and total strategy development and implementation. (Wang et al, 2019)

In 1995, Michael Porter and Claas von der Linde wrote their article "Green and Competitive", where they formulate the so-called Porter hypothesis that strict environmental regulations, if done in a collaborative and well-informed and knowledge-based way, actually can induce efficiency, promote innovations and improve competitiveness with firms. (Porter & van der Linde, 1995).

They further state that it is a wrong premise to believe that companies themselves will invest in new environmental technology and profitable environmental opportunities without a regulatory push. They write: "*In fact, in the real world, managers often have highly incomplete information and limited time and attention. Barriers to change are numerous*". They further argue that management and investors in companies do not have all the information and have limited time and attention to see the opportunities and know what is available.

In a recent paper, (Wang et al, 2019) the Porter hypothesis is examined going through a large amount of literature on how environmental regulations contributes to green productivity growth, concluding that the Porter hypothesis is validated when it comes to showing that environmental policy has a positive impact on green productivity growth within a certain level of stringency. Meaning that the regulation should be clear and consistent. Specifically, although environmental policies impose a compliance cost on regulated firms, the principal mechanism is that regulation may stimulate innovations aimed at improving product quality and lowering production cost, which would in turn increase resource allocation

A regulatory "push" for eco-innovations can be means such as International conventions and agreements regulating environmental impact, legislation that regulate emissions or other types of environmental impact, or economic and regulatory instruments, such as taxes, fees and quota systems, or subsidies and support schemes. It can also be agreements between business and the public sector. (Rennings, 2000)

Standards for measurements are essential and enforcement mechanisms must exist such as regulations, taxes and subsidies (Eccles & Krzus 2010)

3.3.2 Innovation friendly regulations

Porter and van der Linde argue that being environmentally friendly contributes to building competitive advantages for companies and that having strict environmental requirements can be good for national competitive advantages. They emphasize the following characteristics of innovation-friendly regulations and instruments for them to lead to innovation, resource efficiency and competitive advantage:

Innovation-friendly regulations is characterized by:	Elaborations
Focus on results, not technologies	The goal of regulations must be environmental improvements. It is important that the regulations / requirement are technology neutral
Introduce strict and adequate requirements	The regulations / requirements must be sufficient to achieve the desired effect. Avoid "lax" regulations, as they can lead companies to focus on "end of pipe" technology rather than long-term / future-oriented changes.
Regulate close to the end user, while encouraging "upstream" solutions.	Measures should be introduced as early as possible at the start of production, so that the environmental impact (emissions, contamination, energy use) can be avoided. Mitigation measures adopted as early as possible in the value chain are far more cost-effective than cleaning up at a later level.
Phasing-in periods	Clear and clearly communicated phasing-in periods are important. The period should be related to the investment cycles of the industries concerned. It gives companies time to invest in new technology.
Use market incentives	Use the Polluter Pays Principle, which adds a cost to the pollution, by taxes or duties. Contribute to increased demand or increased profitability by using environmental subsidies and support schemes. Quotas are also a market mechanism that can be used.
Harmonize regulations in the same markets	Ensure a level playing field for companies, so that regulations within the same market are equal, for example requirements for environmental safety, emissions, etc.
Involve industry and industry in standard development from the beginning.	The industry has technical expertise, can suggest phasing-in periods and knows what is technically possible. Participation and influence from the industry gives ownership of the result and greater acceptance of environmental regulations.
Develop regulations and laws in collaboration with and synchronized with other countries	Environmental regulations have a better effect when they are introduced internationally, and also provide more equal conditions of competition. At the same time, it can be an advantage to be a little ahead, then domestic industry can become "early movers".
Stable and predictable regulatory processes	Give early and clear signals about which direction the regulation will go and follow up strategies and decisions with specific requirements and regulations. It gives companies and industry the opportunity to adapt and accept the new regulations. And it gives confidence that decisions and policy will be stable and followed up.
Ensure good technical and legal competence with the legislator	Regulations that have been thoroughly prepared are easier to implement, and the legislator avoids timeconsuming debates or even lawsuits afterwards. It will also reduce time and resources spent on follow-up and control of the regulations in retrospect.

Table 2 Characteristics of innovation-friendly regulations (Porter & Van der Linde, 1995)

3.4 Disclosures and ESG reporting

Reporting on non-financial information related to environment and corporate social responsibility (CSR) have been widely adopted by firms, driven by the need of stakeholders for more transparency on environmental, social and governance (ESG) issues. The UN Sustainable Stock Exchange Initiative sets an expectation that all listed companies should disclose their impact from environmental, social and governance (ESG) practice by 2030 at the latest (UNEP FI, 2015), however this is just one out of many volunteer reporting initiatives.

The availability of data and information concerning firms and entities sustainability have significantly improved in that last decade, and there is around 230 different global standards, certifications and voluntary rating systems assessing sustainability, setting the scene for ESG reporting and disclosures (Eccles & Krzus, 2010, Buallay 2019, Vogel, 2005, TGG 2019).

Financial reporting is heavily regulated and based on standards such as International Financial Reporting Standards (IFRS) and the US Financial Accounting Standards Board (FASB) and in Norway through the law on accounting (Regnskapsloven). (Eccles & Krzus, 2010, Tofteland, 2014). Standards for non-financial reporting in general and for ESG and carbon footprint reporting are not yet widely established. ESG information and non-financial disclosures does not pursue a standard format like the financial disclosure (Buallay, 2019, Elzahar et al., 2015). The sustainability information produced is of questionable value and quality as there is no standard for verification or classification. (TGG, 2019)

The conventional standards for accounting such as IFRS and FASB don't not include corporate sustainability issues. Information is being provided to managers as a basis for their decision-making, without the necessary information on environmental and social accountability. Sustainability accounting should be a foundation for corrections to conventional accounting systems. (Burritt & Schaltegger, 2010).

The lack of common and concise measures on GHG gas emissions hampers the ability of policy makers to ensure fair competition policies and the ability of major investors to assess the effects of their own and their competitors' portfolio reallocation. (Monasterolo et al, 2017)

ESG information, meaning non-financial disclosures, have no standard format and they vary significantly. In her paper from 2019, Buallay (Buallay, 2019) sets the hypothesis that there is a positive relation between ESG reporting and financial, operational and market performance. She describes how EU countries are moving to establish and implement sustainable reporting to strengthen relationship with societies and businesses and move toward more sustainability. Further, she concludes that the laws associated with sustainability disclosures is weak and recommends the countries regulations to pay more attention to ESG disclosure and add more transparency. Her conclusions and recommendations are focused on how stakeholders, investors and creditors should increase their knowledge about the term sustainability reporting and that actors such as central banks, external auditors and stock exchange organizer should ensure reliable, financial information.

Further, she recommends that financial authorities in European countries should have a clear and mandatory law associated with sustainable reporting and that there should be more research on effects of corporate governance on ESG disclosers.

In a study (Hong, et al, 2020) it is shown that disclosures of CSR information can promote green innovations with firms, actually showing more green invention patents after the introduction of mandatory disclosures. Also, it shows that larger firms, state-owned firms and firms in pollution-intensive industries are more likely to be affected by mandatory disclosure. (Hong et al, 2020). Other literature also suggests that disclosures and ESG reporting can improve firm performance as such resources can provide knowledge and competencies essential for achieving sustainable competitive advantage (Albitar, et al 2020, Gaur et al., 2011). Yet another study provides clear indications between ESG policy adoption and firms' innovation capacity, using the phrase "indirect value-creation". (Broadstock et al, 2020)

3.5 Barriers for changes and innovation in business models

Innovation on business model level can meet barriers internally in a company, and one of the questions this study will try to answer is if ESG disclosure and the work with environmental data could help overcome such barriers.

Literature suggests several barriers to innovation on business model level. One is cognitive barriers, where the owner, the CEO, the board or just the internal culture in a company is confident that the present business model is the best. And that this cognitive barriers works as the mindset of the firm and becomes the dominant logic. And then all information is interpreted in this context, being biased of the current model, resisting change and possibilities for innovation. Another is the lack of management knowhow, where the management don't have analysis of current assumptions, drivers or what can actually influence on profit and production. This is often strengthened by time pressure and leaders who don't look beyond short time profit. A third barrier can be the complexity of a businessmodel and that innovation seem impossible with current technology. A fourth is organizational resistance, where radical changes threatens established power positions and privileges, roles, functions and processes may be altered and redefined, and creates uncertainty, that can lead to demotivation, conflicts and hinder innovation. (Saebi & Foss, 2016, Evans et al, 2015 Chesbrough, H., 2010).

Chapter 4 Methodology

This study looks at how the ESG landscape is changing with the coming SFDR directive and the EU taxonomy leading to change in business and sustainable innovation, trying to identify opportunities, drivers and barriers for innovation.

In this chapter, the method used in the study for research design and data collection will be presented. First addressing the rationale for the chosen design and methodology supported by some relevant literature. Secondly a description of the data collection, being a document analysis and interviews. Thirdly there is a section on how the data was sorted and analyzed. Finally, there is some critical arguments and discussion on the clear limitations of this study, raising questions about the validity and reliability and appropriateness of the method used and the results.

4.1 Research design

This study focuses on how new regulations on ESG disclosures can be a driver for change and sustainable innovation in companies. The goal is to explore the expectations and see if some of the conclusions can be supported by literature. In this case, insight is more important than causal explanations, and in the choice between a quantitative and a qualitative design, it seems obvious to choose qualitative, as it would be difficult to find objectively measurable data about future trends and activities.

Qualitative studies often give a detailed account of what goes on in the setting being investigated. (Bryman & Bell, 2007). Qualitative research is normally understood as a technique or procedure for collecting and analyzing data that generates or uses non-numerical data. Qualitative research is also considered best suited to generate and develop new theories.

This study is designed exploratory and the research question is formulated starting with "How", indicating that there can be a broad range of answers and there is room for several conclusions, based on what will come out of the case study, being information from the document analysis and answers from the people interviewed. The study is looking at how regulations on ESG disclosures can impact on innovation processes, avoiding that a hypothesis was formed from the start based on presumptions and expectations. Also, the study is conducted in the context of a regulation and a standard that has not yet been implemented, so it is the expectations and experiences found in the data collection that is of interest.

It is suggested that relevance should be a criterion when using qualitative data, emphasizing that practitioners will be interested in studies that helps them to understand or address real and current problems. (Hammersley, 1992, in Bryman et al, 2007).

The issue of ESG reporting and the EU taxonomy is very present in the economic and political discussion in EU and Norway. The informants chosen showed much interest in the topic of the study. The available information on ESG reporting and the newly adopted legislation and standards and its implications on businesses is also very available and appears in the media almost daily.

The context that companies, organizations, managers, boards and investors are facing consists of continuously disruptions, the climate crisis, nature resources crisis, collapsing marked during Covid 19. This is important background for the people and business being researched and some context is needed and therefore included in the background chapter.

4.1.2 Research question

The research question is related to processes in firms and companies and how they relate to society.

- How can new EU regulation on sustainability disclosures and EU taxonomy drive innovation in companies?
- What opportunities for change and possible barriers for innovation can this bring for companies?

4.2 Data collection

In this section there is a short presentation of the methodology for data collection, being a document analysis and semi-structured qualitative interviews.

4.2.1 Document analysis

To understand and document how ESG reporting will be obligatory and standardized for firms in the very near future, a good document analysis was needed. This was also necessary to build a second source into the study, not just relying on the information from interviews and the literature review. As the study is looking at governance structures that are still under development and implementation, document analysis is needed to ensure correct and up to date documentation. As the regulation is new, there is scarce academic literature on it.

For this study, documents will also include company reports, consultancy reports, governmental public information, hearing notes from Ministries, webinars, podcasts etc. However, although tempting to attend all webinars and listening to any podcast and read all news articles on ESG and the new EU taxonomy, it was important to set clear limits to what was relevant.

The term document analysis covers a broad range of information sources, not only “documents”, including also reports, public information, laws, regulations, radio, tv, newspapers, ads etc. Combining different methods in a study addressing the same question, can be called triangulation. (Denzin 1970, in Bowen, 2009). “In sum, documents provide background and context, additional questions to be asked, supplementary data, a means of tracking change and development, and verification of findings from other data sources”. (Bowen, 2009)

When reviewing any type of “document” it is important to remember that it is produced for some specific purpose and some specific audience and reflects communication between other parties with some objectives that might not be clear to the listener or the reader. (Yin, 2018)

Only a few “documents” are used as reference, as they help provide the background and the context in which the informants are. Such broad descriptions giving details and context around the case can make it more transferable and relevant (Bryman and Bell, 2007)

Type of documentation	Authors/institutions	Relevance to research question
Laws, regulations, directives	European commission Norwegian Government	Documentation on what is ESG-reporting and how it is formally regulated.
Hearings and consultations	Norwegian Ministry of Finance Financial authority of Norway European Commission	Implementation of the NFRD directive and in Norway Input and arguments from stakeholders on the final taxonomy
Webinars and podcasts	Norwegian Venture Capital Association The Norwegian Climate Foundation Finansdepartementet & CICERO ESG-weekly	Industry view on the NFRD and taxonomy Financial and industry experts presenting their views and expectations on the SFRD and the taxonomy
Newspaper articles Opinions in newspapers Article in professional journal	Financial Times Dagens Næringsliv Norsk regnskap	Expert opinions on the taxonomy
Official reports	UNEP IPPC – UNFCCC - IPBES Financial authority of Norway	Background on climate and nature Status on climate risk and disclosures
Companies reports, surveys, webpages and public statements	NVCA, Ernst & Young, CemaSys, PWC and Blackrock	Showing that they all now offer ESG-reporting, climate analysis etc.

Table 3 Documents assessed and their relevance to the study.

4.2.2 Interviews

In this section there is a presentation of interviews and data collection, including a description of the informants.

In this study, the informants are chosen because they are in positions where they are handling both the regulations and governance, the marked and investors and being close to companies and organizations and their strategy discussion. The collection of data was done by semi structured interviews – starting first with one open conversation with a person who helped me identify the firms and organizations for the case study. This preliminary conversation/pilot interview was done in December 2020, and after revision of Research Question and interview guide the data collection from five semi-structured interviews where done.

Requests for interviews where sent out the first week of January, and 5 interviews where done from 12th – 15th of January. All interviewees where sent the interview guide two days before the interview. All interviews where recorded in Zoom, and a full transcript done with the help of the Dictaphone Function in Word.

The full interview guide is in the appendix in English and Norwegian (Appendix). Interviews where done in Norwegian, and a significant amount of the quotes and information from the text where translated to English during the sorting and analysis process.

I did suspect that the issue of ESG reporting and innovation would be of interest to the people whom I asked for interviews. But even so, I was surprised about the enthusiasm and positive way they accepted the request and actively took part in the interviews. Actually, four out of five answered positive within one hour after I sent the initial email asking for an interview. In the introduction of the interview, several of them expressed that the issues addressed in the request was of very high interest and relevance to them.

Semi structured interviews are a list of questions on fairly specific topics, following a interview guide. Questions not included in the guide can be added if the interview picks up on interesting leads. The interview process is flexible, with a focus on what the interview object views as important in explaining and understanding events, patterns and form of behaviors. (Bryman & Bell, 2007).

The first drafts of an interview guide only had a few questions, but after revision it ended up with five sections, having four to six question under each headline. As all interviews had to be done digital due to the Covid 19 restrictions, I limited them to 45 minutes each. This was out of respect for the informant's time and to avoid inconvenience for them. Having such tight time restriction helped focusing and setting clear limitations, keeping focus on the issues being addressed.

The interview guide was written focusing on what where the relevant information needed to answer the research question. Trying to find answers to what the interview objects see as significant and important in relation to ESG reporting and innovation. Before the interviews started, I already had an idea that the results should be sorted after asking the "how can this lead to innovation" and possibly using the Rennings' theory on regulatory push, technology push and marked pull.

5 people in different organizations and companies was selected. Chosen because they work in the intersection of investments, sustainability, innovation and by that also have some responsibility within reporting and disclosures and ESG.

The informants are given a prefix from R1 to R5.

Codex	Type of firm/association	Role/position	Relevance to ESG & Innovation
R1	Company producing outdoor clothing and equipment	Head of sustainability	Testing new sustainable business models in firm, small scale, worked in global company earlier, now mainly Norway and Nordic.
R2	Industry organization	Head of sustainability and health	Sustainability and innovation, with over 2000 firms/organizations associated with organization.
R3	Capital/investment organization	CEO	Private capital / equity, active management of funds and investment, closely related with innovation and first sector to meet the new ESG requirements.
R4	Sustainable business organization	CEO	Organization part of global corporate initiative for sustainability
R5	Consultancy	Head of consulting	Consultancy with sustainability and integrated reporting and ESG reporting.
R0	Industry organization	Head of sustainability	(Just preliminary conversation, not interview)

Table 4 Informants and their role and type of firm or association

4.3 Sorting and analyzing data

The data was sorted and analyzed, using a simple way of the step-by-step deductive method where the information is processed in stages from raw data to concepts or theories. (Tjora, 2017). Testing the data with a number of questions about whether the empirical data generated are appropriate. If they are relevant to the questions asked, that they are detailed enough, but not unnecessarily detailed, and that the data are registered and sorted in an appropriate way.

After transcription, the interviews were read several times using old fashion coloring pencils marking out sentences with coding. Using the Research Question as the guide, sentences and phrases was coded if they appeared to be expressing causes, drivers, reasons or catalysator for innovation or changes. Also marking out possible barriers.

After reading two interviews, I started using a color codes on the sentences, based on the "pattern" I could find. (Tjora, 2017) After reading all five interviews, I went through the two first and coded them with the same color codes. I marked statements and phrases, grouping them by the same colors when the informants seemed to focus on the same type of drivers or explanation.

For example, several informants highlighted the need for the new legislation to be equal in all countries, I would mark this as “blue”, as it was related to the regulatory drivers. Another typical statement was that it was investors and banks that were driving the demand for ESG information. All statements related to this was marked green. In this way I could sort and analyze the results from the interviews.

4.4 Limitations and critical reflections on methodology

Finally, there is some critical arguments and discussion on the clear limitations of the methodology, raising some questions about the validity and reliability. Typical critiques of qualitative research are that it is too subjective, it is difficult to replicate, it has problems of generalization and a lack of transparency (Bryman & Bell, 2007). Reliability of a study's conclusions is a question about whether the conclusions are verifiable and could be reproducible (Yin, 2018). Meaning that if a new data collection is conducted, it would yield consistent findings as the ones in the original study.

So, reliability should be assessed based on the accuracy of the data, selection of data, methodology for collecting data and how the data have been sorted and processed. Validity is a question about whether the findings can be generalized across social settings and society.

Semi-structured interviews, as is chosen in this thesis, is generally considered to have low reliability. Hence, the thesis is limited in time and scope and the methodology chosen seems to be rational and effective in this context.

4.4.1 Validity and reliability

This study presents the expectations of relevant stakeholders at a given time before implementation of a new regulation. Based on interviews and a comprehensive document analysis, it concludes with some assumptions on how this can impact companies and society, and how it can contribute to theory.

The study would be stronger if it could be tested with some real case studies on how the new legislation actually impacts on investors and companies and if and how it drives innovation. It could also be stronger if it was based on a much broader collection of data. Using only five respondents does raise questions about the validity.

Hence, the strategy for increasing reliability and validity was to make a plan for selection of data, interviews and the sorting and analyzing of data. The validity is strengthened by the methodology, as all interviews are performed using the same format and interview guide and all interviews have a full transcript. The full process of interviews is transparent and described in detail, and the interview guide is provided, and full transcription of interviews are available. This strategy is a mitigating factor counteracting low reliability.

Although the interviews are kept focused around the specific issues of ESG reporting and the coming new legislation, the interviews were conducted with very open-ended questions at the beginning of each new topic in the interview guide.

It can be questioned if the selection of informants were too subjective, as only people who had some knowledge and would be interested in the subject was asked. On the other side, the respondents were carefully chosen to cover different businesses and aspects of ESG and innovation and they complement each other with different approaches. In addition, the broad document analysis increases the amounts of sources that the results are based on.

The study is based on document analysis and semi-structured interviews. By, using two sources of information for data collection, it could be argued that the study has elements of triangularity, that helps against accusations of single method, single source or single investigators biased. (Bowen, 2009)

In the methodology literature, observations are mainly explained as watching people, industry etc. (Bryman & Bell, 2007) And document analysis is mainly focused on reports, web pages etc. It could be argued that when the document analysis includes relevant and up to date interviews and articles gathered from typically "new" and "live" platforms such as webinars and podcasts, it is close to what in literature is defined as "observations".

I have chosen to include some of these in the reference list. This makes the references more reliable, as anyone can go back and hear the podcast, see the webinar or even call the person who is cited. Trying to understand the expectations towards this new regulation and standard, such data collection has been valuable.

Possible misunderstandings or errors from the informants have been counteracted by sending the interview guide beforehand and asking about the understanding and concept of ESG as the first questions.

4.4.2 Ethical considerations

There were no significant ethical considerations that had to be done in this study, as the topic is not sensitive, and there is no relation with any of the informants. Another question concerns the relationship between social research and politics and the link between researchers and research, The researcher's understanding is, among other things, shaped by peoples background, experience and political views and it could affect on choice of theory, how studies are performed and how data is interpreted. (Bryman & Bell)

During the interviews, I deliberately talked as little as possible, aiming to hold back any of my own expectations. Correspondence bias can naturally still not be ruled out. There was very limited small talk and the interviews were kept quite strictly to the interview guide, although not all questions were asked, most of the same questions were asked to all.

Chapter 5 Findings

This study looks at how ESG reporting, in the context of the SFDR and the coming EU taxonomy, can drive innovation and catalyze change in businesses.

This chapter presents the results from the study, based on document analysis and interviews. First some results and trends from the document analysis, to set the context of the finance sector related to ESG reporting to better understand the challenges and opportunities that the informants in this study express through the interviews. The main part of the chapter is devoted to the presentation of findings from the interviews, expressing the views and expectations of people representing relevant sectors in Norwegian business and finance. Finally, the main findings are summarized and prepared for the discussion in chapter 6.

The findings from the interviews, supplemented by the findings from the document analysis, were sorted and structured in accordance with the research question.

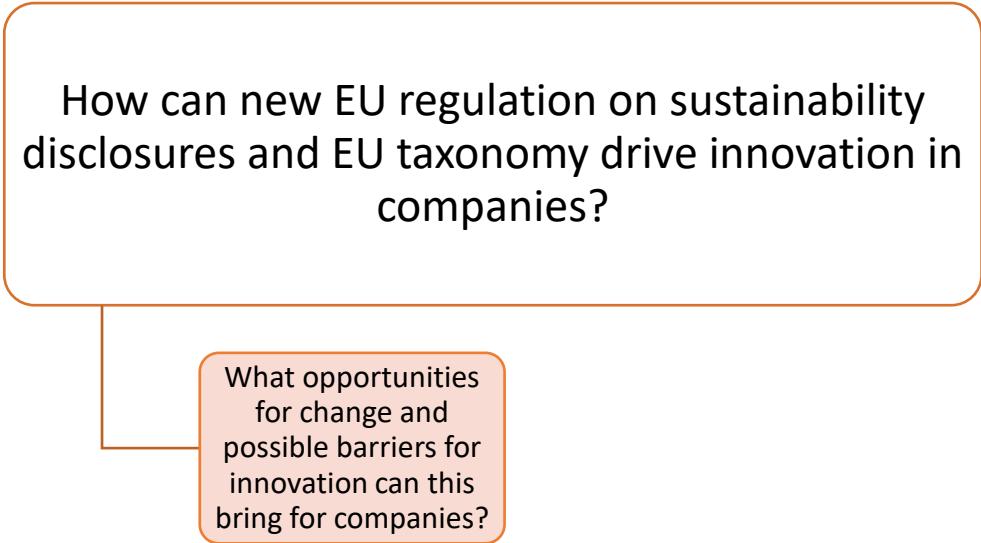


Figure 3 Research question

The climate crises and the commitments in the Paris Agreement requires a fundamental change and financial markets play a vital role in this. Access to information about sustainability measures are vital for stakeholders such as investors and capital markets, so that they can assess the impact their investments have and will have in the future on society and the environment. And further to see how sustainability is integrated in businesses strategy and decision-making processes.

From the interviews, it was obvious that the informants were sharing some common expectations for how the changing in the ESG landscape could lead to innovation and change in businesses. Statements, sentences, and phrases were coded as causes/drivers/catalysators or reasons innovation or changes, and also possible barriers were marked. The following findings appeared:

- There is a growing demand for ESG information and green investments
- Finance is the main marked driver and user of ESG information
- ESG is all about finance, business strategy and innovation
- Obligatory and standardized ESG reporting is good for business
- Technology and digitalization will help innovations
- Internal factors in companies, catalyzed by ESG reporting, that can drive innovation
- Accounting systems and regulations are not rigged for circular economy
- The need for supporting regulatory means and industry initiatives

5.1 Growing demand for ESG information and green investments

There is a very significant trend that investments and financiers are turning towards sustainable projects and portfolios, globally and in Europe. This trend and shift are highlighted by the informants and can also be further documented by numerous statements by investors, business and leading politicians. Here presenting six examples from the document analysis and from the interviews:

1. "From January through November 2020, investors in mutual funds and ETFs invested \$288 billion globally in sustainable assets, a 96% increase over the whole of 2019. I believe that this is the beginning of a long but rapidly accelerating transition" (Larry Fink, CEO of Blackrock, 2021)
2. "We know how important this is for investors, who are looking for truly sustainable projects. Our European Union green bond standard, for example, and taxonomy will lead the way. It will bring clarity on what accounts for sustainable, eco-friendly activities". (Von der Leyen, U. 2021)
3. ESG funds captured \$51.1 billion of net new money from investors in the US in 2020, a record and more than double the prior year. In 2019, investors funneled roughly \$21 billion into funds that apply environmental, social and governance principles. (Morningstar, 2021)
4. "*Environmental indicators are in demand within asset management and pension savings, increasing numbers of investors, such as pension funds, insurance and foundations opt out based on ESG reports*". Gunnar Eskeland and Jan Kværner writes in an article saying that the demand for "green investments" are growing, and so is the need for good and transparent and reliable indicators for what is green. (Dagens Næringsliv 03.08.20)

5. The announcement in October 2019 about Norway's largest acquisition fund, HitecVision, investing significantly in renewables, after strong pressure from investors. (Dagens Næringsliv, 03.10.19). HitecVision has historically invested tens of billions in the oil and gas industry. Three of the informants independently mentioned this one incident as an important indicator that there is a major shift in the market for green and ESG-related investments and a proof that sustainability is affecting profitability.

EU, including the Nordic countries has high ambitions to cut climate emissions and support a green transformation of business and industry. The new SFDR regulation imposes a number of disclosure requirements on financial market participants and financial advisers. The expectations are high and some call this a "revolution" in the financial market and the final settlement for ending greenwashing (Fabian, 2021). The requirements for sustainability set by the Taxonomy and the mandatory reporting laid out in the SFDR is projected to lead to many companies changing their business model (Løvstad, 2020).

5.2 How can the SFDR and the taxonomy drive innovations?

5.2.1 Finance is the main market driver and user of ESG information

A very clear result from both interview and document analysis is that there is a significant growth in demand for ESG information from the finance sector. And that this "market pull" is a significant driver for change and innovation towards sustainability. Four informants clearly say that it is in the finance sector they see an increased and very obvious demand for ESG information and green investments. Also the fifth informant mentions in the interview that banks now seem to be more interested in climate and environmental aspects of their business.

The EU taxonomy requires that financial market participants and large enterprises (listed enterprises and enterprises with more than 500 employees) report on environmental sustainability and on whether an economic activity or financial product is sustainable, according to the criteria in the taxonomy. Financial markets and investors are therefore the first market where the demand for reliable ESG information will be present.

Both the interviews and the document analysis confirm that finance is long ahead when it comes to addressing climate risk, this is further documented by the fact that it is the Ministry of finance and the financial supervisory authority of Norway that are assessing and communicating about ESG and climate risk in Norway, not the Ministry of industry or other sectorial institutions.

Both public and private pension funds have already pulled out of some non-sustainable business such as coal energy. And this is a sign and indicates that others will follow. If business is engaged in fossil energy, they will get a bad rating according to the taxonomy. This will make it more difficult to get investors and will increasingly become a barrier for companies.

«They see that they get more investors in their funds when focusing on ESG and sustainability. Because it will affect those companies' profitability in 10 – 15 years. If it is not green, it will be difficult to sell in 10-15 years. And everyone knows that. Then it will have a lot to say for the profitability and results».

Consumers and governmental institutions role

Several drivers for sustainable innovations were mentioned, such as the consumer, governmental institutions and the finance sector. However, it was very clear that out of those three, finance is the definitive strongest in Norway. A more surprising result came out when talking about the marked drivers. Three informants stated clearly that Norwegian consumers are not a significant driver for more ESG information or for more sustainable products or business models. «...the consumers we only see to a very limited extent in Norway».

Two informants mentioned governmental organizations and institutions and state-owned enterprises as a possible important driver for ESG information and sustainable innovation. And in particular how they can put climate and ESG criteria in their tender rounds, stating that public procurements and tenders should be used to drive the green transformation.

5.2.2 ESG is about finance, business strategy and innovation

Through the interviews, all informants were asked about their understanding of the concept of ESG. The responses show clearly that ESG and climate-disclosures is now seen as the core of business and that it is connected and related to finance, strategy and innovation. ESG is about where to invest and that ESG in business is significantly changing just the last two years. This is a trend that has been much more evident in 2019 and 2020.

This is further emphasized by the traditional understanding of the term "Non-financial reporting". Typically "non-financial" has been seen as indicators that are less important and. However, it became very clear that the term "non-financial" now is absolutely related to important indicators for firms and is now accepted as basic and vital indicator. ESG and non-financial is now more and more incorporated in everything that has to do with strategies and reassurance of stakeholders and investors.

- *«It will affect the profitability of those companies 10-15 years ahead. So if you do not take this [ESG reporting and the EU taxonomy] into account now, you end up with a portfolio of companies classified as neutral or at worst brown, and they will be hard to sell in 10 to 15 years when this is on everyone's agenda. And we all know that. It will have a lot to say for the profitability and results» (R3)*

Previously in businesses, environmental and social issues and reporting on this, would be something the communications department or Human Resources took care of. Often as a glossy annual report with nice illustrations, presenting a green vision and highlighting some activities that makes the company look green and responsible. Now, on the contrary, ESG are more often put directly as part of the CFO (Chief Financial Officer) responsibilities and it is seen as core business, not something companies do only as a communication tool.

5.2.3 Obligatory and standardized ESG reporting can drive innovation

The SFDR makes ESG reporting obligatory for large enterprises and the EU Taxonomy gives a methodology for screening companies, to avoid greenwashing and setting clear standards for what is green. All informants where asked what they thought would be the benefits and disadvantages for companies when ESG disclosures where becoming mandatory. And the fact that the taxonomy sets a clear and non-negotiable standard for how to measure what is green.

The informants responded that the coming regulation and the standardized taxonomy is seen as mainly positive and that it is good with a directive that is concrete and standardized.

«I don't see any opposition from our members that it [regulations on ESG reporting] is going to be standardized and clearer. I think it's just going to be positive. In any case, it is perceived positively for our industry that there will be a clearer policy in this field». (R3)

To some extent, all informants express that they see such regulatory instruments as necessary push for sustainable change and innovation in companies. It is also mentioned that new regulations are motivating and that companies sees it as a business opportunity. They highlight the importance of it being obligatory, as it means that companies must comply.

One informant (R5) uses the wording "today's chaos of ESG reporting standards", explaining how companies struggle to find the right standard, and that it would be ridiculous to set up a national standard, emphasizing that an European and international standard is an advantage. Further explaining that it is good because companies across national borders will report and stay aligned with the same standard. And that it is equal whether you are an large, international or a national, small player. This importance of internationally aligned and equal regulations and standards, at least on European level, was confirmed by 4 out of 5 informants. (R3, R2, R4, R5) And this was further expressed by several saying that it could be barrier og and obstacle for business and sustainable innovation if Norway where to use or develop its own national standard.

It was lifted as important not to differ much from other countries, as it can be a significant disadvantage for Norwegian companies and industry if they are left behind and be less competitive. And that it is extremely important to be aligned with EU and neighboring countries, as firms and business work, interact, compete and collaborate with business, industries and governments internationally.

There were some warnings about the standard. That it must not be too complicated and difficult to report by or to get approval on, and that getting data and setting up a system for reporting in accordance with the taxonomy will be costly. One informant adds that the EU taxonomy looks OK as it is now, referring to the whole sector.

Availability of data on ESG is today a barrier for green investments. This is for example highlighted in the "Roadmap for competitiveness in the financial industry". (Finans Norge, 2016) The taxonomy and SFDR will remedy this and provide such data.

The taxonomy and regulation will provide stakeholders such as banks, investors, customers and governments with sustainability information. It can give firms and companies with sustainable activities a real competitive advantage (TGG group 2020).

5.2.4 Technology and digitalization will help innovations

When implementing SFRD and the taxonomy companies will need to collect and analyze and present data on emissions and use of resources, on a company and product level, including to some extent also the value chain.

It is a clear understanding from the interviews and document analysis, that stakeholders see that technology and digitalization gives new opportunities for reporting and for innovation and development of new business models. With automatic sensors, data is no longer collected manually. The monitoring is more exact, and the data automatically goes into the measurement, giving real time data and more transparency in the production line where resources and energy is used and emissions generated. Having the platform and the available data on attributes such as climate emissions and carbon footprint, it gives companies the tools they need to cut emission, possibly by saving fuel, energy and at the same time reducing costs.

This assumes the use of existing and new technology for operations such as monitoring, measurement, data collection, sharing platforms etc. The benefits and positive sides of collecting ESG data and disclosing them are several. Companies will get a better overview with more transparency on climate and environmental indicators. Especially will this provide opportunities in the context of circular economy and it can lead to saved costs. When exploring new business models for innovation, estimation and setting scenarios for value capture and value proposition in business models.

The enormous possibilities that lay in digitalization and available data and new platforms and programs can provide opportunities for setting a value on the reuse, repairability and longterm use of products. And display the real environmental costs and life cycle of production lines and products in the whole value chain.

Some interesting results came up during the interviews, relating to technology and digital systems as an important factor in how ESG information can lead to change and innovation. One informant explained how new digital systems for tracking and calculating climate emissions could be very useful when planning for investments such as new factories or new production lines.

«When we get the calculations and the real number. It makes it much easier for us. Punch in the data – and you get the emissions out. It provides more details when planning and investing in a new factory, new processes or projects». (R1)

The demand from investors and customers comes also because technology is a driver for innovation. Because data and sustainability information are available and production processes and products real footprint is becoming more transparent.

One informant told about how their consultancy already were developing new digital modules for doing the verification according to the coming EU taxonomy. And that there is a much higher focus on calculating emissions from all types of products and service now. And further talking about how accounting systems now are changing so that they can incorporate emissions data and set value on for example low carbon production lines.

«Year after year, companies can benchmark themselves, using measurable data so they can actually reach their goal. Working with specific processes that reduce emissions, for example. Then you can take measures and see and how the investments a company make influence on how long it takes for them to reach their long-term climate goal. [...] I think it's very motivating for companies to see that their efforts pay off». (R5)

When talking about ESG reporting in general, four of the five informants were very clear on how they see that the ESG focus is rapidly changing with much more focus on sustainability and an increased demand for ESG data and information.

This is confirmed further by the Blackrock CEO, Larry Fink: *“Essential to this change is the availability of data and reliable information on what are sustainable investments and how to access sustainable investment options. Better technology and data are enabling asset managers to offer customized index portfolios to a much broader group of people – another capability once reserved for the largest investors. As more and more investors choose to tilt their investments towards sustainability-focused companies, the tectonic shift we are seeing will accelerate further. And because this will have such a dramatic impact on how capital is allocated, every management team and board will need to consider how this will impact their company’s stock”.* (Fink, 2021)

5.2.5 Internal factors in companies, catalyzed by ESG reporting, that can drive innovation

Through the interviews, several aspects internally in companies and businesses came up as possible factors that could impact on the ability and willingness to innovate.

Motivating for a company and stakeholder to be able to see that they improve every year, in the ESG reporting. Companies are motivated by measurable data. Year by year they can compare and reach the goals that they have set. It is motivating to have success in one area within ESG and it can be motivating to first take the low hanging fruits. When the firm have to do the ESG reporting, it will have all data available and can more easily set up indicators and goals so to meet targets such as on emission.

Advantage in tender processes In order for companies to show that they are actually a good candidate in a procurement process, being able to show credible ESG data is an advantage. With the taxonomy, it is an opportunity for companies to disclose reliable data in a format that can be compared to their competitors, in a fair way that will not reward greenwashing. Another argument for how the coming regulation and classification system can drive innovation, is that it will reveal who has a sustainable business model and who is not accountable as green.

The competitive instinct. The competitiveness force in firms can be strong, employees, managers, owners and stakeholder look at their competitors. Standardized and obligatory ESG reporting makes such comparison much easier and transparent, so that companies can compete also in ESG factors. The examples that came up during interview mentions retail and aquaculture. When companies have easy access to data from their own operations and from other companies, including competitors, it gives opportunity to be benchmarked against the biggest and best companies in your own area and globally. And such availability of data and benchmarking provides a driver for innovation, as companies would want to be in a setting where they are the best.

Access to information will provide innovation possibilities

This is confirmed by one of the informants, stating that there is significant skepticism in the company when presenting proposals for new and more sustainable business models. When discussing strategies on circular economy, where products are rented out, or re-sold after repair and maintenance, there is resistance from the both the management and the organization. Arguments are such as: Are we not going to not produce anything anymore? We cannot just use products over and over. We are a company that makes products, we cannot just rent it out. (R1)

The assumption based on the input from the informants is that the standards for obligatory ESG reporting will give management, boards, employees and stakeholders access to data and information and that this will reveal possibilities of new indicators and targets on sustainability. It gives new information against which the success of the company and the management can be measured. Three informants give examples on how such data can motivate for innovation and more sustainable choices in companies. (R1, R5, R2)

5.2.6 Accounting systems and regulations are not rigged for circular economy

As companies will have to document their environmental footprint, systems for calculating climate emissions and resource efficiency are needed. And benchmarks for how to measure and set what is green. During interviews, several informants focused on the lack of appropriate accounting systems and the barriers in the current financial and trade regulations and requirements.

Sustainable business innovation will for example need ways for calculating and setting value on the reuse of materials, the reuse, maintenance and reparability of products, renewable resources and energy versus fossil materials and energy etc, etc.

When talking about the circular economy and how it provides possibilities for radical changes in business models, the informant further addressed that the current accounting and economic reporting systems are not yet rigged for circular business models. That the technology is there for tagging, tracking and setting value on products and materials through the whole lifecycle, for many decades. But this is hindered by accounting system that are outdated and not rigged for adding value to for example reuse and long lifetime. And, not calculating the real costs of emissions and resource ineffectiveness and waste management.

One example was about how new and sustainable business models, based on renting out products and repairing products, created significant problems with logistics internally in the company. Giving examples on how also internal system in the company such as IT and logistics are not rigged for products coming back from rent out or for repairing. As current business models are based on production and selling a product. More sustainable business models will be based on reuse, recycling, renting, repairing and less on production based on raw materials, packaging, transport and traditional sales.

And further how it was very complicated with national and international laws and regulations when products were transported across borders for repairing and maintenance. Setting a correct price and value for import and export of products that were not sold or bought created problems with calculating tax and VAT.

5.2.7 The need for supporting regulatory means and industry initiatives

Through the interviews, several of the informants mentioned that the combination of regulatory instruments would increase the motivation for sustainable change and innovation within companies, and that the coming obligatory ESG reporting and standard alone is not enough. One also mentioned that a survey their organization did, showed that unclear and indistinct business policy from government is a major barrier for private capital going into green projects.

Two informants mentioned carbon tax as an important additional driver for sustainable change. And also state industry initiatives and cooperation, where mentioned as possible additional drivers that together with ESG reporting could be catalyzers for sustainable change and innovation in businesses. Examples from governmental lead industry initiatives where mentioned from EU, Great Britain, Sweden and Finland, initiatives such as stateowned investments funds, innovation funding and industry cooperation.

«If Norway would to the same, using governmental instrument to invest in green, it could be a significant change in the framework and help initiate innovation».(R2)

Other types of governmental strategies and initiatives was also mentioned and the importance that these supported and lifted in the same direction for changes towards more sustainable business models. Several informants mentioned other strategies such as the EU circular economy strategy, the EU Single Use Plastics directive and in Norway, the coming strategy on UN Sustainable Development Goals, strategy on circular economy and strategy on hydrogen.

5.3 Main findings in results

Main findings from results are:

- There is a significant growing demand for ESG information and green investments, mainly from finance sector – will increase companies willingness and ability to innovate as they can get more capital.
- ESG is now considered more to be core business and incorporated in strategy and innovation. This will challenge current business models and ESG data and information will be used in strategy and innovation processes in companies – leading to innovation and change.
- Standardized ESG reporting increase competition and rewards those who innovate. Because the ESG reporting is obligatory for all large entities it will force all to disclose, and by being obligatory and standardized, it is equal for all and will lead to increased competition and be a driver for innovation.
- Technology and digitalization will help push for innovations. The need to find and report on ESG data might generate the use of new technology, data collection, platforms and present the opportunities that are already there. And it can be more obvious for managers, stakeholders, investors that this is available for innovation and new business models.
- Internal factors in companies, catalyzed by ESG reporting, that can drive innovation with easily benchmarking, motivating employees and increased competitiveness advantages.

- Accounting systems and regulations should be analyzed and changed so they are rigged for circular economy and support innovations and new business models.
- To further drive innovation, there is need for supporting regulatory means and industry initiatives that support sustainable business models.

Chapter 6 Discussion

Through chapter 6, the drivers for innovation are discussed, based on the findings and their implications for companies, policies and theory. Starting at the research question and structuring the discussion after the drivers, as in regulatory, market and technology for then to look at the possible barriers.

Research question:

- How can new EU regulation on sustainability disclosures and EU taxonomy drive innovation in companies?
- What opportunities for change and possible barriers for innovation can this bring for companies?

6.1 Drivers for innovation

The results indicate that that the coming SFDR and the taxonomy can be drivers for significant change and innovation in companies.

Rennings already in 2000 said that sustainability targets, such as the Kyoto Protocol, require substantial innovations. It is now 20 years since Rennings wrote his article, and 25 years since Porter and van der Linde. However, their theories on how various forces can catalyze, push, pull, for innovations are supported by the findings in this thesis.

Both Rennings, and Porter and van Linde discuss in their articles various tools that are suitable for contributing to the development of and dissemination and adoption of sustainable solutions and environmental technology. Three main categories of drivers for eco-innovations are market, regulatory and technology. (Rennings, 2000).

The interviews confirm the assumption that regulations are seen as a necessary push for innovation and changes towards sustainability. Companies are likely to not invest in new environmental technology and profitable environmental opportunities without a regulatory push. (Porter and van der Linde, 1995, Rennings, 2000).

Typical drivers for adopting sustainable innovations are external pressure from government and regulations or internal pressure to cut costs. Studies confirm that regulations are important drivers for sustainability innovation. Firms subjected to regulations are more likely to innovate for sustainability (Doran and Ryan, 2021, Horbach, et al, 2011). The SFDR, the taxonomy and the expectations from the informants and expressed in the document analyses show that all three drivers described by Rennings in 2000 are valid and present.

The regulatory push is the main driver for innovation. When implemented, it goes only for finance and large entities. The marked pull from the finance sector is a strong driver that will work together with the regulatory push. Technology and digitalizing can be significant drivers, providing tools and opportunities for collecting data, tracking, and capturing value. Further, the results reveal some possible barriers for innovation, such as limitations in accounting and logistics systems and regulations, and possible lack of additional support from policies and governmental instruments.

The drivers for eco- innovations, based on (Rennings, 2000)

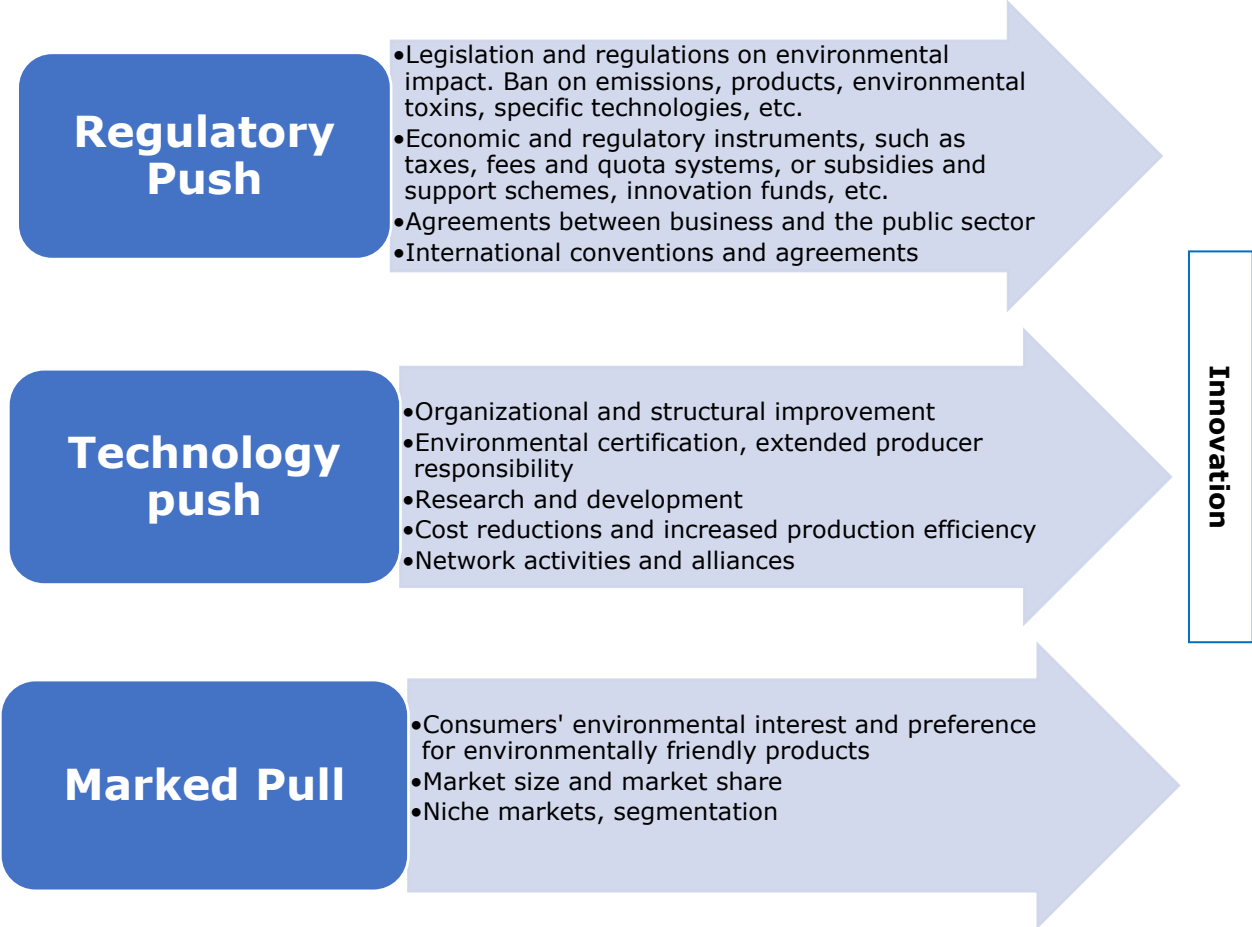


Figure 4 Marked pull, regulatory push and technology push

6.1.1 Regulatory push - The SFDR and the taxonomy

Governments can assist sustainable innovation, by designing regulatory frameworks that set the direction, encourage and reward activities that can drive innovation and improve sustainability. (Dearing, 2000). From literature, we see that regulatory push can be an important driver for sustainable innovation, (Rennings, 2000, Diaz & Garzia, 2015, Doran & Ryan 2016). Properly designed environmental regulation can act as a trigger to innovation which will in turn make companies more competitive. (Porter & van der Linde, 1995)

6.1.2 Regulations are innovation friendly

Literature emphasize some important characteristics of innovation-friendly regulations and instruments. (Porter & van der Linde, 1995) It is of interest to see if it can be argued that the SFDR and the taxonomy comply with some of these principles and thereby can be defined as innovation friendly:

1. The goal of the regulation must be environmental improvements and should focus on results (not technologies)

The SFDR refers to international conventions and agreements such as the UN SDGs and the Paris agreement and has a very clear objective of reducing climate emissions and the overall environmental footprint from investments and production processes. Further the taxonomy is very strict on looking at the actual and measurable environmental effects of activities and the "do no harm principle", not favoring any technology, communicating that it aims to be technology neutral (EU 2020/852, EU 2019/2088)

2. Stable and predictable regulatory processes and ensure good technical and legal competence with the legislator, involve industry and use phasing in periods.

The SFDR and taxonomy comes as parts of the EU sustainable finance action plan and has followed the outlined process. There has been multiple hearing rounds and consultations. And the established technical expert group that was mandated to design the taxonomy defined a working method based on the cooperation among regulators, academics and industry, representing good evidence based-policy making (Lucarelli, 2020)

The SFDR was adopted in 2019, with a clear implementation period until March 2021. The phasing in periods are clearly communicated, giving companies some time to prepare for the disclosures.

3. Introduce strict and adequate requirements so that the regulation achieve the desired effect.

The first versions of the NFRD was when implemented seen as a soft law and there has been criticism for it not being strict enough to achieve the desired effect. (La Torre, et al, 2018). Now, the new SFDR is much stricter and with the taxonomy it sets very clear requirement for what must be reported. (Maldener, 2021, Fabian, 2021, EU 2019/2088) By combining the SFRD with the EU Taxonomy, focus is on total environmental footprint and long-term sustainability. If companies only focus on "end of pipe" technology and reporting, it will not be in line with the regulation (Lowzow, 2021).

4. Harmonize regulations in the same markets

The SFDR and taxonomy is implemented in EU and most EEA countries, with no possibilities for national or country specific adjustments. This ensures a level playing field for companies, so that requirement and standard within the same markets are equal.

6.1.3 Marked Pull – the demand for green investments

The new requirements are now being integrated in the financial sector and it will lead to more companies doing non-financial and sustainability reporting. For many, this is seen as an opportunity to expose sustainability and attract investors. It can force companies and business to change and to take action because the whole value chain now will have to be assessed and handled related to sustainability. The increased demand after green investments, can impact on companies through request for reports and data on ESG.

Further, the alignment of the technical criteria's will force companies to go for sustainable choices with their suppliers and production lines, looking for more circular solutions. In addition, it will give access to capital, as loans and financing will increase for those who satisfy the green criteria but be less available for those who don't. (Flannigan & Fadnes 2020)

Access to capital is a competitive advantage (Doran & Ryan, 2016) and can give increased innovation capacity. Testing new business models are complex and associated with high costs. This can be a typical barrier for innovation on business mode level (Saebi & Foss, 2016) Such innovation demand strategic work and sufficient resources in research and development.

6.1.4 Technology push – a driver for innovation

When companies choose sustainable strategies, it can arguably have a positive impact on their value and performance (Broadstock et al, 2020, Wong et al, Diaz & Garzia et al, Aspelund og Hermansdottir). Firms who are engaged in ESG policies on a strategic level where it influences their innovation capacity will enhances their ability to pursue innovation activities and, then, eventually affect positively on companies' value creation and financial/operational performance. (Broadstock et al, 2020)

It can be assumed that when companies are under pressure from investors, banks and funds to report on ESG and give details on carbon footprint, when the reporting is obligatory and standardized, it will give management the information about the risk for profit and results if they do not address the pull/demand from the finance marked.

Literature suggests that there is a positive and significant relationship between ESG disclosures and integrated reporting and financial performance. (Albitar et al, 2020)

Sustainable innovations can increase competitiveness by giving: 1) more efficient processes, such as reduce of raw materials, energy and resources, water, soil and land, 2) Improve product quality by using less hazardous materials and less packaging and more recycling 3) give better market and brand position. (Aspelund & Hermundsdottir, 2021)

Investors and stakeholders ask for ESG information and there is a demand for “green” business models – this will help overcome the barrier of thinking that all profit and income is linked with a company’s current business model.

Business who have sustainable innovations could gain increased attractivity from investors and access to capital, loans and possible innovation funding, governmental industrial financial support.

6.2 Barriers for innovation

The findings indicate that when companies by regulation will be forced to disclose ESG data, and more specifically detailed data on carbon footprint and environmental impact, this could help overcome some barriers for change and innovation in companies.

When doing climate and environmental reporting, it provides the company with new knowledge that is not already interpreted in the company existing business model logic. Such information becomes impartial and neutral and can provide new information and be a driver for sustainable innovation. Disclosures of CSR information can promote green innovations with firms (Hong et al, 2020) and there are indications on better innovation capacity in firms adopting ESG policy (Broadstock et al, 2020).

However, the barriers for change and innovation within a firm can be significant. In literature, we can find several barriers for innovation, especially on business model level. This can be lack of information and time constraints, combined with the fact that all information is interpreted in the current context. Organizational culture can be very strong and provide an effective barrier as all information is filtered and interpreted based on today’s context and business model. (Saebi and Foss, 2016, Evans et al, 2015). This can also be described as cognitive barriers, where the owner, the CEO, the board or just the internal culture is confident that the present business model is the best (Chesbrough, 2010).

It can be argued that by being forced to find and disclose data, a company will reveal opportunities and remove barriers such as lack of information and disclose products and services real environmental costs. Information and such resources are essential for achieving sustainable competitive advantage (Gaur et al., 2011). This again can lead to more sustainable choices in companies, such as selection of suppliers and more circular solutions. Two informants explain how access to data on the company’s environmental performance could help overcome barriers for innovation.

The complexity of business models makes it difficult to predict results and can make firms only see the risks and possible costs of changing business model. This barrier can be further amplified by time pressure and leaders who don't look beyond short time profit. (Saebi & Foss, 2016). This can lead to management underestimating the impact of new technologies and changing customer demands. Typically, a firm will also allocate resources to the most profitable uses of their technology at present. And good margins in current technology will give little resources and incentives to invest in innovation or other technologies. (Chesbrough, H., 2010).

Standardized and obligatory ESG reporting can help remove barriers for innovation as it is obligatory to do the reporting, and the firm, the CEO, the board and the management will all get the same information. It can't be selected away due to time restraints, or because it doesn't fit in strategies. A company must report on sustainability, and the data will be standardized. This gives little room to interpret data in the usual norms and context of the firm and the current BM. Investors and stakeholders ask for ESG information and there is a demand for "green" business models. This can help overcome the barrier of thinking that all profit and income is linked with current business model.

6.2.2 Barriers in accounting systems

Another factor that was also lifted by the informants, it how accounting systems and logistic platforms are not designed to disclose environmental data, just economic data. And how this is a barrier for innovation. The potential for innovation can often not be recognized by companies because of distorted accounting and management information systems (Shaltegger et al, 2012). Conventional accounting neglect corporate sustainability issues, leading to distorted information being the basis for managers decisions. (Burrit & Schaltegger, 2010)

6.2.1 Governmental support could increase competitive advantage

From the interviews, there is a clear understanding that this regulation and new requirements would stand stronger if they were supported by other governmental and public instruments. Stakeholders such as governments can assist effort to sustainable innovation, by designing regulatory frameworks that set the direction, encourage and reward activities that can drive innovation and improve sustainability. (Heaton, 2000). For example, by using procurement policies showing that governments are committed to achieve the same objectives that are expected from companies. The taxonomy is a standard and is similar to a certification scheme. Standards for measurements are essential and enforcement mechanisms must exist such as regulations, taxes and subsidies (Eccles & Krzus 2010) for them to have full effect.

Hence, already EU is signaling that the SFDR might be implemented for small and medium size business as well. And that the classification system might be used when giving out innovation funding, industry support, industry stimulus packages, research priorities etc.

6.3 Proposals for further research

Further research could be to follow how the SFRD and the taxonomy is being implemented and followed and see if it can be set up indicators to measure the level of innovation it potentially initiates.

It would probably also be very interesting to do further research on how to motivate managers and boards to do start sustainable business model innovation, in the context of more available ESG data.

On a more detailed issue, research should investigate in the issue of accounting systems for tracking and setting value on items and products and processes within a circular economy.

Chapter 7 Conclusion

Radical changes in business models and transition away from fossil energy is needed in this decade. Green investments has increased significantly the past two years and the willingness from investors give hope that the time for big changes is now. It is good timing with the implementation of new regulations in the European Union, requiring ESG disclosures from large companies and setting a standard for what are green investments.

This study shows that the coming SFDR and the taxonomy is expected to have large impact on investments and company strategies and innovation. Asking the question on how the SFDR and the taxonomy can bring innovation and change in businesses, the study give some clear findings and recommendations.

7.1 Practicable implications for companies and governments

For companies, it will be an advantage to be an early mover and show investors and stakeholders that there is a willingness to document and disclose ESG data, and to start the process of EU taxonomy alignment. Access to capital, loans and financing will increase for those who are aligned and green according to the taxonomy and will eventually be less available for those who don't. Alignment with the taxonomy will expose sustainability and attract investors and this could drive change and innovation in companies.

Sustainability is a key performance indicator and must be incorporated in business strategy and innovation strategies. The SFDR and taxonomy are important drivers and tools for setting up systems for measuring and reporting on performance. The whole value chain now will have to be assessed and handled. Data on emissions, resource efficiency, circularity and environmental and social footprint will bring increased value to those who are aligned with the taxonomy.

Further research and strategies should investigate particularly in the issue of accounting systems for tracking and setting value on items and products and processes within a circular economy. Accounting and logistics systems should be developed to allow for renting, reuse, repairing and how to meet the circular economy.

The process of alignment to the technical criteria's will push companies, managements, boards and stakeholder to take sustainable choices in relation to suppliers, resources, circular solutions and future strategies and business models. Investors and companies will have to identify possible future stranded assets and lock in effects and set up strategies to shift towards sustainable business models.

There are significant opportunities for business that can offer systems to measure and document sustainability, such as innovation on logistics and accountings, how to capture value in a circular economy, using new digital platforms.

From the interviews with Norwegian stakeholder, this study clearly indicates that especially investors and finance actors are ready and positive to the coming EU regulation and classifications system. This strong support was to some extent surprising, knowing that the taxonomy will classify the Norwegian oil and gas sector non-sustainable, including its whole supply chain.

Also the interviews relived that there is a fear that reluctance from Norwegian Government and resistance from some sectors can be a possible barriers for change and innovations. Few Norwegian companies include climate risks when valuing assets and liabilities and are not prepared to meet these new and stricter ESG reporting demands.

Norwegian authorities are sending mixed signals about the taxonomy and the SFDR. The financial authority is setting up the regulations and preparing for implementations, while the ministry of oil and energy is criticizing parts of the taxonomy and the forest and agricultural authorities are trying to weaken some of the environmental criteria's in the standard.

There should be rapid response in Norway where the Government should explore how other regulatory means, industry initiatives and cooperation can amplify the effects of the coming SFDR and taxonomy and catalyze innovations.

7.2 Implications for theory and further research

The findings on how regulations can contribute to innovation.

It has contributed to theory like Porter and van der Linde, adding new nuances and elements to theory. As climate disclosures and environmental reporting are becoming regulated by laws and regulations, they are now regulatory instruments and represent what Rennings call a regulatory push. (Porter & van der Linde, 1995)

that sustainability can be profitable, by indicating that firms with a sustainable business models will gain increased attractiveness for investors and by this get better access to capital and loans that can be invested in innovation as a result of their sustainability performance.

Further, it could contribute with elements in theory on barriers for innovation, as the results show how companies will get access to more data and information and by that remove barriers for innovation. (Saebi & Foss, 2016)

The findings could also contribute to theory on business model innovation (Schaltegger et al, 2012) as there are some indications that new data on sustainability can correct distorted accounting and information so that management and investors can recognized innovation opportunities. Also the findings support theory on how data and information is essential for sustainable competitive advantage. (Gaur et al., 2011).

References

- Amit, R., & Zott, C., 2012. Creating value through business model innovation. MIT Sloan Management Review, 53(3), 41-49.
- Baumann, H., Boons, F., Bragd, A., 2002, Mapping the green product development field: engineering, policy and business perspectives, Journal of Cleaner Production, Volume 10, Issue 5, 2002
- Boons, F., Lüdeke-Freund, F. 2013, Business models for sustainable innovation: state-of-the-art and steps towards a research agenda, Journal of Cleaner Production, Vol 45 (2013)
- Bowen, Glenn, 2009. Document Analysis as a Qualitative Research Method. Qualitative Research Journal. 9. 27-40. 10.3316/QRJ0902027.
- Broadstock, D. C., Matousek, R., Meyer, M. T., Nickolaos G., 2020, Does corporate social responsibility impact firms' innovation capacity? The indirect link between environmental & social governance implementation and innovation performance, Journal of Business Research, Volume 119, 2020, Pages 99-110.
- Bryman, A. & Bell, E., 2007, Business research methods, 2nd edition, Oxford University Press Inc, New York
- Buallay, A., 2019. Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector, Brunel University, Uxbridge, UK, Management of Environmental Quality: An International Journal Vol. 30 No. 1, 2019 pp. 98-115
- Bucherer, E., Eisert, U., Gassmann, O., 2012, Towards Systematic Business Model Innovation: Lessons from Product Innovation Management, in Creative Innovation, Vol 21, number 2
- Burritt, R.L. and Schaltegger, S. 2010, "Sustainability accounting and reporting: fad or trend?", Accounting, Auditing & Accountability Journal, Vol. 23 No. 7, pp. 829-846.
- Chesbrough, H., 2010. Business model innovation: opportunities and barriers, Long Range Planning 43 (2010) p. 354-363.
- Díaz-García, C., González-Moreno, Á., & Francisco J., Sáez-Martínez 2015 Eco-innovation: insights from a literature review, Innovation, 17:1, 6-23,
- Dagens Næringsliv, 30.10.2019, Hitecvision under kraftig press fra investorene – varsler storsatsing på fornybar. <https://www.dn.no/marked/hitecvision-under-kraftig-press-fra-investorene-varsler-storsatsing-pa-fornybar/2-1-680556>
- Dearing, A., Sustainable innovation, drivers and barriers, in Innovation and the environment, OECD proceedings, 2000.
- Doran, J., and Ryan, G, 2016, The Importance of the Diverse Drivers and Types of Environmental Innovation for Firm Performance, Business Strategy and the Environment nr 25

Eccles, R. G. & Krzus, M. P., 2010 One Report, Integrated Reporting for a Sustainable strategy, John Wiley & Sons Inc., Hoboken, New Jersey.

Eis, J., executive director of Vivid Economics, 19.Feb 2021, Global stimulus funds fall short of boosting green economy, in the podcast ESG Insider A podcast from S&P Global

Erikstad, finansredaktør i Finansavisen, EU lager vei i grønnvasking og grønne bobler, Finansredaksjonen 22.okt 2020

EU 2020/528, REGULATION (EU) 2020/852 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088

EU COM (2019) 640, COMMUNICATION FROM THE COMMISSION, The European Green Deal, 11th December 2019.

EU COM/2019/640, European Green Deal

EU Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.

EU CO 10/20, EU General Secretariat of the Council, Special meeting, July 2020, Conclusion. <https://www.consilium.europa.eu/media/45109/210720-euco-final-conclusions-en.pdf>

Fabian, N., 22nd March 2021, Pers.com in EU revolutionizes sustainability regulation with SFDR, Podcast, ESG Insider, A podcast for S&P Global. Fabian is Chairperson of the European Platform on Sustainable Finance and Chief Responsible Investment Officer at the Principles for Responsible Investment.

Finans Norge, 2018, Veikart for Grønn konkurransekraft <https://www.finansnorge.no/siteassets/tema/barekraft/veikart-for-gronn-konkurransekraft-i-finansnaringen/veikart-finansnaringen-web.pdf>

Finanstilsynet December 2020, Summary Risk Outlook 2020 <https://www.finanstilsynet.no/contentassets/30bf63c783d64aff8ca590f581187c92/summary-risk-outlook-december-2020.pdf.pdf>

Finanstilsynet, November 2020, Survey of companies' sustainability reporting 2020 https://www.finanstilsynet.no/globalassets/tilsyn/finansiell-rapportering/survey_companies_sustainability_reporting_2020.pdf

Fink, 2021, Larry Fink's 2021 letter to CEO's Blackrock <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>

Flannigan, L. & Fadnes, Y, Finansinstitusjoner leder an, foran myndigheter og bedrifter, EU - taksonomiens pionerer. Revisjon og regnskap, nr 7, 2020

Foss, N., & Saebi, T. 2017. Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go? Journal of Management, 43(1), 200-227.

Franceschini, J.R.S.; Faria, L.G. Unveiling scientific communities about sustainability and innovation. A bibliometric journey around sustainable terms. *J. Clean. Prod.* 2016, 127, 72–83.

Hedegard, C., & Kreutzer, I., 2016, Rapport fra Regjeringens ekspertutvalg for grønn konkurransekraft

<https://www.gronkonkurransekraft.no/files/2016/10/Strategi-for-gr%C3%B8nn-konkurransekraft.pdf>

Hart, Stuart L. "Beyond greening: strategies for a sustainable world." *Harvard Business Review*, vol. 75, no. 1, 1997

Heaton, G. R., workshop on innovation and the environment, rapporteur's report, in *Innovation and the environment*, OECD proceedings, 2000.

Horbach, J. & Rammer, C., & Rennings, K. 2011. Determinants of Eco-innovations by Type of Environmental Impact: The Role of Regulatory Push/Pull, Technology Push and Market Pull. *Ecological Economics*. 78. 10.2139/ssrn.1805765.

IBM 2006, "Expanding the Innovation Horizon: The Global CEO Survey 2006". Retrieved from <http://www-935.ibm.com/services/us/qbs/bus/pdf/ceostudy.pdf>.

ICMA 2020, The International Capital Market Association: "Sustainable Finance: High-level definitions". Report May 2020. <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainable-Finance-High-Level-Definitions-May-2020-110520v4.pdf>

IPBES, 2019, Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. XXX pages. <https://ipbes.net/global-assessment>

IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

Albitar, k., Hussainey, k., Kolade, N., Meftah Gerged, A., 2020, ESG disclosure and firm performance before and after IR: The moderating role of governance mechanisms, *International Journal of Accounting & Information Management*, Publication date: 27 March 2020

Klima- og miljødepartementet, 2021, Meld. St. 13 (2020–2021), Klimaplan for 2021–2030

Kreutzer, Idar, adm.dir, Finans Norge, EUs taksonomi for bærekraftige investeringer – Markedskonsekvenser, EUs taksonomi, Webinar i regi av Schjødt, PWC & DNV GL 28. mai 2020

La Torre, M., Sabelfeld, S., Blomkvist, M., Tarquinio, L. and Dumay, J. 2018, Harmonising non-financial reporting regulation in Europe: Practical forces and projections for future research", *Meditari Accountancy Research*, Vol. 26 No. 4, pp. 598-621. <https://doi.org/10.1108/MEDAR-02-2018-0290>

Lovdata, 2021, EØS avtalen, annex XXII, <https://lovdata.no/dokument/NLX2/avtale/avt-1992-05-02-1-v22?q=2014/95/EU>

Løvstad, H. 2020, Energi og Klima, 1. desember 2020. Podkast v/ Martin Larsen Hirth: Hvordan man forholder seg til EUs nye kriterier for bærekraft må bli en del av norske bedrifters strategiarbeid, intervjuet er Heidi Finskas fra KLP og Hanne Løvstad fra PWC.

<https://energiogklima.no/podkast/vi-ma-roskes-litt-opp-for-lite-av-det-vi-gjor-i-dag-er-baerekraftig-nok/>

Lowzow, A., in NVCA, 2021, NVCA webinar om EU-taksonomien 14. januar 2021)

<https://youtu.be/n13U0cC-9Ko>

Lucarelli, C, Mazzoli, C., Rancan, M., and Severini, S., Classification of Sustainable Activities: EU Taxonomy and Scientific Literature, 2020, Sustainability 2020, Vol 12.

Maldener, M, Managing Director and Conducting Officer for Nordea Investment Funds SA, in IQ-EQ, CFO e-Lab Series, How will the EU Taxonomy and SFDR affect asset managers? 23rd of February, 2021 <https://iqeq.com/podcast/episode/how-will-eu-taxonomy-and-sfdr-affect-asset-managers>

Mazzucato, M., 2018, Mission-oriented innovation policies: challenges and opportunities, Industrial and Corporate Change, Volume 27, Issue 5, October 2018, Pages 803–815,

Morningstar 2021, Sustainable Funds U.S. Landscape Report

<https://www.morningstar.com/lp/sustainable-funds-landscape-report>

Hong, M., Drakeford, B., and Zhang, K., 2020 The impact of mandatory CSR disclosure on green innovation: evidence from China, Green Finance, 2(3): 302–322.

Ministry of Finance, 2020, Finansdepartementet, Høringsnotat om gjennomføring av EU-regelverk om bærekraftig finans, Forslag til ny lov om opplysninger om bærekraft.

Monasterolo, I., Battiston, S., Janetos, A.C. et al. Vulnerable yet relevant: the two dimensions of climate-related financial disclosure. Climatic Change 145, 495–507 (2017).

OECD, 2005, Oslo Manual, Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition OECD and Statistical Office of the European Communities.

UNFCCC, 2015, The Paris Agreement

https://treaties.un.org/doc/Treaties/2016/02/20160215%2006-03%20PM/Ch_XXVII-7-d.pdf

Porter, M. E. & van der Linde, C., 1995 Green and Competitive, Harvard Business Review (Sept-October 1995), p 120-134.

EU EURATOM, 2020, Proposal for a Council Regulation establishing a European Union Recovery Instrument to support the recovery in the aftermath of the COVID-19 pandemic amending Council Regulation (EU, EURATOM) No 1311/2013 laying down the multiannual financial framework for the years 2014-2020

Rennings, Claus, 2000, Redefining innovation – eco-innovation research and the contribution from ecological economic. Ecological economic Vol 2.

Revisorforeningen, 2021, Høring - Forslag til ny lov om opplysninger om bærekraft, 6. januar 2021

<https://revisorforeningen.no/globalassets/fag/barekraft/ny-lov-om-opplysninger-om-barekraft-horingssvar-revisorforeningen.pdf>

Robert K. Yin. (2014). Case Study Research Design and Methods (5th ed.). Thousand Oaks, CA: Sage. 282 pages.

Rogelj, J., et al. (2018) Scenarios towards limiting global mean temperature increase below 1.5C, Nature Climate Change, doi:10.1038/s41558-018-0091-3

Saebi, T., & Foss, N., 2016, The bumpy road to business Model innovation: Overcoming Cognitive and Organisational Barriers

Schaltegger, S, Lüdeke-Freund, F, Hansen, E.G 2012, Business cases for sustainability: the role of business model innovation for corporate sustainability, Innovation and Sustainable Development, Vol. 6, No. 2, 2012 95

Schødt, 2020, Webinar EUs taksonomi, 28.05.2020

UNEP 2020, The Production Gap Report: 2020 Special Report. <http://productiongap.org/2020report>

EU 2019/2088, Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (SFDR) (OJ L 317, 9.12.2019, p. 1).

Finansdepartementet 2020, Statsbudsjettet 2021, Meld. St. 1 (2020–2021) Nasjonalbudsjettet 2021

Evans, S., Vladimirova, D., Holgado, M., Van Fossen, K., Yang, M., Silva, E., Barlow, C., 2017 Business Model Innovation for Sustainability: Towards a Unified Perspective for Creation of Sustainable Business Models, Business Strategy and the Environment, Volume26, Issue5, July 2017, Pages 597-608

The Governance Group (TGG), 2020, Bærekraft på børs, 2019, En analyse av bærekrafts-rapporteringen til de 100 største selskapene på Oslo Børs.

<https://static1.squarespace.com/static/59f0a1d780bd5ece4761c6ae/t/5d6d01c41c83ed000100f10a/1567424974977/TheGovGroup+B%C3%A6rekraft+pa%CC%8A+b%C3%B8rs.pdf>

The Governance Group, ESG 100 the Oslo stock exchange, - An analysis of how the 100 largest companies on the Oslo Stock Exchange report on ESG

<https://static1.squarespace.com/static/59f0a1d780bd5ece4761c6ae/t/5db02850e7706219a3a0e902/1571825752834/ESG+100+-++THE+OSLO+STOCK+EXCHANGE.pdf>

TEG 2020, The Technical Expert Group on Sustainable Finance: "Taxonomy: Final Report", March 2020. (TEG Final Report 2020)

Tjora, Aksel H. 2017, Kvalitative forskningsmetoder i praksis, Norsk lyd- og blindeskriftsbibliotek

Tofteland, André, 2014, Finansregnskap, Vurdering og analyse, 4.utgave, Fagbokforlaget.

Vogel, D. J., Is There a Market for Virtue? The Business Case for Corporate Social Responsibility, California Management Review Vol. 47, NO. 4 SUMMER 2005

Von der Leyen, Ursula, 21st january 2021, Special Address by President von der Leyen at the Davos Agenda Week, https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_21_221

WCED. Report of the World Commission on Environment and Development: Our Common Future; WCED: New York, NY, USA, 1987.

Wang, Y., Sun, X., and Guo, X., 2019. Environmental regulation and green productivity growth: Empirical evidence on the Porter Hypothesis from OECD industrial sectors. *Energy Policy* 132, 611-619.

Appendix Interview guide

11th January 2020

Maren Aschehoug Esmark marenae@stud.ntnu.no tlf: 97 18 33 79
Ex Master of Technology Management, NTNU/NHH

Guide to interviews

Master's thesis - "How can ESG disclosures drive business model innovation"?

Thank you for your willingness to be interviewed! The interview is estimated to last about 30 - 45 minutes.

Statements and results from the interviews will be anonymized in the thesis. The interview is done on Zoom, and it will be recorded and transcribed afterwards. The audio / video recording will be deleted. Only my supervisor and I will have access to the transcribed material. Normally, the master's thesis itself will be publicly available on NTNU's website. The interview will be so-called semi-structured, meaning that we do not necessarily go through all the questions and the wording and the order of the questions may vary.

Part 1 ESG and change of business model

- ESG reporting - do you know the term? What do you put in it?
- EU taxonomy - do you know it? What are your expectations for it?
- «The requirements for sustainability and reporting from the EU will lead to very many companies changing their business model». What do you think when you hear such a statement?
- In what ways can requirements for standardized climate analyzes and ESG reporting contribute to companies exploring new business models?

Part 2 Innovation in business models

- What do you think are the biggest obstacles to innovation and change of business model in companies?
- If you think completely freely without any restrictions - What (more or less crazy) opportunities for innovation and change of business model that is more sustainable do you see within your industry?
- What opportunities do you think digital platforms provide for sustainable innovation in business models in your industry?
- What do you think are typical internal barriers in companies to not being able to test such opportunities?

- What do you think are the biggest influencing factors (drivers) for looking for new business models in companies?

Part 3 ESG, climate analysis and the market

- How do you experience the demand for ESG information from investors, customers and others?
- Companies that choose to do thorough climate analyzes - do you have any thoughts on what motivates them?
- Do you have any experience in how companies use the results from such climate analyzes?
- Do you have any examples of companies that get results from climate analyzes and ESG reports that come as a surprise?
- In what ways can demand from investors and customers help industries you know, to change to more sustainable business models?

Part 4 Governmental regulations and requirements and standards for ESG reporting

- How do you think the requirements for reporting on climate footprints and other ESG information will affect companies' willingness and ability to innovate?
- What do you think is the benefit for companies in making such reporting mandatory and standardized?
- What do you think is the disadvantage of such reporting becoming mandatory and standardized?
- What kind of changes do you think ESG reporting can provide for corporate framework conditions? (Regulations, grants, taxes, research and innovation support)
- How can the Norwegian authorities facilitate that the process and information that results from such ESG reporting can contribute to change towards more sustainable business models?

Del 5 Closing

- Do I have the name, title/position, company, number of years in the company correctly?
- Is there anything you want to add?
- Is there anything from your organization within the topic of ESG and climate reporting and innovation at the business model level that you recommend that I read?

The thesis is written as a conclusion to a master's degree at NTNU / NHH, Ex Master of Technology Management. I work as CEO of the Norwegian Society for Nature Conservation, but this thesis is written independently of my job is not linked to my employer.

Appendix intervjuguide

11.januar 2020

Maren Aschehoug Esmark marenae@stud.ntnu.no tlf: 97 18 33 79

Ex Master of Technology Management, NTNU/NHH

Guide til intervjuer

Masteroppgave – “How can ESG disclosures drive business model innovation”?

Tusen takk for at du stiller opp!

Intervjuet er estimert til å vare i ca 30 - 45 minutter.

Uttalelser og resultater fra intervjuene vil bli anonymisert i oppgaven. Intervjuet gjøres på Zoom, og det vil bli tatt opp og transkribert i etterkant. Lyd/videoopptaket vil bli slettet. Kun veileder og jeg vil ha tilgang på det transkriberte materialet. Normalt vil selve masteroppgaven ligge offentlig tilgjengelig på NTNUs nettsider. Intervjuet vil være såkalt semi-strukturert, dvs at vi ikke nødvendigvis går gjennom alle spørsmålene og formulering og rekkefølge kan variere.

Del 1 ESG og endring av forretningsmodell

- ESG rapportering - kjenner du begrepet? Hva legger du i det?
- EU taksonomien - kjenner du til den? Hvilke forventninger har du til den?
- «Kravene til bærekraft og rapportering fra EU vil føre til at svært mange bedrifter endrer sin forretningsmodell». Hva tenker du når du hører en slik påstand?
- På hvilken måte kan krav om standardiserte klimaanalyser og ESG rapporteringer bidra til at bedrifter utforsker nye forretningsmodeller?

Del 2 Innovasjon innen forretningsmodeller

- Hva tror du er de største hindringene for innovasjon og endring av forretningsmodell i bedrifter?
- Om du tenker helt fritt uten noen begrensninger - Hvilke (mer eller mindre spinnville) muligheter for innovasjon og endring av forretningsmodell som er mer bærekraftig ser du innenfor din bransje?
- Hvilke muligheter tenker du at digitale plattformer gir for bærekraftig innovasjon innen forretningsmodeller i din bransje?
- Hva tror du er typiske interne barrierer i bedrifter for at de ikke får testet ut slike muligheter?
- Hva tenker du er de største påvirkningsfaktorene (driverne) for å lete etter nye forretningsmodeller i bedrifter?

Del 3 ESG, klimaanalyser og markedet

- Hvordan opplever du etterspørselen etter ESG informasjon fra investorer, kunder og andre?
- Bedrifter som velger å gjøre grundige klimaanalyser – har du noen tanker om hva som motiverer dem?
- Har du noen erfaring i hvordan bedrifter bruker resultatene fra slike klimaanalyser?
- Har du noe inntrykk av om det er resultater fra klimaanalyser og ESG rapporter som kommer overraskende på bedrifter?
- På hvilken måte kan etterspørsel fra investorer og kunder bidra til at bransjer du kjenner til kan endre til mer bærekraftige forretningsmodeller?

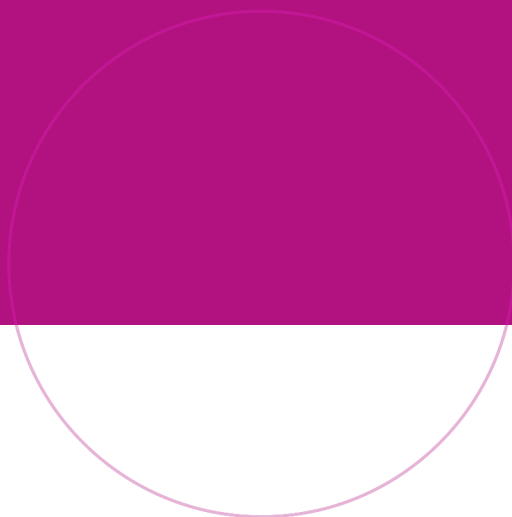
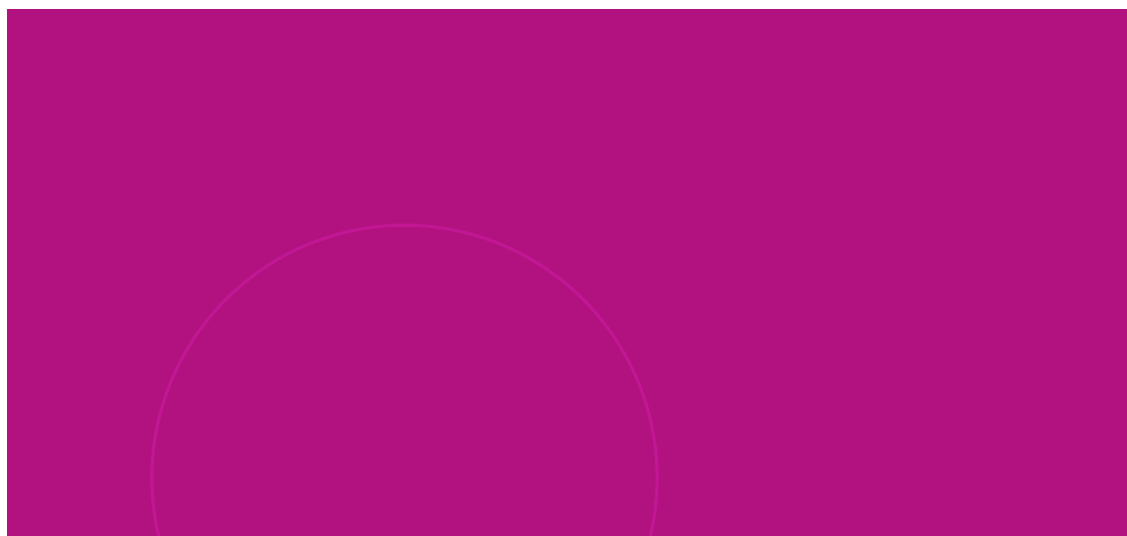
Del 4 Reguleringer, krav fra myndigheter og standarder for ESG rapportering

- Hvordan tror du kravene til rapportering på klimaavtrykk og annen ESG informasjon vil påvirke bedrifters innovasjonsvilje og -evne?
- Hva tenker du er gevinsten for bedrifter ved at slik rapportering bli obligatorisk og standardisert?
- Hva tenker du er ulempen med at slik rapportering blir obligatorisk og standardisert?
- Hva slags endringer tror du ESG rapportering kan gi for bedrifters rammebetingelser? (Reguleringer, tilskudd, skatt, forskning og innovasjonsstøtte)
- Hvordan kan norske myndigheter legge til rette for at prosessen og informasjonen som er resultatet av slik ESG-rapportering kan bidra til endring mot mer bærekraftige forretningsmodeller?

Del 5 Avslutning

- Har jeg navn, stilling, selskap, antall år i bedriften korrekt?
- Er det noe du vil legge til?
- Er det noe fra din organisasjon innenfor tema ESG- og klimarapportering og innovasjon på forretningsmodellnivå du anbefaler at jeg leser?

Oppgaven skrives som avslutning på en mastergrad på NTNU/NHH, Ex Master of Technology Management. Til daglig er jeg ansatt som generalsekretær i Norges Naturvernforbund, men oppgaven skrives uavhengig av dette og er ikke knyttet til min arbeidsgiver.



NTNU

Norwegian University of
Science and Technology