



# Master's degree thesis

**LOG950 Logistics**

**Environmental focus in public procurement**

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Number of pages including this page: 123

Molde, May 23rd 2022



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## **Acknowledgment**

This master thesis was completed in the spring of 2022 and marked the end of our era in the master's program in logistics at Molde University College.

We wish to give a huge tribute to our supervisor Deodat Edward Mwesiumo; the way he guided us throughout the thesis, from the idea to the result, has been an educational experience and has taught us to work hard to achieve our goals and never accept that something is good enough before we are satisfied.

We also want to give a special thanks to all the municipal procurement teams for giving us their time, participating in our interviews, and contributing to our successful thesis.

Finally, we also wish to thank the professors at Molde University College who helped us with questions along the way and our fellow students for five great years together and make our time here valuable and wonderful.

## **Abstract**

In recent times, society wants a more environmental and sustainable future. The government has considered this and has evaluated how to proceed to accomplish this. One of their solutions is to have the public procurement team find new ways to acquire their procurements in a greener way. The result of this was the changes in the procurement act in 2017. This master thesis will explore to what extent this change has affected the municipalities in Norway and if there have been other reasons to adapt and find new ways to evaluate the criteria for their suppliers.

Our thesis will use the Doffin database and in-depth interviews to answer our research questions by seeing the problems from three angles.

1. How are the municipalities affected by the society's norms and the leaders?
2. How do the municipalities weigh their award criteria, and how do they use environmental weights in their procurements.
3. Do the municipalities have a willingness to pay? And how do they weigh price and quality compared to the environment?

The objective is not only to see how they use award criteria in their procurement but also to see if they have found better ways to use the environment as a criterion and if the leadership and society have a more significant impact on the procurement team's decision making.

Some of the challenges we expect to meet are the data from the Doffin database. We could not make a user profile because we needed an organization number to register as a buyer. This made it more difficult to find relevant information; with some searching, we were able to resolve this and make our statistics. Another challenge came with the interviews. First, find the standard features for generalizing them, and second, get them onboard. We were met with skepticism; they were worried that we were out to “get them” and present them in the wrong way. When explaining what we wanted to use the data for and our thesis, they quickly changed their mind and tried to help us in a research project they wanted to be a part of.

# Table of Contents

1.0 Introduction .....	10
1.1 Problem statement .....	13
2.0 Development of Public procurement in Norway .....	14
2.1 The history of public procurement .....	14
2.2 REFSA .....	15
2.3 The EØS-approach .....	16
2.4 The municipal reform in 2016 .....	17
2.5 Rules and Regulations in Public Procurement .....	19
2.5.1 The Public Procurement Act .....	19
2.5.2 Regulations on Public Procurement .....	20
2.6 Principles .....	21
3.0 Literature review .....	22
3.1 Regulations on Public Procurement .....	23
3.2 Requirements and criteria in public procurement .....	25
3.2.1 Selection criteria .....	25
3.2.2 Qualification requirements .....	26
3.2.3 Requirements specifications .....	26
3.2.4 Award criteria .....	27
3.2.5 Weighting of award criteria .....	28
3.3 The procurement process .....	29
3.3.1 Clarification of needs and preparation for competition .....	30
3.3.2 Announcement and execution of the competition .....	32
3.3.3 Contract execution and ongoing contract monitoring .....	32
3.4 Concepts of various environmentally focused procurements .....	33
3.4.1 Sustainable vs. Green Procurement .....	33
3.4.2 Circular procurements Circular Economy .....	34
3.4.3 Triple bottom line .....	35
3.5 Environmental requirements in public procurement .....	36
3.6 Transformational leadership within a municipality .....	36
3.7 Simple definitions and explanations .....	37
3.7.1 ISO-certifications .....	37
3.7.2 Life-cycle cost .....	38

3.7.3 Willingness to pay (WTP).....	38
4.0 Research Methodology.....	38
4.1 Research Onion Model.....	39
4.2 Philosophical direction.....	40
4.2.1 Ontology.....	41
4.2.2 Epistemology .....	41
4.2.3 Axiology.....	42
4.2.4 Our Philosophical direction.....	43
4.3 Approach to theory development .....	43
4.3.1 Deductive approach.....	44
4.3.2 Inductive approach .....	44
4.3.3 Abductive approach .....	45
4.3.4 Our approach.....	45
4.4 Research Design.....	45
4.4.1 Descriptive research strategy .....	46
4.4.2 Exploratory research strategy.....	46
4.4.3 Explanatory research strategy .....	46
4.4.4 Sequential research strategy .....	47
4.4.5 Combined studies .....	47
4.5 Research strategy .....	48
4.6 Research strategy .....	49
4.7 Methodological choice .....	51
4.7.1 Qualitative and Quantitative method .....	51
4.7.2 Mixed method .....	52
4.8 Sampling .....	52
4.9 Time horizon .....	54
4.10 Presentation of cases (Municipalities) our research approach .....	56
4.11 Techniques and procedures .....	57
4.11.1 Data collection .....	57
4.12 Primary and secondary data .....	58
4.12.1 Primary Data: Interviews .....	58
4.12.2 Secondary data part one: Doffin .....	58
4.12.3 Secondary data part two: Literature review .....	59
4.13 Data analysis .....	60



4.13.1 Qualitative data analysis .....	60
4.13.2 Quantitative data analysis .....	61
4.14 Research quality .....	63
4.14.1 Construct validity .....	63
4.14.2 Internal validity .....	64
4.14.3 External validity .....	65
4.14.4 Reliability .....	66
5.0 Presentation of findings .....	67
5.1 Presentation of data from Doffin .....	67
5.1.1 Molde municipality .....	70
5.1.2 Sola municipality .....	71
5.1.3 Porsgrunn municipality .....	71
5.1.4 Bærum municipality .....	72
5.1.5 Lillehammer municipality .....	72
5.1.6 Summary of the municipalities before and after 2017 .....	73
5.2 Presentation of interviews .....	74
5.2.1 Molde municipality .....	75
5.2.2 Sola municipality .....	79
5.2.3 Porsgrunn municipality .....	84
5.2.4 Bærum municipality .....	88
5.2.5 Lillehammer municipality .....	92
5.2.6 Summary of the interviews .....	96
6.0 Analysis.....	96
6.1 Leadership, social responsibility, and environment.....	97
6.2 Use of award criteria in tenders .....	100
6.3 Policy about greener options versus price and quality .....	104
6.4 Discussion of research questions .....	108
7.0 Conclusion .....	115
8.0 Limitations and recommendation.....	116
9.0 Biography.....	117

## **List of tables:**

Table 1: Threshold values and application of regulations .....	25
Table 2: Schedule for Master Thesis.....	55
Table 3: Headers from Doffin .....	68
Table 4: Doffin statistics from Molde municipality.....	70
Table 5: Doffin statistics from Sola municipality .....	71
Table 6: Doffin statistics from Porsgrunn municipality.....	71
Table 7: Doffin statistics from Bærum municipality .....	72
Table 8: Doffin statistics from Lillehammer municipality .....	72
Table 9: Summary of Doffin statistics before 2017 .....	73
Table 10: Summary of Doffin statistics after 2017 .....	74
Table 11: Summary of interviews .....	96

## **List of figures:**

Figure 1: The research onion (Saunders et al., 2015) .....	40
Figure 2: Decision factors for environmental procurement .....	111
Figure 3: Aspects a procurer must navigate through .....	115

## 1.0 Introduction

Public procurement refers to how public authorities, including local governments and government agencies, acquire services, goods, or works from other companies. Every year, over 250,000 EU public authorities spend approximately 14% of their own country's GDP on the purchase of public-sector consumer goods and services for various sectors, including energy, transportation, waste management, social protection, and the provision of health and education services. As a result, public procurement wields considerable power and influence (Mwesiumo et al., 2021). Public authorities can use procurement to create more jobs, growth, and investment and a more innovative, resource- and energy-efficient, and socially inclusive economy (European Commission 2022).

EU legislation establishes public procurement rules to harmonize procurement across Europe to ensure fair trade and competition and a level playing field for European businesses. These rules govern how public entities and certain public agencies conduct themselves in the procurement process. EU rules are incorporated into national law and apply to tenders valued above a certain threshold. If the amounts are less than the EU's threshold amounts, they will be subject to national rules enacted by their respective countries. However, these national rules must follow the general principles of EU law (European Commission 2022).

The Norwegian legislation, which consists of laws and regulations on public procurement, is designed to ensure good routines for public procurement implementation while also contributing to resource efficiency and increased value creation in society. Society is constantly evolving, and new technologies are continually emerging. As a result, continuous improvement is required to simplify, streamline, and modernize procurement, and the law should be updated accordingly. The regulations have been criticized in recent years. It was perceived as overly complicated, detailed, and strict. It was planned to change the procurement regulations before the reform of the Norwegian municipality. As a result, there was a desire to change the regulations to emphasize simplification and efficiency (Prop. Nr. 511, (2015), s.24).

The new regulations went into effect on January 1, 2017, ensuring commercial, efficient, and ethical public procurement. The regulations emphasize the importance of digitizing

public procurement. This is done to remove paperwork and ensure that all communication and transactions are done electronically. This will also provide good communication, correct documentation, and fair competition. Although the focus of the changes in regulations was to simplify them to make them more efficient, new laws were also added. One of these laws was that the environmental focus on procurement should be emphasized. One of the primary reasons for the addition of this law is the increased emphasis on the environment around the world. This resulted in the EU adding environmental weights to their legislation, and it was only natural to include this in Norwegian legislation.

With a growing emphasis on climate and the environment, both globally and nationally, public procurement has a significant impact and plays an important role. As previously stated, the reason for this is that public procurement wields considerable power due to the large sums used to supply goods and services to the public. However, for procurement to contribute to reducing climate and environmental emissions, the regulations must function correctly. Brammer and Walker write that the public procurements in the UK are encouraged to reduce the environmental and social footprint. A UK task force has defined sustainable procurement to meet their needs and achieve value for money to generate benefits to society and the economy and reduce the negative impact on the environment (Brammer, 2011). This reflects the EU regulation and adoption of the Norwegian one.

According to Bosio, the new laws and regulations are not correlated with the outcome of a higher focus on the environment; their research is based on 184 countries and their public procurement laws (Bosio et al. 2020). A research paper focusing on Peru and Latin America states that public procurements represent 11.7% of GDP. Since it's so large, it is highly relevant to the national economy. Therefore, the government in Peru implemented a procurement law back in 2015 to include the possibility of using parameters to promote sustainable production and consumption to improve environmental and social sustainability (Biberos-Bendezú, 2021).

In our thesis, we will look at other ways to determine how the laws and regulations are related with a higher focus on the environment. We want to look at how the change in regulations from 2017 has affected the procurements and the usage of environmental criteria in public procurement. How do the municipalities navigate through the different environmental criteria, and how do they use them to choose the suppliers? Are there other

criteria than the price that is a crucial factor? Such as society, politics, and limits in the legislation.

Keeping a healthy and sustainable environment is very socially relevant in our society. How does the public government in Norway promote environmental focus, and in our case, environmental focus in public procurement? Above, we have seen different literature from multiple nations to see how regulations have changed to promote the environmental focus. Nevertheless, in what way have the regulation helped? In our thesis, we wish to find out if there is a correlation between the social view, laws and regulations, and the municipalities' limitations in the economy.

Our master's thesis consists of seven chapters. The first chapter contains an introduction and the study's background. The second chapter is about the establishment of procurement regulations. This vital chapter focuses on where the focus on Norwegian procurement has been since its inception. Here are some key features of the procurement regulations that highlight key elements in the thesis. Since the procurement regulations were established, the most crucial factor is the dominating price as a criterion. The third chapter consists of a literature review. Here are some key points regarding the law and its structure. We also have critical public procurement concepts and critical concepts relevant to the thesis. In chapter four, we discuss our methodology framework. This section describes how we conducted our research and discusses research methods. We present our research findings in Chapter 5. We highlight key elements used in our analysis in Chapter 6. Finally, Chapter 7 summarizes our findings and conclusions and discusses recommendations for future research.

## **1.1 Problem statement**

Public procurement constitutes a substantial proportion of the total procurements in Norway; approximately they use 600 billion a year (Nærings- og fiskeridepartementet 2022); therefore, such procurements naturally constitute a lot of the climate emissions the nation releases and the footprint, both in production, transportation, usage, and waste disposal. In our thesis, we seek to determine how the municipalities in Norway complete their procurements, focusing on the environment and sustainability. With our problem statement and research questions, we wish to determine how the municipalities use the environmental criteria to promote an environmentally friendly focus best. The public has a

higher focus, as seen in an online newspaper. In 2021 Lennart Hovland wrote in the online newspaper Anbud365; “Will 2021 be the year where public procurement finally can take the step to be an efficient instrument in the climate struggle” (Hovland. 2021). In 2022 the same author comments on the change of regulations about 30% usage of environmental weightings. He wants the 30% weight to be mandatory in every procurement and that the procurer shall become more educated in the environment and innovation (Hovland. 2022).

*How have the updated procurement regulations from 2016 contributed to the environmental performance of public procurement in municipalities?*

**We broke down the above main question into three sub-questions:**

- *Does the public procurement team weigh environmental focus more now than before 2016, when the regulations did not include optional environmental weighting?*
- *To what extent does the environmental focus weigh compared to other criteria?*
- *How do public purchasers in municipalities navigate environment performance criteria?*

## **2.0 Development of Public procurement in Norway**

This chapter will first discuss the development of public procurement in Norway before explaining the fundamental principles of public procurement today. This is because the Public Procurement Act has been rewritten several times. Understanding how the rules work today requires understanding how changes in the rules have affected the procurement regulations today.

### **2.1 The history of public procurement**

The first procurement regulations in Norway were enacted in 1899. The regulations were divided into four chapters and contained a total of 28 paragraphs. At the time, the regulations only applied to government purchases and had two main goals: one was to ensure competition among players in order to ensure good prices and lower public costs, and the other was simply to protect the Norwegian industry from foreign competition. These regulations established the tender principle in order to ensure competition, but they

also allowed for procedures such as limited tender competition and direct procurement (Innkjøpskontoret 2015 Part I).

The regulations were changed for the first time in 1923 and then again in 1927. Tariffs were imposed on tenders from foreign players at the time in order to protect the Norwegian industry from foreign actors who could offer cheaper products and services. The rules were also changed so that Norwegian actors could not import low-cost goods and services and mark them up in order to offer a low price and outcompete Norwegian producers in the industry while earning more. This is due to the fact that imports may have increased while exports may have decreased. As a result, the economy would have declined. Another factor that was altered was that more than just price should be considered. All factors should be considered, not just the price (Innkjøpskontoret 2015 Part II).

Throughout the 1900-century, several changes occurred. Specialized purchasing organizations were formed, structural changes on the supplier side were implemented, and a much broader range of goods and services were made available to do larger international cooperation. This, in turn, led to increased competition among Norwegian actors, making it more difficult to favor Norwegian players. Due to the major changes and advances in the Norwegian and international industry, the public procurement law was changed again in the 1970s (Innkjøpskontoret 2015 Part III).

## **2.2 REFSA**

In December 1969, a committee was formed to investigate the regulations governing public procurement and the purchase of goods. The goal was to reduce the risk of corruption and secure cross-border trade, which was something that Norwegian public procurement regulations had largely avoided in order to protect Norwegian industry. The new regulations went into effect in 1978. The regulations had internal policies that outlined how the administration should handle public procurement. The new regulations distinguished between procurement of goods and services in one section and procurement of building and construction in another. A third section dealt with disposal, which refers to the sale of outgoing martial arts (Innkjøpskontoret 2015 Part III).

The regulations from 1899, 1927, and REFSA all had one thing in common; they did not provide suppliers with particularly good opportunities to make legal claims. These were

internal policies. Government employees could make as many mistakes as they wanted without being held accountable for anything other than pointing out the rules that should have been followed. However, as international cooperation grew, discriminatory rules were gradually phased out in order to comply with EØS-rules (Innkjøpskontoret 2015 Part III).

## **2.3 The EØS-approach**

The first regulations for public procurement were developed in the EU around 1970. These rules were put in place to ensure competition and free trade among member countries. The first regulations were for public works contracts and were implemented in the EU in 1971. A set of rules for purchasing services was added in 1992, and a set of rules for purchasing goods was added in 1977 (Burrows and Mcneill 2022)

Norway joined EØS in 1992. As a result, public procurement regulations had to be adapted to the regulations set for the rest of Europe. The first EØS regulations went into effect in 1994, and they now include the first public procurement law (Loven om offentlige anskaffelser). Despite the fact that the law only applies to procurements above the EØS threshold values, this is the first time that public procurements have been regulated by law. This means that it is possible to bring a case against a public client who does not follow the rules, which was not possible before. The most significant difference between the new legislation and previous public procurement legislation was that the new legislation had legal force and was intended to protect private suppliers' rights in public procurement (Innkjøpskontoret. 2015, Part III).

When Norway joined EØS in 1992, the EØS-agreement included a number of regulations governing the procurement of goods, services, supplies, and building and construction over a certain value. When the value was less than a certain threshold, the REFSA still applied to government activities, but this was only an instruction. A large number of different instructions were gradually adopted in municipalities and county municipalities, which were based on REFSA to varying degrees, but the same EØS-law applied to major procurements. The new public procurement law was a law that allowed for regulations with more detailed rules for how the law was to be followed. In 1994, Norway also joined the World Trade Organization Agreement (WTO Agreement) on Public Procurement. Furthermore, Norway joined the GPA. There were many gaps that were filled in light of



recent events as a result of Norway's membership in different organizations that had many of the same but different rules. In 1995, a committee was formed to discuss collaboration and the establishment of a more sustainable public procurement law. Two years later, NOU 1997 was presented, which roughly corresponds to the regulations in use today. Since 1997, there have been only minor changes to the law as a whole. The last change in the rules for public procurement occurred in 2016, with the implementation of the municipal reform (Innkjøpskontoret 2015 Part III).

## **2.4 The municipal reform in 2016**

The municipal reform was an initiative in Norway to change the municipal division. The justification behind it was to build larger and more robust municipalities. The primary goal of such a division was to ensure that all Norwegian municipalities had adequate financial and human resources to provide services. If municipalities are to remain equal and treated equally as providers of welfare services, they must grow in size to become independent secondary providers of services such as private actors of kindergartens, medical services, and so on. This could be accomplished by increasing the size of municipalities, ensuring competent staffing, and sharing knowledge among municipalities (Hansen and Tjernshaugen 2021).

After much debate, the government presented a concrete proposal for the municipal division. As a result, the number of municipalities was reduced from 426 to 358. Thirty-eight municipalities were reduced voluntarily, while 32 municipalities were forcibly merged into nine larger municipalities. In parallel to the municipal reform, a regional reform was implemented, which reduced the number of counties from 19 to 11 (Hansen and Tjernshaugen 2021).

In the early 2000s, scientists and a prominent man, in collaboration with the UN, began to focus on the world's global changes. Al Gore became a public face for global climate change and produced the Oscar-winning film "An Inconvenient Truth," which was about the changes in the world. In 2007, he and the UN Intergovernmental Panel on Climate Change (IPCC) were awarded the Nobel Peace Prize for their efforts to spread knowledge about human-caused climate changes (Nobel Peace Prize 2007). In 2015, a treaty was signed in Paris with the goal of limiting global warming. To accomplish this, participants signed a legally binding international treaty to reduce greenhouse emissions as soon as

possible. The agreement was known as "The Paris Agreement," and it was signed by 196 countries (United Nations 2021). TIN 2015, the UN also announced and decided on "Sustainable Development Goals (SDG), which demanded action from all countries, rich and poor alike. They are not legally binding, but every country is expected to feel ownership over them (United Nations 2021).

One of the changes made by the Norwegian government when it signed the treaty in 2017 was a new procurement regulation that went into effect on January 1st, 2017. The new public procurement regulations state that when making a purchase, the procurement team must emphasize the environment and promote climate-friendly options. This is stated in Section § 5 of the Procurement Act, which states that public contracting authorities must "Organize their procurement practices so that it helps to reduce harmful environmental impact, and promote climate-friendly solutions where applicable" (Nærings- og fiskeridepartementet and NHO 2020).

Prior to the 2016 reform, each department and government agency worked for itself and handled its own procurement. The reform resulted in separate procurement processes and a professional environment, resulting in resource waste. When the government implemented the reform, several changes were made to streamline public procurement by establishing a central procurement unit. Having a centralized public procurement department facilitates better communication and knowledge sharing and increases procurement efficiency. It also allows for the implementation of standard framework agreements, which free up resources and allow for more concentrated procurement (Fromreide 2015).

The Public Procurement Act has gone through a long process to become current legislation, and the principles have been formed throughout its history. The law began by shielding the Norwegian industry from foreign competition. Over the years, this has changed. The legislation still protects the Norwegian industry, but due to Norway's membership in the EU through the EØS-agreement, the public procurement act has changed. It is no longer permitted to exclude foreign players by tender. This means that all actors in the EU are free to participate in any tender announced by any country that is a member of the EU. As I previously stated, this is to ensure free trade across national borders.

## 2.5 Rules and Regulations in Public Procurement

In the Norwegian government, there is a department called The Norwegian Agency for Public and Financial Management (Direktoratet for forvaltning og økonomistyring 2021). Their mandate is to help ensure sound financial management in the different institutions in the Norwegian government (Direktoratet for forvaltning og økonomistyring 2021). In their mandate, they are required to work within two laws regulating public procurement; *the "Public Procurement Act"* and *"Regulations on Public Procurement"* (Direktoratet for forvaltning og økonomistyring 2021). In this part of the chapter, we will explain the distinction between the *Public Procurement Act* and the *Regulations on Public Procurement*. Notice that the *Public Procurement Act* and the *Regulations on Public Procurement* almost have the same name, but there is a significant difference. Furthermore, We will explain some of the paragraphs that are relevant to explain the difference, but most of the relevant paragraphs will be explained in chapter 3.

### 2.5.1 The Public Procurement Act

The Norwegian Procurement Act (Loven om offentlige anskaffelser LOV-2017-04-21-18), as stated previously, has evolved and become more strict over time. The reason for this is that a purchaser cannot do whatever they want in public procurement, and the law is in place to prevent corruption and to ensure that everyone who wants to submit an offer is treated fairly. The public procurement act is there to promote the effective use of social resources and, at the same time, ensure that the government acts with integrity and enhances trust. The purpose of the Act is explained in § 1. The Norwegian Procurement Act's primary goal is to encourage the efficient use of society's resources. It shall contribute to the public sector acting with integrity so that the public has confidence that public procurement occurs in a socially beneficial location. The basic principles of the Public Procurement Act are mentioned in paragraph 4 and state that the client must follow the fundamental principles of competition, equal treatment, predictability, verifiability, and proportionality (Anskaffelsesloven 2017).

According to paragraph 2, the law applies to several government agencies, including state authorities, county, and municipal authorities, bodies governed by public law, associations with one or more clients as defined in international agreements to which Norway is bound, and other enterprises that carry out supply activity on the basis of exclusive or special rights as defined in international agreements to which Norway is bound. This applies to all

government agencies that conduct procurement on behalf of the public sector within the purchase of goods, services, building- and construction contracts, including licensing contracts, or holds planning and design competitions with an estimated value of NOK 100 000 NOK excluding VAT (Anskaffelsesloven 2017).

The Procurement Act does not apply under certain conditions. The Act does not apply to procurements that may be exempted under Article 123 of the EØS-agreement. Additional exceptions from the Act's scope may be specified in the regulations on public procurement (Anskaffelsesloven 2017). Paragraph 5 is one of the newer sections since the change in 2017. The section discusses the environment, human rights, and other societal issues. According to the Procurement Act, §5 first paragraph states that public authorities "*shall align their procurement practices so that it contributes to reducing harmful environmental impact, and promoting climate-friendly solutions where this is relevant. This must be done, among other things, by the client taking life cycle costs into account*" (Anskaffelsesloven 2017). The law makes it clear that environmental considerations must be taken into account in the planning phase where relevant. Regulations on public procurement §7-9 state that clients must place emphasis on minimizing the environmental impact and promoting climate-friendly solutions in their procurements and that environmental requirements can be set at all stages of the procurement process (Anskaffelsesforskriften 2017). Furthermore, the law states that each client must establish these criteria on their own (Anskaffelsesloven 2017).

### **2.5.2 Regulations on Public Procurement**

According to paragraph 1 of the Procurement Regulations, the regulations apply when a public institution wants to publish a tender for the acquisition of goods, services, building- and construction contracts and when conducting planning and design competitions with an estimated value of NOK 100.000, excluding VAT. Paragraph 2 elaborates that the state organizer is governed by public law and exists to serve the needs of the general public rather than for industrial or commercial purposes. The State organizer is primarily supported by public authorities or other bodies subject to public law. State organizers are governments, counties, and municipalities. The regulations apply to government, counties, and municipalities, but also for associations with one or more clients (Anskaffelsesforskriften 2017). Furthermore, in chapter two of the regulations, the rules for exemption from the laws from Chapter One are explained. In chapter two of the

regulations, the regulations explain that the procurement act and regulations on public procurement do not apply to defense and security procurement. This also applies in an international agreement with public authorities outside the EØS-agreement that includes benefits for a joint project that the parties to the agreement carry out or use.

This is the main purpose of regulations on public procurement. The regulations explain how a purchaser should relate to public procurement and how a purchaser should behave in any situation in public procurement. The regulations also go into greater detail about how to deal with various procurements within various thresholds, which We'll get to later. Furthermore, the principles of the public procurement act and the regulations on public procurements are vital for purchasers who work for a public institution, and the legislation is built upon these principles (Regjeringen 2017 s, 45-47).

## **2.6 Principles**

As previously noted, public procurement rules have evolved throughout time and so have the principles behind the public procurement act and regulations. The first principle is about equal treatment, which applies to all acquisitions within the EØS. This means that all suppliers who wish to participate in the competition should not be treated differently. There is also no opportunity to disadvantage or to give some suppliers an advantage in procurement competitions. Everybody should be treated fairly and be given the same information. This also applies to national and municipal acquisitions (Regjeringen 2017 s, 45-47).

The second principle is objective and non-discrimination. The first part of this principle means that selecting criteria for the selection of vendors on behalf of the government must be objective. This implies that processes should be visible throughout the process. Being objective also implies that the criteria must be relevant to the procurement. The second part of the principle implies that there is no opportunity to prevent competition based on nationality and that the criteria set must be open so that everybody can participate. The third principle is predictability. This principle states that suppliers need to know important details about how procurement competitions are conducted. The reason for this is that they should be able to consider participating based on the specifications and selection criteria outlined in the tender documents (Regjeringen 2017 s, 45-47).

The fourth principle is transparency and verifiability. The principle of transparency is important to the legislation, and it is a direct result of the requirement of the regulations for equal treatment. This means that all choices and actions taken in the course of a procurement competition must be public and verifiable again. The notion of verifiability is also vital for the criterion of objectivity since it is necessary to be able to verify that everything has gone according to plan. Verifiability is crucial because it is open to some discretionary judgments in terms of compliance. The fifth principle is the principle of proportionality. This means that in the discretion exerted in connection with supplier selection to be related to the procurement itself, a certain level of proportionality is required. The procurement requirements and criteria must be in relation to the contract object. You won't be able to make unreasonable requests or utilize selection criteria that aren't related to the procurement (Regjeringen 2017 s, 45-47).

The requirement for the competition is the sixth and final principle. This principle is built on competition and is the most important rule in tenders. The purpose is to get the most value for money with the money you have. Regardless of the sort of acquisition or its monetary value, this rule applies. Through the use of the tender principle, one will, in any case, be able to achieve an apparent competition. The regulations state that one should "as far as possible" be based on competition. If competition is not possible, there are other rules under the procurement legislation that apply to procurements (Regjeringen 2017 s, 45-47).

The principles establish the framework for how a public institution must comply with the laws. The public procurement act specifies which laws apply and what is and is not legal, while the regulations on public procurement. It explains how to apply the law in various situations, as well as what is and is not legal under certain conditions in procurement. In chapter 3, we will discuss the procurement processes and which laws are most commonly used (Regjeringen 2017 s, 45-47).

### **3.0 Literature review**

In this chapter, we discuss numerous public procurement laws and regulations. We'll get into more detail about key regulations and how the procurement process generally works in relation to the procurement regulations. Finally, we will talk about other theories relevant to the thesis based on previous theories.

### **3.1 Regulations on Public Procurement**

As previously explained in Chapter 2, the Public Procurement Act is strictly regulated. Norway's procurement regulations are a combination of EU regulations and separate Norwegian legislation. Norway is required to regulate public procurement of goods, services, and building- and construction contracts above the EØS threshold. In addition to this, Separate Norwegian rules apply to public procurement outside the EU threshold values. This applies to public institutions that are under the Procurement Regulations below the threshold values (Prop. Nr. 511, (2015-2016), s.19).

The rules for planning and carrying out public procurement are governed by Public Procurement Law No. 73 of 01 January 2017 (Anskaffelsesloven, 2017). The law specifies how public contractors should comply with the law in general. However, the majority of public contractors follow the public procurement regulations. This is due to the fact that the regulation explores deeper into the laws, making them easier to interpret and relate to (Anskaffelsesforskriften 2017). There are separate laws and regulations governed by different sectors, such as the supply sector and licensing contract regulations. These regulations' rules are very similar to the procurement regulations' rules. However, they do have differences depending on which industry they are in (Mæland 2017).

As an example of the distinction between the law and regulations, consider the following: The Procurement Act, for example, states §5 that public authorities "Shall arrange their procurement practices so that they contribute to reducing harmful environmental impact, and climate-friendly solutions where this is relevant ."This can be done, among other things, by the client taking life cycle costs into account. This can be done by the public client by taking life cycle costs into account (Anskaffelsesloven, 2017). The law specifies that, where applicable, environmental considerations must be taken into account during the planning phase. While according to Public Procurement Regulations §7-9, the client must emphasize minimizing environmental impact and promoting climate-friendly solutions in their procurements, and environmental requirements can be set at all stages of the procurement process (Anskaffelserforskrift 2017).

The essential concepts presented in chapter 2 describe how a public institution should relate to public procurement. In addition to the general principles, several other provisions

of the regulations must be followed by public actors. The regulations are broken down into sections, and which one to apply depends on the value of the contract and what is being acquired. The regulation is broken down into five sections. The first part I contains general laws that apply to all procurements covered by the regulations in general, as well as guidelines defining which parts of the regulations apply to certain types of procurement. Part II is about procurements between national threshold values and EØS threshold values. Part III is about acquisitions above EEA threshold values. Del IV is about procurement of health and social services, and Part V is about planning and designing competitions (Mæland 2017, s 45-47).

One threshold value applies to goods and services, while another pertains to building and construction activity. Upper and lower limits have been defined for threshold values, which decide whether elements of the regulations are applied to each specific purchase. The value of the procurement is calculated by public institutions and those who issue a requisition (request for proposals) and is regulated by the legislation. The threshold amounts are updated every two years to keep up with inflation and currency fluctuations. This is regulated by §5-3 of the Procurement Regulations (Anskaffelsesloven 2017). The different threshold values and what is regulated according to them are shown in the table below.



<b>Parts in the regulations</b>	<b>Threshold values</b>	<b>Requirements</b>
<b>Part I</b>	<b>Acquisitions between 100.000 and 1.300.000. Health and social services under 6.950.000.</b>	<b>Requirement to follow part I of RPP.</b>
<b>Part II</b>	<b>Acquisitions of at least 1,300,000, but not exceeding the EØS threshold values.</b>	<b>Requirement to follow parts I and II by RPP.</b>
<b>Part III</b>	<b>Acquisitions above the EØS threshold values (off. goods / services: 1.300.000. building / construction.</b>	<b>Requirement to follow parts I and III by RPP.</b>
<b>Part IV</b>	<b>Health and social work services equal to or above the EØS threshold (6.950.000)</b>	<b>Requirement to follow part I and IV of RPP.</b>
<b>Part V</b>	<b>Planning and designer competitions with an estimated value of at least 1.300.000.</b>	<b>Requirement to follow parts I and V by RPP</b>

*Table 1: Threshold values and application of regulations*

## **3.2 Requirements and criteria in public procurement**

In a procurement process, a distinction is often made between selection criteria and qualification requirements that are directly aimed at the supplier and requirements specifications and award criteria that are defined in the tender or a contract. We will now discuss the various criteria that we believe are important components of the thesis and for the subsequent analysis.

### **3.2.1 Selection criteria**

In the first part of a tender competition, pre-qualification is accomplished through the use of selection criteria. The contractors use pre-qualification to limit the number of providers. Selection criteria establish the requirements for excluding suppliers who are not qualified for a tender competition, tender competition, negotiation competition, innovation partnership competition, or competitive dialogue. This allows public institutions to avoid unnecessary resource waste (Digitaliseringsdirektoratet 2020-2).

### **3.2.2 Qualification requirements**

A supplier must meet the qualification requirements in order to participate in a tender competition. A contractor can set requirements for the supplier's qualifications. The requirements may only apply to registration, authorizations in accordance with Regulations on public procurement §16-2, economic and financial capacity §16-3, and technical and professional qualifications. (Goller, Morten 2017 s, 130) The qualification requirements are in place to ensure that the supplier has the ability to complete the contract by having the necessary technical, professional, economic, and financial capabilities (Mæland 2017 s, 97).

Furthermore, the qualification requirements must be clearly defined. This means that the qualification requirements must be clear, precise, and understandable so that everyone can understand them. In accordance with § 8-4, the qualifications must include the following; what will be procured, which contract terms will apply to the assignment, whether the contractor will enter into a framework agreement, how the contractor will carry out the competition, the requirements that apply to the content and design of a request to participate in the competition or an offer, and other information relevant to the preparation of a request to participate in the competition or a tender (Anskaffelsesforskriften 2021).

### **3.2.3 Requirements specifications**

The requirements specification specifies the properties' requirements upon delivery. This is in accordance with procurement regulations § 8-5 and § 15-1. The requirements specifications can be written in the form of performance or function descriptions, technical specifications, or a combination of these. The requirements specifications provide the bidder with a clear understanding of the need and the goals that must be met in the delivery. As a result, the bidder must submit a tender and propose a solution based on the information provided (Mæland 2017 s, 96).

The regulations on public procurement paragraph §8-5 and §15-1 state that the requirements specifications must specify the properties of the goods, services, or building and construction work that the client is to purchase. Furthermore, it states that the requirements must be related to delivery and proportionate to the procurement's purpose and value. They can refer to all aspects and stages of the life cycle of the goods, services, or construction work covered by the contract (Anskaffelsesforskriften 2021).

### **3.2.4 Award criteria**

The award criteria are the competition criteria that a contractor must evaluate in the tenders. Only tenders submitted by qualified bidders who can meet the minimum requirements specified in the tender documents, including requirements specifications, will be considered in relation to the award criteria. The contract will be awarded by the contractor to the supplier who scores the highest on these criteria. Requirements for award criteria are regulated under Part II of the Procurement Regulations. In accordance with §8-11, the contractor shall select tenders based on objective award criteria, which shall be stated in the procurement documents in order of priority (Goller, Morten 2017 s, 145). This means that the contractor shall award the contractor to a supplier that can fulfill one of the following criteria. The same applies to criteria under Part III of the Procurement Regulations above the EØS threshold value, which is derived from the provision in § 18-1 (Mæland 2017 s, 202).

1. Award on the basis of the lowest price principle

The offers are evaluated solely on the basis of the offered price, with the lowest price winning competition (Regjeringen 2017 s, 202).

2. Awarded based on on the basis of the lowest cost

The offer is evaluated based on the lowest total cost of the procurement, including price and other costs. A cost-effectiveness approach must be used, which includes life cycle costs, among other things (Mæland 2017 s, 203). The contractor can include the contractor's or other users' costs, such as energy consumption and recycling when calculating life cycle costs, but also costs associated with environmental externalities such as emissions of greenhouse gasses and other climate costs. The values associated with external costs, such as climate control costs, must be quantifiable and verifiable in order for the client to emphasize them. (Mæland 2017 s, 203).

3. The award is given based on the best combination of the lowest price or cost to quality.

A contractor can select the best combination of price, cost, and quality. This is also known as the "economically most advantageous offer," and it involves a comparison of price and costs on the one hand and quality versus non-economic assessment on the other. This could, for example, be a combination of price, quality, environmental, technical, delivery and completion time, LCC. These are just a few examples of the qualitative award criteria. Quality criteria can be determined by the client based on professional judgment and the specific conditions at the time of procurement. The award criteria may include a number of sub- and sub-criteria that can be scored in points. Criteria relating to social and environmental considerations have been deemed sufficiently linked to delivery in several cases (Mæland 2017 s, 204).

### **3.2.5 Weighting of award criteria**

The award criteria are the competition criteria that are used to evaluate the tenders. The contract will be awarded to the contractor who submitted the tender that, in the public procurement employee opinion, scores the highest on these criteria. The criteria must be objective, factual, and consistent with the basic principles of the public procurement law. Requirements for award criteria under Part II of the Procurement Regulations are derived from §8-11, while regulations for award criteria under Part III of the Procurement Regulations are derived from §18-1 (Regjering 2022).

According to Procurement Regulations §18-1 sixth paragraph first sentence, the relative weight of the criteria must be included in the tender documents. The requirement is clearly related to the fundamental principles of predictability, equality, and verifiability. The award criteria must be stated in the procurement documents in a clear and distinct manner so that suppliers know what the public procurement employee will emphasize when selecting a supplier. Simultaneously, the criteria must not be designed in such a way that they favor one or more specific suppliers (Mæland 2017 s, 181-182).

Municipalities are free to decide how many environmental criteria should be included in the procurement process as long as the public procurement act or procurement regulations are followed. A public contractor must decide on the award criteria in advance. They can award a contract using one or more award criteria. The first and most important criterion is the lowest price, followed by the lowest cost, and finally by the best ratio of lowest price, quality, and environment. Allocations made on the basis of the lowest cost must be based

on a cost-effectiveness calculation, which can be accomplished, for example, through a calculation of life cycle costs in accordance with regulation §18-2 (Mæland 2017 s, 181-182). If environmental weighting criteria are to be used, the public contractor must follow regulations §7-9, which states that if the environment is chosen as an award criterion for procurement, it must be weighted at least 30%. However, it is up to each municipality to determine how much weight they want to place on the environment (Mæland 2017 s, 181-182).

Because the criteria are to be weighted, it is necessary to specify how the point distribution is between the various weighting criteria. In practice, this is frequently accomplished by specifying the percentage that the various criteria count. This means that if there are three award criteria, such as price, quality, and environment, the public procurement employee must weigh the relationship between the three criteria. For example, the total score is 100 percent, where the price is weighted 60 percent, quality is 30 percent, and environmental is 20 percent. The supplier that has the highest total score will win the tender and be awarded the contract (Mæland 2017 s, 181-182).

### **3.3 The procurement process**

The procurement process includes all activities carried out to fulfill a need for goods and services, but also building and construction, from the time the need arises until the need is completed and delivered. As previously stated, the procurement process must follow the public procurement regulations and the Public Procurement Act). In addition, templates have been created that can be used in specific situations. There are several steps that are involved in the procurement process, and these are divided into three stages:

- Clarification of needs and preparation for competition
- Announcement and execution of the competition
- Contract execution and ongoing contract monitoring

The opportunities for influence are largest early in the procurement process and diminish as the process progresses. During the procurement process, it is very important and essential to have good documentation routines in place (Direktoratet for forvaltning og økonomistyring 2020-1). The reason for this is that the legislation requires strict

documentation and verifiability, which is stated in legislation the Procurement Act §4 and the public procurement regulations §7-1.

These overall steps are followed by a professional procurement team. The purchasing team consists of budget owners, purchasers, contract managers, and responsible subject experts (Industry experts). Before beginning procurement planning, it is critical to conduct a needs assessment to determine the actual need. The purchasing team comes together. The budget owner is in charge of approving the budget prior to beginning the procurement process, assigning roles in the procurement, and informing buyers. Furthermore, the budget owner is the one who rejects or approves the contract strategy and final tender documents. The purchaser's role is to perform market analysis, map market risks, design contract strategy, and develop the procurement evaluation model. When the evaluation model is completed, the purchaser prepares for competition, engages in supplier dialogue, and directs the competition announcement in KGV. KGV is a purchasing program that hosts all competitions. KGV is also used to keep the dialogue with the supplier, and to document, everything said and done during competition. This is done to ensure proper documentation (Direktoratet for forvaltning og økonomistyring 2020-1).

The contract manager's job is to help with the market knowledge and the preparation of delivery descriptions and specifications. It is the subject manager's responsibility to map needs and provide market knowledge. This is accomplished by analyzing consumption patterns in a given need using statistics and management data from digital solutions. Furthermore, subject managers are in charge of identifying risks associated with the requirement, such as the technical, functional, and other special considerations Direktoratet for forvaltning og økonomistyring 2020-1).

### **3.3.1 Clarification of needs and preparation for competition**

When all the roles are ready, clarification and preparation for the competition begin. The first step in the procurement process is to determine the institution's needs. This is done by describing what is needed and what challenges will arise if it is not acquired. In addition, one must consider the framework conditions. The framework conditions define how to achieve the goal, and one must ensure that any potential procurement is in accordance with the framework conditions and strategic guidelines that must be followed. The strategic guidelines are procurement criteria such as price, quality, and environmental

impact. These are set by the purchasers. Further in this phase, it will also be described what the purpose of the acquisition is, which clarifies what kind of result and what needs the procurement should address. The purpose is to create a description that will be used throughout the process (Direktoratet for forvaltning og økonomistyring 2020-1).

Once the need has been clarified and described, a market analysis must be performed to obtain an overview of what is available and the competitive situation in the market in order to create a cost overview. Then an alternative assessment must be made, whether the challenge must be solved through procurement or whether there are other ways to solve the problem. Here they examine what they already have in terms of existing resources and what more they require. When these steps are completed, a formal procurement decision should be made available for the person who has been delegated the authority to approve the start of work on procurement. This is the budget owner. As previously mentioned, the budget owner is the one who rejects or approves the contract strategy and final tender documents (Direktoratet for forvaltning og økonomistyring 2020-1).

When the decision is made to procure, then a contract strategy is developed. The contract strategy outlines how the competition will be conducted as efficiently as possible. This step requires a number of activities such as mapping the competitive situation, engaging in market dialogue, preparing a preliminary procurement budget, examining life cycle costs, performing a risk assessment, selecting a procedure, making contract strategic decisions, and so on (Direktoratet for forvaltning og økonomistyring 2020-1). When the competition strategy is complete, the next step is to prepare for the competition by creating an implementation plan and conducting market research. A competition basis must also be developed and distributed in order to ask the market what it has to offer that can meet the needs of the purchaser (Ihlen 2014).

The next step is to create the specifications, requirements, criteria, and contract terms. These should describe the overall need and what elements must be covered, as well as what results must be delivered and how the delivery must be tracked throughout the contract's lifetime (Ihlen 2014). This phase's final step is to define the qualification requirements. These are requirements that must be met to ensure that suppliers can fulfill their obligations during the agreement period. These are requirements such as financial

stability, environmental considerations and quality routines, ethical qualification requirements, and so on (Direktoratet for forvaltning og økonomistyring 2020-1).

### **3.3.2 Announcement and execution of the competition**

The second stage is the announcement. The announcement of the competition begins with a formal market inquiry published on the national database Doffin or on the European database TED. In relation to where the tender is to be published, the threshold values mentioned earlier in section 3.1 determine where the tender is to be published. The tender must be announced on Doffin if the value of the tender is equal to or above the national threshold value. If not, the tender must be published on TED if the value is equal to or above the EU threshold values (Direktoratet for forvaltning og økonomistyring 2020-2).

The purpose is to enter into one or more contracts that will contribute to achieving the goals and results set out in the tender documents. A successful agreement is the result of good implementation. Although the groundwork for a successful procurement has been laid in the planning phase, a well-executed competition can contribute to a successful agreement. The scope and length of the competition's implementation can vary depending on the procedure chosen, the number of tenders received, and the amount of documentation that must be reviewed and assessed. There may be questions, clarifications, and the need to cancel the competition at times (Direktoratet for forvaltning og økonomistyring 2020-2).

When you receive an offer, you must select the best offer according to the competition rules. Tenders will be assessed and evaluated based on the documentation submitted and the competition rules that were established for the competition. After everything has been evaluated, the contract is awarded to a supplier, who signs it, and the competition is over (Ihlen 2014).

### **3.3.3 Contract execution and ongoing contract monitoring**

The final stage is where the agreement is followed to ensure that the delivery meets the contract's requirements. When a purchaser follows up on a contract, it is to ensure that your objectives are met as a result of contractual performance. But also, the scope, and especially the duration, of contract follow-up varies depending on the contract (Ihlen 2014). During contract follow-up, you will receive tips and advice on how to make an



agreement known within the company and what information you should provide, as well as tips on how to conduct a start-up meeting with the supplier to ensure a smooth contract execution. In addition, the contract follow-up contributes to a good collaboration with the supplier and averts possible misunderstandings and conflicts (Direktoratet for forvaltning og økonomistyring 2020-3).

In some cases, incidents can cause a change in the contract's terms that are no longer as appropriate as they once were, and in these cases, the possibility of changing the contract is often considered. Contract changes are governed by Procurement Regulations 11-2 (1) and 28-1. According to the law, if it is a matter of minor changes that do not have a significant impact and follow the regulations, this is acceptable. It's critical to know which contract changes are legal and which aren't. If the services provided differ from those agreed upon in the contract, the change could be considered an illegal direct acquisition. As a result, having control over any contract changes is critical (Direktoratet for forvaltning og økonomistyring 2020-3).

Once the contract is signed, the supplier is required to deliver in accordance with the terms of the contract. Documentation is used to verify the benefits that the institution receives from the supplier. This applies to materials, equipment, and services. When everything is accepted, ownership of the acquisition is transferred, and the warranty period begins. After the client assumes control of the procurement, dialogue and contact with the supplier is greatly reduced (Direktoratet for forvaltning og økonomistyring 2020-3).

### **3.4 Concepts of various environmentally focused procurements**

Environmentally focused procurement involves a number of concepts. We'll go over the differences in this part of the chapter.

#### **3.4.1 Sustainable vs. Green Procurement**

Public procurement is the purchase of goods and services by public procurement authorities, which are governed by laws and political decisions. In 2017, public procurement accounted for more than 17 percent of Norway's GDP (Nærings- og fiskeridepartementet 2020), indicating that public authorities spend a large amount of money and thus have significant market power. Traditional procurement has primarily

focused on fulfilling the fundamental function of procurement, which is to satisfy a need by offering a product, service, or item at the lowest possible price.

In recent times, public procurement has changed due to increased focus on climate and the environment. This has resulted in a number of changes for Norwegian procurement, as previously mentioned, but the background for this can also be found in the FN's sustainability goals. The role of public procurement is emphasized in the goal of sustainable development, which calls for "ensuring sustainable consumption and production" (European Commission 2020). More specifically, sub-objective 12.7 specifically mentions public procurement as a scheme to promote "sustainability in public procurement in accordance with the individual countries' policies and priorities" (FN-Sambandet 2020).

Green Public Procurement (GPP) refers to government agencies' efforts to obtain goods, commodities, and services that have a lower environmental impact over the course of their life cycle. In comparison, sustainable public procurement aims to achieve the appropriate balance between the three pillars of economic, social, and environmental. The three pillars refer to the triple bottom line, which will be covered later in this chapter. Procurement can be called sustainable when businesses meet their own needs while simultaneously creating positive economic, environmental, and social results. Sustainable purchasing requires thinking beyond immediate needs and assessing the long-term implications of each purchase. Sustainable procurement refers to the practice of making purchases with a bigger goal in mind, such as resource efficiency, climate change, social responsibility, or economic resilience (European Commission 2022).

### **3.4.2 Circular procurements Circular Economy**

The terms "Circular Procurement" and "Sustainable Procurement" are two different concepts. They do, however, share a number of characteristics. Sustainable procurement covers areas of responsibility for the environment, social conditions, and the economy, while Circular procurement, on the other hand, is primarily concerned with the environment. Green procurements and circular procurement have several similarities, but circular procurement can be seen as an approach to green procurements that recognize the role of public authorities in supporting the transition to a circular economy (European commission 2017).

As mentioned, Circular procurements support the circular economy. A circular economy refers to a set of economic ideas aimed at disrupting the economy's established patterns of natural resource usage, such as production, consumption, and waste. The goal is to achieve long-term sustainable growth by slowing down, limiting, and closing material cycles in order to preserve the value of resources. (Lazarevic, David, Brandão, Miguel 2020 S8-27) The circular economy aims to get the most out of resources by extending the life of products and resources as much as possible. When a product is no longer usable, the materials are recycled and repurposed as raw materials for new products (European commission 2017).

### **3.4.3 Triple bottom line**

The triple bottom line theory is based on the stakeholder theory and a natural resource-based view for the firm (NRBV). The stakeholder theory is based on the input-output model, which is illustrated by placing the firm in the middle. Around it, we have the standard value creation as investors, suppliers, customers, and employees. (Freeman et al. 1984) The stakeholder theory is thinking broader. It also includes other stakeholders for the firm, such as the environment, future generations, animals, politics, world society, etc. By this, the theory says the firm must think about the world around us (Donaldsen et al. 1995).

The Natural Resource-Based View uses sustainability as strategic management to gain a competitive advantage. The resources are to their advantage, using better raw materials and highly skilled employees. What does this mean? They aim to use raw materials that are hard to substitute and imitate, and they aim to use the people's abilities in production and as managers to gain an advantage (Freeman et al., 2021)

Based on these two theories, we get a triple bottom line (people, profit, and planet). In our thesis, this is relevant since public perception is a very important factor. *"The law shall promote the efficient use of society's resources. It shall also contribute to the public sector acting with integrity, so that the general public has confidence that public procurement takes place in a way that is beneficial to society"* (Anskaffelsesloven, §1, 2017). Before the change in regulations, this paragraph focused on getting the most benefit by using as little of the public funds as possible. The change came because society wanted a more

focus on people and the planet. Have a sustainable ecosystem, and make it work for the generation to come. That's why both the stakeholder theory is relevant and the natural resource-based view. Using better raw materials that are better for our planet and satisfy the people.

### **3.5 Environmental requirements in public procurement**

The EU procurement directives wish to promote public procurement as a strategic tool to ensure a sustainable and more environmentally friendly future. The procurement law §5 wishes to regulate how the environment and sustainability shall be taken care of as environmental requirements in public procurement. (Platou, 2021)

An "environmental requirement" means how to set requirements and criteria as a public contractor. The combination of reducing the negative environmental impact and at the same time getting the most benefit from the public funds will always be the priority for a municipality; this is because they have to follow their budgets and deliver their services to the residents.

The procurement department must work out a procurement strategy, where they must set a focus on the environment and climate. As a public contractor, you are obligated to evaluate to what extent the purchase will affect the environment. Here you must reflect on what environmental requirements can have an effect and how to best use the criteria. You are obligated to set the requirements where it's relevant (Platou, 2021).

### **3.6 Transformational leadership within a municipality**

Employees in the municipality may be motivated by leadership. Goals can be used as incentives to encourage people on a long-term basis. Such goals in a public organization must be distinct, difficult, and achievable. Transformational leadership can be used for inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence. This can improve the performance of the municipalities (Bronkhorst 2013).

Research from Thomas 1988 shows that leadership qualities are important to the company or public departments, which is different from the classical research from Lieberman and O'Connor from 1972, which stated that leadership had little to no impact on results.

(Sørensen 2009, s.116). One of the most important leadership goals is to motivate the employees to do a good job and keep their focus up and gain the best possible results. Since the municipality is in the public sector and has to follow more strict rules than the private sector, the motivational impact is more different. The leaders in the private sector can use monetary motivation, while the leaders in the public sector have to use idealism towards the public service where their motivation is making their municipality or country a better place for its residents (Sørensen 2009, s. 121).

A common challenge in the public sector, especially in Norway, is the bond between the leaders and employees is that the leaders often appear as friendly colleagues rather than bosses and subjects (Sørensen 2009, s.124). Because of this, the leaders have to use idealism to motivate the greener change that will be better for society. The strategic goal is to purchase products and services that are environmental and better for the earth. Especially for the older generation, this mindset is not imprinted in the same way as for the younger ones.

### **3.7 Simple definitions and explanations**

#### **3.7.1 ISO-certifications**

The International Organization for Standardization (ISO) issues a variety of certifications that companies can earn by improving their operations. There are several types of ISO certification, depending on the company's goals. ISO certification verifies that a management system, a manufacturing process, a service, or a documentation procedure meets all of the standards and quality assurance requirements. ISO is a non-profit organization that produces standards to ensure the quality, safety, and effectiveness of products, services, and systems.

Many industries have ISO certificates, ranging from energy management, environmental management, and social responsibility to medical equipment. To maintain consistency, the ISO standards have been established. Each certification has its own set of standards and requirements, as well as a numerical classification (Wilber 2020). For example, ISO 14001. ISO14001 is an environmental management certification. ISO 14001 refers to how a corporation manages its activities, products, and services in terms of environmental policy and goals. This is frequently connected with the rest of the company's management

and leadership functions (Standard Norge 2022). Another certification is ISO9001, which is about quality management. However, it follows the same principles as ISO 14001. The companies must find their own path and apply for the certifications after meeting the qualification requirements (Wilber 2020).

### **3.7.2 Life-cycle cost**

The general term "Life cycle costs" is an economic term that refers to the total life cycle of many approaches. The cost or price of any procedure can be included in the evaluation and is usually one of the key determinants. Costs can be calculated based on a product's life cycle. You must always pay the price when purchasing a product or service. The purchase price is only one component of the overall cost of purchasing, owning, and disposing of. The term "life cycle cost" refers to all of the expected expenses during the life of a product or a service (Giacomo et al., 2019).

These costs are connected to the purchase price but also delivery, installation, maintenance, operation, insurance, disposal delivery, and so on. These are typical elements in assessing life cycle costs. In public procurement, it is already a common practice to emphasize the cost for the product's entire life rather than emphasizing the lowest purchase price. That which is new in the law is that the client knows the assessment of various solutions. The client must systematically assess accrued costs by consumption of resources, emissions, energy used, and waste management. These costs will vary from solution to solution. The new public procurement law does not say anything about the client's procedures (Giacomo et al., 2019).

### **3.7.3 Willingness to pay (WTP)**

The maximum price a customer is willing to pay for a product or service is referred to as willingness to pay. It is usually represented by a monetary value or a price range. While potential customers are likely willing to pay less than this threshold, they are also willing to pay within it (Stobierski 2020).

## **4.0 Research Methodology**

This chapter will discuss a full review of methodological decisions and distinguish between the various methods and methodologies. The purpose is to define our research technique and methods of choice to present a comprehensive picture of how our study was

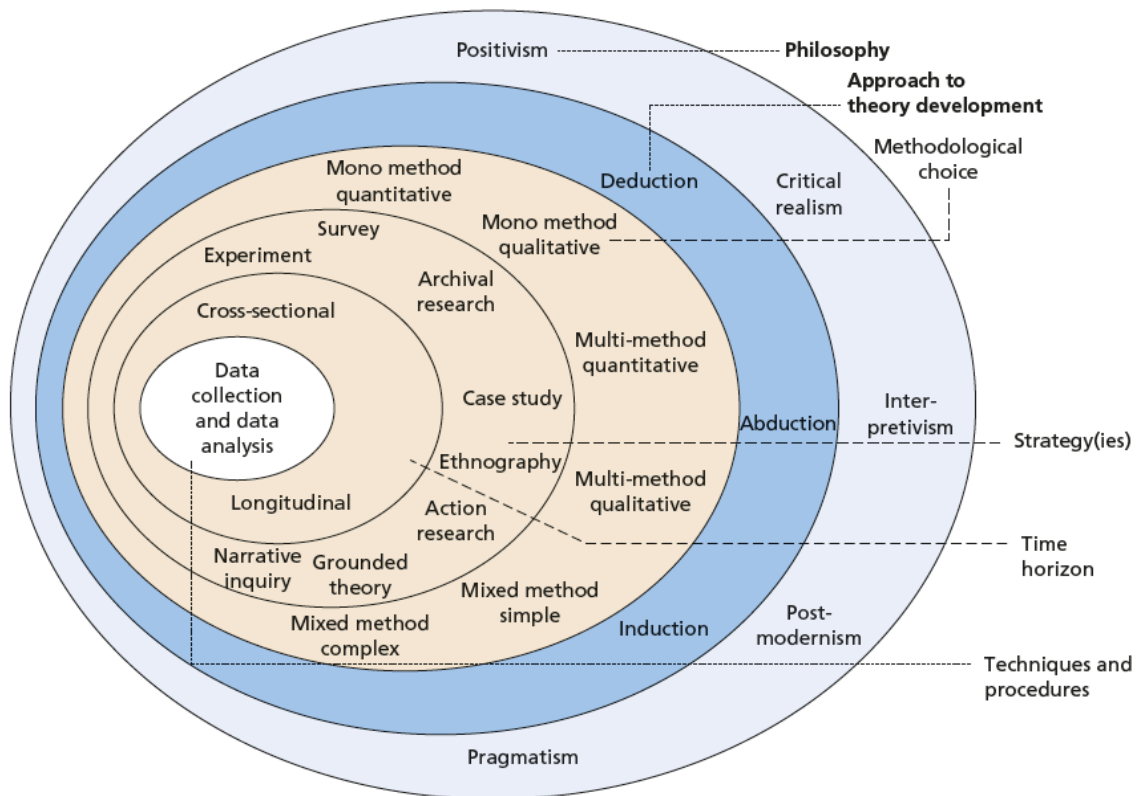
conducted. We want our study to yield the greatest results possible by using the right techniques in our methodology. Our methodology framework will be used for problem-finding and problem-solving by applying methods to illuminate our study topic.

To better understand our study problem, one must first learn methodology fundamentals. The methodology applies certain research methodologies, which are approaches to problem-finding and problem-solving. Methodological considerations frame the use of certain procedures, yet methodologies are the result of specific research problems (Hammond and Wellington, 2012). In other words, the methodology is a recipe that combines numerous methods (Sedlmair et al., 2012).

Our methodology will discuss the design, target groups, data collection,, and how to analyze the data. The purpose is to see whether there is an association between the data acquired from the theoretical framework, interviews, and Doffin to address our research questions using these tools. We will first explain our methodology and technique selection to accomplish this, followed by a case explanation.

#### **4.1 Research Onion Model**

As previously stated, we want the best possible outcome from our research and have thus chosen the Research Onion Model. We intend to use the models as a baseline for our research and use the techniques from research onion to answer the problem. The Research Onion is presented by Saunders, Mark, Phillip Lewis, Adrian, Thornhill (2015).



*Figure 1: The research onion (Saunders et al., 2015)*

The Research Onion Model has six levels that illustrate the various aspects used when conducting research. The first layer is philosophy, and it's about finding the right assumptions that reflect reality before choosing a research problem. The second layer is a method for developing theories and deciding which ways to approach the problem. The third layer is approach selection, which entails selecting the appropriate research methods. The fourth layer is research strategy. A research strategy is a plan for how a researcher will organize and conduct their research in order to achieve reliable answers to their research questions. The fifth layer is the time horizon which refers to the time frame within the project completion. The last and sixth layers are the techniques and procedures used in the research (Saunders et al. 2015, s. 162-164).

## 4.2 Philosophical direction

The way we interpret and use theory has a large impact on how we conduct research and what we learn. The way we understand is to choose a philosophical direction. Research philosophy is a set of beliefs and assumptions of knowledge. Although this may sound substantial, it is exactly what you are doing when you begin working on research and go in-depth into a specific field. Knowledge development may be used to answer a specific



problem at every stage of the research. Knowledge development is about making assumptions that include human knowledge (Epistemological assumptions), and when the assumptions are researched, then they meet with realities (Ontological assumptions) and to what degree and in what ways your own values influence your research (axiological assumptions). These assumptions inevitably shape the research questions and influence data collection, findings, and conclusions (Saunders et al. 2015, s. 124). At the top of the research hierarchy, there are three main philosophical frameworks (Sedlmair et al. 2000, s. 3). These are Ontology, Epistemology, and Axiology. These are connected to the development of theory and are used to conduct research based upon assumptions.

#### **4.2.1 Ontology**

Ontology is connected to qualitative studies, and the ontology approach focuses on what research objects and phenomena are studied, and how you approach them is determined by your ontological assumptions. Ontology is built on a set of beliefs about the nature of reality. This means that the researcher has questions about the reality of the assumption and if the assumption can be applied to the real world. Ontology is divided into subcategories. The first one is **objectivism**. Objectivism is in reference to social actors who communicate their own existence; objectivism illustrates the relevance of social performers as a meaningful reality. Natural science assumptions are incorporated into objectivism. It involves a pragmatist ontology, which holds that social entities exist in reality apart from and independent of social actors. The second one is **subjectivism**. Subjectivism is related to social phenomena in which social actors are assumed to be aware. It implies normal in ontology, which holds that social phenomena are created through the language, perceptions, and subsequent actions of social actors (Saunders et al. 2015, s. 128).

#### **4.2.2 Epistemology**

Epistemology is concerned with knowledge assumptions, what constitutes acceptable, valid, and legitimate knowledge, and how knowledge can be communicated to others. In other words, epistemology is concerned with how knowledge was created, acquired, and communicated based on the assumption. Epistemology is divided into three subcategories. The first one is **Positivism**. **Positivism** is a philosophical position that includes epistemology, ontology, and axiology. This means that epistemology can be classified based on philosophical positions. Positivism acknowledges that reality and truth can be

objectively studied and that theories can be developed and tested using scientific methods. Positivism, as a philosophy, holds that only factual knowledge is obtained through observation and measurements. The researcher's role in positivism studies is limited to data collection and objective interpretation. In other words, while conducting the study, the researcher is an objective analyst who separates herself from personal values. These studies' research findings are usually observable and quantifiable, and scientific methods are used to develop and test theories. These could include statistical procedures and hypothesis testing. The sample size is typically large and is unaffected by the researcher's personal values (Saunders, 2015, s.135).

The second one is **Realism**, which deals with the real issues concerning the human mind. This philosophy is related to scientific research and states that a researcher's observations are always influenced by the researcher's own worldview, which is based on his own experiences as reality. In other words, reality manifests itself independently of the mind that is involved (Saunders, 2015, s.138). The third is **Interpretivism** which claims that people and their roles as social actors are two different things and must be recognized. Interpretivism is a subjectivist philosophy that considers the differences between people as well as the role of social actors. This means that the researcher is more concerned with people than with objects. An example of this is people who play theater. As actors, they have their own interpretations of the roles and play the roles based upon the actors' own interpretation of the play. Similarly, our roles are interpreted differently depending on who we are (Saunders, 2015, s.140).

### **4.2.3 Axiology**

Axiology is described as the study of values. This means that values and the role of ethics play a significant role in the research process. These are questions about how we as researchers manage our own values, as well as the values of all research participants. Axiology emphasizes that the researcher's values guide them and that axiological skills provide a foundation for how research is conducted. A research study, for example, emphasizes data collection through interviews rather than an anonymous survey. The researcher then values personal interaction with the responses over anonymous survey responses (Saunders et al. 2015, s. 128).

#### **4.2.4 Our Philosophical direction**

In our study, we will have a pragmatic approach in our philosophical direction. This means that we will use a mixture of the tools from Ontology, Epistemology, and Axiology. Our methodology and methods will be a mixed-method including qualitative and quantitative methods for the collection of data. In our study, interviews will be conducted with various municipalities, and statistical data from Doffin will be compared with data collected from the interviewer. Therefore, by collecting qualitative data, we use tools from Ontology to guide us. These tools are objectivism and subjectivism. Here objectivism is used to understand the reality of the problem by asking questions related to our research question. An example of this is we will ask questions on how the municipalities emphasize their green procurement. When the municipality has answered our question. Subjectivism will be used to find the reason to interpret the answers on why they emphasize green procurement as they do to find out the underlying reason.

By collecting quantitative data, we use tools from Epistemology to guide us. Here tools such as Positivism will be applied to find factual data. These data are obtained from Doffin. If the data can show us that the municipalities have to a larger extent, emphasized green procurement, then we can interpret that our assumptions were wrong or correct in relation to our opinion. We also intend to employ Axiology as a tool. The reason for this is that the people involved in the interview should be anonymous because their identity is not relevant to our study. We value this even more in our research process, and we only want to know if the municipalities in the country have prioritized green procurement since the reform. The reason for this is that the interviewees should remain anonymous because their identities are irrelevant to our research. We value this further in their research process and are only interested in learning whether the municipalities in the country have prioritized green procurement following the reform.

#### **4.3 Approach to theory development**

Theory development consists of many theories when building a theoretical framework. These theoretical elements are idealized and well-defined principles theories by other researchers. These theories are representations of objects or circumstances that are visualized. Theory development includes evaluating, comparing, and selecting the most relevant ones in accordance with the problem (Vinz 2020). Therefore, the process of developing a theory entails creating a framework for the assumptions' behavior. The

assumptions are founded on concepts and principles that demonstrate how the assumption corresponds to reality (Saunders et al. 2015, s. 146). Although reviewing existing theory is an important task during theory development, the relationship between theory and empirical research can be viewed in a variety of ways. However, there are three approaches that are commonly used to acquire new knowledge; these are Deductive, Inductive, and Abductive approaches (Saunders et al. 2015, s. 144).

#### **4.3.1 Deductive approach**

The deductive approach is the most commonly used, and it seeks to draw valid conclusions from starting point (Hammond and Wellington 2012, s. 40). The deductive approach entails developing a theory or a hypothesis using existing theory to create a theoretical framework, which is then tested through a series of propositions, and new knowledge is created. As such, it is the dominant research approach in the natural sciences, where laws provide the foundation for an explanation, allow for the anticipation of phenomena, predict their occurrence, and thus allow for their control (Saunders et al. 2015, s. 146). In other words, deductive methods move theory to data (Saunders et al. 2015, s. 148).

#### **4.3.2 Inductive approach**

As an alternative approach, an inductive approach can be applied to develop a theory. The inductive is the opposite of the deductive method, which means a general conclusion from individual instances or observations (Hammond and Wellington 2012, s. 87). In other words, the Inductive method means that the phenomenon is studied rather than based on theory. Here the phenomenon is researched by applying research methods such as interviews. The goal here would be to get a sense of what was going on in order to better understand the nature of the problem. Then it is up to the researchers to make sense of the interview data gathered. The information would then be sorted, researched, and analyzed. This analysis would lead to the development of a theory, which is frequently expressed as a conceptual framework (Saunders et al. 2015, s. 174). In other words, the inductive approach uses logic to explain natural science to address real-world problems (Hammond and Wellington 2012, s. 40). Or, simply put, data is moved to theory (Saunders et al. 2015, s. 148).

### **4.3.3 Abductive approach**

The third approach is the Abductive approach, which is a mixture of the Deductive and Inductive approaches. As previously mentioned, in the deductive approach, the theory is moved to data, and in inductive data is moved to theory, while the Abductive approach seeks to use the deductive and inductive approaches in a combination (Saunders et al. 2015, s. 148). Abduction begins with the discovery of a problem, followed by the development of a reasonable theory as to how this could have happened. Here both Deductive and Inductive approaches are used in combination to create a theory of the phenomenon and try to come up with a feasible explanation of what could have happened.

### **4.3.4 Our approach**

In this study, we will adapt the Abductive approach. The reason for adopting the Abductive approach in our research is that we will use existing theory to build the foundation for our research problem. As mentioned earlier, we will focus on gathering data from interviews and statistical data from Doffin to use in this study. Here we will focus on a small group of informants. When all the data is gathered, we will focus on connecting existing theory to our empirical research. The Abductive approach is the best approach for our study because it creates the flexibility needed to achieve the best outcome for our research problem. Here we can go from theory to data and data to theory. By using the Abduction approach, we are taking the Pragmatic path, which means we will solve our research problem in a sensible way and a practical way to achieve the best outcome for the research problem (Saunders et al. 2015, s. 137).

## **4.4 Research Design**

The aim of research design is to turn a research question, hypothesis, or idea into a manageable project. The design process starts with the creation of a problem to determine what types of data and information should be collected and analyzed (Hammond and Wellington 2012, s. 132). Research design is defined as “a logical plan for getting from here to there,” where *here* may be defined as the set of questions to be addressed (R. K. Yin 2018, s. 60). In other words, it is the general strategy for bridging the gap between empirical research and the research problem (Saunders et al. 2015, s, 163). There are several different types of study design methodologies; some of these are Descriptive research, Exploratory research, Explanatory research design, Archival research strategy, and Combined studies.

#### **4.4.1 Descriptive research strategy**

A descriptive study's purpose is to prove how elements are related to one another. This involves scenarios when one strives to profile events, persons, or circumstances appropriately. When gathering data, you might ask the following questions to acquire a deeper knowledge of events, individuals, or conditions. These types of questions usually start with "who, what, where, when, and how." Descriptive research is a way to get more information about a subject you already know. It gives a more accurate picture of the event, person, or situation and can be used as a forerunner to exploratory research (Sanders et al. 2015, s. 175).

#### **4.4.2 Exploratory research strategy**

Exploratory research entails looking into a problem that isn't well-defined in order to gain a better understanding of an existing problem. The exploratory research approach questions are likely, to begin with "what" or "how," and they are relatively open-ended, with the intention of learning more about what's going on and better understanding the problem through gaining better insight into the research problem (Sanders et al. 2015, s. 175). The exploratory study is beneficial when you want to clarify how you understand the research problem. When using exploratory research, the researcher must be willing to shift course if new information or insight becomes available. This is due to the problem being in the early stages, and new information may change the perspective of the problem. Several sources of information should also be used to analyze data as it is collected and recognized when many sources of data contradict one another, necessitating the gathering of further evidence. This will enable the researcher to find information from multiple sources making the research more credible (R. K. Yin 2018, s.124 ). In other words, Exploratory research entails investigating a phenomenon and attempting to comprehend as well as evaluate the issue from a new perspective. Explanatory studies try to establish a relationship between the variables.

#### **4.4.3 Explanatory research strategy**

Explanatory research aims to address questions such as why and how. The research approach inquiries into why and how something happened. Explanatory study looks for patterns and trends in existing data that haven't been looked at before to try to figure out the underlying cause and effect. The research focuses on investigating a scenario or problem in order to explain the relationships between variables. An example of this can be

identifying a connection between qualitative data and qualitative data in a research issue (Sanders et al. 2015, s. 176).

#### **4.4.4 Sequential research strategy**

A sequential research strategy is a method of collecting and analyzing qualitative and quantitative data in a series of phases. In other words, you conduct one study and then use another study to further the investigation. The first study is used to obtain a basic understanding, and the second study is used to substantiate and draw conclusions. As a first study, the researchers collect qualitative data and then analyze it in the first phase. In the second section, the results are used to carry out the next study, which is the quantitative phase, which could be a survey or another type of quantitative data collection. However, it is also possible to do it the other way around (SAGE 2019).

#### **4.4.5 Combined studies**

In research design, a research project may use a combination of Descriptive, Exploratory, and Explanatory. This is achieved by using a mixed-method (Sanders et al. 2015, s. 176). In this thesis, a combination of Descriptive, Exploratory, and Explanatory designs are used to explain and understand the issues of green public procurement measures in the Norwegian Municipalities. Firstly, in our study design. A description of how the entire analytic process will be set up to answer the thesis's issues. Firstly, as mentioned, we will conduct interviews with the municipalities. All the respondents will be representing the municipalities that are being interviewed. These are of interest to answer our interview because of personal experience of public procurement for their municipality, and their answers will be used to showcase explorative design. This means that respondents will be asked open-ended questions so that they may freely express their thoughts on the subjects asked.

For our second part, we utilized descriptive design and created a standardized interview guide which was used to interview all the municipalities. This was to maintain a form of standardized communication between interviewers and respondents. The same questions were asked to each municipality and respondent in the same order. The results from the interviews were used for further investigation into our research problem. For the third part of our research, Explanatory design was used. As mentioned earlier, we gathered data from Doffin based on different criteria. The data gathered are data from before and after the

reform of the public procurement act. The reason for this is that we want to use the data to see if we could find a correlation between how they were purchasing before and after the reform in 2016.

We will use the Sequential research strategy for the final section. We'll look closely at the data from Doffin. Then we'll go over the tenders and make some assumptions. We will then, based on our assumptions from the Doffin data, create questions for our interview guide. This means that Doffin will be the first part of our study to get a general overview, and then the interview will be conducted to collect the rest of our data. When all of the data has been gathered, the Doffin data will be compared to the interview responses to see if municipalities have emphasized green public procurement to a greater extent than before the reform in 2016.

#### **4.5 Research strategy**

A research strategy is a comprehensive plan for how a researcher should facilitate and organize himself in order to conduct the research. Furthermore, the research strategy serves as a methodological link between the conceptual foundations, the strategy employed, and the approaches and methods utilized for data collection and analysis. There are several strategies, and the method of choice frequently determines the strategy used. These are some of the most popular strategies, with case studies at the top of the list. Survey research, experiment research, grounded theory research, ethnography, action research, and archival research are also available (Sanders et al. 2015, s. 177). We will not go into detail about each strategy because many of them are unimportant to our strategy selection. We will only enter the ones that are relevant to our situation.

Before deciding on a strategy, we need to find a strategy that could fully address and answer our research questions. Our strategy needed the ability and flexibility to thoroughly handle our methods of choice but also support our philosophical direction and the Abductive approach. Finally, we came to the conclusion that a case study would suit us best. A case study strategy has the potential to generate insights from intensive and in-depth research into a phenomenon in its real-world context, which in turn could lead to in-depth empirical descriptions and the advancement of theory (Sanders et al. 2015, s. 185). A case study has no clear recipe, and before choosing a case study as a strategy, the



methodology path must be clear. The choice depends on the research conducted. The more questions you seek to explain, the more circumstances arise.

When using a case study as a strategy, it is essential to ask the right questions. These questions frequently begin with "how" and "why," and the more of these you ask, the more relevant the case study research becomes. The reason for this is that as you seek to answer more questions, more circumstances emerge that can serve as a foundation for developing a new theory (R. K. Yin 2018, s.33). Case studies come in a variety of forms. Several different types of case studies have been used in previous research in various ways, and different methods have been used in these case studies. Previously, in our research methodology, we defined our physiological direction, theory development, and research design. This will be used in our case study, so we won't go over it again in this section.

As previously mentioned, there are various approaches to using a case study. A researcher can focus on a single case study or a multiple case study. A multiple case study examines the same research questions but with multiple cases rather than just one. By examining various cases, the researcher will be able to retrieve data from multiple sources in order to research the problem. This, in turn, will increase credibility by examining the problem from various perspectives (Hammond and Wellington 2012, s. 17-18). In our case, we chose to use multiple case studies. Our first case is to collect data from Doffin to get a general idea of what we'll be looking at. Secondly, we will conduct interviews to confirm and substantiate what we've seen based on the data from Doffin. Thirdly, we will go back into Doffin to see if what was said in the interviews is correct. This will shed light on our research problem, which we believe is an efficient method of conducting research and establishing credibility.

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we've seen based on the data from Doffin. This will shed light on our research problem, which we believe is an efficient method of conducting research and establishing credibility.

## **4.7 Methodological choice**

In order to conduct research, a researcher must choose a method. For a researcher, is it possible to collect and analyze data from many different sources? However, it will be impossible to collect and analyze data from all potential sources due to time restrictions. As a result, a researcher can reduce the amount of data by considering only data from a subgroup rather than all possible cases by employing simple techniques (Sanders et al. 2015, s. 272-273). These techniques can be qualitative, quantitative, or a combination of the two, which is known as mixed methods. These methods collect different types of data, which will be explained.

### **4.7.1 Qualitative and Quantitative method**

**The qualitative research method** involves examining a small number of observations and going in-depth on what to study. The data can be in text format, such as interviews or notes from observations (Saunders et al. 2015, s. 55). Qualitative research methods say something about the quality and the characteristics of the phenomenon being studied. This method is often known to be less structured and is based on a smaller sample of data. Within qualitative research, there are various methods that could be applied. Here a researcher can take the deductive approach, where the focus is on using data to test a theory. They may also use an inductive approach, which means that the data is used to develop a theory. The goal is to find the underlying causes and intentions to understand the phenomenon. (Saunders et al. 2015, s. 166). Which approach is used depends on the research problem. Qualitative research is mostly descriptive and exploratory, and it's used to define the issues and the lack of understanding. (Saunders et al. 2015, s. 166).

**The quantitative research method** is usually associated with a deductive approach, and the focus is to test a theory using numerical data. The method studies the relationships between two variables and is normally represented using statistics, tables, and graphs. When collecting data, it is important to ensure that the questions are expressed clearly so that each participant has understood the question. This methodology often uses probability testing techniques to ensure generalizability. These techniques may be questionnaires or a

corresponding analytical procedure (Saunders et al. 2015, s. 193). The quantitative research method is mostly used in exploratory and explanatory studies.

#### **4.7.2 Mixed method**

A mixed-method approach combines qualitative and quantitative research methods. Here techniques and procedures from both approaches are combined here to create a methodology for a single study (R.K. Yin 2018). Mixed methods research is a challenging method to utilize. The reason for this is that the method can be complicated, and a researcher may face difficulties during the research. However, researchers have the opportunity to examine the problem from various perspectives, which can lead to a better knowledge of the research problem (Saunders et al. 2015, s. 165). Such work can contribute to the development of rich insights into various phenomena of interest that cannot be fully understood using only quantitative or qualitative methods (Venkatesh et al., 2013). There are no set rules for combining or connecting qualitative and quantitative methods. The researcher must forge his or her own path and choose which method is used to collect general data and which method is used to collect data to supplement the other data.

There are various types of design. In an embedded design, both types of data are collected and analyzed at the same time but within the context of a larger quantitative or qualitative design. The importance of one type of data over another cannot be overstated (Venkatesh et al., 2013). If the researchers are short on time or resources, this is a good approach to take. Explanatory sequential design is another option. In this case, quantitative data is collected and analyzed first, followed by qualitative data collection and analysis (Venkatesh et al., 2013). The researcher should use an Explanatory sequential design if the qualitative data explain and contextualize your quantitative findings.

#### **4.8 Sampling**

A researcher must consider sampling when conducting research. For a researcher, is it possible to collect and analyze data from many different cases? However, it will be impossible to collect and analyze data from all potential sources due to time restrictions. Using simple procedures, the researcher can limit the amount of data by merely examining data from a subgroup rather than all potential situations. The sampling strategy chosen is

critical to the study's overall quality. As a result, the sampling approach must be clarified (Sanders et al. 2015, s. 272-273). Choosing a sampling method from a mixed approach is more complex and demanding than choosing one sampling method from either use of quantitative or qualitative methods. While researchers may struggle to decide which sampling method to use in mixed-method research, the decision must account for both qualitative and quantitative research in these studies (Onwuegbuzie and Collins 2007). To put it in other words. In order to extract the correct information from respondents, the correct collection method (Sampling) is important in order to succeed with the data collection.

When it comes to sampling techniques, they are divided into two categories. The first category is probability selection, which entails random sampling techniques in order to draw strong statistical conclusions about the entire group. The second category is non-probability sampling techniques, which involves non-random sampling based on convenience or other criteria in order to collect data more easily (Sanders et al. 2015, s. 275-276). In our case, we have used sample techniques within the non-random sampling. In the non-random sampling category, there are four methods of sampling. These are Convenience sampling, Voluntary response sampling, Purposive sampling, and Snowball sampling.

Convenience sampling is a test that only includes those who are most easily accessible to the researcher. This is a simple and inexpensive way to collect preliminary data, but there is no way to know if the sample is representative of the population, so the results are not generalizable (Sanders et al. 2015, s. 304). Voluntary response sampling is similar to convenience sampling and is chosen primarily for its ease of access. People volunteer themselves rather than being chosen and contacted by the researcher. Responding to a public online survey is one example of this (Sanders et al. 2015, s. 304). Purposive sampling is also known as theoretical sampling. This entails that the researcher utilizes his expertise to select a sample that is most useful for the purpose of the research. It is often used in qualitative research, where the researcher wants to gain detailed knowledge of a specific phenomenon rather than draw statistical conclusions or where the population is very small and specific (Sanders et al. 2015, s. 304). When it is difficult to recruit participants for a study, the Snowball sampling techniques can be used. The researchers

use an existing participant pool to find new participants. You have access to "snowballs" when you come into contact with several people (Sanders et al. 2015, s. 303).

In our case, we have chosen to use Purposive sampling. The reason for this is that we wanted to find municipalities that could represent all of the municipalities of Norway based on the selected municipalities. Municipalities vary in size, and the larger ones have a much larger budget than the smaller municipalities, resulting in a huge disparity. To avoid this, we choose to use some criteria for our sampling. The first criterion was the size of the municipality. We wanted to choose medium-sized municipalities based on population size. As previously stated, there is a significant difference between a small and large municipality. As a result, municipalities of equal size are essential. The second criterion was the geographical location. We wanted to choose municipalities spread across the country, and based on population size, we found municipalities spread across the southern part of Norway. The municipality's finances were the third criterion. This was due to the fact that a prosperous municipality did not have to spend its money as carefully as a less prosperous municipality.

#### **4.9 Time horizon**

When developing a research question, it's important to consider a time horizon. The question then becomes how long the study should last. Should the study be conducted over a longer length of time, such as several years, or should it be conducted over a shorter period, such as six months? This is largely dependent on the investigations to be conducted and the resources available. However, there are two types of temporal horizons: Cross-sectional and longitudinal study. (Saunders et al. 2015, s. 193).

A **Cross-sectional study** is a type of research design in which data is collected from a large number of individuals or groups at the same time. It can also be used to describe a phenomenon's occurrence. In cross-sectional research, all variables are observed without being influenced. The data is collected only once using the cross-functional time horizon, which is over a short time horizon (Saunders et al. 2015, s. 193). A **Longitudinal study** is the total opposite of cross-sectional research. While cross-sectional studies collect data from a large number of people at once, longitudinal studies collect data from the same people over time, usually focused on a smaller group of people who have similar

attributes. A Longitudinal study can last for a year or more, and the data is collected several times over the time horizon (Saunders et al. 2015, s. 193).

Both methodologies can be utilized to answer a variety of research issues, but in our case, we'll go for the cross-sectional study. This is due to the fact that we only have six months to do the thesis, which is a very short amount of time. We will only gather data once over a period of time and will not follow up with any additional questions. When writing a thesis with a strict time limit, as we do, we first must set up a time schedule to keep track of what to do. We've created a rough schedule in the diagram below. It all begins in October 2021 with the completion of our research design, followed by the submission of a research proposal.

Our master's thesis in 2022 begins with a literature review. We aim to work on the theories from the beginning of January through the end of February because they will be added and eliminated as the thesis develops. The interview will be designed and developed for five weeks, including applying to the Norwegian center for research data (NSD) for approval. We will begin conducting the interviews once we have received authorization from NSD. The interviews will be transcribed, analyzed, and presented as well.

After we have finished the theories used, together with analyzing the results, we can discuss findings compared to the theories used, and we plan to use eight to nine weeks on this part.

We expect to spend eight to nine weeks discussing findings in relation to the theories employed when we finish the theories and analyze the data. We aim to spend five weeks finishing the thesis and writing the final draft, and the last three weeks before the deadline will be spent preparing a presentation for the oral defense.

Week Month Date	42	46	47	48	49	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	Oct 18	Nov 15	Nov 22	Dec 29	Dec 6	Jan 3	Jan 10	Jan 17	Jan 24	Jan 31	Feb 7	Feb 14	Feb 21	Feb 28	Mar 7	Mar 14	Mar 21	Mar 28	April 4	April 11	April 19	April 25	Mai 2	Mai 9	Mai 16	Mai 23	Mai 30	June 7
Write research design	█																											
Write research proposal		█	█	█	█																							
Present research proposal					█																							
Development of literature review						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Plan and develop interview																												
Conduct interviews																												
Analyze data from interviews																												
Write discussion of findings																												
Finish writing master thesis																												
Deliver final draft																												
Preparation of presentation																												
Master thesis presentation																												

Table 2: Schedule for Master Thesis

#### **4.10 Presentation of cases (Municipalities) our research approach**

This section of the chapter will discuss the municipalities and why we chose them.

A municipality in Norway has many areas of responsibility, and every municipality is responsible for providing services to the public sector. Instead of going into each municipality, we will explain what a municipality does and which municipalities we have chosen. To avoid unnecessary repetition, we have chosen to discuss what a municipality is responsible for and not discuss a single municipality because they all do a lot of the same things.

A municipality in Norway is responsible for providing a wide range of services to its citizens. Everything from kindergarten through school to municipal roadways to nursing home services. A municipal council, which is elected every four years, governs the municipality. The administration and the mayor, and the municipal council work closely together. The council will direct the political aspects, while the administration will be in charge of the day-to-day operations. We sought to select medium-sized municipalities in southern Norway when deciding which municipalities to use in our investigation. Because most municipalities collaborate closely with their neighbors, they have a procurement collaboration with them to secure a better bargain. An inter-municipal company is what this is termed.

The larger municipalities in Norway, such as Oslo, Bergen, and Trondheim, are quite large, have a significant budget, and would be very complex. That is why we chose medium-sized municipalities, which are more akin to average-sized communities. We also sought to identify municipalities dispersed over southern Norway to get a complete view, as this is where the majority of the population lives. We contacted the appropriate municipality that had the procurement positions, and they agreed to participate in our thesis. Molde, Bærum, Sola, Porsgrunn, and Lillehammer were the initial municipalities in our thesis. We had to locate a substitute once Bærum asked to withdraw their consent. On short notice, the Bærum municipality intervened. Our municipalities today have roughly the same population and economy.



## 4.11 Techniques and procedures

### 4.11.1 Data collection

Data is information in the form of facts that can be written or numbers and tell us something about the information. Data can be collected in a variety of ways, but statistical surveys are the most common and can be based on qualitative or quantitative methods. Narrowed-down quantitative data is collected numerically, whereas qualitative data is descriptive data, written or verbal words, and observable behavior (Saunders et al. 2015, s. 165). In our research, we will use a mixed-method approach to gather empirical evidence on whether environmental performance in municipalities has improved since the updated procurement regulation. It is essential to differentiate between data collected when using mixed methods. There are two kinds of data sources: **Primary data** and **Secondary data**.

**Primary data** is unique information gathered for a specific research problem on your own using various methods. By collecting your own data, you can adjust and systematize theoretical constructs, conceptual models, research design, and data collection strategy to fit the research questions. Data collection is expensive, time-consuming, and difficult. However, by collecting data on their own, they will be able to provide valid empirical evidence that fits in accordance with the research question (Adams, Khan, and Raeside 2014).

**Secondary data** is information gathered by someone other than the primary user. Using secondary data sources saves a lot of time because someone else has already done the research. A researcher can use the data and adjust it to answer the research question by using only the relevant data from secondary studies. Secondary data can be gathered from a variety of sources, including government websites, research articles, and a variety of other publications (Adams et al. 2014, s. 107-115).

We will collect data using a variety of methods. The first step will be to gather data from various municipalities. This will be accomplished through a structured interview that will be closely examined. This will be our primary data because we will collect it ourselves from municipalities. The next step is to collect secondary data, for which we rely on two sources. To begin, we will gather statistical data from Doffin. Tables will be used to display the statistical data. Secondly, we will conduct a review of the literature using

research articles and books to explain terms in our discussion together with our data to shed light on our research problem.

## **4.12 Primary and secondary data**

### **4.12.1 Primary Data: Interviews**

The strategy chosen for collecting primary data was interviews. According to Saunders, an interview is a purposeful conversation between two or more participants. The interviewer asks an unambiguous question to the respondent. The interviewer listens to the answer to explore the theme further. There are several types of interviews, such as structured and non-structured interviews with several categories. These can be a few questions or in-depth interviews. In-depth interviews are time and resources consuming. These interviews are divided into a general question that is then analyzed. When this is done, there are several follow-up questions. However, in-depth analysis requires training to obtain the necessary information, and the information obtained must be interpreted and processed during the in-depth interview. During the interview, personal options can be asked as well as reading the body language of the respondent (Saunders et al. 2015, s. 418).

In this case, we will have a semi-structured interview with the municipalities. Here the questions are prepared in advance. All municipalities will be asked the same question according to the specific order of the questions. The municipalities are free to answer as they wish, and we will write down the answers and have recordings of the interview if it is okay for the respondent.

### **4.12.2 Secondary data part one: Doffin**

Doffin is the national database for public procurement. The web page is there to simplify the procurement for contracts that succeed the limit of 1,3 million NOK, which by the law must be published in Doffin to secure the competition in the market and ensure the legal and ethical rules are fulfilled. For us to compare the results from the interview, we must create statistics based on earlier announcements found in Doffin as a baseline. With this, we mean using announcements from, for example, 2010-2021. The numbers would help us see if the municipality used environmental weights and possibly what type of goods or services before the regulations and after (Doffin, 2021).

In 2019, the procurement area was moved to the Directorate for Public Administration and Financial Management (DFØ). DFØ's social mission is to be a driving force for good governance, management, and organization in the state and for the state to achieve economies of scale and synergies in its own operations. DFØ is now responsible for Doffin. Doffin is the national procurement data base for public procurement. The website will help clients to create and publish announcements in accordance with the regulations and make it easy for suppliers to find relevant competition in the public sector. Here the announcements are published for the public procurement and procurement in the supply sector. These contracts and tenders are issued here for water and energy supply, transport, and telecommunications that are subject to the EEA regulations. The main purpose of the database is to ensure competition and transparency about the contract. Ensure and control contracts according to the regulations before publishing, publish and make announcements available in a searchable format, and make relevant statistics available in the public sector (Doffin, 2021).

As mentioned earlier, Doffin will be used to find statistical data to answer our research questions. Doffin contains all the public contracts before and after the change of environmental focus. Here we will show in the announcements if they were given a weight about the environment and how they prioritize the climate over other public responsibilities. The data will be sorted and quantified. When this is done, the data will be represented in tables (Johanson & Johansen, 2021).

#### **4.12.3 Secondary data part two: Literature review**

A literature review is an examination of existing theory in order to find relevant data for your research problem. There are three varieties. The first is for preliminary research, which will assist you in developing and refining research ideas and drafts of your research proposal. The second, also known as a critical review or a critical literature review, provides the context and theoretical framework for your research. The third step is to incorporate your research findings into the larger body of knowledge (Saunders et al. 2015, s. 70-71).

Amongst the most important aspects of our thesis is that we use literature to explain existing concepts that are relevant to our research. This is accomplished through a literature review, which is covered in our third chapter. In chapter three, we used articles,

books, and websites to explain these concepts in order to create a body of knowledge that can be used to emphasize what is discussed in accordance with our data in order to answer our research question.

## **4.13 Data analysis**

### **4.13.1 Qualitative data analysis**

When the interviews are concluded, and the information gathered has been transcribed into text, it is time to address the preliminary data so that it can be analyzed. The preliminary data can be analyzed using a variety of methods and approaches. A well-known method that we used in our data analysis is Thematic analysis. Thematic analysis is often thought of as a

A generic approach means that the focus is on an individual case. The analysis is adaptable and not bound to a specific philosophical dissertation. The analysis can be used in both an inductive and deductive approach, and it is up to the researcher to choose the path of the Thematic analysis (Saunders et al. 2015, s. 579). Thematic analysis can be used to analyze both large and small qualitative datasets, resulting in detailed descriptions, explanations, and theorizing. The thematic analysis focuses on identifying, analyzing, and interpreting meaning patterns, which can help in comprehending large amounts of data, integrating data from multiple transcripts, identifying patterns for further explanation, and developing and testing explanations to draw conclusions (Saunders et al., 2015, s. 579).

Saunders developed a step-by-step procedure to provide guidelines for conducting Thematic analysis. In practice, these procedures do not proceed in a straight line. They are frequently concurrent and recursive. This means that data is analyzed as it is collected, and researchers go back to previously analyzed data to find their own way to categorize newly collected data (Saunders et al. 2015, s. 580). The first step is to become familiar with the data as the researcher transcribes the interview. When the summaries are completed, the next step is to code the data. A code is a single word or short sentence that can be easily used to code a summary in order to categorize the summaries (Saunders et al. 2015, s. 580-582).

The third step is to search for topics and recognize relationships. In practice, the researcher will be searching for themes and patterns to find relationships in the data it is collected and

coded. When the researcher has coded all the data, then the search for themes can officially begin. The researcher will now have a long list of codes to use in order to visualize a pattern, draw meaning from the data, and make sense of it (Saunders et al. 2015, s. 584-585). In step four, the data is structured and analyzed. Here the researcher will redefine themes and test the propositions, which is an important part of the process. The themes developed by the researchers must be part of a larger set that provides the researcher with a well-structured analytical framework from which to conduct further analysis. As the themes are created during the analysis, the coded data must be reorganized and placed under the appropriate theme or sub-theme. This will help the research in determining whether the coded data are relevant to one another within the context of their topic. (Saunders et al. 2015, s. 585). As the researcher seeks to reveal patterns within the data and connect relationships between themes, the researcher will be able to test the propositions. Here the researcher must organize the summaries in a sequential order relative to the variables. When this is done, theory can be used to confirm the propositions. (Saunders et al. 2015, s. 585). Another method is to ask interviewees if they recognize themselves in the propositions in order to confirm a connection.

#### **4.13.2 Quantitative data analysis**

Before being processed and sorted, quantitative data in its raw form is rarely understandable. Raw data has to be processed in order to make sense of the data and turn the data into information; only then will the data be useful. The data will be primary or secondary, and after being analyzed, it will be considered information. To make the data useful, it's often presented in tables, graphs, and other types of statistics. This allows us to explore and examine the information and look for patterns. (Saunders et al. 2015, s. 496). In other words, tables and graphs can be used to illustrate the data, and the statistics can be used to compare the data.

There are several factors to consider when planning to conduct a quantitative analysis. Saunders introduced a list of factors to consider when conducting quantitative analysis (Saunders et al. 2015, s. 498).

- Number of cases of data (Sample sizes)
- Type or types of data (Scale of measurement)
- Data layout (Format required for analysis software)

- Impact of data coding on subsequent analysis
- Process of entering (Inputs)
- Process of checking the data for errors

The first factor to consider is the cases of data. Before you begin collecting data, the sample size must be determined. We've already discussed this earlier in the chapter, so we won't go into it again.

The second factor a researcher must take into account is the types of data to be used. There are numerous paths to take here, and the path chosen must be relevant to the studied and researched question. The right path can be found by using the hierarchy of measurement. The hierarchy of measurement is divided into two distinct groups. These groups are categorical and numerical, which are then divided into subcategories. In this part of the chapter, we will not go into detail on both groups, only the group that is relevant to us (Saunders et al. 2015, s. 499).

The third factor a researcher must consider is the data layout for collecting quantitative data. Here, the researcher can collect quantitative data via the web or traditional data collection methods. Quantitative data can be collected in a variety of ways (Saunders et al. 2015, s. 501). Probability sampling and Personal interviews are examples of these methods. In probability sampling, researchers can use Simple random sampling.

As previously mentioned, we will collect quantitative data from Doffin, which is the website where all of the public procurements are posted. We have chosen some criteria that will serve as our categories for measuring, such as; price, quality, environmental, warranty, TLC, delivery, and others. We want to see the total percentage of each category and see if there's a change from before 2016 to after.

In our thesis, we will use the data from the Doffin database to see how the different criteria are weighted. After randomly picking six tenders from the different municipalities and writing down in a table the different scores to create a statistic to easier evaluate if there has been a change in weighting before the change in regulation from 2016 to the present time. The information we got by analyzing our data will be compared to an in-depth interview with each municipality.

By comparing the data from Doffin and the interview, we can see their perception of how they weigh the criteria and if they use environmental criteria in other ways than we can see from the award criteria in Doffin. The goal is to be able to see the different results from each municipality as one by taking the similarities and differences and setting them up against each other, and seeing the result. The interview will be divided into three main categories; this way, we can approach the problem from three sides.

#### **4.14 Research quality**

Using various methods to collect data on the same subject can boost the credibility of your findings. The validity of your conclusions is strengthened if the qualitative and quantitative data converge sufficiently. Because the research design is supposed to represent a logical set of statements, you can judge the quality of the research using four tests (Yin 2018, s. 78). The research must be credible and trustworthy. As a result, the tests must be balanced. To assess the quality of a research design, four tests can be applied. Before going over the various tests, it's important to understand what the term "Validity" means. Validity is the precision and dependability of scientific findings. Validity aims to ensure the trustworthiness and accuracy of the findings. For the research to be valid, it must reflect what actually exists (Yin 2018, 78).

##### **4.14.1 Construct validity**

Construct validity is concerned with determining the appropriate operational measures for the concepts under consideration. This means that the study must be defined in such a way that narrows down the research question so you don't bring in data that are not relevant to the research. Triangulation is a critical component of construct validity and entails the use of multiple sources to substantiate evidence. Construct validity in case studies can be obtained through three explicit approaches: multiple sources of evidence, chain of evidence, and draft review by key informants. (Yin 2018, s. 79).

Yin (2018) identifies three strategies for increasing construct validity in case studies. The first is a variety of evidence sources. The second is to establish a chain of evidence in data collection. This implies that the researcher must collect sufficient and relevant data to support the interpretation of what is measured. In our thesis, we used multiple sources. The

first thing we did was to collect data from Doffin, which we made into statistical data. We did this to get an overview of the various municipalities' procurement and to get a general overview of the situation before and after the reform in 2017 in terms of environmental weighting.

Secondly, we collected data from interviews. The interviews gave us first-hand data and are therefore classified as primary data. We developed the interview questions using the general data collected from Doffin as a starting point to understand the current situation and used existing theory to find multiple approaches to see if they could help answer our problem statement. When all of the data had been collected and analyzed, it was time to conduct research and identify common characteristics by triangulating the data. This was done in the Chapter 6 discussion section. As a result, we were able to use the data to answer our research questions and problem statements to draw some conclusions.

The third consideration for a researcher is to have key informants review the draft of the case study. This is to ensure that the researcher correctly interpreted the information and to allow the interview subjects to read our transcript (Yin 2018, s. 79). Drafts of this master's thesis were sent to our supervisor on a regular basis, and our interview objects have had the opportunity to quality-check the data from the interview. Our supervisor was excellent and thoroughly reviewed our process from start to finish. We adjusted the drafts in response to our external reviews as we received feedback. This was done to ensure that the research was done properly.

#### **4.14.2 Internal validity**

Internal validity has received the most attention in experimental studies. The reason for this is that numerous threats have been identified, the majority of which deal with fictitious effects. For starters, internal validity is primarily a concern in explanatory case studies, in which the investigator attempts to explain how and why event X led to event Y. If an investigator incorrectly concludes that there is a causal relationship between X and Y without realizing that a third event Z may have caused Y, the research design has failed to address any threat to internal validity (Yin 2018, s. 81). As a result, a researcher must take precautions and ask himself these questions. Is the conclusion correct? Have all competing explanations and possibilities been weighed? (Yin 2018, s. 81). To ensure its validity, we



used multiple approaches to see if there could be other reasons to explain our primary findings. These are firmly discussed and can be found in chapter 6, data analysis.

#### **4.14.3 External validity**

External validity is the third test. External validity addresses the issue of determining whether or not a study's findings are generalizable beyond the scope of the study. For case studies, this is debatable, and it is dependent on the size of the sample before one can say whether the research is generalizable or not. Another consideration for external validity is the research question. A generalization is more likely if the research question begins with "How" or "Why" because this question seeks to investigate "How" or "Why" a phenomenon occurs, as well as the strategy used to study the phenomenon (Yin 2018, s 81)

As a result, the initial research questions can have a direct impact on the strategies used to achieve external validity. These research questions should have been determined during the case study's research design phase. This can lead to the identification of appropriate theory and theoretical proposals that are best suited to laying the groundwork for addressing your case study's external validity (Yin 2018, s 81)

We decided early on in the design phase that we wanted to investigate the environmental focus of municipalities' procurements. As a result, we narrowed the problem statement to investigate municipal public procurement's environmental performance. The reason for this is that the regulation was changed in 2016 and implemented in 2017 to include environmental weighting. In retrospect, several municipalities have stated that they are focusing more on the environment in their procurement. In our thesis, we want to find out whether municipalities in Norway have increased their environmental focus and how they have done it.

We wanted our findings to be generalizable and to represent the municipalities of Norway. In order to achieve this, we had to set some different criteria due to municipalities varying in size and economy. We chose to avoid the larger municipalities, such as Oslo, Bergen, and Trondheim, because their budgets are much larger than those of the remaining municipalities in Norway and are all governed by an environmentally focused political party. When deciding which municipalities to use in our research, we attempted to select medium-sized municipalities spread across southern Norway.

We chose to look at random municipalities with the same population. As a result, we get municipalities that are equal in both financial and size, making it easier to compare and generalize the municipalities. Furthermore, we assumed that all municipalities have the same prerequisites. This means that the municipalities that were elected did not have a greater environmental focus than the other municipalities. Before we chose to interview them, most of our municipalities had a general focus. As a result, Molde, Bærum, Sola, Porsgrunn, and Lillehammer were chosen as our municipalities. Molde, Sola, Porsgrunn, and Lillehammer all have an agreement and inter-communal cooperation with the municipalities nearby, and therefore it's not a problem that Bærum is a larger municipality than the rest.

When we decided to generalize to the rest of Norway's municipalities and use Doffin statistics data, we had to ensure that we had a selection of random acquisitions where it was natural to choose environment weighting with a sampling size of more than 30 acquisitions. We randomly selected six tenders from various municipalities and recorded the different scores in a table to create a statistic that can be used to determine whether there was a change in weighting prior to the change in regulation from 2016 to the present.

#### **4.14.4 Reliability**

Yin (2018) states that the fourth test is called reliability. Reliability is about being objective, so a researcher can reach the same findings and conclusion if the person conducts a similar study over again. The end goal is to minimize the errors in the study. The general way to do this is the procedure of documentation every step. With this documentation, you will have to use a case study protocol or a case study database. (Yin 2018, s 82)

To strengthen the credibility of our argument, we have meticulously detailed and followed each method. Every option in the thesis has been addressed by both writers, and if necessary, our supervisor has been consulted. This eliminates individual perspectives and ensures that every choice is made without individual opinions.

When collecting data from Doffin, the different tenders were chosen randomly after sorting out the types of procurement to best suit our thesis. By doing this, we removed the possibility of choosing typical procurement, which is more natural than others to have a higher or lower percentage of environmental weights.

We were both present during the interviews and recorded them in order to best ask the questions and ensure that every interview object was asked the identical questions. We used a semi-structured method, allowing the interview object to speak freely during the interview. This allowed us to get more information and gain a deeper understanding of why they made their decision. However, with two interviewers, we were able to confirm that all of the questions were asked in order to maintain the generalization. Following each interview, the video was transcribed and sent to the interview object to confirm we interpreted what they said correctly. By doing so, we ensure that the data is free of personal influence.

## **5.0 Presentation of findings**

In this chapter, we will explain the data collected. The first thing we will present is Doffin's statistical data. Although this is our secondary data, it was the first data we collected. The fact that this is secondary data is due to the fact that it was gathered from existing sources. We did this to get an overview of the various municipalities' procurement and to get a general overview of the situation before and after the reform in 2017 in terms of environmental weighting.

Secondly, we will present our primary data, which consists of data gathered for interviews. The reason this is our primary data is that it was gathered through interviews directly from the source. This gives us information from new data collected and therefore classified as primary data. We developed the interview questions using the general data collected from Doffin as a starting point, which is why we chose to present our secondary data first, followed by our primary data, as this is the most natural way to proceed. Thirdly, we double-checked the information we had gathered from the interviews. We went back into Doffin to look at procurement in relation to what they discussed in the interviews. This was done to ensure that what was said was correct.

### **5.1 Presentation of data from Doffin**

Doffin is Norway's national announcements database for public procurement. According to Norwegian public regulations, all purchases made by a public institution exceeding 1,3 million NOK excluding VAT, as well as tenders exceeding the EEA threshold values, must be published (Doffin 2022).

The procurement act §5 states that public agencies must align their procurement practices to reduce environmental impact and contribute to climate-friendly solutions where applicable. One of the ways this shall be practiced is by taking the total life-cycle cost (TLC) into consideration (Anskaffelse Loven 2017). The procurement regulations §7.9 it's a reference to the procurement act §5. The contractor shall minimize the environmental impact and promote climate-friendly solutions with their procurement and can set environmentally friendly demands and criteria in all the steps in the procurement process where it is relevant. The procurement regulation encourages a minimum of 30% environmental criteria as a general rule (Anskaffelseforskriften 2017). The reason we highlight the law here is to emphasize that it is not a requirement to weigh the environment; rather, it is intended to encourage buyers to consider whether it is appropriate to utilize environmental weights and, if so, how much more value they will receive (DFØ 2022).

To use Doffin as statistical data, we needed 30 or more examples, so we chose six random tender competitions from each municipality, which gave us a total of 30 examples. We will present all of the municipalities as a whole in the analysis. As a result, we do not require 30 tender competitions from every municipality both before and after 2017 to have a valid normal distribution.

We looked at the criteria used by the municipalities to evaluate tender responses to see if they changed and, if so, how much the criteria altered after the change in regulation. This information is crucial to our thesis because we want to know if the change in regulations affects the municipality's purchasing habits.

In the tables, we present the Doffin findings for each municipality. They are presented as shown in the row below. The first column is the doffin number. This is the unique reference number used in the register. A new column is a description of what's purchased, followed by the different criteria used in the tender competition. Each row will be calculated to show that the value is 100 or 1 to verify its a valid distribution.

Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
--------------	----------	-------	---------	-------------	----------	-----	----------	--------	-------------

**Table 3: Headers from Doffin**

The various weighting criteria are shown further down in the table. The following are the criteria used by municipalities in the tenders we discovered:

**Price:** The price criterion is straightforward; it is all about getting the best price for the product. It is also possible to "punish" a supplier who underbids to avoid meeting environmental criteria.

**Quality:** This criterion is a little more complicated. This is due to the various criteria in one, such as competence, rational and effective usage, and functionality. The functional quality can also be beneficial to the environment, making it a greener option.

**Environmental:** This criterion is concerned with the product's environmental impact, both during production and during use. Long lifetime, circular materials, low fuel usage, and a low level of non-environmentally friendly products in production are examples of product qualities.

**Warranty:** How good are the supplier's warranties, such as malfunction, service on defective products, and so on.

**Total Life-Cycle Cost (TLC):** Total Life-Cycle Cost is an attempt to calculate the total cost of ownership. It is the cost of a product from the time you receive it until the value is zero or you sell it. If you require multiple products that can be supplied by the same supplier, Life Cycle Cost can also be used.

**Delivery:** The delivery is about whether or not the seller provides dependable shipping. Both on time and without incident. The delivery times are critical in order to reduce costs.

**Others:** Other criteria that are not commonly used but are still mentioned are listed here.

## 5.1.1 Molde municipality

<i>Molde</i>		Pre 2017							
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
465908	Rent heavy machines	30	20	0	0	0	20	30	100
137122	New artificial grass	50	20	0	0	0	10	20	100
735034	New diving tower	100	0	0	0	0	0	0	100
131367	New wheel loader	60	40	0	0	0	0	0	100
264028	Rent heavy machines for snow removal	40	25	0	15	0	0	20	100
111621	Frame agreement for winter maintenance	40	25	0	0	0	0	35	100
Sum weights		320	130	0	15	0	30	105	600
Sum weights in percent		53,33 %	21,67 %	0,00 %	2,50 %	0,00 %	5,00 %	17,50 %	1,00

<i>Molde</i>		After 2017							
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
316790	New trailmachine for Molde municipality	0	100	0	0	0	0	0	100
919584	Leasing and invest of cars	100	0	0	0	0	0	0	100
337305	Workclothes, shoes and protective equipment	30	30	15	0	0	25	0	100
378010	Workclothes, shoes and protective equipment	30	30	15	0	0	25	0	100
370622	Purchase a new UNIMOG	100	0	0	0	0	0	0	100
378881	Consumables	40	10	0	0	0	30	20	100
Sum weights		300	170	30	0	0	80	20	600
Sum weights in percent		50,00 %	28,33 %	5,00 %	0,00 %	0,00 %	13,33 %	3,33 %	1,00

*Table 4: Doffin statistics from Molde municipality*

The above table clearly shows a shift in Molde municipalities' procurements. The price focus has been reduced by 3.33 percent, while the quality focus has increased by 6.66 percent. The most significant change is in delivery, which has increased by 8.33%. The most intriguing change for our thesis is the increase in the environment from 0% to 5%. That is a significant increase!

The above table clearly shows a shift in the procurements of Molde municipalities. The emphasis on price has been reduced by 3.33 percent, while the emphasis on quality has increased by 6.66 percent. The most significant change is an 8.33 percent increase in delivery. The most interesting change for our thesis is the increase in the environment from 0% to 5%. That is a substantial increase!

## 5.1.2 Sola municipality

Sola		Pre 2017							
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
135714	Street sweeper	60	20	0	10	0	10	0	100
313292	New cars	70	30	0	0	0	0	0	100
142343	New furnitures	70	20	0	0	0	10	0	100
120055	Glassbuilding	70	0	0	0	0	0	30	100
184767	Equipment and chemicals for swimmingpool	100	0	0	0	0	0	0	100
583126	New cars	100	0	0	0	0	0	0	100
Sum weights		470	70	0	10	0	20	30	600
Sum weights in percent		78,33 %	11,67 %	0,00 %	1,67 %	0,00 %	3,33 %	5,00 %	1,00

Sola		After 2017							
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
384901	Laundry services	70	30	0	0	0	0	0	100
308775	Perishable goods	100	0	0	0	0	0	0	100
378621	Cleaning products	60	20	20	0	0	0	0	100
332682	Officesupplies	100	0	0	0	0	0	0	100
312441	Equipment and chemicals for swimmingpool	100	0	0	0	0	0	0	100
026782	Purchase of paint and other consumes	100	0	0	0	0	0	0	100
Sum weights		530	50	20	0	0	0	0	600
Sum weights in percent		88,33 %	8,33 %	3,33 %	0,00 %	0,00 %	0,00 %	0,00 %	1,00

Table 5: Doffin statistics from Sola municipality

In Sola municipality, we also see a significant increase in price, which rises by 10% while decreasing in quality by -3.55 percent. The fact that they choose to use environmental weights in chemical cleaning products is an important factor here.

## 5.1.3 Porsgrunn municipality

Porsgrunn		Pre 2017							
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
101469	Dumptruck	50	30	0	20	0	0	0	100
156498	Renting heavy equipment and trucks	70	30	0	0	0	0	0	100
484776	Changing roof tiles	100	0	0	0	0	0	0	100
624772	Advertising supplies	50	0	0	0	0	50	0	100
099467	Postalservices	50	0	0	0	0	50	0	100
137569	Truck with hook lift	50	20	0	0	0	0	30	100
Sum weights		370	80	0	20	0	100	30	600
Sum weights in percent		61,67 %	13,33 %	0,00 %	3,33 %	0,00 %	16,67 %	5,00 %	1,00

Porsgrunn		After 2017							
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
193443	Excavator with belts	40	40	0	20	0	0	0	100
396592	Purchase of paint and other consumes	50	15	20	0	0	15	0	100
378026	Lumbers and consumes	100	0	0	0	0	0	0	100
275176	Truck with crane	40	40	0	0	0	20	0	100
391918	Purchase of paint and other consumes	50	15	20	0	0	15	0	100
357309	Tire and tire service	40	60	0	0	0	0	0	100
Sum weights		320	170	40	20	0	50	0	600
Sum weights in percent		53,33 %	28,33 %	6,67 %	3,33 %	0,00 %	8,33 %	0,00 %	1,00

Table 6: Doffin statistics from Porsgrunn municipality

In comparison to other municipalities, the price has been reduced by -8.33%, while the quality has increased by 15%. Porsgrunn also chose to use environmentally as a criterion when purchasing paint, which is frequently viewed as harmful to the environment.

## 5.1.4 Bærum municipality

Bærum		Pre 2017								
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights	
281291	Office supplies	70	0	30	0	0	0	0	100	
244729	Rent and wash of workcloths	42,5	42,5	15	0	0	0	0	100	
293234	Rent of busstransportation	40	60	0	0	0	0	0	100	
263638	Furniture	40	40	20	0	0	0	0	100	
304366	Fresh meat and meat products	40	60	0	0	0	0	0	100	
770572	Internet based grocery store	70	30	0	0	0	0	0	100	
Sum weights		303	233	65	0	0	0	0	600	
Sum weights in percent		50,42 %	38,75 %	10,83 %	0,00 %	0,00 %	0,00 %	0,00 %	1,00	

Bærum		After 2017								
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights	
360938	Medical supplies	40	30	30	0	0	0	0	100	
387273	Purchase and delivery of appliances	50	25	25	0	0	0	0	100	
384813	Toys and forming materials	40	30	30	0	0	0	0	100	
307932	Transportating and waste treatment	60	40	0	0	0	0	0	100	
365228	Busstransportation	60	20	20	0	0	0	0	100	
338518	Internet based grocery store	70	0	20	0	0	0	10	100	
Sum weights		320	145	125	0	0	0	10	600	
Sum weights in percent		53,33 %	24,17 %	20,83 %	0,00 %	0,00 %	0,00 %	1,67 %	1,00	

Table 7: Doffin statistics from Bærum municipality

Here we can see that the price criteria has a higher percentage after 2017 than before + 52,91%, while the quality has decreased by 14,58%. The environmental criteria have been an important factor before, but even more now. From 10,83% to 20,83%, an increase of 10%

## 5.1.5 Lillehammer municipality

Lillehammer		Pre 2017								
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights	
522658	Ice sprayer machine	0	30	0	30	30	10	0	100	
220382	Tractor	0	30	0	0	60	10	0	100	
954793	Equipment carrier	0	40	0	0	40	20	0	100	
644607	Beds	0	45	0	0	45	10	0	100	
782692	Leisure facilities	100	0	0	0	0	0	0	100	
308378	Supply of chemical and tank facilities	0	35	0	0	35	20	10	100	
Sum weights		100	180	0	30	210	70	10	600	
Sum weights in percent		16,67 %	30,00 %	0,00 %	5,00 %	35,00 %	11,67 %	1,67 %	1,00	

Lillehammer		After 2017								
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights	
482224	Isprepareringsmaskin	30	60	0	0	0	10	0	100	
935541	Wheel loader	60	40	0	0	0	0	0	100	
109863	Park tractor	40	60	0	0	0	0	0	100	
325325	Feiebil	40	60	0	0	0	0	0	100	
380185	Outdoor toilets	70	0	0	0	0	30	0	100	
385844	Machine contractor	75	25	0	0	0	0	0	100	
Sum weights		315	245	0	0	0	40	0	600	
Sum weights in percent		52,50 %	40,83 %	0,00 %	0,00 %	0,00 %	6,67 %	0,00 %	1,00	

Table 8: Doffin statistics from Lillehammer municipality

In Lillehammer municipality, the focus on price has increased from 16.66% to 52.6%, an increase of 35.94%. They have also increased their focus on quality, which has increased by 10%. Another significant change is the use of TLC. It used to have a 35% impact, but now it has a 0% impact.



### 5.1.6 Summary of the municipalities before and after 2017

With the five municipalities and six Doffin references from each, we have an  $n = 30$ .

Therefore we now have a valid probability distribution.

Pre 2017									
Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
101469	Dumptruck	50	30	0	20	0	0	0	100
156498	Renting heavy equipment and trucks	70	30	0	0	0	0	0	100
484776	Changing roof tiles	100	0	0	0	0	0	0	100
624772	Advertising supplies	50	0	0	0	0	50	0	100
099467	Postal services	50	0	0	0	0	50	0	100
137569	Truck with hook lift	50	20	0	0	0	0	30	100
281291	Office supplies	70	0	30	0	0	0	0	100
244729	Rent and wash of workcloths	42,5	42,5	15	0	0	0	0	100
293234	Rent of bus transportation	40	60	0	0	0	0	0	100
263638	Furniture	40	40	20	0	0	0	0	100
304366	Fresh meat and meat products	40	60	0	0	0	0	0	100
770572	Internet based grocery store	70	30	0	0	0	0	0	100
522658	Ice sprayer machine	0	30	0	30	30	10	0	100
220382	Tractor	0	30	0	0	60	10	0	100
954793	Equipment carrier	0	40	0	0	40	20	0	100
644607	Beds	0	45	0	0	45	10	0	100
782692	Leisure facilities	100	0	0	0	0	0	0	100
308378	Supply of chemical and tank facilities	0	35	0	0	35	20	10	100
465908	Rent heavy machines	30	20	0	0	0	20	30	100
137122	New artificial grass	50	20	0	0	0	10	20	100
735034	New diving tower	100	0	0	0	0	0	0	100
131367	New wheel loader	60	40	0	0	0	0	0	100
264028	Rent heavy machines for snow removal	40	25	0	15	0	0	20	100
111621	Frame agreement for winter maintenance	40	25	0	0	0	0	35	100
135714	Street sweeper	60	20	0	10	0	10	0	100
313292	New cars	70	30	0	0	0	0	0	100
142343	New furnitures	70	20	0	0	0	10	0	100
120055	Glassbuilding	70	0	0	0	0	0	30	100
184767	Equipment and chemicals for swimmingpool	100	0	0	0	0	0	0	100
583126	New cars	100	0	0	0	0	0	0	100
Sum weights		1562,5	692,5	65	75	210	220	175	3000
Sum weights percent		52,08 %	23,08 %	2,17 %	2,50 %	7,00 %	7,33 %	5,83 %	100,00 %

*Table 9: Summary of Doffin statistics before 2017*

The table tells us the percentage is pretty much the same when seen as one; the quality is very affected by the municipalities which have not used it as much. Therefore it's only 23,08%. The environmental criteria were not used often before the regulation, and it's only natural that it's at 2,17% in total. Only one municipality has used it pre-2017.

After 2017

Doffinnumber	Procured	Price	Quality	Environment	Warranty	TLC	Delivery	Others	Sum weights
193443	Excavator with belts	40	40	0	20	0	0	0	100
396592	Purchase of paint and other consumes	50	15	20	0	0	15	0	100
378026	Lumbers and consumes	100	0	0	0	0	0	0	100
275176	Truck with crane	40	40	0	0	0	20	0	100
391918	Purchase of paint and other consumes	50	15	20	0	0	15	0	100
357309	Tire and tire service	40	60	0	0	0	0	0	100
360938	Medical supplies	40	30	30	0	0	0	0	100
387273	Purchase and delivery of appliances	50	25	25	0	0	0	0	100
384813	Toys and forming materials	40	30	30	0	0	0	0	100
307932	Transporting and waste treatment	60	40	0	0	0	0	0	100
365228	Bus transportation	60	20	20	0	0	0	0	100
338518	Internet based grocery store	70	0	20	0	0	0	10	100
482224	Isprepareringsmaskin	30	60	0	0	0	10	0	100
935541	Wheel loader	60	40	0	0	0	0	0	100
109863	Park tractor	40	60	0	0	0	0	0	100
325325	Sweeper	40	60	0	0	0	0	0	100
380185	Outdoor toilets	70	0	0	0	0	30	0	100
385844	Machine contractor	75	25	0	0	0	0	0	100
316790	New trailmachine for Molde municipality	0	100	0	0	0	0	0	100
919584	Leasing and invest of cars	100	0	0	0	0	0	0	100
337305	Vorklothes, shoes and protective equipmer	30	30	15	0	0	25	0	100
378010	Vorklothes, shoes and protective equipmer	30	30	15	0	0	25	0	100
370622	Purchase a new UNIMOG	100	0	0	0	0	0	0	100
378881	Consumables	40	10	0	0	0	30	20	100
384901	Laundry services	70	30	0	0	0	0	0	100
308775	Perishable goods	100	0	0	0	0	0	0	100
378621	Cleaning products	60	20	20	0	0	0	0	100
332682	Officesupplies	100	0	0	0	0	0	0	100
312441	Equipment and chemicals for swimmingpool	100	0	0	0	0	0	0	100
026782	Purchase of paint and other consumes	100	0	0	0	0	0	0	100
Sum weights		1785	780	215	20	0	170	30	3000
Sum weights percent		59,50 %	26,00 %	7,17 %	0,67 %	0,00 %	5,67 %	1,00 %	100,00 %

*Table 10: Summary of Doffin statistics after 2017*

After the change in regulation, the price remains the most important factor, rising from 52,08 to 59,5%, an increase of 7,42%. The quality increased by 2,92%, from 23,08% to 26%. The environmental criteria have had a tremendous increase as a total, from 2,17% to 7,17%. A 5% increase is not as much as the 7,42% increase in price. When calculating the percentage difference in total environmental weight from pre-2017 to after, we see it tripled.

## 5.2 Presentation of interviews

The first part of the interviews will focus on how education affects the municipality's leadership and employees and whether or not this reflects how purchasers act when creating and evaluating various tenders. That's why we wanted to know what kind of education each member of the purchasing team has. The emphasis was on the type of education rather than the level, such as bachelor's or master's course. In the analysis, we want to see if municipalities with an environmentally educated leader and/or purchasers have a greater emphasis on the environment in their strategy, statistics from the Doffin database, and what they say in interviews.

The second part of the interviews is more about the tenders and which weights the municipality uses. Both frequently and in what sector they use the most. Some sectors are

more natural to use environmentally friendly options than others, like transportation, and some would be unnatural to use, like consulting firms. We also wonder if the political management gives guidelines on how the weights should be and where to set the focus. Do the municipality also demand greener criteria from the suppliers? With this, we mean do they ask them to have an environmental focus in the future than today? And do they require eco-labels like Svanemerket?

The third section of the interviews focuses on municipalities' willingness to pay for greener alternatives versus price and quality. In this case, we want to know if the municipality has a hard limit on how much money they can spend on more environmental goods. It is a matter of determining a price point at which the municipalities are willing to pay more for environmentally friendly products or not.

### **5.2.1 Molde municipality**

#### ***Leadership and the employees in the municipality***

In Molde municipality, the majority of employees have a logistical education, but there is also a mix of economically educated and political scientists. The latest hired employees have a logistical background both in a bachelor's and master's degree. The purchasing managers are educated in sociology.

The employee is concerned about the environment and claims that.

“The municipality has a focus on sustainability and circular economy” (Molde municipality February 22nd, 2022). The employees are also regularly taking courses in this topic offered by DFØ to always be up to date with the regulations.

In addition to this, Molde municipality is concerned with the social environment. They want to know what is further down the value chain, but this is difficult, and they do not invest their own resources in it. However, they are relying on the supplier's documentation of this.

“The political leaders' focus is described in the procurement strategy: 2030 goals” (Molde municipality February 22nd, 2022). The primary goal is; sustainability and reuse of goods. As an example, they told us that the municipality uses surplus materials from one

institution to another instead of purchasing new ones. The municipality also wants to implement a requirement for furniture suppliers to sell renovated furniture instead of newly produced to reduce their carbon footprint.

The political focus “From word to action” takes Molde into the implementation of the circular economy. “The municipality is forced to focus on greener contracts because of their strategy and regulations” (Molde municipality, February 22nd, 2022).

### ***Tenders evaluation weights***

Because there are so many different weighting variables to choose from, price and quality are frequently used. When negotiating a framework agreement with a supplier, there is typically a variety of products, making it more difficult to demand environmental considerations than in a single procurement.

“Environmental weights are not often used in frame agreements because it's difficult to measure the benefit when there are a lot of different types of goods that are being procured, but indirect acquisition, it's easier to see the benefit. Smart garbage cans are an example of this. The environmental focus was placed under qualification and specification requirements instead of tender weights" (Molde municipality February 22nd, 2022).

Office supplies are an example of a typical procurement in which the municipality prioritizes the environment. In comparison to other procurements, office supplies are typically a type of goods where the environmental focus is greater, and this is reflected in the criteria used to select suppliers.

“Criteria can be combined in a variety of ways. The environmental criteria can be specified in both the requirements specification and the award criteria, and this is more visible. But environmental criteria can also be embedded in the quality of a product or service as a sub-point" (Molde municipality February 22nd, 2022).

This means that the environmental criteria are included in the quality rating as a sub-point and are not visible in the contract. As a municipality, they primarily include environmental

requirements in the requirements specification when qualifying suppliers. If environmental requirements are established early, it is easier to exclude suppliers who cannot meet our environmental criteria.

In terms of how Molde municipality determines the various weightings, each purchaser establishes his or her own criteria. However, they also use standards with a weighting of 10% to 20%. It depends on which standard model is used, but they also have a non-standard model that sets the weights and criteria.

In relation to how the weights are used, there are several factors that are relevant. They consider price, quality, and the environment in each case. However, price is the deciding factor in which supplier is chosen. *“We look at the price from each supplier and compare against quality and the environmental criteria and calculate what we get for each NOK”* (Molde municipality February 22nd, 2022).

Molde municipality weights procurement differently in different sectors. The environmental criteria are used, but it is difficult to give equal environmental weight to all procurement. This is due to the fact that;

*“It's a political dream to get it up towards 20-30%, but this might be wishful thinking. The goal is to get more focus on the environment towards 2030. Since every procurement is different and the procurement can be environmentally friendly in itself, you cant weigh it too high”* (Molde municipality, February 22nd, 2022).

If the green criteria are weighted too high, it can lead to the product losing its functions and no longer fulfilling its purpose; an example of this is asphalt. It is not good for the environment but is a necessity. Trying to make this too environmentally friendly will be against its purpose. It will be weakened and not be able to do the job it was made for. Another case is setting the environmental weights too high; the product will be too expensive since fewer suppliers can deliver the product, so the procurer must find the balance between green and cost.

In terms of which greener criteria the municipality expects from its suppliers, Molde municipality may require ISO14001 certification or REMANSK certification, but other

ISO and EU standards may also require them upon qualification. When it comes to requirement specifications, they can request specific eco-labels such as the Swan label and other approved environmental labels.

An example is that they have a number of criteria established when purchasing furniture.

*“When procuring furniture, we have a number of requirements for this in relation to the environment. An example of this is the qualification requirements; we require the ISO standards from our suppliers. After they have shown us this, they may be allowed to deliver a tender offer. In the tender, it will be additional requirements such as eco-labels and eco-textile, which applies to cotton production”* (Molde municipality February 22nd, 2022).

Molde municipality also has requirements in other sectors, such as transportation. The EU commission has established standards in this sector, such as Euro-certifications. These are prerequisites for more efficient engines that use less fuel per mile and emit less emissions. When delivering services and goods in the city, the municipality can also make the use of electric vehicles mandatory.

### ***Municipalities' policy about greener options versus price and quality***

Molde municipality has a standard model for weighing price, quality, and the environment that's used in the majority of procurements. This, however, varies depending on the type of procurement;

*“We use a model called the 60/40 model. Here, quality is weighted higher than price. The reason for this is that we value quality and a long life spent on all our procurements. However, price is also an important consideration, but we are willing to pay a higher price for something that will last longer. This is both economical and environmentally friendly”* (Molde municipality February 22nd, 2022).

This model, in which quality is weighted higher than price, is typically used for larger investments.

*“The model is reversed when purchasing consumables and short-term services. When the model is reversed, the price gets priority over quality, although the quality is still*

*important. The environment is also emphasized. However, it is integrated into the quality"* (Molde municipality February 22nd, 2022).

Setting environmental criteria in product specialization makes it easier to use as a weighting. This is due to the ease with which the product and suppliers can be compared, and as a result, it is done more frequently.

*"Molde municipality has recently increased the use of environmental weighting in procurement. They are currently attempting to strengthen their environmental standards and include them into all procurements"* (Molde municipality, February 22nd, 2022).

Molde municipality has no set pain threshold, but they must stick to the acquisition budget. They want to reduce the cost while still getting the best quality, but they can't go over their budget. They can, however, choose less expensive options if other requirements are met. Sometimes, they may be unlucky enough to depart from the budget on rare occasions, but this is quite unlikely.

*"For us, budgets are the most important consideration. Budgets dictate how much we may spend, yet we will always strive to save money. However, quality and environment are also a high priority even though it is not stated in our strategy. We shouldn't acquire anything that will harm the municipality's reputation"* (Molde municipality, February 22nd, 2022).

In relation to the weighting of green procurements, Molde municipality has a target of 20% weighting. This is in accordance with their compliance with the regulations.

*"Molde aims to apply a 20% weighting on all of its procurements; however, this is not always practicable. We consider quality to be a part of environmental weighting due to our aim of purchasing goods and services with a long life spend"* (Molde municipality February 22nd, 2022).

## **5.2.2 Sola municipality**

### ***Sola Leadership and the employees in the municipality***

The purchasing and contract department has three full-time employees, including the purchasing manager, who is a law graduate and has a master's degree in economics. There

are two other purchasers in the department. The first one with a master's degree in economics and the other with a bachelor's degree in economics. The department is taking different relevant courses when it fits into their schedule.

When developing a tender, Sola municipality considers greener options, as well as price and quality. However, how this is expressed varies from tender to tender.

*“On a general basis, they assess requirements for the environment and climate in any procurement, but how this is expressed varies in relation to whether this is a qualification requirement, award criteria, or whether it is included in contract requirements.”* (Sola municipality February 25th, 2022).

As a main rule, the environmental focus is placed on qualification requirements (environmental management) or contract requirements. (Vehicle, return arrangement, or different requirements for content in the product). The municipality has used environmental as a tender criterion, but that's not often.

The municipality of Sola has a climate and environmental plan that dates from 2010; however, it is often referred to as a desk plan because it is not widely known within the municipality. Politicians have settled on a new climate and environmental plan for 2021; it has not yet been fully implemented, but work has begun.

Sola municipality has seen that there has been a greater focus on greener procurements in the departments. However, as of today, this is on a broad scale. Although the environment is a priority in some procurements, the procurement does not always reflect this. The focus is something they notice, but it is not quantifiable. The focus has shifted, and the measures from the climate and environmental plan have been sharpened in that direction.

### ***Tender evaluation weights***

Sola municipality considers the environment in tenders where possible, but as previously stated, this is done on a general basis. The municipality of Sola does not use the environment as an award criterion, but it did include environmental weighting in the



specification and qualification requirements. The environmental criteria have only been used twice in the award criteria.

There are several reasons for this, one of which is competency and experience. To be able to determine the difference between the award criteria and what the various suppliers offer, the procurer must be good and have extensive knowledge in the field. If you set environmental criteria, it is difficult to distinguish what a supplier offers in terms of the environment.

Sola municipality sets the environment on qualification requirements (supplier level) and often on product specification (product level). *"In my experience, the environmental criteria were often used also before the change in 2016, perhaps also on a larger scale"* (Sola municipality February 25th, 2022).

Experience has shown that the different suppliers use the same quality when it comes to the environment, and therefore the municipality sets price and quality as award criteria. If you set the environmental criteria too high, you only risk that fewer suppliers can deliver, and the prices go up.

Essentially, the municipality uses different weighting criteria in various sectors, most notably construction and transportation. The reason for this is that there are well-established industry standards, such as Euro-marking of transportation and zero-emission vehicles, thus making it easier to use these standards as environmental criteria in a competition. *"We are seeing that the industry is prepared for it"* (Sola municipality, February 25th, 2022). They are also seeing that the industry is taking action and that suppliers are working to improve their own performance in the environment, making it easier to place criteria that have already been established by the industry.

There are no management guidelines on how the weights are calculated. An intriguing fact is that the situation differs in the municipality of Stavanger. As a result, when making contracts with them, the environmental weights must be closer to 30%. In Sola, it's weighted individually, and the purchasers set their own demands.

The municipality uses eco-labels for the suppliers. They request various brands such as Svanemerket and Blomsten, but they are unable to make specific requests due to the law. This is classified as a qualification requirement at the product level.

### ***Municipalities' policy about greener options versus price and quality***

When it comes to the weighting of price, quality, and environment, Sola municipality has weighed the criteria differently. The most important factor for a long time has been price and quality, but the use of environmental criteria has increased.

*"We have always prioritized price highly, but we have also weighed on quality. But in recent times, the environment has also received a much greater focus than before, and therefore, we have focused on environmental criteria to a larger extent. As a result of this, the weighted criteria for price have been reduced slightly." (Sola municipality February 25th, 2022).*

In relation to how much one is willing to pay for procurement, it is budgets that decide this. Budgets determine how much Sola Municipality is willing to pay for an acquisition. Each department is in charge of its own budget, while the purchasers are responsible for the process of the tender within the budget, but they are also responsible for following the legal framework.

*"The purchasing department is in charge of not only complying with these budgets but also complying with the legal framework. It's fine if one of the departments wishes to pay a higher price than the market price to protect the environment. However, the department must clarify this with the purchaser because the buyer is equally liable for the budget" (Sola municipality February 25th, 2022).*

It is up to each purchaser how frequently the environmental criteria are used, as long as it is within budget. *"Environmental factors can be used by the purchaser as long as they are within the budget, but there are no additional incentives to prioritize the environment beyond what the law requires"* (Sola municipality February 25th, 2022).

The overall strategy of the municipality of Sola speaks relatively little about their environmental plan; however, they are currently working on a new overall strategy that includes environmental considerations. As a result, they lack the financial resources to place a high priority on environmental criteria under the existing overall strategy.

However, once the new overall strategy is implemented, they will prioritize environmental concerns on a general basis.

*"The current strategy says little about environmental requirements, and they are not included in the budget, which makes it difficult. But we are working on a new strategy that will soon be implemented"* (Sola municipality, February 25th, 2022).

When the new strategy is implemented, it will be easier to prioritize environmental criteria due to the fact that this is taken into account in the budgets.

Even though their current policy says little about the environment, Sola Municipality works with its environmental guidelines. They've also encouraged some of their suppliers to be more environmentally friendly. An example of this was with the delivery of medical consumables.

*"Previously, our suppliers of medical consumables used to buy them in tiny batches, but they discovered that ordering more and replenishing stock was a better option. As a result, the number of deliveries was reduced, lowering CO2 emissions"* (Sola municipality February 25th, 2022).

In relation to other requirements, Sola municipality has been using criteria that have to do with environmental weighting. *"We have set requirements for deliveries of items using zero-emission cars in various competitions. It's something we do when we can, and it helps to minimize CO2 emissions in the city"* (Sola municipality February 25th, 2022).

In the future, when their new strategy is completed and implemented. Sola municipality would like to increase the emphasis on the use of environmentally friendly criteria on a broad scale. There will be room for this when their new strategy is in place.

*"Sola Municipality has set a goal of having an environmental criterion in every procurement, whether it is in qualifying, contracting, or product specifications, and we should therefore easily be able to achieve that goal"* (Sola municipality February 25th, 2022).

The municipality also intends to employ the circular economy more frequently. For example, at school, the older students receive new Chromebooks while the younger students receive, the older. This is preferable because younger pupils are more likely to use ruffers than older students, and the expense is lower.

The municipality lacks a mechanism that tracks various procurements, making it impossible for leaders to see the procurement team's good work unless it is highlighted by the department. As a result, the procurement team should do a better job of promoting the good ideas we come up with.

It can be person dependent on one leader to another who is focused on environmentally friendly solutions being implemented in the community. When the new environmental plan is enacted, this could alter.

### **5.2.3 Porsgrunn municipality**

#### ***Porsgrunn Leadership and the employees in the municipality***

In Porsgrunn municipality, there are employees with different backgrounds. The procurement leader holds a master's degree in economics, with a focus on logistics and supply chain management, and has also completed training to become certified in environmentally friendly procurement. The rest of the procurement department has a background in economics and logistics, but none has a formal environmental education.

In recent years, Porsgrunn municipality has increased its focus on environmental procurements and has led to changes to its strategy.

*"The municipality has a forward-leaning attitude towards greener procurement; it's decided that the municipality shall have a greener focus. It's currently working on a procurement strategy for greener procurements"* (Porsgrunn Municipality, February 23rd, 2022).

Porsgrunn municipality takes into account the new changes in the law as an important factor.

*“There are procurement regulations that address a large portion of the environmental aspect. It is critical to weigh the economic benefits against the environmental benefits and strike a natural balance”* (Porsgrunn Municipality, February 23rd, 2022).

Due to the changes in both trends and changes to the law, green procurement is a top priority for the municipality's leaders. They are following political decisions that have a direct impact on green procurement, but also they are working on a green procurement strategy. Much work is being done in this area, and the municipality has procurement regulations that address a variety of climate and environmental issues. They compare the environmental benefits with the economy, as well as expertise in specific fields. Much has been accomplished, and much more should be accomplished. This is reflected in their strategy, which serves as a guideline, and purchases weigh green procurements using the law. Climate is more important in their tenders and is used more in contracts and qualification requirements.

As a municipality, Porsgrunn wants to see an upward trend, and already, it can be seen a positive focus on greener procurement in the municipality. In the new action plan, which is currently being worked on, it's possible to see a clear relation between the greener focus in the political strategy and in our procurements. The municipality can therefore say yes, there is an upgoing trend in environmental focus in the procurements. This also can be seen in their increased use of environmental criteria in our tenders.

### ***Tender evaluation weights***

Porsgrunn municipality's weighting will vary from tender to tender. This is determined by the circumstances. Some tender competitions are entirely based on price (a small number of them), while the majority of others are based on price, quality, and the environment. They have around 40 competitions a year, so it varies from one to the next. *"Today, we concentrate on procurements in terms of price, quality, and environment"* (Porsgrunn Municipality, February 23rd, 2022).

Porsgrunn municipality does not use specific weights for their competitions. They will apply weights differently in each competition. However, they attempt to apply the environmental weighting specified in the law as much as possible.

*“We try to keep the 30% rule as much as possible, but because it is a "should be" rule, we don't always use it, but we try, and there should be a good reason not to. Environmental criteria are always placed as separate criteria, not in conjunction with others such as quality. If a criterion is not weighted, it is placed in the quality requirement as a minimum requirement”* (Porsgrunn Municipality, February 23rd, 2022).

Porsgrunn municipality establishes different requirements in different sectors because it would be unnatural to use the environment as an award criterion or a qualification requirement for a legal consultant when compared to new vehicles. Before purchasing items such as soap, plastic items, and cleaning products, we always conduct an environmental risk analysis to determine the environmental footprint.

The management in Porsgrunn municipality has not provided any guidelines for how purchasers should maintain the weighting of green criteria. But they have political guidelines. *“We have political guidelines to follow due to the ambition to reduce emissions, and that is the goal to work towards”* (Porsgrunn Municipality, February 23rd, 2022).

Porsgrunn municipality has green criteria in place for its suppliers. However, it is strongly influenced by competition. Nevertheless, if Porsgrunn buys consumer goods as a detergent, they can set environmental criteria and requirements for eco-labeled products. *“When purchasing cleaning supplies, we consider the use of eco-labeled products in the award criteria. Eco-labels can also be asked for in other competitions, such as when purchasing food and other perishable goods”* (Porsgrunn Municipality, February 23rd, 2022).

Porsgrunn municipality also sets requirements directly for suppliers. These are requirements such as the supplier's systems for climate and environment. This could be a requirement for how the supplier is working to become more environmentally friendly, such as a strategy and the measures they have put in place.

*"We ask for information about their environmental strategies, such as the supplier's plans to reduce climate and environmental emissions. We also ask about if they are working or have achieved ISO certificate standards" (Porsgrunn Municipality, February 23rd, 2022).*

We have also asked the suppliers what kind of measures they do to reduce their emissions when delivering tenders. We wish to get this in the procurement regulations since now we can't ask something broad because it can become too subjective.

### ***Municipalities' policy about greener options versus price and quality***

Porsgrunn municipality does not have a standard hard limit for what they are willing to pay for the environment versus price and quality. *"The municipality does not have a willingness to pay limit when it comes to more environmentally friendly options versus price and quality. We weigh different from one competition to another"* (Porsgrunn Municipality, February 23rd, 2022). Porsgrunn would like to calculate how much they pay for greener options in various procurements, but this is difficult to do because they have a minimum requirement for receiving tender offers based on the tender specifications. If the environment is a criterion, it is not certain that you will achieve your aim, so it will be a cost-benefit analysis.

Where the legislation allows, the Porsgrunn municipality attempts to use local suppliers. They aim to find local competitors, especially in the building industry. They attempt to ask local suppliers when dealing with FOA part 1; thus, we have to use our leeway to acquire local suppliers. According to the legislation, the state cannot discriminate based on geographic location.

The municipality has set a goal to adopt more ecologically friendly alternatives, but no particular target for what percentage of all procurements should be green. This is changing each year because of the different types of competition is done. Each competition requires its unique risk assessment in order to direct resources where they are needed.

The procurement department's accomplishments are not always visible to management. Frequently, we make rigid expectations in the need specification, making it difficult to pick up. This is done to avoid dealing with unscrupulous providers who fail to meet

environmental standards. *“We are good at paying attention, but not very good at showing it to the management”* (Porsgrunn Municipality, February 23rd, 2022).

#### **5.2.4 Bærum municipality**

##### ***Bærum Leadership and the employees in the municipality***

The procurement department in the municipality of Bærum employs 18 people. The department's head has a master's degree in economics, and the rest are spread out in three different sections and have an education in logistics, economy, environment, and political science. One of the sections has an advisory function towards the other employees when it comes to environment and greener procurement. The employees are given courses from DFØ and others when the time allows it, and they find them relevant to the job they are doing. *“We are working on competence development on a regular basis for all our employees”* (Bærum municipality, April 11th, 2022).

The municipality has a focus on greener procurements *“We have a climate strategy which involves the whole municipality”* (Bærum municipality, April 11th, 2022). This policy was recently revised, and it now places a stronger emphasis on environmental concerns. They also have a buying policy that emphasizes environmental considerations. They had a focus on the environment before altering their strategy, but it was on a broad level and not explicitly tied to procurement until recently, around 2019. The municipality of Bærum has been ecologically certified for over 30 years and is recertified every year by ISO.

The municipality is a part of the “Svanemarkets procurement network,” where the municipality commits to procuring more product which is eco-labeled and tries to push the suppliers towards even more environmentally friendly options in the production and transportation. It also includes a yearly report to show that they have acted in accordance with the agreement.

There is a strong emphasis on the environment and long-term sustainability in the municipality. This is more evident now than it was previously.

*“Our municipality has a focus on greener procurement, which is shown in our strategy, an environmental specialist group in procurement, Svanemarket membership,*



*and in their budgets which now also include more money for greener procurement. It's easier to get funding from the leaders for environmentally friendly options" (Bærum municipality, April 11th, 2022).*

The circular economy is important in the municipality;

*"One of the big changes now is the new building for the administration office, it has a strong environmental focus, and all the furniture is reused. If something is missing, it's procured from suppliers who have renovated old ones" (Bærum municipality, April 11th, 2022).*

The municipality of Bærum has gathered data and noticed an ongoing trend in environmental weighting in its procurements.

*"The municipality has an ongoing trend when it comes to greener procurement, and this is shown by more frequent use of environmental criteria and how many percent they are used in different competitions. We also use key performance indicators (KPI) to track eco-labeled products, and how much the environment is weighted to see if they have made progress" (Bærum municipality, April 11th, 2022).*

### ***Tenders evaluation weights***

In their procurements, the municipality of Bærum uses a variety of criteria. *"Price and quality are used primarily, and environment is a sub-theme to quality, which is in accordance with the regulations" (Bærum municipality, April 11th, 2022).*

Bærum municipality relates to the regulations which tell about how one should act in relation to environmental procurement when purchasing. But the main principle of green procurement is that it should be directly linked to the performance. This means that the weighting used in the tenders must have a meaning before the procurement is eventually carried out.

The procurements in the municipality are both goods and services, and the weighted criteria will always be different from one purchase to another. Some services can be

plumber, and another can be a sky-storage service. When calling a plumber, it's needed transportation, and the municipality aims that their suppliers use electric vehicles to reduce the footprint and with the transportation of goods. With sky-storage service, they do not consider environmental weighting because it is not feasible.

In each tender, the municipality aims to target the areas where the environmental focus provides the greatest benefits. They investigate thoroughly and evaluate what criteria are relevant before making an assessment, which can be a risk assessment or a contract assessment. In general, it is easier to set demands on consumption products than on service areas, so they strive to use eco-label products. *“ We primarily purchase products with an eco-label”* (Bærum municipality April 11th, 2022).

The leadership in the municipality has not given the procurement team any guidelines. *“No, there are no guidelines given by the management other than the strategy and regulations. Each employee must make an independent assessment for each individual procurement”* (Bærum municipality April 11th, 2022). Every large special procurement goes to the department leader and or the environmental team for approval

Bærum municipality sets requirements for eco-labeling for both consumables and services. This is against specific products as well as supplier requirements.

*“Yes, we frequently request eco-labeling for both consumer goods and services. We also place demands on our suppliers to improve their environmental practices in order to become more environmentally friendly and achieve eco-labels. For example, they may make changes in order to obtain eco-labeling as a company. This is something we specifically request for services such as laundry, cleaning, and printing”* (Bærum municipality, April 11th, 2022).

Bærum municipality is a part of an inter-municipal corporation where they go together with over 40 other municipalities to set the same environmental criteria for services and products. *“We also invite potential suppliers to a dialog to check what options are out there and then use this as a criterion”* (Bærum municipality, April 11th, 2022). This way, they can assist suppliers in making a greener change while also making it easier for suppliers to accommodate environmental criteria without incurring significant costs. *“You*

*cannot set the bar too high; you will only lose potential suppliers and not achieve a healthy competition” (Bærum municipality, April 11th, 2022).*

### ***Municipalities' policy about greener options versus price and quality***

It's often said that environmental demands can be very expensive, but in Bærum, they believe the opposite is true.

*“A lot of environmental measures can be cost-saving. E.a the new office building for the administration, here we reuse furniture, and also buy renovated. Another example of this is when we set a limit on a maximum of one delivery a week and larger batches when we first order. This reduces the delivery cost for us, and the emissions from transportation” (Bærum municipality April 11th, 2022).*

*“When it comes to the environment, the municipality has no strict limits. They are willing to pay more for things if the environmental benefit is significant, but their budget limits their spending” (Bærum municipality April 11th, 2022).* Greener options are a goal for the municipality.

*“Yes, Bærum municipality has definitely a goal to procure greener alternatives, this is in our sustainability plan and our procurement strategy. We are also a fairtrade municipality” (Bærum municipality April 11th, 2022).*

There is no particular percentage goal; instead, they track whether they are on the right path, although there is a zero-emission goal in the climate policy.

As a municipality, the leaders have organized *“This month's climate smile,”* which is granted to a purchaser who does something remarkable and environmentally friendly. This is promoted internally in the municipality. *“You feel a responsibility to act greener when you sit in a public office”* (Bærum municipality, April 11th, 2022). Svanemerket named Bærum municipality the best procurement company in 2021; when this occurred, the municipality director promoted it, and the department received public recognition in the municipality.

## 5.2.5 Lillehammer municipality

### *Leadership and the employees in the municipality*

Employees in Lillehammer municipality's purchasing department come from a variety of backgrounds and work in an interdisciplinary environment. *"The head of the procurement department has a bachelor's degree in management and has taken different courses at the master's level. The rest of the employees are educated within logistics, economy, and law on bachelor and master level"* (Lillehammer municipality February 21st).

The municipalities of Lillehammer place a strong emphasis on the environment, which is reflected in their strategy. They work to include environmental considerations in all of their procurements in order to be able to conduct more procurements with an emphasis on the environment. *"Yes, we have a focus on the environment, in our procurement strategy item number 4.1 the environmental plan is described closely"* (Lillehammer municipality February 21st).

*"The municipalities leadership have a focus on the environment, but they have to prioritize to deliver their main services to the inhabitants like schools, elderly home, home services e.a."* (Lillehammer municipality February 21st).

When dealing with new procurements in the future, it will, over time, be more natural to set more focus on the environment and, at the same time, use the regulations to achieve a higher percentage of environmental weights.

*"The head of office and section chiefs have a focus on the environment, especially on new tenders. As an example, vehicles since its new changes in the regulations from the new year which is more specific, and moves towards electric cars and trucks."* (Lillehammer municipality February 21st).

Lillehammer municipality states that they have an upgoing trend with a focus on the environment, and they follow the new regulations in accordance with their procurement strategy.

*“Lillehammer municipalities are focused on providing services, preferably in an environmentally friendly manner. In practice, maintaining a constant or under any circumstances focusing on the green is difficult. However, it has proven to be successful in everyday life in all service and delivery”* (Lillehammer municipality February 21st).

Furthermore, Lillehammer has a focus on a circular economy *“We have a focus on reuse of what we have, instead of purchasing new. The best purchase is the one you don't do”* (Lillehammer municipality February 21st). If it should become relevant to procure new furniture, then the municipality wants to purchase nicely used and renovated instead of brand new from production from their suppliers. Like IKEA buy back used furniture and resell it at a second-hand shop.

### ***Tenders evaluation weights***

When it comes to weighting criteria, different criteria are used in terms of price, quality, and environment according to the acquisition. Price is an important factor, but so are quality and the environmental criteria. How we choose to use the criteria will also vary in relation to the procurement. Lillehammer municipality will use different criteria with different weights in a competition to best fit the competition and what is procured, but also see if the criteria can be placed as other requirements instead of weight.

*“To add some depth to the image. Some needs in environmental procurement can be stated in the award criteria, but if we believe it belongs somewhere else to fulfill the requirement, we put it in the requirements specification or qualification requirements if it is a better fit”* (Lillehammer municipality February 21st).

The municipality of Lillehammer does not use Life Cycle Cost (LCC) as a measurement criterion.

*“We have other very good tools. Although LCC is a useful tool that allows us to see the entire picture, it's difficult to use in practice. We would have liked to utilize LCC as a criterion, but because of all the factors which are hard to calculate, it's more convenient to use price, quality and environmental criteria separately than LCC”* (Lillehammer municipality February 21st).

The municipality of Lillehammer has an entrepreneurship department. They work with parallel framework agreements in order to impose stricter environmental requirements on suppliers who provide various services to the municipality. *“This is a difficult task, but we want to work with environmental requirements and improve. But, as I previously stated. We are already doing our part by including environmental criteria in our competitions”* (Lillehammer municipality February 21st).

There is a reason for these requirements mentioned previously. This means that the requirements are tailored to any procurement, but also whether it is for a service or consumer goods. Combined with the industry standards, these requirements are also tailored to the industry in which the goods or services will be purchased.

*“In the construction industry, the supplier has gotten better by using industry standards. These standards have been developed by the public sector in collaboration with the suppliers. We actively use these industry standards as criteria, but so do other municipalities in Norway”* (Lillehammer municipality February 21st).

The management provides no guidelines for how criteria should be used. This is determined by any purchaser who is in charge of the competition. They do, however, follow the law. Lillehammer municipality also has no measurement for its environmental criteria. The criteria we set for our suppliers will differ depending on whether they are qualification requirements or requirements specifications.

*“When it comes to qualification requirements, we frequently use the industry standards, but as previously stated, we can also ask for ISO certification. When it comes to requirements specification, it depends on whether this is a service or a product. But here we often ask for different eco-labels such as svanemarket or others”* (Lillehammer municipality February 21st).

### ***Municipalities' policy about greener options versus price and quality***

The municipality of Lillehammer establishes criteria based on the acquisition. Every procurement uses differently weighted criteria for price, quality, and the environment.

*“In terms of the percentage disparity between criteria, we don't have any exact rules. Lillehammer has its own set of requirements for tenders and competition. The environment is a crucial requirement. We take advantage of opportunities when we have them”* (Lillehammer municipality February 21st).

Lillehammer does not have a hard limit for when the cost of greener options grows too high compared to the environmental benefit. The purchasers must follow the department budgets. *“No, we have no hard limit that we are aware of. However, if we reach a point where we must supply a service, and there are no other options, it becomes challenging. But after that, we'll provide the service”* (Lillehammer municipality February 21st).

The municipality of Lillehammer places a high value on price. They say, however, that if the product or service has a lengthy life, they are willing to spend extra in the acquisition phase to reduce the upkeep cost. *“Price is an important matter. However, if the ecologically friendly soap has a twice-as-long lifespan and costs twice as much, it is only natural to choose the environmentally friendly and long-lasting soap”* (Lillehammer municipality February 21st).

Lillehammer municipality has a goal of using environmentally friendly alternatives. *“Yes, we want to choose green where we have the opportunity. Especially if it is about the economy and the environment”* (Lillehammer municipality February 21st).

Lillehammer also considers the use of local suppliers where the law allows it. The law expressly stipulates that we cannot reject other suppliers based on their geographic location and that any supplier who wishes to compete must be permitted to supply their service. *“Where it is possible and if it's feasible, we prefer to work with local vendors, but we also work with national and international vendors”* (Lillehammer municipality February 21st).

## 5.2.6 Summary of the interviews

Municipalities	Leadership and the employees in the Municipality	Tenders evaluation weights	Municipalities policy about greener options versus price and quality
<b>Molde</b>	<ul style="list-style-type: none"> <li>The majority has education within Logistics and economy.</li> <li>Focus on sustainability, social and circular economy.</li> <li>Follows a political procurement strategy</li> </ul>	<ul style="list-style-type: none"> <li>Criteria are used in product specification and award criteria.</li> <li>They consider price, quality, and the environment in each case.</li> <li>They require eco-labels</li> </ul>	<ul style="list-style-type: none"> <li>Molde municipality use a standard model</li> <li>They try to use environmental standards in all procurements.</li> <li>Molde aims to apply a 20% weighting on all of its procurements.</li> </ul>
<b>Sola</b>	<ul style="list-style-type: none"> <li>The majority has education within logistics, economy and the leader have a law degree.</li> <li>The management wanted environmental considerations to be included in qualification or contract requirements, as well as award criteria.</li> <li>Political leaders have agreed on a new climate and environmental strategy.</li> </ul>	<ul style="list-style-type: none"> <li>Sola municipality includes environmental weighting in the specification and qualification requirements.</li> <li>Experience has shown that the different suppliers use the same quality when it comes to the environment.</li> <li>The municipality uses eco-labels towards the suppliers.</li> </ul>	<ul style="list-style-type: none"> <li>The most important factor for a long time has been price and quality, but the use of environmental criteria has increased.</li> <li>Budges decides their WTP</li> <li>Due to no program to track procurements, they can't highlight their good work</li> </ul>
<b>Porsgrunn</b>	<ul style="list-style-type: none"> <li>The majority has education within Logistics and economy. Some has environmental courses.</li> <li>The municipality has a forward-leaning attitude towards greener procurement, its decided that the municipality shall have a greener focus.</li> <li>Green procurement is a top priority for the municipality's leaders.</li> </ul>	<ul style="list-style-type: none"> <li>The criteria's used varies from each acquisition.</li> <li>They try to keep the 30% rule as much as possible.</li> <li>Porsgrunn municipalities sets requirements directly for the suppliers.</li> </ul>	<ul style="list-style-type: none"> <li>The municipality does not have a willingness to pay limits when it comes to more environmentally friendly options versus price and quality.</li> <li>The municipality has no target for what percentage of all procurements should be green.</li> <li>The procurement department's accomplishments are not always visible to management.</li> </ul>
<b>Bærum</b>	<ul style="list-style-type: none"> <li>The majority has education in logistics, economy, and political science.</li> <li>The municipality have a climate strategy.</li> <li>The municipality has been ISO-certified for 30 years.</li> </ul>	<ul style="list-style-type: none"> <li>Bærum primarily use quality and price as criteria.</li> <li>They use criteria to get most benefit in each acquisition.</li> <li>Bærum sets requirements of eco-labels in consumes and services.</li> </ul>	<ul style="list-style-type: none"> <li>Bærum believes including environmental focus is not always more expensive than not including it.</li> <li>When it comes to environment there is no strict limit.</li> <li>The leadership promotes one employee which has done something remarkable towards the environment.</li> </ul>
<b>Lillehammer</b>	<ul style="list-style-type: none"> <li>The majority have bachelor and master degrees in logistics, economics, and law.</li> <li>The leadership have a focus on environment, but they must prioritize to deliver their main services.</li> <li>We have a focus on reuse of what we have, instead of purchase new</li> </ul>	<ul style="list-style-type: none"> <li>Lillehammer uses price, quality and environment in their procurements. Price is most important.</li> <li>Lillehammer municipality will use different criteria to best fit the competition and what is procured.</li> <li>The management provides no guidelines for how criteria should be used.</li> </ul>	<ul style="list-style-type: none"> <li>Every procurement uses different weighted criteria for price, quality, and the environment.</li> <li>Lillehammer does not have a hard limit.</li> <li>The municipality of Lillehammer places a high value on price.</li> </ul>

Table 11: Summary of interviews

## 6.0 Analysis

In this chapter, we will examine our findings in light of relevant theory and previous research in order to find an answer to our problem. In our thesis, we look at three different perspectives: how the management's view on the environment affected the procurement and their weightings, how and why the procurers use their weight the way they do, and, finally, whether the municipality has a willingness to pay limit towards greener options. These three perspectives will be used to answer our three research questions, which will finally give an answer to our problem statement.



- *Does the public procurement team weigh environmental focus more now than before 2016, when the regulations didn't include optional environmental weighting?*
- *To what extent does the environmental focus weigh compared to other criteria?*
- *How do public purchasers in municipalities navigate environment performance criteria?*

*In what ways have the updated procurement regulations from 2016 contributed to the environmental performance of public procurement in municipalities?*

## **6.1 Leadership, social responsibility, and environment**

In this section of the analysis, we will look at the competence of the leaders in the municipalities. The reason for this is that we hope to see if the managers' education will reveal something about their environmental perspective. We also want to see if the managers' perspective and focus area reflect the employees and how they focus on the environment. Leaders are responsible for how a municipality should operate within their area of responsibility, and the manager's consideration of what is important and what is not will reflect on how the employees work.

When it comes to education in public procurement, there are some studies that are common on different levels, such as economy, logistic and supply chain management, law degree, and political science. The different municipalities we have had an interview with all say the same about continuing education. They take different courses available to get more knowledge about environmental education, but none of them have a formal degree. *“We are working on competence development on a regular basis for all our employees”* (Bærum municipality, April 11th, 2022).

The Norwegian Agency for Public and Financial Management (DFØ) is offering a variety of courses, which is reflected in the municipality's focus, such as Circular Economy. *“The municipality has a focus on sustainability and circular economy”* (Molde municipality February 22nd, 2022). A recurring theme within the circular economy of all the municipalities is furniture. They all are consistent in reusing old furniture and only purchasing used as much as possible. *“We have a focus on reuse of what we have, instead*

*of purchasing new. The best purchase is the one you don't do*”(Lillehammer municipality February 21st).

The focus in public procurement has been shifted from price and quality to price, quality, and environment. This is reflected in the different municipalities' strategies and focus.

*“The political leaders' focus is described in the procurement strategy: 2030 goals”* (Molde municipality February 22nd, 2022). Porsgrunn and Lillehammer both have an increased focus, which is seen in their new procurement strategy *“The municipality has a forward-leaning attitude towards greener procurement, it's decided that the municipality shall have a greener focus. It's currently working on a procurement strategy for greener procurements”* (Porsgrunn municipality, February 23rd, 2022). *“Yes, we have a focus on the environment, in our procurement strategy item number 4.1 the environmental plan is described closely”* (Lillehammer municipality February 21st).

Other municipalities like Sola are working towards a change, but their focus is also on price and quality. *“On a general basis, they assess requirements for the environment and climate in any procurement, but how this is expressed varies in relation to whether this is a qualification requirement, award criteria, or whether it is included in contract requirements.”* (Sola municipality February 25th, 2022).

Bærum municipality states they gather data for KPI purposes and can document an upgoing trend in environmental focus in its procurements. *“We also use key performance indicators (KPI) to track eco-labeled products, and how much the environment is weighted to see if they have made progress”* (Bærum municipality, April 11th, 2022).

On a general basis, the leaders in the municipality have an increasing trend in environmental focus, but also that the focus on the environment in procurement has increased in recent years. *“The municipalities leadership have a focus on the environment, but they have to prioritize to deliver their main services to the inhabitants like schools, elderly home, home services e.a.”* (Lillehammer municipality February 21st). This change is not only because of the regulation but the change in our perception and understanding that climate change is real and the world as a whole must change its habits and consumption to avoid a climate disaster. As a summary of the different municipalities, you can say that it's a broad political agreement when it comes to environment and sustainability, and this is reflected in how the procurement team in the municipality work.

Another way to look at the focus is how to quantify it. The municipalities that's not been tracking their procurement as a KPI do not have the same statistics as the others, and therefore it's harder to state exactly. *“Although the environment is a priority in some procurements, the procurement does not always reflect this. The focus is something they notice, but it is not quantifiable”* (Sola municipality February 25th, 2022).

Municipalities have a focus on greener procurement, which has been emphasized since the change in regulation; however, some of the frame agreements were made prior to the change and thus do not have the same focus. They have attempted to guide the suppliers toward a greener change, but it has been difficult to make changes in contracts. Municipalities will set more stringent requirements for greener change when creating new tenders.

*“The head of office and section chiefs have a focus on the environment, especially on new tenders. As an example, vehicles since its new changes in the regulations from a new year which is more specific, and moves towards electric cars and trucks.”*  
(Lillehammer municipality February 21st).

When organizing a municipality, there will be a hierarchy, while in the public sector, you will find that the leaders and employees are often more friendly colleagues than boss and subjects (Sørensen 2009. s.124). This can both be a challenge, but still, it can be a good incentive to motivate the employees on a greener path both in procurement and other parts of the municipality. (Cohen 2018. s.148) said you must know your workers to best lead them. One of the first things to do is to learn their names because this will increase their motivation. "Leadership demands ethical and effective motivation; this cannot be done by a carrot-and-stick approach" (Cohen 2018. s.216). Compared to the private sector, the motivation in public office does not come from a monetary incentive but a mindset toward shaping the future by changing our ways of doing (Sørensen 2009. s.121). In our thesis, we wanted to see if the field of study and level of education had anything to do with the attitude towards greener procurement. Our research shows that the department leaders often have the same level and education as the employees, and therefore it's hard to conclude whether this is correct or not. What we have seen is that the political focus is brought down to an administrative level, and the department leaders are following this and motivating their employees to act greener and in more ways than the regulations encourage.

The political dream where the green shift goes "*From word to action*" (Molde municipality February 22nd, 2022) and the leaders transmit positive energy that encourages a new trend in a positive way. This trend can be seen by looking at how the procurement teams go to new lengths to find new and possibly better solutions and go into dialogue with their suppliers to change production, transportation, raw materials, e.a. This can also have a positive effect and spread from each tier to the next if the local supplier sets a demand from their supplier to also change their ways.

The focus on circular economy is also remarkable; the municipalities have found a way to save both money and the environment to make the processes more sustainable. By being better to reuse inventory from one department to the next, they live up to the quote from the Lillehammer procurement department "*The best purchase is the one you don't do*" (Lillehammer municipality February 21st).

From our first section of questions, together with the theory, we can summarize that the effects of leaders are positive and effective. It all starts from the top; political agreements take place and are effected by the administration. At the same time, society will also affect public servants as well, both on social media and on the news. For our thesis, we focus on the procurement part, and here the effect is shown that the head of the department tracks their collective performance as a KPI and uses it as motivation, together with giving them freedom under responsibility to find new ways to give a huge motivation to be part of forming the future within their field of expertise. The change in regulation from 2016 has been a part of this, but mainly as an opener to a wider field. This can be seen in other countries as well; in Brazil, the public is encouraged to purchase goods and services from suppliers with a sustainable focus and can document this by having certifications and eco-labels. Their aim is to reduce emissions by prioritizing recycled goods and products to save natural gasses and save resources. (Mendonca, Renata C.A. et al. 2021)

## **6.2 Use of award criteria in tenders**

In this section of the analysis, we will look at tenders and which weights the municipalities use. Different weights are used by municipalities for different tenders, as well as in different sectors. It is natural in some industries to prioritize quality over cost or cost over quality, but in all procurements, price, quality, and the environment are all possible award

criteria that can be taken into account and given different weights depending on the procurement. Here, we'll look at how management provides direction on how to use the weights and where to focus. We'd like to know if the municipality also has greener standards for suppliers and other businesses.

It is natural in some industries to prioritize quality over cost or cost over quality, but in all procurements, price, quality, and the environment are all possible award criteria that can be taken into account and given different weights depending on the procurement. Here, we'll look at how management provides direction on how to use the weights and where to focus. We'd like to know if the municipality also has greener standards for suppliers and other businesses.

The weightings of the municipalities differ. The most used weightings in award criteria are price and quality; environmental comes on a third place. The weighting will vary from one tender to another; the municipalities agree that it is all dependent on the circumstances and the type of procurement. *"Today, we concentrate on procurements in terms of price, quality, and environment"* (Porsgrunn municipality, February 23rd, 2022). The award criteria can also be used as a sub-theme to others; for example, Bærum municipality uses environmental criteria as a sub to quality where it is not natural to set it as its own criteria. *"Price and quality are used primarily, and environment is a sub-theme to quality, which is in accordance with the regulations"* (Bærum municipality, April 11th, 2022). Some products can also be environmentally friendly in themselves, and therefore it would be unnatural to set environmental and not price and quality as the decisive factor.

The main reason why price and quality are the most used criteria is that section §1-1 of the Public Procurement Act states that society's resources must be used in an efficient manner. This is one of the reasons why the price has the greatest weighting in most acquisitions. Efficient use of resources also includes quality. The reason for this is that high-quality products and services lead to longer life spans, which is why it often receives the second-highest weighting (Anskaffelsesloven 2017).

According to Procurement Regulations §18-1 (6), the procurer must choose the best relation between price and quality to make sure the public gets the most value for the public funds. In the change in regulation from 2017 §7-9, they want to change the focus, so the public procurement team also thinks of environmental focus as value, and therefore set environmental criteria up to 30%

There is a different interpretation between the municipalities when it comes to the regulation. Where Bærum can use it as a sub-theme to quality, Porsgrunn always sets it as a separate one.

*“We try to keep the 30% rule as much as possible, but because it is a "should be" rule, we don't always use it, but we try, and there should be a good reason not to. Environmental criteria are always placed as separate criteria, not in conjunction with others such as quality”* (Porsgrunn municipality, February 23rd, 2022).

To better understand when the municipalities use the criteria and why we wanted to check out when they use which. The answer was very much the same; each procurement must be seen as a separate acquisition. *“The main principle of green procurement is that it should be directly linked to the performance”* (Bærum municipality, April 11th, 2022).

First, we must separate direct acquisition and frame agreements. It's easier to set environmental criteria when you make a tender for a specific type of item like a truck or garbage can compared to a frame agreement like office supplies, where there can be hundreds of different items involved. *“Environmental weights are not often used in frame agreements because it's difficult to measure the benefit when there are a lot of different types of goods that are being procured, but indirect acquisition it's easier to see the benefit”* (Molde municipality February 22nd, 2022). Porsgrunn states, *“It would be unnatural to use the environment as an award criterion in a legal consultant when compared to new vehicles”* (Porsgrunn municipality, February 23rd, 2022).

*“If the criteria and specifications are set too high, there will be fewer suppliers available to deliver your product or service”* (Sola municipality, February 25th, 2022). Therefore it's important to see what's available out there in the market and try to have a positive impact on the suppliers to help them in the right direction, rather than pushing too hard and end up with a more expensive product. There is also a risk if you want a product to be more environmentally friendly than today's technology allows us. *“If the green criteria are weighted too high, it can lead to the product losing its functions and no longer fulfilling its purpose”* (Molde municipality, February 22nd, 2022).

In some acquisitions, it's better to use environmental factors in other places than award criteria, for example, in qualification requirements or product and contract specifications. *“If a criterion is not weighted, it is placed in the quality requirement as a minimum requirement”* (Porsgrunn municipality, February 23rd, 2022).

*"To be able to determine the difference between the award criteria and what the various suppliers offer, the procurer must be good and have extensive knowledge in the field. If you set environmental criteria, it is difficult to distinguish what a supplier offers in terms of the environment"* (Sola municipality February 25th, 2022).

According to §8-4 in the regulation, there are multiple sections that must be included, such as what is to be procured, the contract terms, how the competition will be carried out, and other information that is relevant to making a tender offer. This paragraph opens for the municipalities to use environmental criteria in other ways than award criteria. A positive result of placing environmental requirements early, like in the product specification, is that you will early exclude suppliers who can't deliver your product.

Typical qualification requirements are ISO certifications or ECO labels. *"We ask for information about their environmental strategies, such as the supplier's plans to reduce climate and environmental emissions. We also ask about if they are working or have achieved ISO certificate standards"* (Porsgrunn municipality, February 23rd, 2022). *"Yes, we frequently request eco-labeling for both consumer goods and services. We also place demands on our suppliers to improve their environmental practices in order to become more environmentally friendly and achieve eco-labels"* (Bærum municipality, April 11th, 2022).

When it comes to management around what weights the procurement team shall use, there is none. There are, however, political guidelines where it is highly promoted to reduce emissions and work towards their mutual goal. *"We have political guidelines to follow due to the ambition to reduce emissions, and that is the goal to work towards"* (Porsgrunn municipality, February 23rd, 2022).

The municipalities use the change in regulation; this can be shown from Doffin, where we have an increase in the use of environmental weighting. Most of the municipalities try to use the environment as an award criterion, but as they all mention, the most important part is to use the criteria where it can make a difference. A factor that's been mentioned is the difficulty for the procurement team to be able to evaluate the different ways the suppliers answer the environmental weights.

When looking at the table showing Doffin, we can see the environmental award criteria are more used now than pre-2017. The procurement regulation §7-9 clearly states that the public procurement departments can use environmental weights up to 30%, it's actually

promoted. Anskaffelsesforskriften (2021). When looking at the results from Doffin, it ends up at 7,17%, which is significantly lower than 30%. It's told from the leadership in the municipality they clearly have a focus on the environment, so where do they set their focus?

From the interview, it's clearly a focus, and we are told they use criteria in the product and contract specification. It's clearly stated in the law that the municipalities can't say what brand they want, only specifications. Since the municipalities can have a corporation with possible suppliers to learn what's new on the market, it's a perfect combination to put this in the contract. That way, you know you get the most environmentally friendly products and services, and at the same time, you can use price and quality in the award criteria for the most utility of the funds.

When looking at the products and what suppliers do to make them environmentally friendly, ISO certifications and ECO labels are a good indication that the products and services are certified and approved by companies like Svanemarket and EU-flower. This helps the procurement team in the acquisition to directly put environmental focus on the product.

Products can also be environmentally friendly in themselves. The public can procure it to make a change, and therefore it can be unnecessary to set environmental criteria instead of the product price and quality. The procurement in itself is to improve the environment.

The point of having too many specifications will reduce the number of suppliers available, and the result will be unnecessary higher prices. This can be confirmed by public acquisitions like the new police cars in Norway back in 2013. (aftenposten.no 30. April 2022)

### **6.3 Policy about greener options versus price and quality**

In our last section of the analysis, we want to see if there is a limit to how much the municipalities want to spend on greener options compared to price and quality. In other words, how high is their willingness to pay? We also want to find out if there is a specific goal to reach when it comes to greener options in order to increase their level of environmentally friendly procurements. Multiple municipalities have stated they are



putting a greater emphasis on the environment, and we want to find out how they go about it.

When asked if they have a willingness to pay (WTP), the municipalities unanimously state they do not have a WTP. *“The municipality does not have a willingness to pay limits when it comes to more environmentally friendly options versus price and quality. We weigh different from one competition to another”* (Porsgrunn municipality, February 23rd, 2022). Their focus is the total cost; this means they want a product with a long lifespan for the lowest possible cost. The quality is therefore also very important since it will improve the lifespan. For the municipality procurement department, like other public governance procurement departments, the budget is their hard limit. This does not mean they don't have a focus on the environment; what it does mean is that they have to evaluate how much benefit they get from having an environmental focus.

*“When it comes to the environment, the municipality has no strict limits. They are willing to pay more for things if the environmental benefit is significant, but their budget limits their spending”* (Bærum municipality April 11th, 2022). Lillehammer emphasizes its focus on getting the most benefit for its inhabitants and fulfilling their service. *“No, we have no hard limit that we are aware of. However, if we reach a point where we must supply a service, and there are no other options, it becomes challenging. But after that, we'll provide the service”* (Lillehammer municipality February 21st).

A common assumption is that environmental demands are boosting the prices of products. This is not always true; if we look back at the circular economy, this is not always the case. An example is from Bærum municipality. *“A lot of environmental measures can be cost-saving. E.g. the new office building for the administration, here we reuse furniture, and also buy renovated. Another example of this is when we set a limit on a maximum of one delivery a week and larger batches when we first order. This reduces the delivery cost for us, and the emissions from transportation”* (Bærum municipality April 11th, 2022). Another example from Bærum here is to order larger batches; this is backed up by other municipalities as well. *“Previously, our suppliers of medical consumables used to buy them in tiny batches, but they discovered that ordering more and replenishing stock was a better option. As a result, the number of deliveries was reduced, lowering CO2 emissions”* (Sola municipality February 25th, 2022). This reduces emissions and transaction costs.

How do the municipalities determine when price or quality is more important than the environment? The two main strategies are a 60/40 model and the other is to see if the environmental benefit weighs up the cost. *"We use a model called the 60/40 model. Here, quality is weighted higher than price. The reason for this is that we value quality and a long life spent on all our procurements. However, price is also an important consideration, but we are willing to pay a higher price for something that will last longer. This is both economical and environmentally friendly"* (Molde municipality February 22nd, 2022).

*"Price is an important matter. However, if the ecologically friendly soap has a twice-as-long lifespan and costs twice as much, it is only natural to choose the environmentally friendly and long-lasting soap"* (Lillehammer municipality February 21st). The common denominator here is to see if the quality is high, to ensure a long lifespan and if it includes environmentally-friendly measures. Price is the major factor because of the budget, and the trick is to strive to include the environment as well. *"For us, budgets are the most important consideration. Budgets dictate how much we may spend, yet we will always strive to save money. However, quality and environment are also a high priority even though it is not stated in our strategy. We shouldn't acquire anything that will harm the municipality's reputation"* (Molde municipality, February 22nd, 2022).

When it comes to procuring and, in general, doing business today, you have to think about everything around you. For the municipalities, you cannot only think about the price. The price has always been a decisive factor in the past, but in today's society, you have to think about the residents and what they believe. For them, the climate and social acceptance are of high priority, such as climate-friendly options, good working conditions in the production, and so on. Therefore the procurement teams must use the theory around the triple bottom line and try to see the whole picture.

Eventually, it is up to each purchaser to determine how the procurement will be carried out, how much of an environmental focus should be included in each procurement, and which criteria will be used. Different purchasers weigh differently, and therefore there are no standards for how this is done; the only requirement is that they follow the legal framework. *"Environmental factors can be used by the purchaser as long as they are within the budget, but there are no additional incentives to prioritize the environment beyond what the law requires"* (Sola municipality February 25th, 2022).

In general, all municipalities claim to have set environmental goals; this is shown in their strategies in order to increase the use of environmentally friendly options. *“Yes, Bærum municipality has definitely a goal to procure greener alternatives, this is in our sustainability plan and our procurement strategy. We are also a fairtrade municipality”* (Bærum municipality April 11th, 2022). The municipalities are trying to keep a revised edition to always keep up to current standards; this helps them to use opportunities to improve the environment. *“Yes, we want to choose green where we have the opportunity. Especially if it is about the economy and the environment”* (Lillehammer municipality February 21st). The municipalities can have a hard time weighing the environment as much as they want because the price and quality remain the most important, both in the law and because of budgets. When the new strategy is implemented, it will be easier to prioritize environmental criteria because they will be factored into budgets. *“The current strategy says little about environmental requirements, and they are not included in the budget, which makes it difficult. But we are working on a new strategy that will soon be implemented”* (Sola municipality, February 25th, 2022).

Municipalities have set their own goals for adopting environmentally friendly alternatives, but there is no target for what percentage of all procurements should be green. This varies from year to year due to various types of competition and acquisitions.

*“Molde aims to apply a 20% weighting on all of its procurements. However, this is not always practicable. We consider quality to be a part of environmental weighting due to our aim of purchasing goods and services with a long life spend”* (Molde municipality February 22nd, 2022).

The municipalities say they don't have a willingness to pay limits towards the environment. What they do have, is their budget. They must stay within their given budget from the department they are purchasing for. Price and quality are naturally the most important criteria; however, the regulation, together with the strategy, has made the environment a focus, and the weighting of the environment is improving.

*“We have always prioritized price highly, but we have also weighed on quality. But in recent times, the environment has also received a much greater focus than before, and*

*therefore, we have focused on environmental criteria to a larger extent. As a result of this, the weighted criteria for price have been reduced slightly.”* (Sola municipality February 25th, 2022).

It's hard to set a mutual goal for the municipalities. This is because some of them aim to follow the regulation in award criteria, and others to have a focus on their procurements. This can be shown in *“Molde municipality has recently increased the use of environmental weighting in procurement. They are currently attempting to strengthen their environmental standards and include them into all procurements”* (Molde municipality, February 22nd, 2022).

*“Sola Municipality has set a goal of having an environmental criterion in every procurement, whether it is in qualifying, contracting, or product specifications, and we should therefore easily be able to achieve that goal”* (Sola municipality February 25th, 2022).

## **6.4 Discussion of research questions**

***Does the public procurement team weigh environmental focus more now than before 2016, when the regulations didn't include optional environmental weighting?***

The Norwegian Procurement Act was amended numerous times prior to 2016. The first procurement regulations in Norway were enacted in 1899, with the primary goal of ensuring competition among players to ensure good prices and lower public costs, and the secondary goal of simply protecting Norwegian industry from foreign competition by introducing tariffs on imports of low-cost goods. In later times, Norway changed its focus from protecting Norwegian industry to establishing a trade agreement with the EU to ensure free trade across borders. The main reason for this was to ensure low prices for goods and services. This shows that Norway has always had a focus on price in public procurement since the first procurement act was amended.

Over time, quality has become a more important criterion. The reason for this is that higher product quality leads to a longer product life cycle and reduces cost. There are also several other advantages, such as improved performance, reliability, durability, and physical product features.

In recent times the emphasis has shifted once more. But this time, it's in the direction of the environment. The main reason for this is that the world has become aware of people's environmental footprint and has decided to take action. Norway's main focus on the environment has grown in recent years. This, in turn, has led to the climate becoming a major political issue in society as a whole. As a result, the Norwegian government came up with a reform in the regulation in 2016, which emphasized the environment. This focus has permeated the entire structure, all the way down to the municipality of Norway. We mean this has made an impact much larger than we can see in our daily life and will continue growing and having a larger impact, especially in how public procurement is being done today.

Following the changes in the law, municipalities have placed a greater emphasis on the environment in their procurements which has led to many municipalities changing their main strategy. The municipalities' primary goal is to become more environmentally friendly.

This is also consistent with the evidence we gathered and analyzed. With the change in strategy, their emphasis on environmental weighting in procurement has increased, but to varying degrees amongst the municipalities. Municipal leaders support the change and have encouraged their purchasers to use environmentally friendly weights whenever possible. On a general basis, the leaders in the municipality have an increasing trend in environmental focus, but also that the focus on the environment in procurement has increased in recent years.

Prior to the reform, the environment was used as a criterion, but not on a larger scale. Based on the findings of Doffin and our in-depth interview, we can clearly state that municipalities have concentrated their efforts in specific areas where there is a high level of awareness.

When the municipalities now have the opportunity to make an impact, we find it important to use the opportunity given to apply the environmental criteria where it has the most benefit. This means that the procurement team must find out in what acquisitions the benefit is largest and how to use it best. In some cases, it can be smart to have it as an award criterion, in others as a product specification, or even in the contract. The leaders should also keep their minds open and encourage their employees to think outside the box.

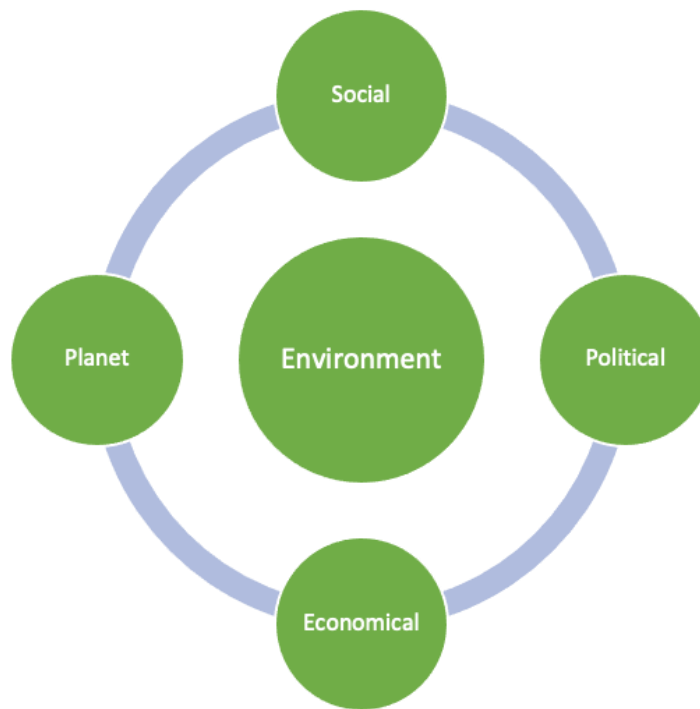
This can clearly be beneficial from transformational leadership, where the leaders emphasize independent thinking to improve the motivation and competence of their workers. When the procurement team can find new ways, the process can be improved.

Many municipalities are putting more emphasis on green public procurement (GPP). They are working towards obtaining goods and services that have a lower environmental impact throughout their life cycle. Municipalities' increased environmental consciousness implies a desire to engage in green procurement. They emphasize the reuse of existing furniture in some of the procurements. This indicates that the circular economy has received more attention. They can save money by not purchasing new furniture; at the same time, they reduce emissions by using existing materials instead of procuring new which require raw materials.

Municipalities are also noticing a growing trend in the market in terms of the environment. This also makes it easier for municipalities to set supplier requirements. In some cases, municipalities work with a variety of suppliers to develop supplier requirements, and suppliers work to deliver environmentally friendly solutions. In our opinion, this is something more municipalities should do. This can potentially make more suppliers interested and be encouraged to find new ways of production that can reduce emissions and have a positive effect. One thing the municipalities agree upon is electric vehicles. These reduce the emissions and are cheaper to use, and in such a way, it can be cheaper and better, especially in urban areas. They also want their suppliers to use electric vehicles. This demonstrates that the municipalities are striving to become more environmentally friendly.

The public procurement team weighs the environment more now than before the change in regulation. This is shown both by the Doffin statistics and the interviews. The regulation itself has not had the greatest impact, but together with society's concern about climate change, the state has changed its way of thinking and went from a strict price/quality focus to also including the environment; this has had a great positive result. The municipality's desire to use green criteria comes from a growing emphasis on the environment. As a result, they are interested in green public procurement and want to use it as much as

possible.



*Figure 2: Decision factors for environmental procurement*

These four factors influence environmental decisions and therefore are important factors in environmental questions. The social influence around the green change has a direct link to the political, which again assigns larger budgets to be able to procure more environmentally friendly solutions, which reduce the environmental impact on the planet.

***To what extent does the environmental focus weigh compared to other criteria?***

To best answer this question, we must look at it from two views. Firstly from the way they use award criteria in tenders; secondly, we must use the answers from the interview to see it from other ways to weigh the environment.

According to the Doffin database, prices are mostly the same as they were before 2017. It has had a slight increase, while the increase in quality indicates it has become a more important factor. Environmental criteria have risen dramatically. When we calculate the percentage difference in total environmental weight, which has gone from 2.17% to 7.17%, we see that it has tripled in comparison to before. Four of five municipalities use the environment frequently after the change in regulation. Most of the increase from 0% to

5%, which is a significant increase, especially when they explain that they do not frequently use award criteria.

Green Award Criteria is the most cost-effective tender in Public Purchasing.

Environmental criteria in public procurement have been identified as a critical tool for achieving sustainable development. Intenders, these criteria are price, quality, delivery terms, and environmental criteria (Thai and Piga 2007).

Looking at it compared to other criteria, the environment is weighted low. This is only natural as the price and quality are decisive factors. If the environment were weighted higher than the price, it would become incredibly expensive, and it's not even guaranteed it would be a better solution than the offers you would get when weighting is low. Therefore the best solution for the municipalities is to see what's out there, and if there's some new technology in the making and set this in product specification, this will remove unqualified suppliers and only have to cooperate with potential suppliers.

From the Doffin database, we can see that four of five municipalities use the environment after the change in regulation compared to before. Most of them go from 0% to 5%; this is a great increase, especially when they explain that they don't use award criteria often.

Looking at it compared to other criteria, the environment is weighted low. This is only natural as the price is the decisive factor, followed by quality. If the environment were weighted higher than the price, it would become incredibly expensive, and it's not even guaranteed it would be a better solution than the offers you would get when weighting is low.

Since every purchase is unique, it's natural that the weights change from one purchase to another. Therefore the best solution for the municipalities is to see what's out there, and if there's some new technology in the making and set this in product specification, this will remove unqualified suppliers and only have to cooperate with potential suppliers.

The political leadership in Norway encourages a positive attitude towards the environment. By this, I mean they want a focus, not only on procurement but on how the municipalities do their job. The focus is, therefore, always in their mind when doing their procurement, and the leadership follows it up to ensure it's fulfilled.



The environmental focus is weighted lower than price and quality but higher than warranty, TLC, delivery, and others. As we worked with the data, we discovered that the weighting of the environment was not prioritized over price and quality. From our point of view, price is naturally the most important aspect since staying within the given budget to secure delivery of all services within the municipality. To keep the environmental aspect in their procurement, not only as award criteria but in the product specifications, will ensure the maximum benefits from it. Increasing the environmental criteria will either reduce both or one of the other criteria (price and quality) to make room for the environmental criteria, using high environmental award criteria will only bring the price up to and don't give any benefit.

It should also be noted that the environment can degrade the quality that a sub criticizes. The reason for this is that some products are environmentally friendly in and of themselves, and thus it would be unnatural to make the environment the deciding factor rather than price and quality.

### ***How do public purchasers in municipalities navigate environment performance criteria?***

When evaluating what criteria to use in a procurement, the municipality must first consider what is required, what is to be procured, and what is available on the market. In some sections, there are well-known standards. The best example of this is the transport and construction industry. EURO-6, for example, is an industry standard to keep emissions from engines at a low level. In the construction, the standards have a focus on safety, the material used, and such. The most important is emissions when it comes to how the materials are produced, what life span it has, and how to dispose of them when they must be changed.

To simplify the process, companies have established different types of labels and international standards. Examples given from the municipalities are Svanemerket and different ISO. How can this help the procurement team? By easily being able to set a standard, they can disqualify every supplier who doesn't meet the requirement. The procurer must be very careful not to discriminate against anyone and should not prefer one eco-label over another if they set the same standards.

It's not always easy to know exactly what's out there, and therefore the suppliers in different municipalities, who want the same standards and preferably are in the same geographical area, which most likely has the same suppliers delivering an offer to tenders can meet with the suppliers, to talk, and see what's out there. This is within the law according to procurement regulation §8-1 2017. They can also explain what they envision and get feedback on what's realistic to implement. When doing this, they must invite in such a manner that every supplier who wishes to attend has the possibility, so they don't favor anyone. The procurement act is very strict towards this.

When municipalities want to see what's on the market, they start a dialogue with the suppliers and keep it going throughout the procurement process. The municipalities discuss what the supplier can offer in relation to what is expected. This makes it easier for municipalities to establish criteria. When the suppliers are working to improve their own environmental performance, this is good news for municipalities as it will simplify their work.

There was no direct cooperation initiated when municipalities established a dialogue with suppliers to assess the market. Municipalities consult with suppliers to see if they can meet the requirements. In the event of the competition, suppliers will register and submit an offer to the municipalities. The competition's criteria are predetermined; this ensures that competition is maintained and that no supplier gains an advantage. It is not permitted to favor certain suppliers over others, as this is discriminating towards others. Therefore you are obligated to publish tenders over a threshold value in official systems like Doffin, Merccell, or TED. You are not allowed to specify typical brands either.

As we have mentioned in the thesis, it's important to see every type of acquisition as unique. And therefore set the criteria to best match the goods or services you are buying. To clarify, we do not mean procurement; in that case, you can use it as a template and evaluate what you used last time and see if it's still relevant.



*Figure 3: Aspects a procurer must navigate through*

When working as a public procurer, there is a lot of laws and regulations you have to follow; there are also political guidelines and budget limits. In the end, it's up to the procurer's decision to choose the supplier and criteria. It's important to see what potential suppliers are out there and what they can deliver. Finding the perfect combination of price, quality, and environment can reduce the TLC and reduce emissions in both production and while using the product or service.

## **7.0 Conclusion**

This research aimed to best answer objectively how the updated regulation from 2016 has impacted Norwegian municipalities and contributed to changing habits and procurement methods to reduce the negative effects on the environment. It was important to determine not only how the award criteria aided but also whether the updating inspired municipalities to find new ways to conduct procurement. We have addressed our research questions using Doffin's statistical data, in-depth interviews, and theory about requirements, processes, and concepts about procurements, as well as different types of performance management.

To answer these questions, we approached the problem from three different perspectives. The first is to examine how management and social understanding of how to address the environmental problem influence public governance decisions. Second, we wanted to see how municipalities used the award criteria in their tenders, which is the main change in the updated regulations, and third, how they compare the cost of greener options to price and quality.

According to our findings, the use of environmental criteria in public procurement is increasing. This is evident in both the statistics and the interviews. As a result, the updated regulation has benefited municipalities. The most significant change has been how political governance with stakeholders has assisted leaders in inspiring employees to think outside the box and use regulation to continuously improve their way of thinking.

Municipalities want to spend more money on greener options, but their budgets prevent them from doing so.

We propose to keep the environmental award criteria at a moderate level. This is because we believe the prices will be unnecessarily raised without receiving any award for it. The suppliers can raise their prices because they have a high level of environment, and because it is weighted low, they can get away with high prices. Instead of putting environment as an award criterion, we agree with the municipalities by putting it as a specification or in the contract, after supplier meetings where you find out what's in the market. We also suggest making joint agreements for environmentally friendly changes, so suppliers can reduce their costs and offer better prices, a win-win situation for both parties.

Weights are used differently by the municipalities. They use different weightings in qualification requirements, product specifications, and award criteria. The way municipalities use environmental criteria varies greatly, but one important thing municipalities can do to improve mind procurement is to establish environmental requirements earlier and in more places. Municipalities can exclude suppliers who are unable to provide green alternatives by including the environment as a criterion in qualification requirements. This is not discrimination against suppliers; rather, it excludes those who do not focus on providing environmentally friendly alternatives. The municipality can ensure that environmentally friendly products are delivered by including the environment as a criterion in the contract specification. These requirements must then be established in relation to what is requested, but there are some critical points to be made.

The municipalities must continuously think outside the box and maintain positive relationships with potential suppliers. Our research shows that having environmental advisors on your team, like the Bærum municipality does, simplifies the use of environmental criteria and gives positive results; this is backed by numbers from Doffin.

## **8.0 Limitations and recommendation**

Our original topic was broad and too complex, "*Procurement regulations and purpose and cost efficiency*"; therefore, we had to limit it to make it more solvable. We also wanted to have a more socially relevant thesis, and therefore we decided to focus on the change in regulations regarding environmental weighting.

Due to time limitations, the research was completed in a short period of time, and thus the quality of the research could have been improved with more time. Another factor to consider is the data. The data from Doffin was exactly the amount of data to create a valid probability distribution. However, in order to conduct a more thorough study, we could have increased the number of observations to 30 before the change in the law and 30 after the change in the regulation for each municipality. This would give us a larger database and more options to work with. We were unable to complete this task due to time constraints and were forced to limit ourselves to 30 observations from all municipalities.

Another thing to think about is the information gathered from the interviews. We conducted a structured interview and received feedback. However, no follow-up questions were asked. In retrospect, there were a number of follow-up questions we could have asked that would have helped us to get a better result.

Further research can be carried out using the same methodology but over a longer time period to collect richer data sources and to conduct more thorough research. Future research on the topic should take the cost of the green shift into account and see the actual environmental rewards the green shift gives. To have this in our research would become too complex and time-consuming. However, this could lead to more in-depth research and broader conclusions.

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