Public transport in Stavanger Metropolitan

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Abstract

This thesis is looking into how inhabitants in the municipality of Stavanger can change their traveling habits. A change from using own vehicles to public transportation. The research question is as follows: Why are so many in Stavanger driving cars to commute instead of using public transportation? As transportation is a large source of emissions of greenhouse gases (GHGs), it is important to lower private use of fossil fuel vehicles in cities. In the municipality of Stavanger, road traffic is considered as one of the main sources for GHG emissions.

In order to answer the research question this thesis use the multi-level perspective (MLP) as theoretical framework in order to explain the transition to lower GHG emissions from transportation. Wicked issues are also included as a theory in order to explain how we can manage a problem that is not easily solved, such as climate change is.The University of Stavanger (UiS) is used as a case study to answer the question about public transportation. And by using a questionnaire, finding drivers and barriers to why students choose the means of transportation that they do.Stavanger universitetssykehus (SUS) is moving to Ullandhaug, close to the Campus of UiS. This will bring new solutions to public transportation to the area. A consideration on how this will affect the way people commute has also been included in this thesis.

Time, price, practicality and accessibility were the main barriers to choose public transportation in the daily commute. What seemed to be a main driver for commuting by public transportation was no other choice.

Content

Introduction

Climate change has been defined as one of the most pressing challenges we are facing, and the most vulnerable systems are already experiencing negative effects (IPCC, 2014). It can be an abstract topic for many people because you normally do not see the changes or feel it on your body in your everyday life. Part of the challenge is that the public ultimately need to trust that the facts presented are trustworthy, even without having the ability to verify them. But recently, the changes are arguably observed more frequently and will become easier to see as time goes by. The consequences of climate change will be different around the world, but the most common are changes in the weather and more extreme weather, sea level rise, and increased greenhouse gas emissions, among others (IPCC, 2014)

Human activity causing greenhouse gas (GHG) emissions have increased the global temperatures. According to Richie & Roser (2020) electricity and heat production produced around half of the global emissions, but the transport sector is the second biggest source of emissions and is responsible for approximately 20 percent of global emissions. GHG emissions from the transport sector have more than doubled since 1970, and road vehicles are responsible for around 80 % of the increase (IPCC, 2014). The transport sector was, in 2010, responsible for approximately 23 % of total energy-related CO2 emissions, and the OECD countries have the most transport emissions. Even though there has been an increase in more efficient vehicles (road, rail, watercraft, and aircraft) and new policies being adopted, the GHG emissions has continued growing (IPCC, 2014). Therefore, we might need to take more drastic action to be able to battle climate change and GHG emissions.

To transition and reduce GHG emissions, new technologies, implementation of new policies and behavioral change could make a big difference. Short-term mitigation measures can help avoid lock-in effects and changing the behavior of both consumers and businesses will also play an important role (IPCC, 2014). The local levels, such as counties and municipalities, can have an important role in behavioral changes. Different regions will need different measures and have different outlooks on how they can battle climate change. The municipality of Stavanger presents road traffic as a cause for almost half of the GHG emissions in Stavanger (Stavanger

Kommune, 2019). GHG are gases that trap heat in the atmosphere. Carbon dioxide (CO2) comes from burning fossil fuels, such as petroleum-based products, etc., thus from road traffic (IPCC, 2014). According to IPCC (2014), if we do not implement aggressive policies the transport sector could increase its emissions faster than any other energy sector. IPCC (2014) also stress that both long- and short-term strategies must be implemented if deep GHG reductions are to be achieved. Further, IPCC (2014) present four ways to reduce GHG emissions from passenger transport; *Avoiding journeys* where possible, by for example densifying landscapes and sourcing localized products. *Modal shift* to lower-carbon transport systems, encouraged by increasing investment in public transport, walking, and cycling infrastructure to become more attractive for users and minimize travel time and distance. *Lowering energy intensity* by enhancing vehicle and engine performance. *Reducing carbon intensity of fuels* by substituting oil-based products with natural gas, bio-methane, or biofuels, electricity or hydrogen produced from low GHG sources (IPCC 2014). Hence, the municipality of Stavanger is trying for a modal shift to lower-carbon transport systems, but there are, as of now, 3 electrical buses and if they plan to expand this we are also looking at reducing carbon intensity of fuels by substituting oil-based products with electricity.

Stavanger city council adopted a climate and environmental plan to be executed from 2018 to 2030 (Klima- og miljøplan 2018-2030). The plan stipulates an action plan strategy for the period 2018-2022 which includes several measures to reduce GHG emissions in the municipality. The plan is very ambitious, but that can be interpreted as them taking climate change seriously and wanting to do something about it.

> Driving cars causes emissions of greenhouse gases and harmful substances such as nitrogen oxides (NOx) and particulate matter. In Stavanger, almost half of greenhouse gas emissions comes from road traffic. A goal is to reduce these emissions. (Stavanger Kommune, 2019).

This thesis is based on the action plan strategy for the period 2018-2022 from Stavanger municipality, where they present the measures that will be taken to achieve some ambitious climate goals This thesis focuses on the personal/passenger transport part of the document, how

the municipality is going to work towards reducing emissions, and how they are going to achieve the goal of getting 70 % of person/passenger transport to be taken by bicycle, walking and public transport by 2030 (Stavanger Kommune, 2018). The point in this thesis is not to generalize, but to find the obstacles and challenges in reaching the goal and discuss how to get students to make greener choices in transportation. There are many students driving cars to campus, and not enough parking spaces, which can indicate that too many students drive cars to campus. The action plan is used when discussing why so many students drive, and in the deliberation about how to make students at University of Stavanger make more sustainable choices. The research question will therefore be:

> Why are so many in Stavanger driving cars to commute instead of using public transportation?

This thesis probes into reasons for the choice of transportation (walking, bike, bus, and driving) among students, using the University of Stavanger as a case when trying to answer this research question. Other research questions that will be discussed in this thesis are why do the students choose their mean of transportation, could they consider changing mean of transportation, and what are the challenges to get students (and others) to choose public transportation, walk or bicycle rather than driving cars. To collect information about the challenges that the municipality and university is facing, I was going to interview students at the UiS about their travel habits. It was supposed to be a selection of students who walk, bicycle, use public transportation and drive cars. Due to the current situation with COVID-19, campus had to close and therefore made my access to other students limited. I decided to make a questionnaire based on the questions already made for the interviews. This was distributed to students at the University, and they forwarded the questionnaire to others, and so on. The answers gave me insight in why so many students choose to drive cars to campus, and what would have to change for them to choose other means of transportation. In addition, different articles and documents were analyzed to understand the challenges the municipality is facing. For instance, IPCC and their climate change assessments were used for general information about climate change and its impact around the world, and the municipality's web pages and documents helped with information about the local areas, especially around Ullandhaug. To explore and discuss the research questions and the challenges, I have used the theory multi-level perspective, and because of the complex nature of climate change I have treated it as a wicked issue.

Context

When trying to reduce greenhouse gas emissions, it is important to change people's everyday use of electricity and fossil fuels. Changing people's mindset and behavior can be difficult, thus making the local levels, such as municipalities and counties, essential because they are more educated in what measures will work in the different regions. In this thesis the University of Stavanger and its campus is used as case example when answering the research question about public transportation. The area around Stavanger, Sola, Randaberg, and Sandnes will further be referred to as Stavanger metropolitan.

(Universitetet i Stavanger, 2017)

Stavanger metropolitan is dominated by car-based mobility. The area has been a "car-city" for a long time and there has been a culture for driving cars. In a research from Transport Economical Institute by Tanu Priya Uteng and Nils Gaute Voll, 51 % of the respondents from Stavanger strongly agreed with the statement "I like to drive a car", showing the respondents have a strong "car identity". Also, the city planning can be seen as making the habitants more dependable of car instead of traveling by train or bus. 91 % of the habitants over 18 years in

Stavanger metropolitan have a driver's license, and 94 % of the working habitants has access to free parking at their workplace. Car-use is the most used mean of transportation in Stavanger metropolitan, with 57 %, which is a double amount compared to Oslo municipality. The research mentions further that the car dominance in the area can be explained by the distance between home and workplace, accessibility and convenience of public transport, parking facilities, and the habitant's lack of knowledge about the public transport possibilities, frequencies, and travel times in their neighborhoods. Time savings is also shown to be one of the reasons many choose to drive a car instead of using the available public transport. It was shown in the research that the travel time in average doubles when using public transport instead of driving (Uteng & Voll, 2016).

Some major drivers that affect transport trends are travel time budgets, costs and prices, increased personal income, and social and cultural factors. In both developed and developing countries travel time budgets for a commute between work and home average around 1.1-1.3 hours per traveler per day. Higher residential density and new road construction for instance, can reduce travel time and save fuel. A relative decline of costs and prices as a share of increasing personal expenditure has been a driver in light duty vehicles use versus choosing public transport, walking, or cycling. Social and cultural factors, such as population growth and changes in demographics, are also major drivers for increased transport demands. When assessing a potential change to low-carbon or electrical transport options, lifestyle and behavioral factors are important. It is also important to assess and take into consideration the people's willingness to change (IPCC, 2014).

Action plan 2018-2022

This thesis is based on the document Handlingsplan 2018-2022 (action plan) from the municipality of Stavanger. The document came out in 2018 and is a part of the Klima- and miljøplan 2018-2030, which will be addressed as the environmental plan. The environmental plan for Stavanger 2018-2030 describes the challenges, goals and measures for many topics concerning the environment in this region. The action plan is an overview of detailed actions which is going to be implemented in the period of 2018-2022 and contribute to the goals set in the environmental plan. The main goal in the plan is to reduce the direct GHG emissions in

Stavanger with 80 % by 2030 and be fossil fuel free by 2040 – which means to not use fossil fuel sources of any kind in transport or heating buildings. These goals are ambitious, and the municipality will need help through cooperation with different sectors and NGO's. This is one of the main documents in the thesis, and I have focused on the first part of the action plan which is about transport; reduction of transport volume and change in travel habits, and sub goal T 1.1.:

> 70 % of personal transport will be taken by bicycle, walking and public transport by 2030 (Stavanger Kommune, 2018, p. 5)

There are many measures in the document, but I included the measures to increase the use of public transport, increase use of bicycles, and reduce travel distances to everyday activities in the thesis. I have included the ones that I see as most relevant to the research questions.

Measures to increase the use of public transport:

Tiltak for økt bruk av kollektivtransport						
ID	**Tiltak**	**Ansvar Stavanger kommune**	**Eksterne aktører**	**Finan-siering**	**2018-2019**	**2020-2022**
T1	Legge til rette for fortetning med god kvalitet langs bussveien og hoved-kollektivnettet	By- og samfunns-planlegging			→	
T2	Arbeide for å redusere billettprisen på bussen gjennom dialog med stat og fylkeskommune	By- og samfunns-planlegging BMU			→	
T3	Bidra til å legge til rette for selvkjørende busser	By- og samfunns-planlegging BMU			→	
T4	Etablere steder for felles transportløsninger i bydelene (Mobilitetspunkt)	By- og samfunns-planlegging BMU			→	

(Stavanger Kommune, 2018)

I will use the measures T1: Facilitate densification with good quality along the bus road and main public transport network, T2: Work to reduce the ticket price of the bus through dialogue with the state and county council, and T4: Establishing places for common transport solutions in the boroughs (Mobility Point) in the thesis. Increasing the use of public transport is one of the main topics in this thesis. Better quality in public transport in general will most likely make more people choose this type of transportation, rather than their car. Lower prices are a good incentive to make public transportation more attractive, not only to students but the whole population. Current prices (July 2020): single ticket (1 hour) is 38 NOK, 19 NOK for students, 24-hour ticket is 95 NOK, 47 NOK for students, 7-days ticket is 290 NOK, 145 NOK for students, 30-days ticket is 760 NOK, 380 NOK for students, and 365-days ticket is 7600NOK, 3800 NOK for students (Kolumbus, 2020a). Unfortunately, the student discount only applies for those under 31 years old (Kolumbus, 2020b). Establishing mobility points would link the different means of transportation, making it easier to choose renewable and greener means of transportation. Train stations for instance, have bus stops nearby and city bikes parked at the stations.

Measures for increased use of bicycles:

Tiltak for økt sykling						
ID	**Tiltak**	**Ansvar Stavanger kommune**	**Eksterne aktører**	**Finan-siering**	**2018-2019**	**2020-2022**
T5	Satse videre på å ruste opp hovednett for sykkel og ha høy standard på drift og vedlikehold.	By- og samfunns-planlegging BMU	Statens Vegvesen Samarbeid på Nord-Jæren	HØP Bymiljø pakken Nord-Jæren	→	
T6	Satse videre på å etablere, drifte og vedlikeholde sikker og god sykkelparkering i hele byen, særlig for elsykkel- og lastesykkel	BMU		HØP Bymiljø pakken Nord-Jæren	→	
T7	Styrke bysykkelordningen ved å øke antall oppstillingsplasser og antall bysykler, og påse at gjennomsnittlig gåavstand til oppstillingsplassene reduseres årlig	BMU	Bysykkelen Kolumbus Samarbeid på Nord-Jæren	HØP Byvekst-avtalen	→	
T8	Satse videre på informasjon og kampanjer for å få flere til å sykle og fremme en trygg sykkelkultur	BMU By- og samfunns-planlegging	Samarbeid på Nord-Jæren	HØP Byvekst avtale	→	
T9	Vurdere å innføre en støtteordning til anskaffelse av el-/transportsykkel	BMU		HØP	→	

(Stavanger Kommune, 2018)

I will use the measures T5: Continue to upgrade the main network for bicycles and have a high standard of operation and maintenance, T7: Strengthen the urban cycling scheme by increasing the number parking spaces and number of city bikes, and make sure that the average walking distance to the pitches are reduced annually, and T8: Focus on information and campaigns to get more people cycling and promoting a safe bicycle culture in the thesis. With better network for bicycles, it will most likely become more attractive to choose this mean of transportation rather than cars for instance. The municipality have been working on increasing the number of city bikes available and was successful. New and improved bicycles arrived recently and is available at the pitches in the municipality. Working on reducing the distance to the pitches will make it easier for commuters to and from work, the University, etc. Promotion and information campaigns is important to get more people to be aware of and to use the city bikes.

Measures to reduce travel distances to everyday activities (work, kindergartens, school, leisure activities, etc.):

Tiltak for å få kortere reiseavstand til gjøremål i hverdagen (arbeid, barnehager, skole, fritidstilbud mv.)						
ID	**Tiltak**	**Ansvar Stavanger kommune**	**Eksterne aktører**	**Finan-siering**	**2018-2019**	**2020-2022**
T22	Tilrettelegge for at 80-90 % av nye boliger bygges som fortetting[1], enten i eksisterende utbygde områder eller i områder som blir omformet fra andre formål til boligformål.	By- og samfunns-planlegging			→	
T23	Prioritere barn i eget nærområde ved tildeling av barnehageplasser, gjennom bruk av barnehagekretser (tilsvarende som skolekretser). Det skal så langt som mulig sikres at barnehage ikke ligger på andre siden av en bomring i forhold til hjemmet.	Oppvekst			→	
T24	Sikre attraktive fritidstilbud for barn og unge i egen bydel	Oppvekst			→	
T25	Samlokalisere gjøremål i hverdagen	By- og samfunns-planlegging			→	
T26	Legge til rette for bruk av smarte løsninger for f.eks. redusert leting etter parkeringsplass for å redusere bilreisenes lengde	By- og samfunns-planlegging BMU Stavanger parkering			x	

(Stavanger Kommune, 2018)

I have used the measure T22: Facilitate that 80-90 % of new housing built as densification, either in existing developed areas or in areas that are being reshaped from other purposes to housing purposes in the thesis. Because of the location of the campus, travel distance can be far for a lot of students. Many must transfer bus in city center making the travel distance long. For a lot of students, it is significantly easier (time and convenience) to drive a car than use public transportation. Incentives can come from an economic stand with cheaper bus tickets, both monthly/yearly passes and one-hour ticket, but also building even more student houses around

campus making it easier for students to walk to campus, where they have lectures, study halls, and social activities as well as different sports and fitness center. Other than the measures presented above, there are a couple more courses of action being implemented. “Beintøft”-campaign, which is a walk-to-school competition for schoolkids. Multiple measures to reduce travel distance to “chores and errands” in the everyday, such as walking distance to kindergartens, schools, work, leisure activities, etc. Bicycle paths, bus roads to keep buses from driving through traffic, carpooling, and more, are also presented in the document. However, they are not that relevant to the main research question and will therefore not be included in the thesis. The measures are a cooperation between different parts of the government, such as Stavanger municipality, county council, Kolumbus (Bymiljø og utbygging, By- og samfunnsplanlegging).

Theoretical framework

Socio-technical transitions related to sustainability are about relatively rare and long-term macro-changes, making them a somewhat special research topic. It is not easy to gather large databases about this topic and analyze statistically for relations between variables, because transitions are rather rare. Therefore, one needs to use other types of theories and methodologies as well. When trying to explain the transition processes, it is not likely that the explanation stems form only one kind of causal factor or mechanism, and the theories should therefore be multi-dimensional (Geels, 2011). Because of this, the multi-dimensional perspective (MLP) theory will be used in the thesis. The theory contributes a multi-level view of transitions, which works well with the action plan and research question in the thesis. It includes the interaction between technology, policy, economics, and the public opinion, which the research questions also do.

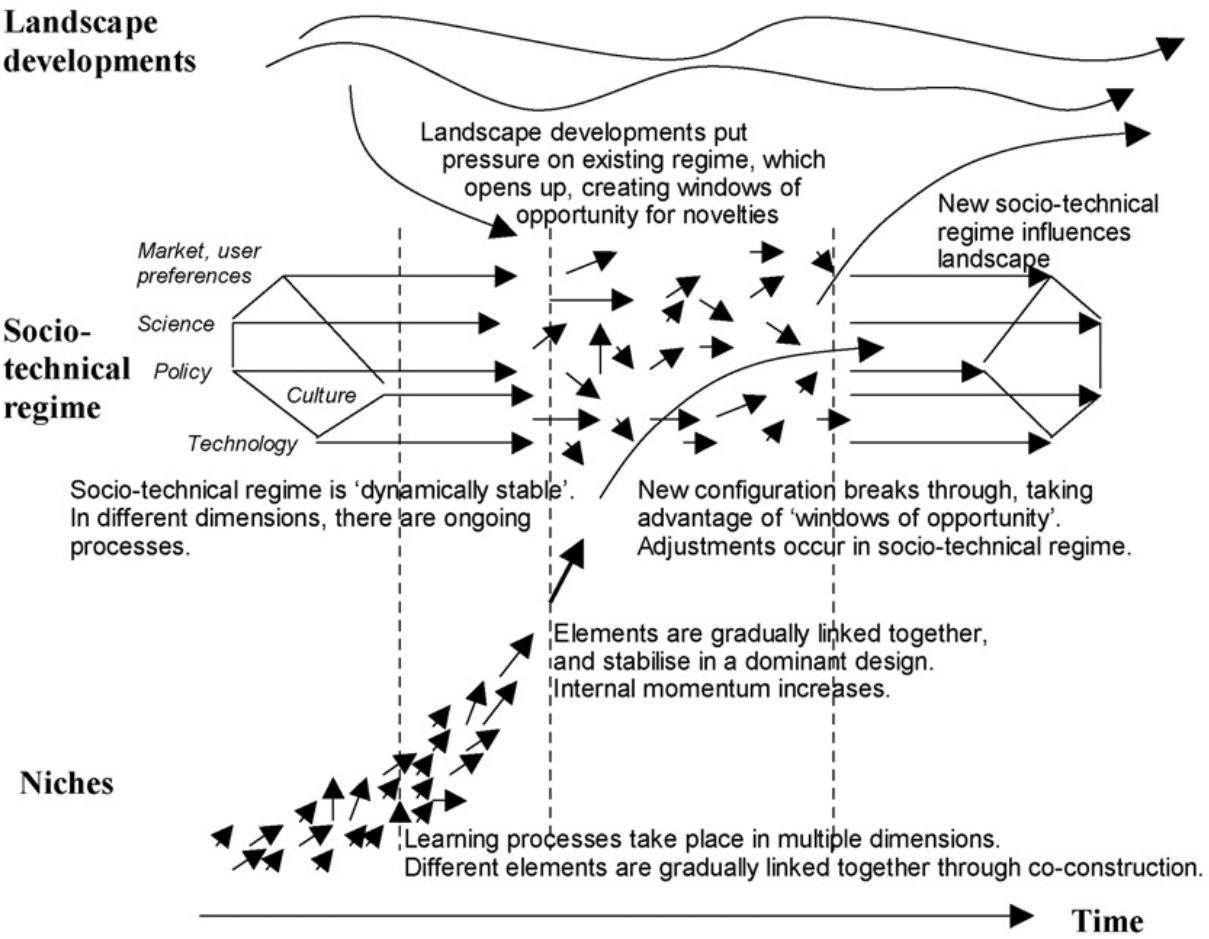
Energy transition

When battling climate change and environmental problems, the current fossil fuel-based energy and transport systems needs to transition into low-carbon systems based on greener technologies, such as wind, solar-power, electrical vehicles, etc., as well as new infrastructures, user practices, policies and cultural meanings, and behavioral changes. The multi-level perspective is often used as a framework to understand the dynamics of socio-technical transitions. The theory understands transitions as coming from the interactions between the three analytical levels of niches, socio-technical regimes, and socio-technical landscape. the logic in MLP is that niche-innovations build up internal momentum, changes at the landscape level creates pressure on the regime, and this destabilization of the regimes create windows of opportunity for implementation of niche-innovations. When this happens, it creates a breakthrough for green innovations into mainstream markets, where they previously struggled with the existing regime (Geels, 2014).

Which actors exercise power and what type of power is being exercised is important in transitions. There are often power struggles between industry and policy makers, especially energy companies. For example, firms and industry actors use lobbying, agenda setting, institutional strategies, and other corporate political powers, to influence the government to resist transitions which are not beneficial for them. Therefore, many sustainability transitions scholars agree that at the heart of the transitions debate are governmental relations with other actors. Further, it is argued that governmental policies are needed to provide 'shielding' or 'nurturing' spaces for niche technologies. Also, it is important to remember that there is a difference between developing and developed countries. Developing countries are often weaker in the institutional structure and have a larger deficit in electricity access. Fragile institutional and regulatory structures are often more threatened during elections, and sometimes more prone to corruption. Thus, oil industries, and other industry actors who perceive low carbon transitions as harmful to their interests, can have a larger political influence and further slowdown the transition process. When looking at the Norwegian government, it should be easier to speed up the transition here. There is not as much lobbying against transition as other countries, and the public opinion is for transitioning and for a greener and sustainable future (Osunmuyiwa et. al, 2018).

Multi-level perspective

The theory addresses the multi-dimensionality in transitions, which, as stated earlier, works well with the action plan and the research question where there are interactions between technology, policy, economics, and the public opinion. MLP also discuss the struggle of structural change, and concepts like lock-in and path dependency. Transitions take place through the interactions between processes at different levels; socio-technical regime, niches and socio-technical landscape (Geels, 2002). Geels (2011) explains that the socio technical regime "forms the deep structure and accounts for the stability of an existing socio technical system". Some characteristics of sustainability transitions are that they are goal-oriented, for instance, private actors have limited incentives because the goal of the transition is related to a collective good, therefore implying free rider problems and prisoner's dilemma. Sustainability is a contested concept and there are disagreements and debate on the meaning of it, what the 'most sustainable' choices are, the best way to implement new policies, etc. Deep-structural changes in transport, energy, agri-food and other systems are necessary to improve the "environmental performance". These systematic changes are often referred to as socio-technical transitions because of their impact on many different fields in the society. Transitions are a necessary interaction between technology, policy/power/politics, economics/business/markets. And cultural/discourse/public opinion. Transitions are complex and long-term processes involving multiple actors, researchers therefore need theoretical approaches that deal with both the multi-dimensionality of sustainability transitions and the dynamics of structural change (Geels, 2011).



(Geels, 2002)

Even though every transition is unique, Geels (2011:29) explain that "the dynamic pattern is characterized by transitions resulting from the interactions between processes at different levels: (a) niche-innovations build up internal momentum, (b) changes at the landscape level create pressure on the regime, and (c) destabilization of the regime creates windows of opportunity for niche innovations". In transitions, there is no single cause or driver, but processes at both different dimensions and different levels linking up with and reinforcing each other. Systems are referring to elements that are measurable, for instance, artefacts, regulations, public opinion, and so on, while regimes are referring to unmeasurable elements and underlying deep structures, for instance, routines, norms, and standardized ways of doing things. Therefore, 'regime' is an interpretive analytical concept where one examines what lies underneath the activities of actors (Geels, 2011). Geels (2011:26) define transitions as shifts from one regime to another, thus making socio-technical regime of main interest. Whereas niches and socio-

technical landscape are defined in relation to the regime, making them more a derived concept. Their practices and technologies differ significantly from the existing regime (Geels, 201).

Socio-technical regime

The socio-technical regime is the established practices and associated rules in existing systems. These practices and rules form the deep structure and stabilize the socio-technical system. They also coordinate the activities of the social groups in the systems. Examples of regime rules are cognitive routines and shared beliefs, lifestyles and user practices, regulations, and legally binding contracts (Geels, 2011). The socio-technical regime includes both the technical perspective and policy making/makers/implementation, users/consumers, vested interests, and so on. The regimes stabilize existing paths in a number of ways, for instance with cognitive routines that somewhat keeps engineers developing with a "narrow vision" and not outside their focus, with regulations and standards, adaptation of lifestyles to technical systems, infrastructures and competencies, and so on (Geels & Schot, 2007).

Niches

In niches we find the radical innovations. They can be seen as 'protected spaces' such as research and development laboratories and subsidized demonstration projects. The niche actors are, for instance, entrepreneurs, start-ups, and spinoffs, and they work on radical innovations that are a contrast or different than the existing regime, hoping they will eventually be used in the regimes or even replace it. However, replacing the regimes is not easy because it is stabilized by many lock-in mechanisms and because of the mismatching between niche-innovations and the existing regime dimensions (such as lack of appropriate infrastructure, regulations, or consumer practices). Niches contribute to systemic change and are therefore crucial for transitions (Geels, 2011). Technological niches form the micro-level where radical innovations appear. The innovations are initially unstable, thus niches act as 'incubation rooms' and protect the innovations against mainstream market selection (Geels & Schot, 2007). Geels (2011) distinguish between three core processes in niche development: first, the articulation (and adjustment) of expectations or visions, second, the building of social networks and the

enrolment of more actors, and third, the learning and articulation processes on various dimensions.

Socio-technical landscape

The socio-technical landscape is seen as the wider context influencing niche and regime dynamics. It emphasizes the technical and material backdrop that sustains society, as well as include societal values, political ideologies, cultural patterns, demographical trends, and macro-economic patterns. Changes in the landscape level are often slow and sometimes takes decades. (Geels and Schot, 2007).

Criticism of MLP

No theory is flawless. It is important to look at criticisms of a theory and take these into consideration when applying or using a theory in a research. There are a lot of criticism of the theory, but I have added the ones I find most relevant to this thesis. The first criticism of the theory is about its lack of agency. Some criticize the theory for underplaying the role of agency in transitions, meaning it should give more attention to the role of power and politics. Geels (2011) argue that MLP is "shot through with agency", explaining that the multi-level alignments are always acted out by social groups, and integrate agency as bounded rationality (routines, search activities, trial-and-error learning) and interpretive activities. Hence, according to Geels (2011), arguing that the criticism about the theory's lack of agency is incorrect, but he is also saying that some types of agency are less developed than others. The second criticism is about operationalization and specification of regimes. Critics suggest that the MLP does not explain specifically how broad or narrow the empirical topic should be delineated. The regime-concept sometimes refers to 'rules' and other times used as shorthand for 'system', therefore the criticism is about drawing boundaries and defining topic analysis. Geels (2011) agrees with the criticism in some degree, claiming that empirical studies sometimes use 'regimes' as shorthand for 'systems', but theoretical papers are often more precise about the difference between the two concepts. The third criticism claims that the theory is bias towards bottom-up change models. Argues that MLP-approaches often emphasize processes of regime change which

begins within niches and work up, at the expense of those operating "downwards" (Geels, 2011). Geels (2011) agree that some early work has emphasized bottom-up dynamics and explains that to counter the bias it needs to be paid more explicit attention to ongoing processes at the regime and landscape level. The fourth criticism introduce the topic of methodology. MLP is criticized for a flawed use of secondary data sources. Geels (2011) explains from his own research papers and not the theory itself, and states that the criticism is underspecified and does not specify which empirical mistakes that was made in which particular study. He continues arguing that transition research could probably benefit from the use of other methods, such as comparative or nested case studies, event-sequence analysis, network analysis, even-history methods, and agent-based modelling (Geels, 2011). Geels (2011) also mentions that the complex research of transitions will always contain some sort of creative interpretations.

Even though the critique is important to take into consideration, based on the research question, MLP is (in my opinion) fitting for this thesis. As mentioned earlier the theory addresses the multi-dimensionality in transitions, the interactions between technology, policy, economics, and the public opinion, and therefore is a good fit with the research question, as well as the documents and data used in the thesis.

Wicked issues

Wicked issues are issues that we may not be able to solve, but we can manage them. When working with these issues, different sectors, public administration, and NGO's, often have to cooperate to be able to manage them. John C. Camillus (2008) explain that "wicked issues are different because traditional processes can't resolve them". There might not be a right answer or a right way to solve these types of issues. Their technical difficulties make it hard to manage them, but the social complexity with normally a great deal of disagreement, makes them even harder to manage (Camillus, 2008).

Climate change is a good example of a wicked issue. Horst W.J. Rittel and Melvin M. Webber published an article where they named 10 properties that distinguished wicked problems from ordinary problems. Most of them (if not all) can be used to explain climate change. I picked

four to explain why climate change is a wicked issue; number 4: “There is no immediate and no ultimate test of a solution to a wicked problem.” With an ordinary problem you can witness very quickly if the solution is working, but wicked problems generate unexpected consequences over time and thus making measuring solutions difficult. Number 7: “Every wicked problem is essentially unique.” Ordinary problems have other similar problems, but a wicked problem is unique, and experience might not help when working on solutions. Number 8: “Every wicked problem can be considered to be a symptom of another problem.” Wicked problems are connected with other problems, and do not have one root cause. Number 9: “The existence of a discrepancy representing a wicked problem can be explained in numerous ways.” Wicked problems will have stakeholders who all have different meanings about what the problem is, what the causes are, and how to deal with it (Camillus, 2008).

Research strategy

Research strategies insure procedures for answering the research questions, especially “what” and “why” questions. Research questions are answered by using one or more of these research strategies: inductive, deductive, retroductive, and abductive. These 4 strategies give different ways of answering the research questions, with different starting points, steps, and concluding points (Blaikie & Priest, 2019). Blaikie and Priest (2019, p. 21) states that the choice of research strategy, or a combination of them “constitutes the second most important research decision”. He continues with explaining the reason is that knowledge can only be advanced in the social sciences by using one or more of the four strategies. Blaikie’s conclusion: “No strategy is without its faults or limitations. Because of their deficiencies, researchers need to adopt a pragmatic attitude towards them” (Blaikie, 2010, p. 25).

	Inductive	Deductive	Retroductive	Abductive
Aim:	To establish descriptions of characteristics and patterns	To test theories, to eliminate false ones and corroborate the survivor	To discover underlying mechanisms to explain observed regulatories	To describe and understand social life in terms of social actors' meanings and motives
Start:	Collect data on characteristics and/or patterns "From data to theory"	Identify a regularity that has to be explained "From theory to empiri"	Document and model a regularity	Discover everyday lay concepts, meanings and motives
Through:	Produce descriptions, make generalizations	Construct a theory and deduce hypotheses	Describe the context and possible mechanisms	Produce a technical account from lay accounts
Finish:	Relate these to the research questions	Test hypotheses by matching them with data explanations	Establish which mechanism(s) provide(s) the best explanation in that context	Develop a theory and elaborate it iteratively

The inductive strategy produces generalizations from data and is essential for answering "what" research questions. This strategy aims to describe social characteristics and regularities in social

life. The deductive strategy tests theories by testing hypotheses derived from them. The strategy tries to explain social regularities that are uncovered but not understood. As in deductive strategy, the retroductive strategy starts with an observed regularity but looks for a different type of explanation. In this strategy, the explanation is reached by finding out which underlying structures or mechanisms are responsible for the observed regularity, and further identifying the context this happens. It suggests causal mechanisms or structures and tries to establish their existence. The abductive strategy is very different than the other strategies. It generates social scientific accounts from everyday accounts. The experiences, activities, and contacts that make up the world of the social actors being investigated is the starting point of the strategy. Meaning, their view of reality, their conceptual and meaning of their social world, and their unspoken knowledge (Blaikie & Priest, 2019).

I would say I used a combination of the inductive and the retroductive strategy when conducting this research. I analyzed questionnaires and interpreted and gave meaning to the collected data by categorizing answers and identifying key concepts, topics, and patterns. The aim was not necessarily to generalize, but to explore a social phenomenon by using social actors' own points of view, hoping that the outcome would make it possible to generalize. Next is a complete explanation of the methods used in the thesis and their implications.

Methods

In this chapter the methodology I chose to approach the research questions in the thesis. The types of data that was selected will be presented. Further, the types of quantitative and qualitative methods used and why they were used. Lastly, validity and reliability issues I have had to address and how I dealt with them.

Selection of data

There are three types of data: primary, secondary, and tertiary. Primary is data generated by the researcher and a result of direct contact between the researcher and the source. Secondary data is generated by another researcher and is often referred to as secondary analysis. Tertiary is data already analyzed by another researcher such as published reports of research, officially collected 'statistics', etc. (Blaikie & Priest, 2019). I used all three types of data in the thesis. I generated my own data through the analysis of the answers from the questionnaire, collected data from, for instance, the municipality's and Helse Stavanger's pages, and the documents and casefiles from the municipality's meetings.

Quantitative and qualitative methods

It is common to divide research into two types of methods, quantitative and qualitative. Quantitative methods include questionnaire, structured interview, observation: structured, and content analysis of documents (Blaikie & Priest, 2019). Quantitative methods are "concerned with counting and measuring aspects of social life" (Blaikie & Priest, 2019:200). Qualitative methods include participant observation, observation: semi-structured and unstructured, focused interview, in-depth interview, oral/life histories, focus groups/group interviews, content analysis of documents (Blaikie & Priest, 2019). Qualitative methods are "concerned with producing discursive descriptions and exploring social actor's meanings and interpretations" (Blaikie & Priest, 2019:200). Most of the qualitative methods are more time-consuming than the quantitative methods. This, and because of their great manageability and predictability, is a main reason for why quantitative methods are preferred by many (Blaikie & Priest, 2019).

As mentioned in the introduction, I was going to conduct unstructured interviews with students at the University of Stavanger. It was supposed to be students who drive, bicycle, and walk to campus. Interview is considered a semi-natural setting, meaning the objects are interviewed about what they do in their natural setting. Blaikie and Priest (2019:202) explains that an interview "can get close to the social actors' accounts of the social interaction in which they

have been involved, and to their meanings and interpretations". This type of data collection creates generated data, meaning they are obtained by "deliberately targeting and stimulating the creation or selecting of specific real-time and/or historical data" (Blaikie and Priest, 2019). Because of COVID-19 forcing the University to close campus for all students, I had to adjust this method so I could keep the same research questions. The questions already made for the interviews were adjusted a bit and made into a questionnaire. I altered them slightly to make it easier to elaborate and give longer answers when filling it out, because I would most likely not get the same amount of information in a questionnaire as I would in an interview, but was hopeful they would produce as much information as an interview would. The questions were written in Norwegian because some students may not be comfortable answering in English, and therefore could possibly affect the answers they gave. Information about the questions and my thesis was sent along with the questionnaire, and it was made clear that it was easy to reach me by e-mail if they had suggestions or any type of feedback. There were some criteria to who could answer the questionnaire: they had to be current students at the University of Stavanger. They could not be alumni or students at other universities, etc., because the case and example is the University of Stavanger and its current challenges which might have changed the last couple of years. When the questionnaires were retrieved, I analyzed the answers for similarities in words, phrases and explanations used by the students. I used this to make a table to make it easier to organize and analyze the answers. In the table I used codes/labels collected from the data from the informants and had a system where I marked how many students said the same words ("code/label") to try to find out what the challenges of changing the students choice of transportation are.

Further, a qualitative document analysis was executed. In a quantitative document analysis, data is coded into categories which are assigned numbers, counted and manipulated statistically. But in a qualitative document analysis phenomenon are identified and connections between these are being made (Blaikie & Priest, 2019). The method involves identifying categories, themes and other patters in interviews, documents, etc. (Sovacool et. al, 2018). In this thesis I mainly used Helse Stavanger's internet site to find information about the new hospital coming to Ullandhaug, and when discussing how it will affect the students at the University. I was confident that Helse Stavanger would have firsthand and up to date information and did not have any concerns when using the information from their site. I analyzed many casefiles looking for relevant information and data about the University and Ullandhaug area. The maps

and pictures of campus and area around campus were also used as data and information about the current situation at Ullandhaug and how it will change in the future. The information about the area regulation at Ullandhaug was retrieved from Stavanger City Counsel's casefiles and plans posted on their internet site, both as articles with information and as pdf-casefiles.

Validity and reliability

One can judge the quality of research designs by doing tests. There are 4 tests which are most common in the social science methods: construct validity, internal validity, external validity, and reliability. Construct validity is identifying correct operational measures for the concepts that are being studied. It is important to define concepts, identify operational measures that match the concepts, and have multiple sources of evidence to minimize subjective judgements when collecting data. Internal validity is a concern when trying to explain how and why one event lead to another event. If one concludes a relationship between two events without knowing if there is a third event that also could have an effect, the internal validity is threatened. One can do pattern matching, explanation building, and address rival explanations. External validity cope with the problem of whether and how a research's findings can be generalizable beyond the immediate research. Reliability is to show that if the same operations of a research is repeated it would have the same results. The goal is to minimize errors and biases in the research. To ensure reliability, it is important to document the procedures along the way of your research (Yin, 2018).

The thesis has combined research methods to ensure internal validity. Being unbiased is often a difficult task, but when collecting data from the students I categorized and collected the information that was given by the students, and when several mentioned a topic it was noted as a more relevant or important finding. The informants (the students) were not randomly sampled, some were acquaintances and friends of mine, who then passed the questionnaire onto other friends, classmates, acquaintances, etc. All were current students at the University of Stavanger, and they were from most of the different fields of research at the University. When collecting data from students at the University, I was unfortunately only able to get 27 students to answer my questionnaire. But, as shown in the findings chapter, the students were mostly giving the same answers to the questions. When I was coding and analyzing the data, I noticed that there

were only three times a student gave new information and an answer no one else did. Most of the time they were agreeing on the challenges and reasons for choosing their mean of transportation. Thus, I will argue that if I had more students answering the questionnaire, it would not necessarily mean I would have gotten any more nuanced and new information. The purpose of this thesis is not necessarily to generalize, but to try to answer the research question regarding a specific area, the campus at the University of Stavanger. The thesis is honest and open regarding methodology and data collection, and the findings and which questions was asked is also presented. Information about the thesis and research questions previously given to informants is added as an attachment and open for the readers. Therefore, I will argue that the reliability of the thesis is not compromised.

Findings

In this part of the thesis the findings collected from the questionnaire and the document analysis I conducted will be presented. I start with the questionnaire and presenting the questions the students answered, and then the three research questions and what the different students driving, walking, or using public transport answered in the questionnaire about these. Further, the new hospital being built at Ullandhaug and the current and new area regulation is introduced.

Questionnaire

When analyzing the questionnaires answered by the students, I looked for main points in the answers, what the similarities in words and phrases were, and further made a table to keep the data collection organized and to make it easier to draw connections and discoveries. Students I personally know, from different departments and programs (both bachelor and master programs), were asked to participate. The students I sent the questionnaire to, shared it with classmates and friends, and I ended with a total of 27 students answering the questionnaire. 13 of these drive cars to campus, 9 ride the bus, 3 walks, and no one of them rides a bicycle. Some students ride bicycles to campus in spring/summer when the weather is nice, but it is not the main mean of transportation for any of the students participating. Also, some students mention

several reasons and explanations in each question, therefore the numbers might not "add up" to the number of students participating. The questionnaire and the information to the students about the questionnaire is added as attachment to the thesis. The questions that was asked are:

1. How do you get to campus? (car, bus, walk, bicycle)
2. Why do you choose this mean of transportation?
3. Could you consider changing mean of transportation? (If so, which one?)
4. What does it take for you to choose a more sustainable mean of transportation?
5. Why do you think a lot of students drive cars to campus?
6. What do you think are the challenges to get students (and others) to choose public transportation, walk or bicycle rather than driving cars?
7. Do you have anything to add? Questions or opinions about travel habits, students, UiS, public transportation, city bikes, EV's, anything!)

Cars

18 of the students drive a car to campus. 10 of the students said they choose this mean of transportation because it saves a lot of time compared to the bus, especially if they had to transfer bus in the city as well. 9 students said because it is practical, explaining that the car is right outside their house and you can drive directly and park right outside of campus. 2 students explain that the public transportation is not good enough. If they would consider changing mean of transportation and what it would take for them to choose a more sustainable mean, 5 students expressed the importance of prices. If the bus passes would be made cheaper or it would become more expensive to drive, they would consider taking the bus instead of their car. 4 students explained that the public transportation outside of "city center" and proximity to Stavanger is not good. 3 students need generally better public transportation for them to leave the car at home. And 8 students answer that time, again, is very important for their choices in transportation. Meaning the bus takes too long. When contemplating about why they think a lot of students drive cars to campus, 3 students said because its practical. Also mentioning that if you have other errands after lectures etc., it is a lot easier to do so when you are driving a car. 3 students introduced free parking as a very good reason for driving to campus. 3 students express that the campus location is a problem, and thus can be somewhat problematic for those not living in the student houses in the immediate area. 4 students mention, again, time as an

important aspect. And 9 students express that the public transportation is not good enough to make students choose this mean instead of driving a car to campus. On the last question about what they think the challenges to get students (and others) to choose public transportation, walk or bicycle, rather than driving cars are, 4 students bring up the aspect of time again, the buses cannot compete with the cars if all the buses go through the city center/bus station area and not directly from other "suburbs". 2 students said the location of campus is problematic, and another one explains that the campus is "very accessible by car". 2 students explain that because of free parking it is easy to drive instead of taking the bus. 2 students think the bus passes are expensive, making it, for some, just as expensive as driving their car. 3 students find the buses too often being full and late, making it a significant reason for choosing car instead of the bus.

Bus

9 of the students ride the bus to campus. 7 of the students explained that they ride the bus because they do not have a car, and therefore do not have any other options. 1 student thinks it is too expensive to have a car compared to bus passes, and 1 student was very pleased with the free one-year bus pass she received from Kolumbus when moving to the municipality and continued to ride the bus the next year as well. If they would consider changing mean of transportation, the students explain again they do not have access to a car, so these answers are therefore related to changing from bus to bicycle. 2 students would like to shower if they bicycle to campus, the location of campus makes the ride somewhat long, including hills, and are not aware if it is possible to shower somewhere other than at the fitness center where membership is required. 2 students express they want to use the city bikes (they are electrical) but there is no parking at campus. I explained to some of them that there is a parking station at the Petroleum's department on the far end of campus, and most of the students did not know this. Further, 2 students mention the location of campus as a reason for not wanting to walk or ride bicycles. Also, many students mention the weather as a factor for not walking or ride a bicycle to campus. When asked why they think a lot of students drive cars to campus, 2 students said it is practical to drive. 3 students mention time, especially with the new tunnels to Hundvåg, Eiganes, etc., making the commute much shorter than it used to be. 3 students, also here, explain the problem with public transport when you live outside of "city center". 2 students express they are tired of full and/or late buses. 2 students bring back the discussion about the location

of campus and its effect. And 4 students discuss the free parking at campus, two also compare with the university in Bergen where there is very limited or no parking at all. Lastly, thinking about what the challenges are to get students (and others) to choose public transportation, walk or bicycle rather than driving cars, 2 students discuss the problems with changing someone's behavior. 2 students explain it is not "too expensive" yet to drive to campus. 2 students said again that it is very practical to drive. 5 students explain the time difference between driving and taking the bus as very important, especially when the bus is late and/or full. And 2 students mention the location of campus as a contributing factor again.

Walk

Only 3 of the students contributing to the research walk to campus. All 3 students explain they choose this mean of transportation because they live very close to campus. If they would consider changing mean of transportation, 1 student would like to bicycle to campus, but because of the unstable weather it is easier to walk. 1 student do not want to bicycle because it takes extra time to shower after if she gets sweaty. 1 student do not want to ride the bus because it is often late and full, and it is easier to just walk. When asked why they think a lot of students drive cars to campus, 1 student mentioned good and free parking at campus as a very contributing factor. 1 student said it is practical and easy. The last student discussed the location of the campus in connection with bus routes – that the location makes the public transport less attractive to students. Especially if the student lives outside of the "city center" and bus roads and thus need a bus transfer to get to campus. On the last question about the challenges to get students (and others) to choose public transportation, walk or bicycle rather than drive cars, the students mostly agreed with the ones taking the bus and driving cars. They explained that it is too practical and convenient to drive to campus. There are not parking for city bikes at the different "houses" at campus, making these less attractive to use (and sometimes not possible). The location of campus makes the walking distance too long and takes too much time. And again, there are many parking spaces at campus, and they are free.

Why do you choose this mean of transportation?

	Do not have access to car	Time	Practical	Live close to campus
Car		IIIII IIIII	IIIII IIII	
Bus	IIIII II			
Walk				III

I made a table for the question about why they choose their mean of transportation. I put a "I" in the table for every student mentioning the topic to make it clear what the different students think are the main challenges. An analysis of the answers showed that do not have access to a car, time, practical, and live close to campus were the answers most of the students gave in the questionnaire. Most of the students taking the bus to campus answered that they do not have access to a car, and therefore do not have any other choice than to use public transportation. Time and the practicality of driving a car are the reasons for their choice. The fact that the students who walk live close to campus is the main and only reason for why they walk.

Could you consider changing mean of transportation? (If so, which one?)

	Price	Time	Better public transportation	Location of campus/shower
Car	IIIII	IIIII II	IIIII II	

Bus				IIII
Walk				I

In the table above you can see the answers for the question about changing mean of transportation. An analysis of the answers showed that price, time, better public transport, and location of campus/shower were the ones mentioned most frequently. Most of the students using public transportation did not want to change to bicycle unless they could shower at the university. Location of campus and the hills makes them want to shower if they bicycle instead of taking the bus. Same with the one who walk but could consider changing mean to bicycle. The students driving cars answered that the time difference and the public transportation not being good enough, as reasons for not wanting to change mean.

What do you think are the challenges to get students (and others) to choose public transportation, walk or bicycle rather than driving cars?'

	Time	**Convenient/ practical**	**Campus location**	**Free parking**	**Late/full buses**
Car	IIII		II	II	III
Bus	IIIII	II	II		

Walk	I	I	III	II	I

In the table above are the answers for the question about the challenges to get students to choose public transportation, bicycles, or walk instead of driving cars, which I also consider the most relevant for the research question. An analysis of the answers showed that time, convenient/practical, campus location, free parking, and late/full buses were the topics most mentioned by the students. The time difference between taking the bus and driving a car is the topic most students discussed in the questionnaire, with the location of campus as the second most discussed topic.

When SUS is moving to Ullandhaug

Stavanger University Hospital (SUS) is going to move to Ullandhaug and there will be built a new hospital. It is planned to be 105 000 square meters with approximately 640 beds and will secure the future's health services of the population in South Rogaland. The first part of the hospital is scheduled to be ready in 2023 and will be right next to the University of Stavanger. The hospital, University, and the innovation environment being at the same location at Ullandhaug will enhance the cooperation between innovation, research, development, and industry in the region (Helse Stavanger, 2020).

Modellstudie av områdestruktur; delområder, grønnstruktur, gatestruktur, torg, volumoppbygging.

(Stavanger Kommune, 2017)

A new bus road is going to be built at Ullandhaug in the university and the new hospital area. This will only be used by bus, bicycles, and for walking. There will also be built bicycle and walking roads multiple places in the area. The new bus road through the hospital area will be an important hub for everyone going to and from the hospital, and therefore also to and from campus. The bus road will be ready before the hospital is ready, so sometime before 2023. Fylkeskommunen and Kolumbus are responsible for the future routes between Ullandhaug and Stavanger center (Helse Stavanger, 2020).

Kollektivaksen gir enkel adkomst til sykehusbyggene på Ullandhaug. Illustrasjon: Nordic/COWI

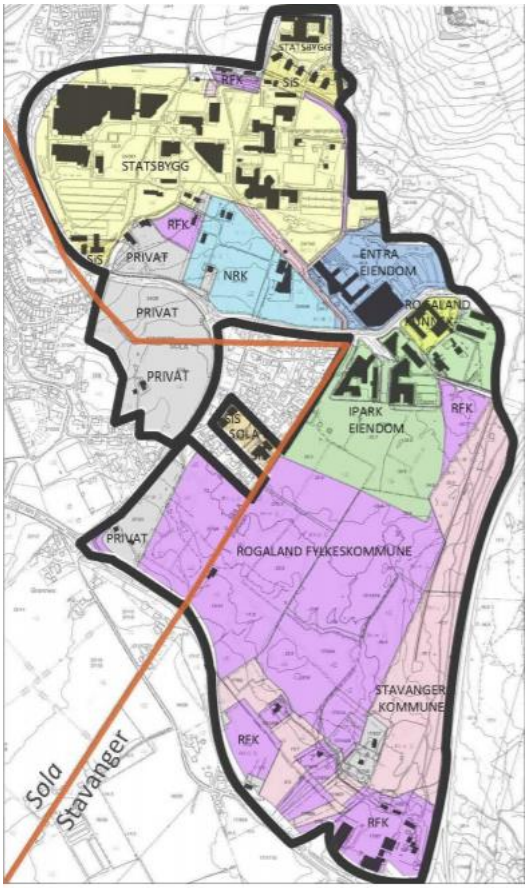
(Helse Stavanger, 2020)

In Bymiljøpakken, a public transport road is specified to be prioritized from the University at Ullandhaug, through Diagonalen and to Jåttåvågen. This has been a problem area for some time, with heavy traffic, and it is stated that this will become a "no delay" road. The goal is to have it ready by the first opening of the hospital at Ullandhaug. The route between Stavanger centrum and the University is not considered as critical and will therefore not be initially prioritized (Bymiljøpakken, 2017).

Area regulations

When the hospital is built there will be enforced new regulations around the Ullandhaug area affecting campus and the University's students. The area regulation was decided in Stavanger city council March 27th, 2017 and was also approved in Sola municipality's council a couple of days earlier. According to Helse Stavanger, the project has had very good cooperation between

the municipalities in all phases of the planning. The plan tells of a strengthening of public transportation and the accessibility of the university area (campus). There will be stricter parking rules and bus and bicycle roads will make the area's users choose public transportation or bicycles as a mean of transportation. This will, according to them, contribute to reduced car use and the goal of reducing CO2-emissions (Helse Stavanger, 2017).



Eiendomsoversikt

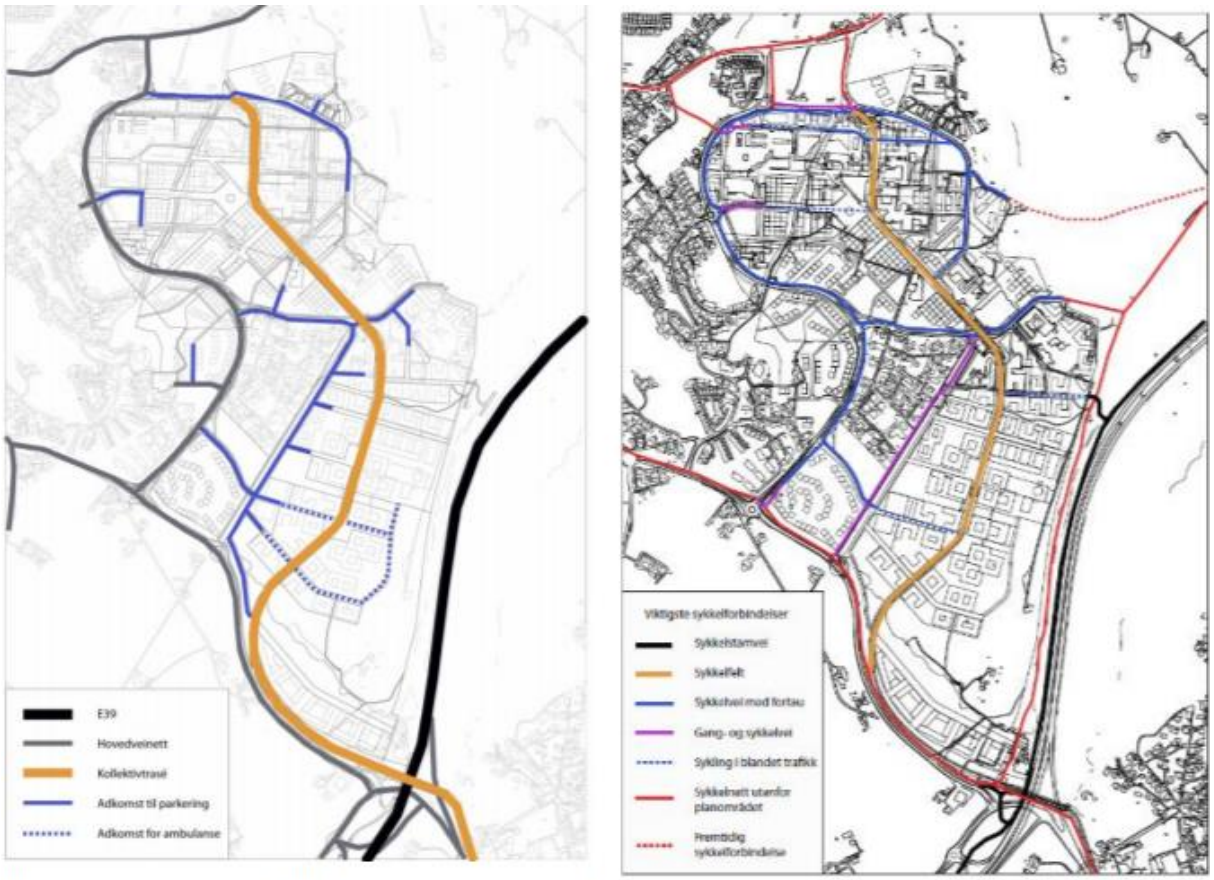
(Stavanger Kommune, 2017)

In the picture above we can see that parts of the University area at Ullandhaug is in the municipality of Stavanger and other parts is in the municipality of Sola. The new bus and bicycle roads coming will be going from one to the other municipality, because of this, there has to be a cooperation between them when building the hospital and expanding the area in general (Stavanger Kommune, 2017).

Transport assessment

The plans for building the hospital and other buildings in the area will have major consequences for the transportation system. The need for transportation will increase because of the expansion of the area; creating new jobs and thus more people commuting for work, students going to campus, others visiting the hospital, and so on. This creates a need for updating the area regulations regarding transportation. When moving most of the hospital to Ullandhaug, achieving the goal of zero growth in personal-car-traffic will be challenging. The road network around the area does not have the capacity to handle too much of an increase. For the transportation in the area to be able to function, the plan is to prioritize facilitation of walking, bicycles, and public transportation. Other programs, such as sponsored public transport passes, bicycle facilities, carsharing schemes, etc., will also be important to make the transportation to university area properly functioning. Parking-fee and strict parking norms will be important to achieve the goal of lowering the car-use. If not, the car-share can become higher than 40 %, which can collapse the main road network around the area. The area regulation needs to secure the accessibility for public transportation to Jåttåvågen train station and the bus road going through Diagonalen. The bicycle network also needs to be established, especially the bicycle lanes next to the bus road (Stavanger Kommune, 2017).

To secure the predictability for employees and visitors at the hospital (and thus of course also students/employees at the university), it is important to get public transport delays to a minimum. Thus, the area regulation presents a claim for bus roads from the university, along Madlaveien, through Diagonalen and to Jåttåvågen. The plan facilitates strengthening public transport and the accessibility of campus. Stricter parking norms and preparations of bus and bicycle roads will lead to the users of the area choosing these means of transportation more frequently than they do now. Thus, this will contribute to reduced car-use and towards the goal of reducing CO2-emissions (Stavanger Kommune, 2017).

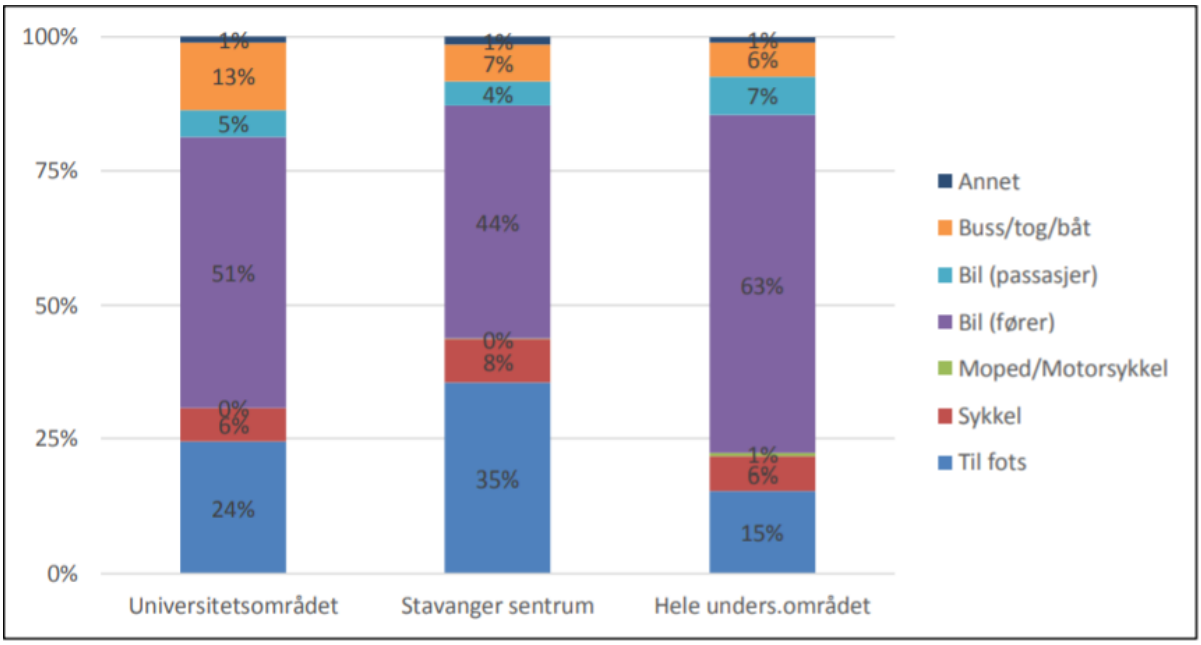


Illustrasjon av hovedbiladkomster oghovedsykkelforbindelser

Yellow line showing the bus and bicycle roads going from campus at the top and through the hospital area to E39, main road network, etc. (Stavanger Kommune, 2017)

Transport at the university campus

In 2015, the transport department in Stavanger municipality did an investigation of transport at the University area, and of the travel habits of residents in the university area. It showed that 51 % of the residents travel by car, 24 % walk, 6 % ride bikes, 5 % as passengers in cars, and 13 % use public transport.



Figur 20: Reisemiddelfordeling blant bosatte i Universitetsområdet (utvalgsområdet), Stavanger sentrum og hele undersøkelsesområdet (RVU 2012)

(Transportutredning Universitetsområdet, 2015)

The research shows that the travel habits of the residents in the university area and others traveling to the area mainly happens through driving cars. Over 50 % of all types of trips/travel happens by car. There is a total of around 1450 parking spaces for students and employees at the University, all of which are free. According to the research these parking spaces are at times overcrowded and thus leading to illegal parking in the area. The University has the highest share of parking of all the universities in Norway, showing a much higher share of students driving to campus in Stavanger compared to the other universities. In the research it is stated that the free parking spaces available for students and employees at the University facilitates and makes it easier to drive to campus, good and accessible parking encourages car use. Regulation of the number of parking spaces is presented as an efficient measure to reduce car use. The research explains the University area as easily accessible by bicycle for most of the residents in Stavanger, but also addresses the problem with efficiency being a barrier for the region's population with bicycle as a mean of transportation. Additionally, with the University located "on top of a hill" it creates a challenge in terrain for many students and employees. Also, the bicycle network is not clear and readable, and natural and direct connections on campus gets interrupted with buildings, thus being more barriers for efficient use of bicycle. (Transportutredning Universitetsområdet, 2015)

Public transport research

In the research by Tanu Priya Uteng and Nils Gaute Voll from 2016, they analyzed public transport and the people's perception contra realities in access and usage and compare the data of the municipality of Oslo and Stavanger metropolitan. 91 % of the habitants in Stavanger over 18 years have a driver's license, and 94 % of habitants have access to free parking at their workplace. Oslo has in general a daily mobility consisting mainly of sustainable means of transport: public transport, walking and bicycling. However, in Stavanger almost 60 % of daily trips are by car, either as a passenger or driver. Car is the most used mean of transportation in Stavanger, with 57 %, which is the double amount compared to Oslo. Public transport use is at a low 7 % in Stavanger, compared with 26 % in Oslo (Uteng & Voll, 2016).

Uttalelse	By	Sterkt uenig	Uenig	Ikke uenig eller enig	Enig	Sterkt enig
Jeg liker å kjøre bil ***	Oslo	7	10	16	33	34
	Stavanger	3	6	11	29	51
Bilkjøring er typisk meg	Oslo	23	18	18	23	18
	Stavanger	13	13	17	25	33
Om jeg ikke kan kjøre kan jeg ikke utføre aktiviteten ***	Oslo	58	22	11	7	2
	Stavanger	40	25	16	13	6
Jeg liker å sykle	Oslo	14	12	16	32	26
	Stavanger	17	14	15	29	25
Sykling er typisk meg***	Oslo	16	24	24	26	11
	Stavanger	23	20	19	20	18
Reise med kollektivtransport er typisk meg***	Oslo	13	14	15	30	28
	Stavanger	51	18	9	12	10
Jeg liker å gå***	Oslo	2	4	9	34	51
	Stavanger	4	6	12	33	45
Gåing er typisk meg***	Oslo	3	10	19	38	31
	Stavanger	10	14	21	32	23

(Uteng & Voll, 2016)

In the research, they did an analysis of the identity and relations with transport. As shown in the table above, 51 % of the respondents from Stavanger strongly agreed with the statement "I like to drive a car", compared to 34 % in Oslo. Only 10 % of the respondents strongly agreed

with the statement “traveling by public transport is typical of me”, compared to 28 % in Oslo. This shows that the respondents have a strong “car-identity” in Stavanger metropolitan. In the last 16 years there has been a low share of public transport use in Stavanger, which can be explained partly with Stavanger’s strong car-culture. The respondents explain that they like to drive a car and that driving is “typical of me”. They think that some activities would be excluded if they could not drive. The respondents from Oslo does not agree with this and generally identifies more as public transport users (Uteng & Voll, 2016).

Car dominance in Stavanger can be explained by the distance between home and workplace, accessibility and convenience of public transport, parking facilities, and the habitant’s lack of knowledge about the public transport possibilities, frequencies, and travel times in their neighborhoods. In fact, when they studied frequency in public transport, they found an almost complete lack of knowledge of the actual public transport offers in the area. Also, it was shown in the research that the travel time in average doubles when using public transport instead of driving in Stavanger (Uteng & Voll, 2016). Uteng and Voll (2016) introduces 3 suggestions to get people to change mean from car to public transport. First, restructuring the public transports structure, because the current system is based on offering commute between two fixed places but should be more flexible and dynamic. Second, implementing technology that makes it easier for the public transport users to utilize their time efficiently while commuting, working on their computer, or charging possibilities for electronic devices for instance. Third, explore what technologies can secure that the future public transport becomes time efficient and easy to use (Uteng & Voll, 2016).

Discussion

In this chapter I have discussed the findings from the previous chapter and tried to find connections between them. Further, I tried to find answers to the research questions using the information and data collected. I divided this chapter into the three research questions presented in the introduction: Why the students choose their mean of transportation, would they consider changing mean of transportation, and what are the challenges to get students (and others) to

choose public transportation, walk or bicycle rather than driving cars. In each of these parts I discuss what the students answered in the questionnaire and the rest of the findings.

Why the students choose their mean of transportation

In the table in the chapter about findings one can see that time, practical, and do not have access to a car, are the most common topics the students discussed when asked why they choose their mean of transportation. Additionally, one student mentioned the 1-year free public transport pass she got when she moved to Stavanger, which I see as a good incentive to get more students to choose other means of transportation than cars.

Time is a big issue for the students and almost all of the participating students express this in the questionnaire. According to them, one can save a lot of time when driving a car compared to taking the bus. Time savings is also one of the reasons many choose to drive a car instead of using the available public transport in the research by Uteng and Voll (2016) as well. It was shown that the travel time in average doubles when using public transport instead of driving (Uteng & Voll, 2016). The free 1-year pass to students registering moving to Stavanger can make some rethink how much of an issue time is. The free pass made one student continue riding the bus after the free pass was expired. It is a good incentive to get students to change behavior and their attitude towards public transport. This could potentially create a routine and make the students continue to use the public transport instead of a car after the free pass expires.

Unfortunately, it is hard for the public transport to compete with the practicality of driving a car. Most of the people in Stavanger metropolitan have a parking space outside or near their house and good parking facilities at their workplace (Uteng & Voll, 2016). With the new hospital being built next to campus, a new bus road is going to be built. There will also be built bicycle and walking roads multiple places in the area (Helse Stavanger, 2020). Hopefully more students will choose other means of transportation and find them more practical than they are now. Bus and bicycle roads and paths for walking will also make UiS more accessible by other means than car. Fylkeskommunen and Kolumbus are responsible for the future routes between Ullandhaug and Stavanger (Helse Stavanger, 2020), and it will be interesting to see how they

will organize the bus routes to and from campus when the bus roads are ready. Increasing frequency and the general quality will most likely make the public transport more attractive to the commuters. What I did not expect was that most of the students who take the bus to campus answered they do because they do not have any other option, that they do not have access to a car, as to why they choose the bus as a mean of transportation. This can be understood as meaning they would drive a car if they had the possibility. I will go further into this topic in the next part of the discussion.

Would they consider changing mean of transportation

In the table in the findings chapter, one can see that price, time difference, the public transport not being good enough, and the location of campus and showering are the most answered topics when students consider changing their mean of transportation. When changing mean of transportation behavioral change is needed. This is not easy and will be discussed in the next question.

The students suggest that if the public transport passes were cheaper or if it would become more expensive to drive a car, it could make some students consider changing mean from car to bus. Some say that for them the difference between public transport passes and the expenses from driving their own car is very little, and therefore choose to pay the difference for a more convenient and practical commute. Besides prices, they also think that the public transport outside of Stavanger's city center is not good enough for them to change mean from car to bus. The time difference between car and public transport, walking, or bicycling is too big. Making the public transport offers more flexible, as Uteng and Voll (2016) suggested, could make it more attractive to use. One student explained that living in Randaberg municipality makes the commute to campus a lot longer, both time and distance, because they need to go by Stavanger city center for bus transfer. He explained further that if you compare this with driving a car directly from Randaberg to campus it will approximately cut the commute in half. When the hospital and the other plans in the area is finished, it will have major consequences for the transport system. The need for transportation will increase because of the expansion of the area: new jobs and therefore more people commuting for work, students going to campus, visitors to

the hospital, etc. This will most likely create positive changes for the students in the public transport and could make them change mean of transportation.

As stated in the previous question above, most of the students who take the bus to campus do so because they do not have any other choice. They would drive a car if they had the possibility to do so. This is, in my opinion, one of the most interesting findings in the questionnaire and one that I did not expect to find. This find is in line with the "car-identity" that many in Stavanger metropolitan feel and strengthens the car-culture. Also, they are clearly not pleased with the public transport that is offered. The changes that will happen on and around campus with the bus road etc. coming with the new hospital, will hopefully change their opinion and make the public transport better suitable for them.

Because of the location of campus, some students state that they would like to shower if they chose to bicycle instead and is not aware of any place to shower except for at the fitness center and you need a membership to use their facilities. Better information about shower possibilities available for the students could make some of them use this as mean, at least occasionally. The city bikes are electrical and could be an alternative because you would not get as sweaty as with a regular bike, if any at all. However, the students are not aware of any parking stations at campus. If there were around the houses at campus, most of them would consider using these as an occasional mean of transportation.

What are the challenges to get students (and others) to choose public transportation, walk or bicycle rather than driving cars?

As shown in the table in the findings chapter, time difference between bus and car is the topic most students discuss in the questionnaire, and the location of campus is the second most discussed topic. According to the research by Uteng and Voll (2016), car dominance in Stavanger can be explained by the distance between home and workplace, accessibility and convenience of public transport, parking facilities, and the habitant's lack of knowledge about the public transport possibilities, frequencies, and travel times in their neighborhoods. Most of

the explanations in the research from Uteng and Voll (2016) matches what the students explain in the questionnaire.

The location of campus is introduced by many of the students as a reason for driving cars. If the campus were closer to the city center in Stavanger it would be possible to walk or bicycle for many more of the students than it is now. Bus transfers also makes the commute considerably longer for some, and if was not necessary it would cut the commune in more than half in some instances. The campus being located "on top of a hill", as some students explained it, makes it less attractive for students to bicycle. As mentioned in the previous question, they would probably need to shower if they bicycle to campus, unless they use the electrical city bikes. Unfortunately, there are no parking spaces for the city bikes around the houses at campus, thus making them less attractive and in some instances not possible to use. Throughout the questionnaire, many students mention weather as a contributing factor when discussing bicycle and walking, which is understandable considering the amount of rain experienced in this area. Alas, there is nothing we can do to influence the weather, but indoor parking for bicycles was mentioned by a student, which could make it more attractive to use bikes all year, and not just in spring and summer.

As well as the location of campus, many students mention Stavanger's city planning as a problem. Not only going to and from campus, but errands, social and other activities outside of campus is considered easier to do with a car in Stavanger. One student asked why all the buses go on "lines" and not in "rings", why it is necessary to go to the city center for bus transfers, making it more difficult and time consuming for students and others living outside of the city center, especially for students living outside of the municipality. As discussed earlier, students living in Randaberg municipality, spend a significantly higher amount of time if they use public transportation rather than driving a car, because they need to go by Stavanger city center. Almost all of the participating students mention the location of campus as a big contributing factor for why they think themselves and others do not choose public transport. If the campus were in the city center, (almost) all students would only need to ride one bus, rarely need for transfers, and many could walk or be just a short bicycle trip away. The student's opinion is backed up by the public transport research by Uteng and Voll (2016), where they explain that Stavanger metropolitan's city planning has made the area a "car-city". It is standard to have

good parking facilities both at home and at the workplace, making more people drive cars to work instead of using the public transport available. Good parking facilities is also one of the most discussed topics of the questionnaire. There is free parking on multiple areas on campus. These parking spaces are right next to the different houses, which makes it very easy and accessible for the students. There would be parking very close to their lectures or where they choose to study afterwards. Two of the students participating in the questionnaire mention the University of Bergen as an example of a university without any or very few parking possibilities. The research by Uteng and Voll from 2016, states that the car dominance in the area can be explained by, amongst other, parking facilities at home and workplace. The good parking facilities at campus makes it very accessible by car and works as an incentive for driving cars instead of using the public transport means available. It is not specified what will happen with the parking spaces when the new hospital is built at Ullandhaug next to the campus. There will be built parking garages, but these are meant for the staff and hospital visitors. Thus, I can not do anything else than assuming the parking spaces at campus will stay the way they are.

Many explain full and/or late buses as a significant reason for their choice of mean and why they and others drive to campus instead. Diagonalen area is explained as a reason why buses are often late to campus from direction Jåttåvågen to Stavanger center. The buses go through heavy traffic in that area and are therefore late when arriving to pick up students at campus. Diagonalen is a hub for cars going to and from work. In the area regulation case file (Stavanger Kommune, 2017), it is specified that a bus road from Jåttåvågen, through Diagonalen, UiS, and to Stavanger city center, is going to be prioritized. This area is an important factor for current delays and is mentioned multiple times in documents both from Helse Stavanger and Stavanger Kommune, and by the students. If this bus road is built it will make the public transport in the area more reliable and thus more attractive to, not only students, but other people living by Diagonalen or going by the area to and from work etc. There will also be a significant increase of people working and visiting Ullandhaug when the new hospital is built. Therefore, there will be built a bus road going from the top of campus, through the main parts of campus, down to the hospital, and to E39 (Stavanger Kommune, 2017). Fylkeskommunen and Kolumbus are responsible for the bus routes to be set up, and we can only assume the frequency will increase when the bus road is ready to be used.

As well as being full and/or late, the buses are not cheap enough according to the students. They explain that driving a car is not too expensive, compared with public transport pricing, for students (and others) to choose this as a mean of transportation. Also, the student prices for public transport only applies if you are under 31 years old (Kolumbus, 2020b). There are many students at UiS over 31 years who are full time students. Full time students do not have time for a full-time job on the side, therefore they do not have a high income, regardless of one is younger or older than 31. For these students, the public transport prices will be a lot more expensive and thus there might not be a significant price difference between public transport and driving their own car.

People's car-identity is one of the most important reasons for the high number of cars on campus. Stavanger metropolitan have had a car-culture for a long time, thus making this behavior hard to change. In Uteng and Voll's (2016) research, the knowledge about the public transport in the respondent's area was clearly lacking, and they discussed that some use preconceived views on public transport as excuses for their car use. When analyzing the questionnaire and what the students think about the public transport in Stavanger metropolitan, it can be argued that many of the students participating have the same preconceived views on public transport in their neighborhoods and campus area. Even if people live in neighborhoods with good access to public transport, they will not use it more frequently until they recognize that the offer actually exist. Because of this, it will be important to spread information about the available public transport in the area. The free 1-year pass discussed earlier can be an incentive for behavior change for newcomers.

Conclusion

Summary

In 2010, the transport sector was responsible for approximately 23 % of total energy-related CO2 emission (IPCC, 2014). To transition into a greener future and reduce GHG emissions, new technologies, implementation of new policies and behavioral change can make a big difference. The local levels can play a big part in transitioning and dealing with behavioral change. Different regions need different measures and have different outlooks on how to deal with the issues. Stavanger municipality presents road traffic as a cause for almost half of the GHG emissions in Stavanger (Stavanger Kommune, 2019). Stavanger city council adopted an ambitious climate and environmental plan to be executed from 2018 to 2030. It includes multiple measures to reduce GHG emissions in the municipality. I used the action plan as background information and made the main research question where I wanted to find out why so many in Stavanger drive cars instead of using the public transport that is available. The University of Stavanger was used as a case example, and the students answered a questionnaire I made about their travel habits to and from campus. The plan was to interview students at campus, but because of COVID-19 campus had to close and it proved to be too difficult for me to interview enough students for the research. In the questionnaire they answered 7 questions, and 3 of them were the same as the other research questions. The other research questions were why do the students choose their mean of transportation, could they consider changing mean of transportation, and what are the challenges to get students (and others) to choose public transportation, walk or bicycle rather than driving cars. To answer the research questions, I analyzed the questionnaire about the students travel habits. Further, I did a document analysis where I found information about the new hospital at Ullandhaug, the area regulations, public transport in Stavanger metropolitan, and more. The thesis combined research methods to ensure validity but was unfortunately only able to get 27 students to answer the questionnaire. However, most of the students agreed on the challenges and reasons for choosing their mean of transportation. Therefore, I will argue that even if I had more students participating it would not necessarily mean I would have gotten any more new information. The thesis is open and

honest regarding methodology and data collections, and thus I will argue that the reliability of the thesis is not compromised.

When analyzing the questionnaires, I looked for main points in the answers, similarities in words and phrases and made tables of the data to keep it organized and make it easier to draw connections and make interesting discoveries. The research question why they choose their mean of transportation, most of the answers were about time, practicality and that they do not have access to a car. Time savings is also one of the reasons why many choose to drive a car instead of using public transport in the research by Uteng and Voll (2016). It is hard for buses to compete with time and practicality, but hopefully the new bus roads etc. coming when the new hospital is built will make public transport more attractive and cut down the time difference.

For the research question would they consider changing mean of transportation, the students answered that price, time difference, not good enough public transport, and the location of campus and showering were the most important topics. Some students suggest that the public transport prices should be lower, because for some the difference between public transport passes and the expenses for their own car is little, and they are willing to pay the difference for a more convenient, time saving, and practical commute. The interesting finding in this part was that most of the students taking the bus do so because they do not have any other choice, and if they could, they would drive their own car. The changes coming in the campus area will hopefully change their opinion and make the public transport better suitable for them.

When asked what the challenges to get students (and others) to choose public transport, walk or bicycle rather than driving cars are, the most mentioned topics were time difference, the location of campus, free parking, full and/or late buses, and price. Most of these explanations match what Uteng and Voll (2016) also found in their research. The city planning and location of the campus is sort of connected, with the campus being very accessible by car. Many free parking at different places on campus is very different from other universities in the country. Uteng and Voll (2016) state that the car dominance in Stavanger metropolitan can partly be explained by good parking facilities at home and at the workplace. Full and/or late buses gets

blamed for choosing to drive to campus, and Diagonalen area is the main problem for the late buses. The buses go through heavy traffic and is therefore late when arriving at campus. But there are plans to build a bus road through the area and will improve the public transport at Ullandhaug. Hopefully when the hospital and the other plans in the area is built it will influence student's transportation choices to greener and sustainable ones.

The answer to why so many in Stavanger drive cars instead of using public transport is a combination of multiple factors. The fact that the campus is very accessible by car because of city planning and the many free parking spaces are important factors to why many drive cars to UiS. The free parking at campus works as an incentive for driving cars instead of using the public transport, and therefore should be removed or implemented fees for parking. This also applies to other people and the fact that their workplaces mostly have very good parking facilities. Stavanger metropolitan's habitant having a strong car-identity and the strong car-culture in the area is also important to why so many drive cars. According to Uteng and Voll (2016) the knowledge about public transport is clearly lacking, leaving people with preconceived views on public transport and using this as an excuse for car use. Behavior change is necessary for cutting down car use in the area, and this is not easy to change. It is probably not possible for buses to compete with driving your own car, timewise. There has to be something else, an incentive etc., making buses more attractive for people to change mean of transportation.

Further research

There are several areas for further research within this topic. As explained in the methods chapter, the number of participants in the questionnaire can be seen as an implication and limit the research. For further research it could be interesting to get more respondents, it might get more information about the student's choices and reasons for choices in means of transportation. The students participating in the questionnaire were not pleased with the public transport offer in the campus area, further research can be to find out what they would suggest

should change for it to become a more attractive mean of transportation. A wider research including other people, not just students, could make the findings more generalizable.

I hope that further research on the topic can uncover the best ways to change the behavior of the people in Stavanger metropolitan and possibly change the car-identity and car-culture in the area. As stated in the introduction, road traffic stands for almost half of the greenhouse gas emissions in Stavanger (Stavanger Kommune, 2019). The municipality is going to work towards reducing emissions and have a goal to get 70 % of person transport to be taken by bicycle, walking, and by public transport by 2013 (Stavanger Kommune, 2018). Hopefully, the measures from the municipality presented and the changes at the University area will lead to a decrease in car use and increase in greener choices such as public transportation use, bicycles, and walking.

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Attachments

1. Information sent to the students participating in the questionnaire about their privacy and what the information will be used for. It was originally made for the interviews but was sent to the students along with a message from me about the change in method from interview to questionnaire.

2. The questionnaire the students at the University of Stavanger answered.

Vil du delta i forskningsprosjektet

" Reisevaner og persontransport i Stavanger Kommune"?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å kartlegge reisevaner og persontransport i Stavanger Kommune. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Stavanger bystyre vedtok en klima- og miljøplan som gjelder fra 2018 til 2030. Handlingsplan 2018-2022 er en del av denne, og inkluderer en rekke tiltak for å redusere utslipp i kommunen. Oppgaven vil ha hovedfokus på Handlingsplan 2018-2022 og delen som handler om persontransport. Kommunen har som mål at 70 % av persontransporten skal foregå ved sykling, gåing eller offentlig transport innen 2030. Det er et ambisiøst mål, og jeg vil se nærmere på utfordringene som kan komme i veien for å nå målet.

Dette er en masteroppgave gjennom masterprogrammet energi, miljø og samfunn på Universitetet i Stavanger. Ulike problemstillinger oppgaven vil gå inn på er blant annet hvilke policy utfordringer står Stavanger Kommune ovenfor? Hva skal til å endre folks reisevaner? Hvordan får man folk til å velge kollektiv transport, sykling eller gåing fremfor bilen? Problemstillingene vil bli rettet mot studentene ved Universitetet i Stavanger.

Hvem er ansvarlig for forskningsprosjektet?

Universitetet i Stavanger er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Ønsker å intervjue deg for jeg vil gjerne samle informasjon om reisevanene til studenter ved Universitetet i Stavanger.

Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, vil det bli gjennomført et intervju på ca. 15-30 minutter. Spørsmålene vil handle om hvordan du kommer deg til campus, hvorfor du velger den reisemåten, og lignende. Svarene dine vil bli registrert elektronisk ved lydopptak.

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

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Det er kun intervjuer som vil ha tilgang, eventuelt veileder hvis det skulle være behov.

Det vil ikke bli publisert navn eller noen personopplysninger som gjør at du vil kunne gjenkjennes.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Prosjektet skal etter planen avsluttes 15. juni 2020. Lydopptak vil bli lagret til masteroppgaven er godkjent og karaktersett, og ingen andre vil ha tilgang til opptaket.

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

- innsyn i hvilke personopplysninger som er registrert om deg,
- å få rettet personopplysninger om deg,
- få slettet personopplysninger om deg,
- få utlevert en kopi av dine personopplysninger (dataportabilitet), og
- å sende klage til personvernombudet eller Datatilsynet om behandlingen av dine personopplysninger.

Hva gir oss rett til å behandle personopplysninger om deg?
Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Stavanger har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Hvor kan jeg finne ut mer?
Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Universitetet i Stavanger ved student Hilde Austigard Østerhus på epost 217009@uis.no og veileder Reidar Staupe-Delgado på epost reidar.staupe-delgado@uis.no
- Vårt personvernombud: personvernombud@uis.no
- NSD – Norsk senter for forskningsdata AS, på epost (personverntjenester@nsd.no) eller telefon: 55 58 21 17.

Med vennlig hilsen

Reidar Staupe-Delgado Hilde A. Østerhus

Prosjektansvarlig (Forsker/veileder) Student

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet *Persontransport i Stavanger Kommune*, og har fått anledning til å stille spørsmål. Jeg samtykker til:

- ☐ å delta i intervju

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet, ca. 15. juni 2020

(Signert av prosjektdeltaker, dato)

Spørreskjema om studenters reisevaner

Jeg skulle intervjue rundt 40 studenter på Universitetet i Stavanger om deres reisevaner til og fra campus. På grunn av COVID-19 har campus blitt stengt, og det er derfor ikke mulig å gjennomføre disse intervjuene på samme måte som planlagt. Intervjuene skulle være ustrukturert med opptaker, altså en uformell samtale der spørsmålene ville variert noe mellom respondentene etter hvor samtalen førte. Et spørreskjema vil uansett bli annerledes enn et intervju, men gjerne svar så utfyllende som du klarer, da dette vil gi meg mest mulig å arbeide med. I informasjonsskjemaet vedlagt ligger kontaktinformasjon hvis du har spørsmål eller innspill.

Takk for hjelpen!

Hvordan kommer du deg til campus? (Bil, buss, gå, sykkel)

Hvorfor velger du denne reisemåten?

Kunne du tenke deg å endre reisemåte? (Eventuelt hvilken og hvorfor)

Hva skal til for at du velger en annen mer miljøvennlig reisemåte?

Hvorfor tror du det er så mange studenter som kjører bil til campus?

Hva tror du er utfordringene til å få studenter (og andre) til å velge kollektiv transport, gå eller sykle fremfor å kjøre bil?

Er det noe du vil legge til? (Spørsmål eller meninger om reisevaner, studenter, UiS, kollektivtransport, bysykkel, el-biler, hva som helst!)