LUND UNIVERSITY
School of Economics and Management

Department of Business Administration
FEKN90, Business Administration
Examensarbete på Civilekonomprogrammet
Spring 2015

THE INSTITUTIONALIZATION OF CYCLING

A case study of Sydney and Melbourne

Authors
Lisa Flatt 920311
Jana Odinsman 900607

Supervisor
Thomas Kalling

Acknowledgements

We would like to express our sincere gratitude to everyone who made this research possible. Especially to the individuals in Sydney and Melbourne who took the time to participate in the interviews, and helped us unravel the mystery of the institutionalization of cycling.

We would also like to thank our supervisor Thomas Kalling for his great commitment and 24/7 assistance – thank you Thomas!

2015-05-18
Lund, Sweden

Lisa Flatt Jana Odinsman

ABSTRACT

Abstract Title: The institutionalization of cycling – A case study of Sydney and Melbourne

Seminar date: May 26th 2015

Course: FEKN90 Master Thesis in Business Administration, 30 ECTS

Authors: Lisa Flatt, Jana Odinsman

Supervisor: Thomas Kalling

Keywords: Sustainable development, Sustainable cities, Urban mobility culture, Sustainable transport, Cycling, Institutional theory, Change management

Purpose: The purpose of this study is to establish a framework for the mechanisms that support the institutionalization of cycling as a mode of transport. Our aim is to provide valuable insights on how to normalize cycling.

Methodology: This research is conducted through a qualitative case study combining inductive and deductive reasoning. A preliminary theoretical framework was developed based on existing cycling and institutional theory. Semi-structured interviews were conducted in Sydney and Melbourne. The empirical findings were analyzed in relation to the preliminary theoretical framework and a revised framework was developed through pattern matching.

Theoretical perspectives: Urban mobility culture, Cycling literature, Institutional theory, Change management

Empirical findings: Interviews with politicians, advocates, transport planners, policy makers and government officials.

Conclusions: This study resulted in a revised framework based on empirical findings in relation to existing institutional and cycling theory, presenting important mechanism for the institutionalizing of cycling.

Table of Contents

1. BACKGROUND 7

1.1. PURPOSE 11

1.2. DISPOSITION 11

2. THEORY 12

2.1. CYCLING LITERATURE 12

2.1.1. Urban mobility culture 12

2.1.2. Cycling 13

2.1.3. Growing interest 14

2.1.4. Cycling levels 14

2.1.5. Mechanisms explaining cycling levels 15

2.2. THE CREATION OF INSTITUTIONS 20

2.2.1. Institutional theory 20

2.2.2. The three pillars of institutions 21

2.2.3. The regulative pillar of institutions 22

2.2.4. The normative pillar of institutions 23

2.2.5. The cultural-cognitive pillar of institutions 24

2.3. THE PROCESS OF CHANGE 24

2.3.1. Change 25

2.3.2. Important elements affecting change 25

2.3.3. The process of change 27

2.4. PRELIMINARY THEORETICAL FRAMEWORK 28

2.4.1. Factors affecting the regulative pillar of institutionalizing cycling 29

2.4.2. Factors affecting the normative pillar of institutionalizing cycling 30

2.4.3. Factors affecting the cultural-cognitive pillar of institutionalizing cycling 30

2.4.4. Contribution of the preliminary theoretical framework 31

3. METHOD 31

3.1. RESEARCH APPROACH 31

3.1.1. Two methods of reasoning 32

3.1.2. Research design 33

3.1.3. Selection of case cities 33

3.1.4. Respondent selection 35

3.2. EVIDENCE COLLECTION 36

3.2.1. Semi-structured interviews 37

3.2.2. Pilot case study 37

3.2.3. Case interviews ... *38*
3.2.4. Method for presenting empirical findings ... *38*
3.2.5. Method of analysis ... *39*
3.3. RELIABILITY AND VALIDITY ... 39
4. EMPIRICAL FINDINGS ... 41
4.1. BACKGROUND ... 41
4.2. REGULATIVE ELEMENTS IN THE INSTITUTIONALIZATION OF CYCLING ... 41
4.2.1. Legislation favoring motorized vehicles ... *42*
4.2.2. Laws deterring cycling ... *43*
4.2.3. Funding ... *44*
4.2.4. Accountability ... *45*
4.2.5. Lack of leadership ... *47*
4.2.6. Reluctance to change legislation ... *49*
4.3. NORMATIVE ELEMENTS IN THE INSTITUTIONALIZATION OF CYCLING ... 50
4.3.1. Car-centric transport planning ... *50*
4.3.2. Public transport ... *54*
4.3.3. Media perception ... *55*
4.3.4. Politics and business ... *57*
4.3.5. Disorganized lobbying ... *58*
4.3.6. Reluctance to change behavior ... *59*
4.4. CULTURAL-COGNITIVE ELEMENTS IN THE INSTITUTIONALIZATION OF CYCLING ... 60
4.4.1. The institution of the car ... *61*
4.4.2. The image of a cyclist ... *62*
4.4.3. Attitudes about cycling ... *63*
4.4.4. Terminology ... *64*
4.4.5. The Australian Dream ... *65*
4.4.6. Reluctance to change ... *66*
5. ANALYSIS AND DISCUSSION ... 67
5.1. ELEMENTS AFFECTING THE INSTITUTIONALIZATION OF CYCLING ... 67
5.1.1. Regulative elements affecting the institutionalization of cycling ... *68*
5.1.2. Legal arrangements concerning the car ... *68*
5.1.3. Legal justification for cyclists ... *70*
5.1.4. Financial obligations ... *71*
5.1.5. Accountability ... *71*
5.1.6. Strong leadership ... *73*

5.2. NORMATIVE ELEMENTS AFFECTING THE INSTITUTIONALIZATION OF CYCLING 74
5.2.1. Cycling as integral part of transport planning 74
5.2.2. Efficient public transport 76
5.2.3. Political support for cycling 76
5.2.4. Organized lobbying 77
5.3. CULTURAL-COGNITIVE ELEMENTS AFFECTING THE INSTITUTIONALIZATION OF CYCLING 79
5.3.1. Positive image of cyclists 79
5.3.2. Positive attitudes towards cycling 80
5.3.3. Education 81
5.3.4. Entitlement 82
5.3.5. Abolish the car-dependent culture 83
5.4. INTERRELATION OF THE THREE PILLARS 83
5.5. ENABLERS OF CHANGE 85
6. REVISED FRAMEWORK 86
6.1. SUMMARY OF THE IDENTIFIED MECHANISMS IN THE REVISED FRAMEWORK 86
6.1.1. Regulative elements that favor the institutionalization of cycling 88
6.1.2. Normative elements that favor the institutionalization of cycling 88
6.1.3. Cultural-cognitive elements that favor the institutionalization of cycling 88
6.1.4. The change dimension of the institutionalization of cycling 89
7. CONCLUSION 90
7.1. RESULTS IN RELATION TO PURPOSE 90
7.2. THEORETICAL AND PRACTICAL IMPLICATIONS 91
7.3. VALIDITY AND LIMITATIONS OF THE RESULT 92
7.4. FURTHER RESEARCH 93
8. REFERENCES 95
9. APPENDIXES 104
9.1. APPEDIX 1. RESPONDENTS 104
9.2. APPENDIX 2. INTERVIEW GUIDE 105

1. BACKGROUND

Sustainable cities are currently in the spotlight. Attention is directed towards them through legislation, documentary movies, books and international sustainability rankings. Cities have become the arena of competition between countries' sustainability actions. They are measuring their impact to enable each resident to develop in a healthy way through decent education, and promotion of responsible use of non-renewable resources, and thereby contributing to a sustainable world (Van de Kerk & Manuel, 2008).

The attention to cities seems justified, since the world's population shifts from its mostly rural roots towards urban areas, and society is faced with an overload of demands to meet (Burdett & Rode, 2011). The rapid urbanization poses high pressure on sewage, fresh water supply, public health and the living environment (UNEP, 2011).

Although urban areas are a major contributing factor to unsustainability[1], recent research reveals that cities through their governments will have an essential role in making the world more sustainable (UNEP, 2011; Hoornweg & Freire, 2013). Since cities today are the centers of consumption, innovation and economic growth, they have good conditions to start with the sustainable development of the world (UNEP, 2011).

The consequences of transportation[2], one of many contributing factors to unsustainability, are especially evident in cities (IISD, 2010). The current urban mobility culture in industrialized countries is concentrated around motorized vehicles (Rode, 2013). Transport causes noise, road safety problems, local air pollution, and congestion. Besides these tangible consequences, transport is also aggravating climate change, peak oil and public health problems such as obesity and overweight (Daley, Rissel & Lloyd, 2007). Business-as-usual will drastically extend vehicle fleets and aggravate their burden on society (UNEP, 2011).

[1] The concept of unsustainability comprises the continued growth and consumption patterns in today's society that have a negative impact on the world. Unsustainability is hence the contrary to sustainability (IISD, 2010).

[2] Transport and transportation will be used interchangeably throughout this report, since both words describe the same phenomenon (http://grammarist.com/usage/transport-transportation/).

Insights about which mechanisms support or restrain non-motorized transportation are important in order to limit this burden, and help governmental efforts to develop sustainable cities (Koglin, 2013). Meeting these challenges requires a change to the current urban mobility culture in cities. The urban mobility culture of a city describes the transportation patterns and culture of its mobility (Rode, 2013). Developing a more sustainable urban mobility culture would encourage the use of environmentally friendly transportation modes and decrease the dependency on motorized transportation modes (Klinger, Kenworthy & Lanzendorf, 2010; Martens & Spinney, 2014: Gaggi, Fluhrer, & Janitzek, 2013).

Cycling[3] is a non-motorized sustainable mode of transportation, which is marginalized in many cities (Khayesi, Monheim & Nebe, 2010; Emanuel, 2012). Increasing cycling ratios would reduce trips by motorized vehicles and thus promote sustainable current transport patterns. Pucher & Buehler (2012) have conducted extensive research on cycling and found that cycling to a large extent is not used as a mode of transport in the majority of the industrialized countries.

There are several factors that make people use other modes of transport over cycling. Pucher & Buehler (2012) identified safety concerns, socio-cultural factors and cycling infrastructure restraints among other barriers. A factor that definitely is contributing to the absence of cycling as a transportation mode is that current policies and investment-planning systems almost exclusively favor motorized vehicles (UNEP, 2011; Pucher & Buehler, 2012; Insall, 2013).

Policy-making as well as urban infrastructure planning is usually administered by city governments (UNEP, 2011). It is those governments' social obligation to provide their citizens with attractive and sustainable living and working spaces, and means of getting between those places (Stern, Zenghelis & Rode, 2011). In order to do so, they need to change the way the governments prioritize motorized vehicles (Insall, 2013). Consistency of purpose and priorities is needed to reach the goals that guide the way to sustainable transportation (UNEP, 2011) but most importantly, the creation of specific institutions is required if change is to happen successfully (Scott, 2004; Eriksson-Zetterqvist, 2009).

[3] Cycling and bicycling are two words that will be used interchangeably in this report.

Institutional theory is concerned with how decision-making about change transports ideas over time and space, making them established patterns in society (Scott, 2004; Scott, 2008). According to Simon (1957) institutional theory is based on the fact that humans are bounded rational, meaning that decision-making is not rational because decision-makers have to take cognitive, political, emotional and strategic aspects into account (March & Simon, 1958).

When humans create their social reality, institutions arise (DiMaggio & Powell, 1991). Myers & Kent (2008) provide various examples of the entities and activities that the term institution embraces. Governments, television, marriage, the military, and car traffic are just a few of them (Myers & Kent, 2008). In today's increasingly crowded world, institutions are highly challenged by fast changing environments and the problem of non-renewable resources (Tainter, 2006).

New institutions are required to cope with those challenges in order to achieve global sustainability and avoid social, economic and environmental collapse (Myers, Beddoe, Constanza, Farley, Garza, Kent, Kubiszewski, Martinez, McCowen, Murphy, Ogden, Stapleton & Woodward, 2009). According to Myers et al. (2009) new institutions mean changes to current patterns in society. Cycling as a normalized mode of transport could become a new institution if governments change the way decisions about transport are made today (Koglin, 2013).

Change is a fragile and complex process, which has been subject for research in a variety of disciplines such as strategy, organization and behavioral sciences (Lagerstedt, 2011). The vast majority of all change efforts fail (Kotter & Schlesinger, 1979; Beer & Nohria, 2000), which is noteworthy because of a whole industry of consulting agencies, leadership experts, researchers, management journals, and extensive literature on change management [4](Lagerstedt, 2011). John Kotter has developed one of the most cited change frameworks. It contains eight steps that organizations should follow in order to succeed change efforts (Kotter, 1996).

Kotter's (1996) framework focuses on private corporations. Public organizations such as governments operate with scarce taxpayer funds, and have different demands directed towards

[4] Change management is a complex research discipline that focuses on the change processes that affect human beings (Alvesson & Sveningsson, 2008).

them. They are also more reluctant to change than private organizations (Burnes, 2009). Therefore, Kotter's (1996) framework might not be applicable in a public sector context (Fernandez & Rainey, 2006; Karp & Helgø, 2008; Burnes, 2009). Fernandez & Rainey (2006) have developed a change framework for the public sector inspired by Kotter (1996).

Empirically, there is little known on how public organizations behave in change situations and whether or not Fernandez & Rainey's (2006) framework is legitimate (Kuipers, Higgs, Kickert, Tummers, Grandia & Van der Voet, 2014; Van der Voet, Kuipers & Groenevelds, 2015). Conclusively, there is research available on cycling and its significance for sustainable development (IISD, 2010; Pucher, 2011; UNEP, 2011; Koglin, 2013) as well as the importance of the creation of institutions for sustainable development (Myers et al, 2009; Lagerway, 2011; UNEP, 2011; Lindsey et al, 2013). However, a link between those two research domains is missing.

Through the institutionalization of cycling, cities can increase urban cycling ratios, which contribute to a more sustainable world (Benton-Franklin Council of Governments, 2010; Lagerwey, 2011; Lindsey, Koglin, 2013; Nordback & Figliozzi, 2013). Thus, the necessity of institutionalizing bicycling remains unexplored and provides a starting point for our research. The institutionalization of cycling demands a fundamental change of governments' behavior towards transport (Koglin, 2013). Governments are likely to be resistant to change and little is known about change processes within them (Burnes, 2009). It is therefore important to explore the relevance of the institutionalization of cycling as a mode of transport in order for cities to become more sustainable.

1.1. PURPOSE

The purpose of this study is to establish a framework for the mechanisms that support the institutionalization of cycling as a mode of transport[5]. In order to advance knowledge about how cycling can be institutionalized in cities, a change process perspective is applied.

Our aim is to provide valuable insights on how to normalize cycling to cities, governments, politicians, city planners, transport planners, economists, and other stakeholders of cycling.

1.2. DISPOSITION

After thoroughly having provided a background and purpose for our study in chapter 1, the next chapter covers existent theories and literature on cycling, institutional theory and change processes, resulting in a preliminary theoretical framework. In chapter 3, we describe the method used in this study, and which decisions we made when outlining the study and collecting data. The case cities Sydney and Melbourne are introduced in chapter 3 as well. Chapter 4 presents our empirical findings. The next chapter analyzes the empirical findings in relation to the theories presented in chapter 2, and concludes with a revised framework. Chapter 5 discusses the revised framework, and its implications. The last chapter, chapter 6, concludes our empirical findings and answers the purpose of this study.

[5] Hereinafter, "institutionalization of cycling as a mode of transport" will be abbreviated with "institutionalization of cycling".

2. THEORY

In order to understand the factors underlying institutionalization of cycling, it is of utter importance to investigate theories regarding cycling, institutionalization and change process. The following chapter will offer an overview over the three theory fields.

2.1. CYCLING LITERATURE

It is necessary to review existing research about cycling since this study aims to develop a framework based on cycling. The following section will therefore provide a review of cycling literature.

2.1.1. Urban mobility culture

One large challenge that cities face today is associated with the current urban mobility culture. Urban mobility culture theory describes how the movement patterns of people in cities define the configuration of its transport culture (Rode, 2013). It includes the impact of institutionalization, political strategies, infrastructure, buildings and urban environment on travel patterns in a specific socio-cultural context (Klinger, Kenworthy & Lanzendorf, 2010; Martens & Spinney, 2014).

The present transport culture is associated with large economic, environmental and social costs. These costs and impacts arise mainly from congestion, pollution, resource depletion and human inactivity (Stradling, Meadows & Beatty, 2000; Gaggi, Fluhrer, & Janitzek, 2013). The transport sector represents thirteen percent of total greenhouse gas emissions that contribute to global warming. With growing car dependency, the transport sector is estimated to double its share by 2050 if no action is undertaken (ITF/OECD, 2012).

Meeting these environmental and societal challenges requires an integrated approach to change the current urban mobility culture. Adaption must hence occur through all levels of society; decision makers, transport planners and users. Such change requires understanding of how mobility culture develops. (Gaggi, Fluhrer, & Janitzek, 2013).

When trying to explain the mobility patterns in cities, two determinants should be considered – the objective and subjective. The objective dimension highlights the urban characteristics,

infrastructure and socio-economical attributes. The subjective dimension focuses more on individuals' perception, attitudes and preferences (Klinger et al., 2010).

The complexity of the concept has not yet been captured in a universal theory; some scholars emphasize the importance of the objective dimension whereas others argue that the subjective dimension is the most significant (Klinger & Lanzendorf, 2015; Martens & Spinney, 2014).

Klinger et al. (2006) argues that these two determinants are strongly interdependent and therefore equally important when shaping the mobility culture on a city-level. Only focusing on a city's infrastructure or on the cultural context separately cannot provide full understanding of a cities transport culture. This framework describes the evolution of a city's mobility culture as a consolidative approach that integrates objective and subjective dimensions.

In order to achieve more sustainable transport solutions, there is a global need for change in mobility cultures. Such change is associated with a shift from motorized transportation modes to more sustainable alternatives such as active transportation and efficient public transport systems (Gaggi, Fluhrer & Janitzek, 2013).

2.1.2. Cycling

Cycling is as previously stated a non-motorized transport recognized for its sustainability. As an active transport it consumes less finite resources in comparison with motorized transports, reducing green house emissions and air pollutions (Pucher & Buehler, 2008). Additionally, cycling has been associated with improved public health; prevention of obesity, diabetes and cardiovascular diseases (Shephard, 2008; Hamer, & Chida, 2008; Bauman et al., 2008). Several studies show that increased cycling is associated with less traffic congestion, particularly in urban areas (SQW, 2007; Victoria Transport Policy Institute, 2013). Further on, parking a bicycle requires less space than a car, which is sought-after in constricted urban areas (Unit, M. C. 2011).

Other known benefits include improved mobility options (particularly for non-drivers), local environmental quality, more efficient land use, economical, reduced traffic fatalities and social isolation for people living in areas with poor public transportation (Küster, 2013; Australian Conservation Foundation, 2009).

2.1.3. Growing interest

Despite the established benefits of cycling, it only constitutes a small fraction of all transportation (Pucher & Buehler, 2012). It has historically been overlooked as a transportation option during the last few decades and was even described as a "forgotten mode" by the Federal Highway Administrator (FHWA) in the United States in the 1990s (The National Bicycling and Walking Study: 15–Year Status Report).

There has however been a growing interest for cycling during the recent years from governments, non-governmental organizations (NGO's), institutions, researchers, transportation planners and citizens (Pucher & Buehler, 2012). Several countries such as the United States of America, Australia and members of the European Union have all acknowledged the overall positive effects of cycling and are currently implementing strategies towards increasing the national levels of cycling (Pucher & Buehler, 2008; Unit, M. C. 2011).

The national bicycling and walking study was published by the United States Department of Transportation in 1994, emphasizing on the benefits of cycling as a transportation mode (National Bicycling and Walking Study Five Year Status Report, 1999). The Australian government issued their first national cycling strategy in 1999, advocating for the increase of cycling (Australia Cycling 1999–2004 The National Strategy, 1999). The European Union recognized the importance of cycling as a sustainable travel mode and an integral part of national transportation in 2004 (Organization for Economic Cooperation and Development, 2004). In the published report by the ECMT in cooperation with OECD the following citation is found:

> Cycling is increasingly recognized as a clean, sustainable mode of transport that has potential as an alternative to the car for short-distance travel in urban areas.
>
> (Organization for Economic Cooperation and Development, 2004)

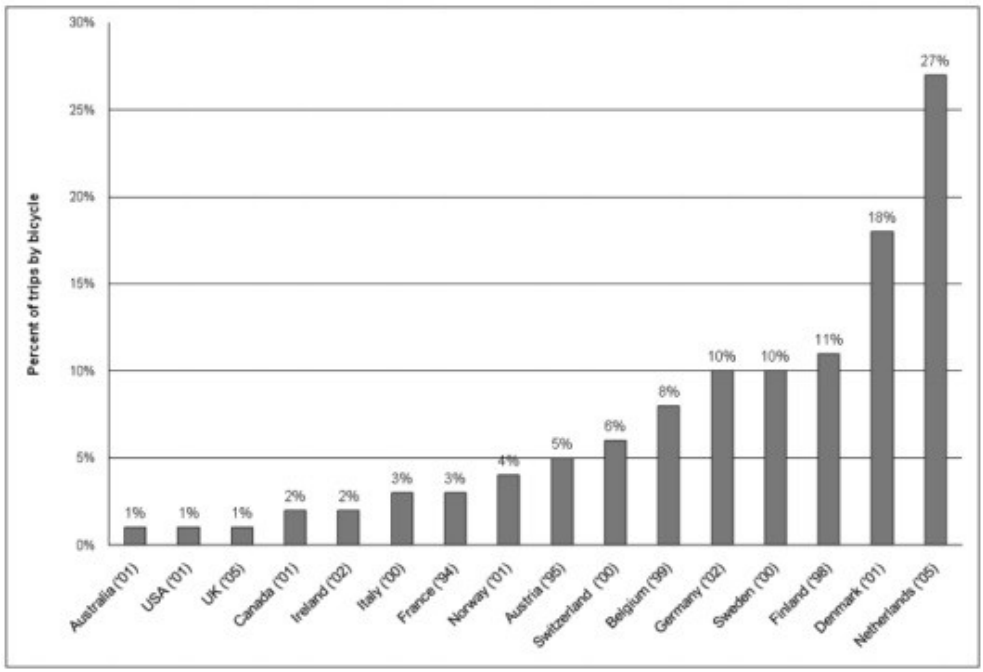
2.1.4. Cycling levels

There are substantial differences in ratios of cycling between the industrialized countries, despite the international recognition and established benefits, see figure 1.Variations are especially found between the countries in Northern Europe and the United States of America,

Australia, Canada and the United Kingdom (Buehler & Pucher, 2012). Netherlands, Denmark, Finland, Sweden and Germany all show considerably high levels of cycling, where it is a more common form of daily transportation.

Whereas barely 2% of all the daily trips are done on a cycle in the United States of America, Australia, Canada and the United Kingdom. Cycling in these countries is more often used for recreational purposes and only constitutes a small fraction of all transportation modes (Pucher & Buehler, 2008).

Figure 1. Bicycle share of trips in Europe, North America and Australia.



Source: Pucher & Buehler (2008)

This variation can also be depicted in cities, where cities with the highest ratios of cycling in the United States of America, Australia, Canada and the United Kingdom, all have lower levels than the least cycling friendly cities in the North of Europe (Buehler & Pucher, 2012).

2.1.5. Mechanisms explaining cycling levels

To increase the levels of cycling would help cities to improve their current transportation pattern and become more sustainable (Gaggi, Fluhrer, & Janitzek, 2013). Therefore insights about which mechanisms support or restrain cycling in cities are significant in order to estab-

lish a more sustainable mobility culture. Why do citizens in some cities cycle to a higher extent than in other cities?

To address the question above, insights regarding different factors impacting the use of cycling need to be examined. The urban mobility cultural theory focuses not specifically on cycling but on all different transportation modes. When studying mechanisms explaining cycle use, a literature review of recognized cycling research will function as a foundation for this research.

Barriers

There are several recognized barriers that make people choose different forms of transportation over cycling. Those barriers include both objective and subjective determinants; safety concerns, built environmental, natural environmental, individual and socio-cultural factors (Bauman, Rissel, Garrard, Ker, Speidel, Fishman, 2008). The impact of such barriers varies between individuals and is considered to be volatile. Barriers tend to differ between frequent riders and recreational or non-cyclist. Infrastructure and socio-political barriers are for instance more important to people who cycle frequently. Whereas non-cyclist are more affected by individual barriers and the built environment. Occasional riders distinguish that insufficient infrastructure is the main reason to why they hesitate to use cycling as a frequent transportation mode (Daley, Rissel & Lloyd, 2007).

Safety barriers

Several studies show that the concern of safety is the most significant deterrent preventing people from cycling (Bauman et al., 2008; Buehler & Pucher, 2012; Sanders, 2013). This usually originates from a fear of being hit by a motorist or the absence of protected cycling roads (Pucher, Garrard & Greaves, 2011). The perception of danger mainly derived from cars is especially enlarged in areas where motorist have a tendency to aggressive behavior (Australian Government, 2009). This is especially evident among children, women and the elderly population. Furthermore, research shows that women are more risk-averse than men and need safe a bicycle environment in order to cycle (Garrard, Rose & Lo, 2008; Buehler & Pucher, 2012). Nevertheless, these concerns regarding risk of injury or death while cycling are disproportionate to the risk, which is considered to be very low (Bauman et al., 2008). Hence, Sanders (2013) argues that the main barrier is the perception of cycling being too dangerous.

According to the research of Smith, Wilson & Armstrong (2011) non-cyclists resided in regions with low cycling levels are more concerned for their safety than non-cyclist living in areas were cycling is more common. This is supported by the theory of " safety by numbers", were there is a connection between bicycling levels and safety. The concept of safety by numbers is substantiated by the fact that the more cyclists are on the road, the fewer cyclists are involved in accidents with motorized vehicles, because cars get more aware of cyclists, and hence drive more cautiously (Jacobsen, 2003). Smith et al., (2011) also explain this effect as partially resulting from higher exposure to cyclists. The perception of risk decreases as residents are more exposed to cyclists, making them a normal part of their roads. Simplifying it as normalization of cycling through exposure.

An attempt to remedy the safety problem is by enacting legislation that requires compulsory helmets when cycling (Robinson, 2005; 2006). There is however no general agreement whether such legislation is beneficial or necessary in order to improve the safety for cyclists. Since countries without helmet laws generally have higher cycle ratios and lower casualties (Robinson, 2006; Pucher & Buehler, 2008). Further research shows that the helmet law deters cyclists and results in lower overall cycling participation. This is evident when studying the level of cycling before and after such legislation has been enforced (Robinson 2005; 2006). Smith et al., (2011) stresses that encouragement of safety protection such as helmet and high visibility clothing can reinforce the perception of cycling as an unsafe activity.

Built environmental barriers

The built environmental factors that influence the level of cycling are known as infrastructure and urban design. They are interconnected and depict the characteristics of the road. The concern of safety is, as previously stated, often a result of poor infrastructure not being adapted to bicycles. Infrastructure is recognized to be one of the most significant barriers that cities have to overcome to increase the levels of cycling. It has been found that the quality of infrastructure directly correlates with the cycling ratio (Bauman al., 2008).

> "The lack of infrastructure for bikes is a barrier. That's a fear, being injured if I got on a bike " . – Non-rider female (Daley et al., 2007).

Examples of such poor infrastructure are insufficient or non-existing road cycle networks, unsafe crossings and high pavements (Rissel et al., 2008). Not having sufficient end of trip

facilities such as dedicated parking space also precludes people from cycling. Scott & Span (2000) found evidence that suggested the threat of bicycle theft in combination with no parking space makes end of tip facilities a noticeable barrier. Thompson (2013) states that there is also a correlation between the urban design of a city and the cycling ratio, where high suburban sprawl with a lower population density regularly have a low cycling participation. Such cities are instead predominantly car-dependent with high car ownership (Bauman et al., 2008).

Busy roads with a high level of motorized vehicles are found to deter cyclist due to safety concerns and low cycling infrastructure (Garrard, Rose & Lo, 2008). Continuously, roads with high speed limits are also found to be a deterrent and to create an unsafe environment for cyclists. Traffic calming has showed to have a positive effect on reducing the car traffic and hence increase the cycling levels. There are several different strategies for traffic calming such as narrowing the streets, lowering speed limits to 30 km/h, introducing speed humps and restricting road access by one-way streets (Bauman et al., 2008; Pucher & Buehler, 2008).

Since governments are responsible for transportation matters, they need to provide safe cycling infrastructure in order to protect cyclists and to create a safer road environment for them (Stern, Zenghelis & Rode, 2011).

Competing transportation modes

Characteristics of other transportation modes could function as a barrier to cycling (Martens, & Spinney, 2014). One factor contributing to the use of motorized transport is the perception of it being more time efficient. However, it has been demonstrated that there is no significant difference in time when the journeys are of short distance. In many cases, it is even faster to ride a bicycle instead of using a car. Since a substantial proportion of all the individual car rides in the urban areas are short-distanced, cycling could be a substitute (Hydén, Nilsson, & Risser, 1998; Smith, Wilson & Armstrong, 2011).

Like the perception of time, individuals do not always base their estimation of the cost for a car on actual value. Some car owners argue that they would have a sunk cost if they would switch transportation modes since they already own a car. Others mean that the current costs for a motorized vehicle equalize the time it saves (Smith et al., 2011).

The generalized costs of other transport could function both deterrent and encouragement, where cost could be seen as the actual monetary cost or as a trade off for time efficiency. Cycling costs less than both public transport and private cars, creating economical benefits through transportation affordability and consumer cost savings. An initial investment is required but it reduces the direct household expenses as well as the indirect costs for maintaining the infrastructure for cars (Unit, M. C. 2011).

Pucher & Buehler (2008) and Bauman et al., (2008) argue that restricting the car is an important factor when trying to increase cycling. It has proven to be successful in cities known for high cycling ratios, such as Copenhagen and Amsterdam. Restriction such as high costs encourages shifting modes to cycling. Congestion tax, higher parking fees, and taxes together with expensive fuel reduce the current appeal that motorized vehicles have on cycling. Increasing the cost noticeably would help in restricting the car use (Pucher & Buehler, 2008).

Environmental barriers

Rissel et al. (2008) identified another barrier as the geographical, such as high variation in the topography. As well as environmental, where the temperature and weather affects people's willingness to cycle. The distance of the trip is also identified as a potential barrier, where people are more likely to use another mode of transport the greater the distance is (Pucher & Buehler, 2012). The impact of this factor does however vary between countries, where Europeans tend to cycle more than Americans despite the distance. There is a decline in cycling ratio in that is associated to longer distances in Europe, but it is not as visible as in American cities (Pucher & Buehler, 2012).

Individual and socio-cultural barriers

The individual barrier is identified as a knowledge gap, where people don't know how to maneuver a bicycle or are not familiar with the local routes. Further on, there is also evidence suggesting that lack confidence precludes many people from cycling. The lack of confidence could be regarding insufficient skills but it is also derived by the perception of cyclists (Bauman et al., 2008).

There is a widespread image that cyclists are physically fit, wear clothes in lycra and cycle very fast. This type of mainstream perception of a cyclist averts people who can't identify themselves with the stereotype (Daley et al., 2007). Riding a bicycle is also not always con-

sidered to be a “cool” activity, which makes the social pressure to start cycling low (Scott & Span, 2009). Hence, people don’t want to associate themselves with the negative perception of cycling (Scott & Span, 2009)

A great barrier to overcome is the social and cultural phenomenon that doesn’t legitimize cycling as a recognized transportation mode. Many non-riders share negative images and attitudes towards cyclist, which are sometimes derived from their own personal experience when interacting with them or from negative media coverage. Johnson (2011) states that such negative attitudes shape the car drivers behavior on the road. Causing drivers to behave aggressively towards cyclists.

2.2. THE CREATION OF INSTITUTIONS

As stated in the previous section, cycling is vital if cities want to become sustainable and offer their citizens attractive living and working spaces. The current urban mobility culture in industrialized countries is car-centric (Rode, 2013). When trying to understand how to institutionalize cycling, and hence the shift urban mobility culture towards cycling, it is of utter importance to investigate research on institutional theory. In the following section, a review on institutional theory, and the three pillars that create institutions is provided.

2.2.1. Institutional theory

Institutional theory comprises the concept of bounded rationality (March & Simon, 1958). Kahneman & Tversky (1986) define bounded rationality as the fact that humans are subject to biases in various tasks of judgment under uncertainty, such as prognostication or assessment of evidence. Hence, humans do not necessarily make decisions that maximize their economic benefit, which would be rational according to Adam Smith’s (1776) theory on wealth creation (Kahneman & Tversky, 1986). Rather than that, humans take factors such as the presentation of alternatives or the relative comparison of alternatives into account, resulting in bounded rationality (Kahneman & Tversky, 1986).

Institutional theory is a frequently used notion in organizational theory when trying to explain human or organizational behavior (Eriksson-Zetterquist, 2009). Institutions exist everywhere in society. New institutions arise, current institutions prevail, and outdated institutions vanish

(Eriksson-Zetterquist, 2009). According to Myers & Kent (2008), examples of institutions are governments, car traffic, handshakes and seat belts in cars. The common denominator of institutions is that they represent a social order or pattern, facilitating human behavior in certain contexts (Jepperson, 1991).

As Berger & Luckmann (1967) define it, all human behavior can become a habit, and hence constitute a pattern, which in turn results in the creation of an institution. The advantage of patterns is that they minimize the number of active choices, streamlining behavior. Humans can rely on institutions, and avoid decision-making on how to behave to a large extent by following social patterns (Berger & Luckmann, 1967). By doing so, humans can instead direct their energy to innovation and other chores, and be more efficient.

The goals and preferences of organizations – even public organizations – are effects of existing institutions (Eriksson-Zetterquist, 2009). Humans can consciously and unconsciously develop and influence institutions through their behavior. Voronov & Vince (2012) have found that feelings motivate people to change institutions, which they cannot relate to anymore, or to safeguard institutions to which they are attached.

Historicity is also an important prerequisite for the creation of institutions (Berger & Luckmann, 1967). By that Berger & Luckmann (1967) intend that institutions have a history and that they are a product of their own history, ergo the creation of institutions takes time. The completion of institutions is dependent on a new generation of humans (Eriksson-Zetterquist, 2009). The new generation will perceive the habits of the old generation as established, as historical, and not question them. Consequently, they will adopt these habits and pass on to generations to come (Berger & Luckmann, 1967).

How social order and patterns, which will spin-off institutionalization, evolve is explained by the combined force of the three pillars of institutions (Scott, 2014). The following four paragraphs offer a review of those pillars.

2.2.2. The three pillars of institutions

Regulative systems, normative systems, and cultural-cognitive systems are the three elements that are identified by institutional theorists as pillars creating or supporting institutions

(Hoffman, 1997; Scott, 2014). Some researchers see one element as more enforcing than the others (Selznick, 1949; Berger & Luckmann, 1967; DiMaggio, 1983). In this study the most recent generally accepted approach of Scott (2008; 2014) and Hoffman (1997) is used. Their approach acknowledges each elements' own structures but sees the three of them together as a moving continuum that reaches from legal enforcement to taken-for-grantedness and from consciousness to unconsciousness (Hoffman, 1997; Scott, 2014).

Consider table 1 for a summary of Scott's (2014) review of all three elements and a guide as each element is reflected below. The table shows the pillars of institutions as columns and their features as rows.

Table 1 Three Pillars of Institutions

	Regulative	Normative	Cultural-Cognitive
Basis of compliance	Expedience	Social obligation	Taken-for-grantedness
Basis of order	Regulative rules	Binding expectations	Constitutive schema
Mechanisms	Coercive	Normative	Mimetic
Indicators	Rules Laws Sanctions	Certification Accreditation	Common beliefs Shared logics of action Isomorphism
Affect	Fear Guilt/ Innocence	Shame/Honor	Certainty/Confusion
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible Recognizable Culturally supported

Source: Scott (2014)

2.2.3. The regulative pillar of institutions

The regulative system describes the objective part of the creation of institutions (Scott, 2014). Institutions are constraining and regularizing behavior, implicating the capacity to establish rules and inspect conformity to them. Through laws, rules and sanctions efforts are made to influence future behavior in order for a new institution to arise or to maintain an established one (Hoffman, 1997).

Sanctions, including either rewards or punishments, create a feeling of coercion (DiMaggio & Powell, 1983). Coercion can be enforced through formal mechanisms and specialized actors

such as the police and courts. It can also be imposed by informal mechanisms through shaming activities (Scott, 2014). When the majority of people in a society feel guilt or innocence related to regulative rules, an institution is in place (Voronov & Vince, 2012).

North (1990) stresses the fact that governments are a source of coercion. Hence, the political structure of a society is vital in order to achieve effective enforcement (North, 1990). Public sector actors are capable of providing or restricting parts of society with authority, which makes governments important actors in the process of creating an institution (Scott, 2014). Scott (2014) concludes the regulative pillar of institutions as a set of regulative rules – formal or informal – that are enforced by sanctions and feelings of guilt or innocence.

2.2.4. The normative pillar of institutions

Scott (2014) evolves the normative pillar of institutions around social obligations that evolve from norms and values. Norms outline legitimate ways to reach valued ends. Values define those valued ends. They consist of the construction of standards together with conceptions of the desired or the favored, which can be related and evaluated to existing structures or behaviors (Rokleach, 1973).

Norms and values are the reason why the normative pillar is able to create the feeling of shame or honor in individuals (Scott, 2014). The feeling of shame imposes constraints on social behavior whereas the feeling of honor is an enabler of social action (Hughes, 1936).
This phenomenon makes the normative pillar a powerful element in the creation and maintenance of institutions (Scott, 2014), since institutions are regarded to have strong moral roots (Stinchcombe, 1997; Heclo, 2008).

Because of the moral roots that are embodied in institutions, individuals and especially public sector actors are reluctant to change because their current behavior is in line with accurate values and norms (March & Olsen, 1989). According to Scott (2014) the normative pillar can be summarized through the appropriateness of certain behavior. This means that individuals decide upon appropriate behavior after having assessed the current situation and their role in it.

2.2.5. The cultural-cognitive pillar of institutions

The cultural-cognitive pillar is partly linked to the normative pillar (March & Olsen, 1989; Scott, 2014). The behavior that norms and values dictate is given meaning by cultural-cognitive elements. Scott (2014) defines the cultural-cognitive process as internal interpretation of social reality that is shaped by external cultural frameworks. He is using Hofstede's (1991) definition of culture being patterns of thinking, feeling, and acting within a given group or situation.

The cultural-cognitive pillar of institutions is regarded as the most complex of pillars due to its dependence on human meaning making (Berger & Luckmann, 1967; DiMaggio, 1997; Hoffman, 1997). Each individual perceives social reality and cultural beliefs differently. Humans exposed to the same situation can perceive it entirely different (Scott, 2014). Nevertheless, a constitutive schema evolves from shared experiences and shared understandings resulting in taken-for-granted habits of behaving (Scott, 2014). According to DiMaggio (1997) and Scott (2014), taken-for-grantedness is a strong sign of institutions.

Actors – both individuals and organizations – complying with taken-for-granted behavior feel confident and certain, whereas actors who do not align with predominant cultural beliefs are feeling confused and isolated (Scott, 2014). Therefore, the concept of isomorphism is a fundamental part of the cultural-cognitive pillar of institutions (DiMaggio & Powell, 1983; Scott, 2014). Isomorphism is the similarity of processes or structures of one actor compared to those of another, due to imitation or independent development (DiMaggio & Powell, 1983). Jepperson & Swidler (1994) describe the complexity of cultural systems. Shared beliefs and understandings result in favored economic and political systems at national and transnational levels. Those levels can be described as broad cultural frameworks that influence and shape individual beliefs. Moreover they can also be subject to penetration of individual beliefs that can change widespread cultural belief systems, and hence institutions (Jepperson & Swidler, 1994).

2.3. THE PROCESS OF CHANGE

Since the institutionalization of cycling would require a change of how governments address decisions concerning matters of transport (Koglin, 2013), it is important to be familiar with

the most prevailing theories of change management. Therefore a short overview of the characteristics of change is provided in this section.

2.3.1. Change

The complexity of the concept of change has contributed to the wide scope of literature on change management, resulting in no universal theory of change (Iles & Sutherland, 2001; Sveningsson & Sörgärde, 2013). Management scholars have borrowed many concepts and theories from various other disciplines, institutional theory among others, in order to understand how organizations change (Van de Ven & Poole, 1995).

An institutional approach on change is concerned with bounded rationality in relation to decision-making (Brunsson, 1982). Brunsson (2002) found that decision and action are two separated elements in a change process. When leaders in an organization – public or private – make a decision it is no guarantee that the workforce will implement the idea because of prevailing or absent institutions that prevent them (Brunsson, 2002).

Common for most change processes is that they encompass not primarily technical aspects but rather humans and human behavior (Iles & Sutherland, 2001; Lagerstedt, 2011). Sveningsson & Sörgärde (2013) highlight the paradox that the number of change efforts increases even though more than seventy-five percent of all change efforts fail in relation to their objectives.

A generally accepted approach to this is that resistance comes from individuals as a reaction to change and failure of leaders to correctly address this reaction (Kotter & Schlesinger, 2008). In order to efficiently manage change, several elements of change need to be understood. The next paragraph offers a review of those elements.

2.3.2. Important elements affecting change

A change situation implies a choice between the status quo or level of reference, and another option. Tversky & Kahneman (1991) have found that when it comes to choices, the response to losses is more extreme than the response to gains. This is based on the fact that a vast ma-

jority of humans is risk-averse, since every choice involves some kind of risk taking (Kahneman & Lovallo, 1993).

Risk aversion means that humans have stronger feelings for what they possess[6] than what they could get when making a choice, hence taking a risk. Risk aversion consequently decreases the likelihood of taking risks. Since humans are loss averse and risk averse, it is only natural that they are reluctant to change (Kahneman & Lovallo, 1993).

The certainty effect is often associated with loss aversion and change management. According to Tversky & Kahneman (1981) the certainty effect describes the human tendency to experience the loss of certainty stronger than a reduced probability. Therefore, choices involving gains are usually risk-averse, whereas choices involving losses are more risk seeking (Tversky & Kahneman, 1981).

Change is to a large extent based on path dependency (Shapiro & Summers, 2015). Arthur (1989) coined the notion of path dependency. It implies that choices on the change of the status quo are not only influenced by the current state but also by past decisions on previous status quo. Path dependency can be favorable for change but is more likely to restrict it. Especially in public organizations, path dependency limits the capacity to achieve optimal results (Shapiro & Summers, 2015).

Dierickx & Cool (1989) mention time compression diseconomies as a factor hampering imitability, and in a broader sense change. An actor – public or private – that tries to imitate another actor will experience a delay in the outcome of the imitation. Logically because the actor that changed first has a lead over the actor that is imitating (Dierickx & Cool, 1989).

Consequently, loss aversion, risk aversion, and the certainty effect as well as path dependency and time compression diseconomies are important factors to consider when studying change.

[6] A possession in this case could be both an object and a subjective emotion (Kahneman & Lovallo, 1993).

2.3.3. The process of change

Iles & Sutherland (2001) reviewed existing research on change and found no cohesive framework on how to best manage the process of change. John Kotter (1996) has developed the most cited framework on change consisting of eight steps. Table 2 offers a brief overview on the framework but still contains the essential parts of it.

Table 2 Kotter's 8 steps of change management

	Clarification
(1) Establish a sense of urgency about the need to achieve change	People will not change if they cannot see the need to do so.
(2) Create a guiding coalition	Assemble a group with power, energy and influence in the organization to lead the change.
(3) Develop a vision and strategy	Create a vision of what the change is about, tell people why the change is needed and how it will be achieved.
(4) Communicate the change vision	Tell people, in every possible way and at every opportunity, about the why, what and how of the changes.
(5) Empower broad-based action	Involve people in the change effort, get people to think about the changes and how to achieve them rather than thinking about why they do not like the changes and how to stop them.
(6) Generate short-term wins	Seeing the changes happening and working and recognizing the work being done by people towards achieving the change is critical.
(7) Consolidate gains and produce more change	Create momentum for change by building on successes in the change, invigorate people through the changes, and develop people as change agents.
(8) Anchor new approaches in the corporate culture	This is critical to long-term success and institutionalizing the changes. Failure to do so may mean that changes achieved through hard work and effort slip away with people's tendency to revert to the old and comfortable ways of doing things.

Source: Appelbaum et al. (2012)

Due to its direct and usable format, Kotter's (1996) framework is frequently used in change situations (Appelbaum, Habashy, Malo & Shafiq, 2012). Current research is contesting his framework's applicability for the public sector (Fernandez & Rainey, 2006; Karp & Helgø, 2008; Burnes, 2009). Governments are likely to be more resistant to change than private organizations (Burnes, 2009). Therefore, they need their own framework for change processes (Karp & Helgø, 2008).

Fernandez & Rainey (2006) provide a framework, which suits this purpose. Their framework is inspired by Kotter (1996) and contains 8 steps as well. Although the framework of public

sector change is relatively new, it is seen as an established concept in the field of change management by now (Karp & Helgø, 2008; Kuipers et al., 2014; Van der Voet et al., 2015). Consider table 3 for a brief but dense summary of Fernandez & Rainey's (2006) framework.

Table 3 Fernandez & Rainey's 8 steps of change management in the public sector

	Clarification
(1) Ensure the need	Leaders must verify and persuasively communicate the need for change.
(2) Provide a plan	Leaders must develop a course of action or strategy for implementing change.
(3) Build internal support	Leaders must build internal support for change and reduce resistance to it through widespread participation in the change process and other means.
(4) Ensure top management support and commitment	An individual or group within the organization should champion the cause for change.
(5) Build external support	Leaders must develop support from political overseers and key external stakeholders.
(6) Provide resources	Successful change usually requires sufficient resources to support the process.
(7) Institutionalize change	Leaders and employees must effectively institutionalize and embed changes.
(8) Pursue comprehensive change	Leaders must develop an integrative, comprehensive approach to change that achieves subsystem congruence.

Source: Fernandez & Rainey (2006)

There are no formal studies that cover the entire scope and structure of neither Kotter (1996) nor Fernandez & Rainey's (2006) frameworks (Kuipers et al., 2014; Appelbaum et al., 2012). Hence, they are frequently used and referred to but little is known empirically about the models as a whole (Appelbaum et al., 2012).

2.4. PRELIMINARY THEORETICAL FRAMEWORK

The preliminary theoretical framework is based on the theoretical review above, and will continuously provide a foundation for this study. It is connecting Scott's (2014) three pillars of institutions to known cycling literature in order to identify current efforts made to normalize cycling. Testing this framework empirically will help identify mechanisms necessary to institutionalize cycling as an established mode of transportation in the society.

The assumption of cycling not being institutionalized, and hence the need for this framework, is based on the low levels of cycling in industrialized countries. Subsequently, examining additional potential mechanisms beyond the presented theories are warranted in order to increase the understanding of the creation of cycling as an institution.

The placement of the presented factors within the pillars in the preliminary theoretical framework is based on the Scott's (2014) explanation of the implication of each pillar. The order of the factors within each pillar does not constitute any form of ranking. Exclusively the most significant and relevant factors, which were identified in known cycling literature, were taken into consideration. The process of change is essential for the outcome of this study. The dynamics of the preliminary theoretical framework are therefore viewed upon through the change process dimensions mentioned in section 2.3, which are not included in the framework graphically.

The potential interrelation of some factors was considered, and in cases of doubt the most predominant feature of the factor was chosen in order to assign it a column. The relevance of each factor's attributes is presented in the section following the preliminary theoretical framework. The preliminary theoretical framework is presented in Table 2 below.

Table 4 Theoretical framework

Three pillars of institutions		
Regulative	*Normative*	*Cultural-cognitive*
• Restrict cars (Pucher & Buehler, 2012; Insall, 2013)	• Normalization through exposure (Smith et al., 2011)	• Increase knowledge about cycling (Bauman et al., 2008)
• Protect cyclists (Pucher, et al., 2011)	• Safety by numbers (Jacobsen, 2003)	• Change image of cyclists (Daley et al., 2007)
• Adapt infrastructure to cyclists (Bauman et al., 2008)	• Change safety perception (Bauman et al., 2008; Buehler & Pucher, 2012; Sanders, 2013)	• Change attitudes towards cycling (Scott & Span, 2009; Pucher & Buehler, 2012)
		• End urban space wars (Koglin, 2013)

2.4.1. Factors affecting the regulative pillar of institutionalizing cycling

The factors placed in the regulative pillar, are the ones based on regulative rules such as laws, and sanctions (Hoffman, 1997; Scott, 2014). Known cycling literature points out the restriction of cars, protection of cyclists, and adaption of infrastructure to cycling, as prerequisites for people to start riding (Bauman et al., 2008; Pucher et al., 2011; Pucher & Buehler, 2012; Insall, 2013; Koglin, 2013). In order for those factors to have a high impact, they need to be coercive. Cars need to be restricted, and cyclists enabled through legislation. Cycling infrastructure needs to be integrated in legislation on transport planning. If these three factors

are legislated, they will together with the normative, and cultural-cognitive elements favor the institutionalization of cycling.

2.4.2. Factors affecting the normative pillar of institutionalizing cycling

The normative pillar has its basis of compliance in social obligation, meaning that the factors placed in the normative pillar justify a certain behavior among humans (March & Olsen, 1989; Scott, 2014). Normalization through exposure, safety by numbers, and safety perceptions are concepts that represent underlying reasons for current deterrence of cycling (Smith et al., 2011; Buehler & Pucher, 2012; Jacobsen, 2013; Sanders, 2013). People do not cycle because they do not see others using cycling as a mode of transport and perceive it to be dangerous. If more people start to cycle, those three factors will contribute to the institutionalization of cycling as a transportation mode.

The car is the predominant mode of transport right now. People need to learn that it is their social obligation in order to sustain the planet, to get out of the car and look for alternative modes of transport. Hence, present car-centric behavior needs to change, too, in order to institutionalize cycling.

2.4.3. Factors affecting the cultural-cognitive pillar of institutionalizing cycling

Factors placed into the cultural-cognitive pillar are the ones that are based on taken-for-grantedness and a shared understanding of humans (Berger & Luckmann, 1967; Scott, 2014). Currently, people perceive cyclists as either extremely sportive or extremely negative subjects (Daley et al., 2007; Daley & Rissel, 2011). The image of cyclists, and the attitudes towards cycling need to change in order to institutionalize cycling, in order for isomorphism to happen. People need to be able to identify themselves as cyclists, and get a shared positive understanding of it. Much of the negative cycling perception is based on lack of knowledge and faulty presumptions (Bauman et al., 2008). Hence, knowledge on cycling needs to be increased, and correction of current presumptions needs to be done (Bauman et al., 2008). Since the factors in all three pillars affect each other, it is of utter importance not to change each pillar for itself, but the framework as a whole.

2.4.4. Contribution of the preliminary theoretical framework

The preliminary theoretical framework proposes a theoretical answer to the purpose of this study; to institutionalize cycling as a mode of transport, in order for cities to become more sustainable. By taking the relevant factors in each pillar into consideration, decision makers and practitioners in cities will gain valuable knowledge on how regulative, normative, and cultural-cognitive elements can hamper or support institutionalization of cycling. This knowledge, and the framework as a whole, will facilitate the process of institutionalization of cycling as a mode of transport in cities attempting to be more sustainable.

3. METHOD

This chapter provides an overview of the methodology used in this study. Beginning with a presentation of the chosen research approach and design of the study. Proceeding with selection of case cities and respondents. Continuing with an outline of the evidence collection and presentation of empirical findings and method for analysis. The quality of the research is evaluated in a reliability and validity section.

3.1. RESEARCH APPROACH

This research is conducted through a qualitative methodology, with the aim to get a deeper insight, and comprehensive understanding of how cycling is institutionalized. The method is descriptive with the aim to create a framework for the institutionalization of cycling. It is subjective, and not based on an absolute truth. It takes a more holistic approach where trying to understand context, meaning and process is of great importance (Bryman & Bell, 2011).

Another recognized research method commonly used is the quantitative, aiming to analyze measurable phenomena through numerical data where there is an objective truth (Bryman & Bell, 2011). The prominent distinction between these two different research approaches can be simplified as follows. The quantitative method tries to explain a phenomenon, compared with the qualitative method, which tries to understand this phenomenon.

Both of these theories have been criticized. Scholars argue that the quantitative method is incapable of doing a reality-based analysis based on solely measuring variables (Lapiere, 1934). Thus, quantitative methodologies only show a static image of reality not grasping the complexity of social phenomenon (Bryman & Bell, 2011). Critics of qualitative methodology, argue that the researcher's subjective perception contributes to empirical studies becoming biased. Additionally, it also creates difficulties in recreating the empirical data collection, due to the researcher's subjective perception mentioned above (Bryman & Bell, 2011).

The strength of qualitative research is that it has a more interpretive and descriptive character, which helps to understand the complexity of institutionalization of cycling. With this in consideration, a qualitative research method is more suitable for the purpose of this study (Bryman & Bell, 2011).

3.1.1. Two methods of reasoning

This study has characteristics relating to both deductive and inductive reasoning. Inductive reasoning is based on specific empirical observations through which generalizations, and conclusions are made. It is usually applied within qualitative research. The deductive reasoning tests theoretical hypotheses and is commonly applied within quantitative research. A simplification is that the inductive reasoning creates generalizations from specific observations, whereas the deductive approach is to go from the general theory to the specific observation (Bryman & Bell, 2011).

Since there is little research available in the field of this study, the research uses a fraction of the deductive method through a presentation of existing theoretical research. A predominantly inductive approach is then used, generating conclusions from existing empirical research as well as from empirical findings. The preliminary theoretical framework is based on the existing theoretical and empirical research. The preliminary theoretical framework is compared to the observations, and subsequently modified through Yin's (1994) pattern matching in order to present the revised framework with its implications.

3.1.2. Research design

Research design aims to provide guidelines for operationalization of the study. The complexity and multi-aspect nature of this study is appropriate to examine through a case study design. Case study is an empirical examination providing detailed analysis of a specified unit of analysis (Bryman & Bell, 2011). Yin (1994) continues by stating that case study is an appropriate research design when the research subject is not well explored. The criticism of case studies should be considered due to the difficulty to generalize beyond the specific context, which is studied. Since there is not much research about the institutionalization of cycling, and the complexity of the subject, a case study is considered to be the most applicable research design.

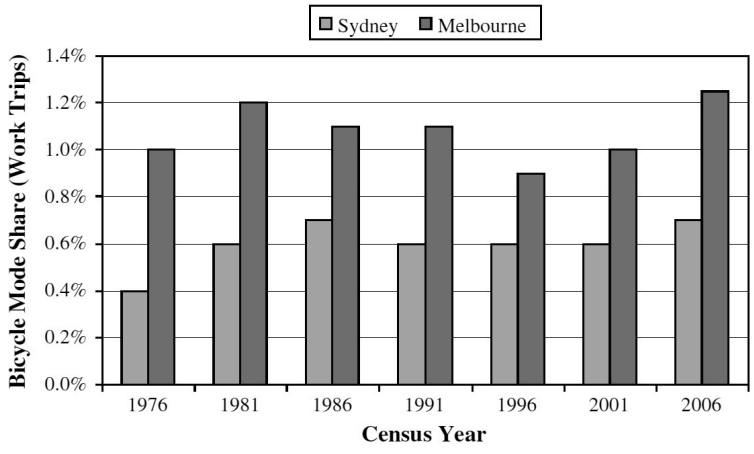
This research aspires to understand the phenomenon of institutionalization and how it is applicable on cycling in a city context. Hence, cities function as a unit of analysis in this case study. Using two cities, hence units of analysis, provides deeper insight of the phenomenon and helps to clarify the complexity. Studying two cities from the same country provides the study with more cohesive cultural context. When including a second case, it allows for comparisons and special characteristics may be identified more clearly (Bryman, 1995). Continuously, choosing two cities from a country with low cycling levels give the study more room for comparisons. Barriers of a country with premature cycling patterns are probably clearer and contribute to a more accurate framework. Studying a country where cycling is already a part of the urban mobility culture will not gain the same value for the research in question, as it would already be institutionalized to some level, hence harder to detect the barriers.

3.1.3. Selection of case cities

Australia has one of the lowest cycling ratios in the world constituting only one percent of all transport modes (Pucher & Buehler, 2012), see figure 1 above, and is therefore a suitable country to study. Australia has a population of 23 million and is also known for its high level of urbanization (Australian Bureau of Statistics, 2010). The government in Australia is trying to promote cycling, and has issued *The Australian National Cycling Strategy 2011-2016*. The national strategy aims to double the total level of cycling within the country by 2016. (Austroads, 2010).

Necessity to change urban mobility patterns is especially evident in mega-cities, with a high population and ratios of motorized transport. Studying two cities that are similar in population and region gives the cultural context more depth. The cities chosen for the case study are Sydney and Melbourne, two of Australia's largest cities located in the Southeast of the country. There is however a great difference in cycling levels between these two cities, despite their shared similarities. Cycling levels are almost twice as high in Melbourne compared to Sydney, as seen in figure 2 below (Pucher et al., 2011).

Figure 2. Bicycle mode share (work trips)



Source: Pucher et al., 2011

Additionally, the purpose of trips varies among the residents of the case cities. Cyclists in Sydney show tendencies to cycle for recreational purposes, whereas people in Melbourne cycle as a form of commute, see the table 5 below.

Table 5. Purpose of cycling

	Melbourne (%)	Sydney (%)
Commuting	24	19
Social/recreation	27	53
Education	15	8
Shopping	10	9
Drop-off	5	1
Other	18	10

Note: The surveys are conducted every day of the year – the 'average day' is the average of travel conducted over all 365 days (weekdays, weekends, holidays).

Sournce: Pucher et al., (2011)

Similarities can be detected in the characteristics of the two cities. Both of them share the same temperate climate, similar GDP per-capita, number of inhabitants and the same political and economical system (Pucher et al., 2011). The cities are both constituted by several local councils: Sydney has 42 and Melbourne has 31 councils. Both of the cities have policies and strategies issued from both a state and city level in order to encourage cycling, see table 6 below.

Table 6. Policies in Sydney and Melbourne

City	Sydney	Melbourne
State issued policy	• Sydney Cycling Future (State of New South Wales through Transport for NSW, 2013) • Cycling Safety Action Plan 2014-2016 (Transport for NSW, 2014)	• Cycling in to the future 2013-2023 (Victorian Government, 2012) • Victorian Cycle Action Plan 2013 & 2014 (State of Victoria, 2012)
City issued policy	• City of Sydney Cycling Strategy and Action plan 2007-2017 (City of Sydney, 2014) • Enabling Cycling Strategy (City of Sydney, 2010).	• The bicycle plan 2012-2016 (The City of Melbourne, 2012)

Sydney and Melbourne have two main differentiating features; the layout of the street in the central business district differs and the topography. Sydney has no structured street system and very few one-way streets, whereas Melbourne has a grid system enabling one-way streets. The topography in Sydney is also somewhat hillier in comparison to Melbourne's more flat terrain (Pucher et al., 2011).

3.1.4. Respondent selection

This study uses semi-structured interviews to gain valuable insights that can contribute to the theoretical framework. Respondents are selected through a non-probability sampling, meaning that they are purposely selected. A snowball sampling technique has been used. This method intends to select respondents with a certain characteristic, such as knowledge about or experience of the research subject (Bryman & Bell, 2011).

First, a small group of participants relevant to the study was contacted by email. After initial email contact, they suggested further participants for the study, which were contacted. The respondents were selected for their insights and knowledge of cycling in Sydney respectively Melbourne. The selection resulted in politicians, cycling advocates, transport planners, policy makers, and government officials. Respondents from various occupations and hierarchical belongings are represented in order to distinguish any variances between them and contribute with different perspectives. Furthermore it provides a broader empirical foundation for the research since all the interviewees have encountered the phenomenon in different ways (Yin, 2011).

A wide-ranging study, such as the one conducted in this report, requires multiple respondents in order to achieve a richer analysis (Bryman, 2012). Determining the size of the sample can be challenging. Too few respondents constrain diversity in information provided, whereas too many participants can lead to information saturation (Bryman & Bell, 2011).

In total, 24 interviewees were selected representing both cities. Consider Appendix 1 for further information about the respondents. The number of respondents was regarded as sufficient in order to provide enough diversity as well as context for generalization. The overall reaction to the study was positive, and initial participants gladly referred us further. Case studies sometimes suffer the access problem, where it's hard for researches to get accessibility into some organizations (Bryman, 1995). Despite the predominantly positive response, there was a disparity between Sydney and Melbourne. No elected politicians were willing to participate in the study in the city of Sydney. This was considered to be a sign of how minor cycling is regarded from a political level in Sydney. The number of respondents was however identified as sufficient and generated prominent insight.

3.2. EVIDENCE COLLECTION

Multiple sources of evidence were used in this study. Using multiple sources of evidence is concurring with the case study methodology according to Yin (1994). Combining different sources helps the researchers to disclose findings and to increase the validity of the research (Yin, 2011). The collected data consisted of both primary and secondary data analysis. The primary data collection was conducted through interviews and a field study.

Secondary data, such as brochures and handouts with relevance to the study were obtained from various responders. When assessing secondary data it is important to stay objective and attentive to the sources credibility, authenticity and representativeness (Bryman & Bell, 2011)

3.2.1. Semi-structured interviews

The primary data was collected through semi-structured interviews, and serves as a foundation for the empirical findings. Semi-structured interviews are performed in order to identify and obtain insights of the studied phenomenon (Bryman & Bell, 2011). The flexibility of qualitative semi-structured interviews, in contrast to a completely structured interview, creates opportunity to steer the interview, while the respondents can answer questions to their own satisfaction. Respondents are also enabled to bring up new ideas that are in connection with the study, hence broadening the scope of it (Bryman & Bell, 2011).

Despite being fairly flexible, it was important to design an interview guide in order to keep the focus, see Appendix 2. Further on, it was vital for the interviewer to be active in order to capture important aspects in the answers. The tasks during the interview were divided in order to avoid confusion for the respondents. One interviewer was persistently in charge of asking the questions in order to establish a relationship of trust (Yin, 1994) The other one took notes of important statements and was also able to insert questions. Both of the interviewers had previous experience of conducting similar interviews.

3.2.2. Pilot case study

A pilot case study was conducted before the data collection as preparation. The pilot case was important in order to help refining the interview guide, and to provide additional information of the field. The interviewers were also able to test their assigned tasks and to practice before the actual case study (Yin, 1994).

The pilot case study was conducted with Till Koglin, a postdoctoral scholar at the Faculty of Engineering, Department of Technology and Society, Transport and Roads at the University of Lund. The expertise of Koglin helped to get insight on both the matter in question but also on what questions that should be used during the actual study. Hence, a revision of the interview guide was performed afterwards.

3.2.3. Case interviews

The case interviews were conducted in places chosen by the respondents. The interview was hence conducted in an environment in which they felt comfortable. The interviewees were asked for permission to record them, which provided a more accurate rendition of the interviewing process (Yin, 1994). The majority of the interviews were conducted with one interview object at a time. However, in cases where the respondents had limited time frames they suggested a joint interview with other to them known respondents. This occurred three times during the data collection. Since they initiated the joint interviews themselves, it is presumed that they were comfortable in that environment. When conducting these interviews, it was particularly important to connect with each one of the participation and to focus on their responses.

All respondents were asked if there was anything they wanted to add in the end of each interview, in order for them to feel contented with their answers. There was a follow up in some cases when additional information was needed. When conducting interviews, it is important to be aware of the problem with interpretation, hence to be sure that the interpretation of the respondent's answer is fair (Yin, 1994). The data collection from the case interviews reached information saturation, the point where no more new information was entailed. In conclusion, the case study resulted in valuable data being collected.

Field study

In order to understand the cycling environment field studies were conducted in both Melbourne and Sydney. The authors cycled during daytime in the central business districts to get a richer understanding of the context. This field study resulted in a deeper insight of how it is to be a cyclist in the two cities.

3.2.4. Method for presenting empirical findings

The purpose of empirical data is to obtain information of those interviewed with the intent to interpret their meaning (Bryman & Bell, 2011). The collected data was therefore transcribed in order to take full advantage of all the information and to capture essential insights. Transcription was conducted after every interview and noteworthy parts were underlined. Such parts could later be revisited in the following interviews if a second opinion was needed.

The transcriptions were printed out, and a simple coding scheme structured around the three pillars of institutions was used to organize relevant empirical findings. Bryman & Bell (2011) reason that organizing the collected empirical data concurring to theoretical themes enables latter analysis.

3.2.5. Method of analysis

When the collected findings were structured according to the three pillars of institutions in the preliminary theoretical framework, new elements were detected through pattern matching. Yin (1994) explains pattern matching as comparison of the predicted patterns with the empirically based patterns. Hence, matching an expected pattern with the actual observed pattern. Analyzing the empirical findings through this method resulted in new discoveries, as well as alignment of empirical outcome and theory. Some of the detected patterns are trans-boundary and influence each other, which makes classification into the three pillars challenging. Nevertheless, identification of the underlying phenomena that lead to the institutionalization of cycling is the essential contribution of this study.

The researchers need to be conscious when analyzing the empirical findings, that their awareness of the preliminary theoretical framework can influence the outcome (Yin, 1994). This was taken into consideration, and newfound patterns resulted in the revision of the preliminary framework in order to answer how cycling could be institutionalized.

3.3. RELIABILITY AND VALIDITY

When evaluating the quality of a scientific study, factors such as reliability and validity are often applied. They are associated to the accuracy of the collected data and results. Bryman & Bell (2011) describe reliability as the repeatability of findings. Referring to if the same discoveries would be generated if the study were repeated at another time. Validity emphasizes measurement, whether the obtained results meet the standard of the research method in question. The significance of reliability and validity in qualitative studies is however questioned by several researchers, since it is hard to reenact the same context-specific environment that the study was conducted in (Guba, 1985; Lincoln, 1985; Shenton, 2004). Additionally, qualitative research does not emphasize measurement, which questions the necessity of validity (Bryman and Bell, 2011).

Golafshani (2003) stresses the importance of ensuring trustworthiness in qualitative research despite the difficulties mentioned above. Instead, an alternative method is introduced by Guba (Shenton, 2004) to ensure the needs of qualitative research. Guba proposes four criteria to address this matter: Credibility, transferability, dependability and conformability (Bryman & Bell, 2011; Shenton, 2004; Golafshani, 2003). These four criteria's are applied when evaluating the quality of the research.

Credibility entails if the findings are in alignment with the reality and if the study gives an accurate account of the respondent's perspectives, resembling the internal validity of a study (Bryman & Bell, 2011; Shenton, 2004). The semi-structured interviews enabled follow up questions when additional information was needed in order to ensure the accuracy of the study. In cases where any uncertainty occurred, clarifying was made on later occasions through emails. The respondents were also given the opportunity to add anything at the end of each conducted interview in order for them to feel satisfied with their answers and to increase the credibility of the study (Bryman & Bell, 2011)

Transferability aims to se if the findings can hold in a different context or in the same context but during a different time (Bryman & Bell, 2011; Shenton, 2004). This study has somewhat limited transferability since it examines institutionalizing of cycling. Replicating this study in the same context but during a different time would not necessarily result in the same findings since time is a factor due to the institutionalization aspect. The study is somewhat context specific as it has Sydney and Melbourne as case cities, but it could be applied in similar settings. Especially in countries, which share similarities with Australia. Transferability also requires detailed data in order to provide others with the setting to review the transferability for themselves, which this study has provided (Guba, 1985; Lincoln, 1985).

Dependability entails for a reliable auditing of the different phases in the research, such as the selection of the respondents, transcribing the interviews and presenting the method analysis (Bryman & Bell, 2011; Shenton, 2004). The study has tried to provide an accurate account of the different stages of the research, through transcripts and detailed outline of all the phases in order to help validate the findings.

Conformability is the effort to try to stay objective without letting any personal opinions interfere with the research. Having two authors minimized the risk for any subjective inclinations in this study. The researchers had in addition no previous association with neither the case

cities, nor the respondents, which strengthens the conformability of this research (Bryman & Bell, 2011; Shenton, 2004).

4. EMPIRICAL FINDINGS

The chapter on empirical findings provides the disclosure of the barriers which efforts to institutionalize cycling in Sydney, and Melbourne face. It begins with a short overview of the structure of the political and transport system in Australia, before continuing to the review of the empirical findings. To facilitate the overview and latter analysis, the information obtained from the interviews is organized in the three pillars of institutions.

4.1. BACKGROUND

In order to understand the underlying factors of the empirical findings, it is important to know that the Australian political system is divided into three tiers: federal government, state government and local councils. Power is divided between the federal government and the individual states. The local councils are functioning within the state government, thus their responsibilities can differ between states (Australian government, 2015). This structure is also applied on transport matters.

There are government-run state road authorities that are responsible for maintenance and construction of the state arterial road network, as well as driver licensing and vehicle registration. Transport for New South Wales (TfNSW) is responsible for the arterial roads that go through Sydney. VicRoads is the name of the state road authority in Victoria that is responsible for Melbourne. The local councils manage the local streets. But the city of Sydney is too important for the whole state, which is why national authorities are responsible for the city (Pucher & Buehler, 2012).

4.2. REGULATIVE ELEMENTS IN THE INSTITUTIONALIZATION OF CYCLING

It will not be possible to institutionalize cycling through the change of normative and cultural-cognitive elements alone. The proponents of cycling consent that there needs to be legislation, and a level of enforcement in order to achieve institutionalization. In particular they point out six regulative obstacles that need to be overcome; legislation favoring motorized vehicles,

laws deterring cycling, funding, accountability, lack of leadership, and reluctance to change legislation.

4.2.1. Legislation favoring motorized vehicles

There are nation-wide differences in how to approach policies in Australia. In the city of Yarra, the most progressive cycling council in Australia, cars are restricted through the existence of one-way streets, the removal of car parking, and lowering the speed limits on local streets. This underscores their pro-cycling policies, and contributes to the highest cycling participation ratio in Australia with 40 percent of the population cycling within the council. Rissel elaborates on that:

> You can encourage people all you want but you have to take away something to make the shift substantial. It is about carrots and sticks. Sticks, such as taking away car parking, making it more expensive or restrictive. Without the big sticks the change doesn't happen. You have a minor small shift with encouragement and behavior change but the really big shifts come with restriction.
>
> (Chris Rissel, interview, 2015-04-21)

Progressive councils are having a hard time convincing conservative councils to change when it comes to restriction of cars. It is hard for them to get political hearing when trying to restrict motorized vehicles. The city of Yarra has given propositions of improvements to the federal, the state and other local governments, but they receive no response. For instance, Yarra tried to change the legislation that buildings only are obliged to provide bike parking if they have more than four stories high; without success.

The car parking legislation is also problematic. Developers need to apply for permission when intending not to include car parking in a project, and not the opposite. The current legislation is favoring motorized vehicles. A car driver will not be fined when parking on a bicycle lane, or driving on it. A cyclist would however be fined when intruding on car space.

Australia has no predominant car industry. In order to attract multinational car manufacturers, the government is heavily subsidizing their presence in the country. This enables car

ownership, 50 percent of households in Australia own two cars or more. Fuel tax partly finances construction, and maintenance of roads. The money generated from the fuel tax, does not cover the whole demand of the roads construction- and maintenance wise. Therefore it is largely government subsidized.

Some of the respondents see the need for increasing costs of car ownership. One of the suggestions was to introduce a congestion tax, following the example of London. Additionally, increasing the fuel tax, and decreasing government subsidies were mentioned. All respondents agree on the need to restrict cars in order to enable cyclists.

4.2.2. Laws deterring cycling

Australia needs to improve encouragement of cycling through legislation. There is nothing in the law system saying that there is a need to protect the vulnerable people, such as pedestrians and cyclists. Cyclists are forced to protect themselves through the use of bells, fluoric safety wear and helmets, which transfer the responsibility of protection to them. The helmet law does more harm than good because it creates the perception that cycling is a dangerous activity.

The helmet law partly explains the absence of local trips. People need to be re-enabled to ride short commuting trips to the local store. For this to happen, the helmet law needs to be abolished. Vice is pointing out that through the helmet law, the government circumvents the actual problem: the lack of bicycle infrastructure.

This statement seems to be accurate because the only respondents promoting the helmet law were Councilor Foster, the four employees at the state roads authority VicRoads, and Brennan from Bicycle Network. The government employs Councilor Foster, and VicRoads, whereas Bicycle Network supports the government to a large extent in order to get funding. Hence, all of them are heavily involved with the government, which might be a reason for the support they give to the helmet law.

Cycling would benefit from laws not promoting fear, but instead enabling a safe road design. Stace points out the problematic with this:

> From a government perspective to change the road rules is long and repulsive. We need a fundamental restructure.
>
> (Sara Stace, interview, 2015-04-17)

In Australia, it is illegal to drive or park on bicycle lanes. Nevertheless, this law is usually not enforced, and has many exceptions. The most prominent one is that it is allowed to drive on a bicycle lane when it is not in operation. For cyclists, the opposite applies. They are only allowed to ride on the road when the cycle lane is blocked. Otherwise, fines apply.

This is however only the case when bicycle infrastructure is provided. Without bicycle infrastructure, they are allowed to ride on the road. Due to road design restrictions, there are certain streets where cycling is prohibited, and will be fined.

4.2.3. Funding

The lack of infrastructure for bicycles depends not only on the laws that deter people to ride, but also on the problematic of funding. The federal government has issued a national cycling strategy with the goal to double the number of cyclists in Australia between 2011 and 2016. The strategy comes without funding, and it is up to state and local authorities to implement it.

There are no sanctions, if the goal is not reached, which is giving the state road authorities and local councils little incentive to improve cycling infrastructure. Maidment verbalizes the opinion of all respondents:

> You can have all of the best plans and still there is no action because of funding.
>
> (Fleur Maidment, interview, 2015-04-07)

Although incentives are low, Australia needs the same level of priority everywhere. Because of the current lack of funding, some local councils are more daring to invest in cycling infrastructure than other local or state authorities. Some of them because they see the value of cycling infrastructure, others because they have the resources:

> The city of Yarra has pushed Melbourne to align infrastructure to cyclists. They have done great projects the recent years, but Yarra is the driving factor. There are a lot of gaps in the cycle infrastructure of Melbourne, which we would like to fill. The city of Melbourne has a lot of funding, Yarra hasn't.
>
> (Jackie Fristacky, interview, 2015-04-08)

The gaps that are pointed out are missing links where local roads cross state roads. The missing links are a problem in Australia. Even though lanes might disappear somewhere, they are better than nothing because eventually, when funding is obtainable, they can be connected and capacity on them increased.

4.2.4. Accountability

Kourlas from VicRoads thinks of the gaps from a collaboration angle. According to him VicRoads works with the councils, and not in isolation. But people do not really know what is whose thing to do. VicRoads needs to complement the work that is being done by the councils and fit it in their work, which sometimes is conflicting. Therefore, accountability is a problematic issue in the transport discussion.

> Who is ultimately responsible for the network as a whole? There are over 30 council areas in the Melbourne area. Some work great together; others don't. Unfortunately, support is lacking on the micro-level, such as for instance maintenance. Who pays and who is responsible?
>
> (Sasha Yardwood, interview, 2015-04-09)

Some of the councils in Sydney even have so called "no wheels" policy, which means that schools prohibit children to cycle to school because they do not want to get sued. Such anti-cycling laws could not be identified in the Melbourne council areas. Except for the respondents who support the helmet law, all interviewees are convinced that the law system in Australia is narrow-minded and conservative.

It is typical for Australia to have laws for everything. Nobody wants to get sued; hence nobody wants to be held accountable. Nevertheless, it lies in the human nature to need someone

who is ultimately responsible. Humans need someone to whom they can complain, or whom they trust:

> Ultimately, it's a political thing to institutionalize cycling, people will vote for what they believe in. Therefore, accountability is very important.
>
> (Geoff Lawler, interview, 2015-04-07)

The fact that cycling is politicized in Australia complicates the matter of accountability. Politicians are afraid of not being re-elected. They create a political reality that is based on what their voters want now. What voters want now is not always in line with what needs to be done. But when governments think something is good for the greater good, they seek for support from the public, other parties and governments.

In Australia cyclists are still so few, hence they constitute a small part of the public. Therefore it's not perceived to be good for the greater good to include them in legislation, or invest in them. People who ride are recreational riders or hide on the backstreets making it more hard to see them. The only ones seen on the roads are lycra-men[7].

> The biggest barrier is politics around this. Therefore we need to focus on the current riders, not the future riders because that is what the community and politicians see. Politicians want to be re-elected. Building a highway-lane for fast lycra-riders is basically wrong. But it's getting bicycling on the agenda.
>
> (Peter Burke, interview, 2015-04-09)

Brennan who operates for Bicycle Network in Melbourne, thinks that Melbourne is an exception. Cars don't get priority in the central business district (CBD) of Melbourne anymore, but it is a gradual change. Politicians still say that they will spend money on cars, but they from now on have to include for example bike lanes if they want build freeways.
In Sydney on the other hand, politicians are prioritizing car lanes before cycle lanes, and even pedestrians. There was a political discussion about decreasing the pedestrian lane on Market

[7] The notion of the lycra-man is explained in section 4.4.2.

Street, by half in order to free up space for the cars. Despite it being one of Sydney's busiest streets with 4,000 pedestrians passing it during lunch peak.

The Sydney-based respondents think that the politicians consider this drastic change in order to satisfy their voters – car drivers. There is a shared belief among the Sydney-based respondents that the inhabitants of Sydney are not aware of the current discussion. When councils want to change something, they issue political statements that are open for public consultation.

Such statements are often issued in connection to Christmas festivities, or during the summer holiday, when the average Australian shows low interest in such matters. Actors consulting those political statements are often those already involved in political discussions with something to gain or loose. Such known actors are cycling advocacy groups, motor vehicle lobby groups, and businesses.

4.2.5. Lack of leadership

All interviewees agree that the legal, financial, and political support is insufficient right now. With a Prime Minister and a federal government that are skeptical towards climate change[8], it is hard to assemble leaders who support cycling as a mode of transport. Stace is convinced that political support exists, at least when she was working at the federal government:

> Some of the very high level people are convinced that cycling is a great matter, but it takes a long time to twinkle down to those on the execution level. Governments are large organizations, which are like an ocean during storm. Leaders have many ideas, strategies and plans on the surface but the officers are kind of the bottom fish and don't care about the storm on the surface. They look up but continue to do as they do.
>
> (Sara Stace, interview, 2015-04-17)

[8] Further information on the Prime Minister's opinion on climate change and cycling follows in section 4.3.4.

Simultaneously, she felt restricted in what she was allowed to write in the federal government policy on active transport. The policy went through several major filters, and Stace had to delete parts she had written on restricting car parking before the Transport Minister signed it off. For more information see section 4.4.5. Although presented with the numbers, politicians and legislators do not seem to understand the value of how cycling can increase the quality of life in their cities.

> It is lack of leadership that has the courage to institutionalize cycling. The resistance to change is always there. If people are presented the result they don't complain anymore. Evidence doesn't seem to play a role in advance. There is a lot of political resistance in Sydney; the conversation here isn't about evidence it's more about that people don't want to convert.
>
> (David Borella, interview, 2015-04-14)

To push the change, politicians need to be bold. The Lord Mayor of Sydney, Clover Moore, is one of the few brave leaders in the effort to institutionalize cycling. In 2004, she provided written support for all parties supporting cycling. The other parties, and the media use cycling to attack her. They polarize the debate into nasty politics. Moore is willing to accept the criticism; she ignores it. Another controversial leader is Councilor Jackie Fristacky from the city of Yarra, located in Melbourne. The proponents of cycling admire those two women, and hope for more leadership like theirs.

The city of Yarra is known as the most progressive council of Australia. Councilor Fistacky works with the notion that it is better to ask for forgiveness than for permission. One example of such boldness is that some of the city council employees painted bicycle lanes themselves without permission from the state road authority. Stretching of the law in order to put bicycle infrastructure in place have resulted in the positive evolution of commuter cyclists in Yarra; 40 per cent of the people in Yarra cycle, and it is improving incrementally.

> People worry a lot and are outrageous but as soon as they see the result they get it.
>
> (Fiona Campbell, interview, 2015-04-15)

4.2.6. Reluctance to change legislation

It is a long and complicated process to change legislation, and even if legislation will change eventually, people get used to tolls and other restrictive measures eventually. John supposes another way of approaching the current unsustainable transport patterns: Governments should ban private vehicles from the city center. One can never prohibit cars in the city but they need a purpose.

There is a need to clear the current infrastructure, and make public transport more efficient. All private use of cars should be prohibited in the CBD. Only public transport, delivery cars and taxis should be allowed there. John is not the only one supporting this notion about future cities. Respondents in both cities share his view on how a sustainable city center transport system should look like.

The biggest argument against the suggestion above is that the current legislation has formed a culture, and norms that encourage people to drive to work. Therefore, people drive to work. If they were presented with a private car-free CBD that provided them with alternative modes of transport, they would have to use it. The big question here is, who has to change first? This can be seen as a chicken-and-egg problematic.

The driver of change should be government but they aren't. Governments are large consensus organizations, and slow bureaucratic processes hamper efficient decision-making. Nevertheless, the proponents of cycling are hopeful. As long as they exist they can continue to try and influence governments:

> Advocacy is about change being possible to be made. My job as advocate is to make cycling not worth mentioning. The summer of cycling will come eventually.
>
> (David Borella, interview, 2015-04-14)

4.3. NORMATIVE ELEMENTS IN THE INSTITUTIONALIZATION OF CYCLING

The cultural-cognitive, and regulative elements that are in place largely influence the norms that Australians have institutionalized, and vice versa. Current normative elements justify pro-car but more essentially anti-cycling behavior. The proponents of cycling have identified six normative obstacles that need to be overcome in order to institutionalize cycling. They are: car-centric transport planning, public transport, media perception, politics and business, disorganized lobbying, and reluctance to change behavior.

4.3.1. Car-centric transport planning

From the 1950's onwards Melbourne was built out through car-based planning. Sydney has experienced the same evolution of land use. Both Sydney and Melbourne are huge cities, and the suburbs go on forever and ever. In both cities, the current urban design tells people to drive. For instance, Chadstone, the Southern Hemisphere's largest shopping center, is located in Melbourne. It provides 9,300 free car parking spaces, but neither efficient public transport nor safe cycling or walking connections.

Car throughput is prioritized at the expense of bicycles and cyclists. Managing road space allocation has proven to be difficult, as the cities get bigger and busier. The problems of congestion and parking are worst in the city, which is where things have to change first. Australia has made the mistake to solve congestion with building more roads, which is irrational.

Congestion is a self-fulfilling prophecy. The more cars are on the roads, the wider roads are built, but as roads get wider, more cars will ride on them, and so on. The current federal Minister for Infrastructure and Regional Development, Warren Truss, is pro-car and approves construction of new roads on a regular basis, even though presented with the evidence of re-occurring congestion.

The pressure on streets is mounting, and the states and councils have limited money to spend. To assure efficient spending of government money, TfNSW uses a strategy called City Center Access Strategy in Sydney. It aims at handling the problem that all roads cannot be accessible for all people all the time the whole time. In other words, it is allocating road space among the

different road users at different times of the day. VicRoads uses a similar strategy called SmartRoads in Melbourne.

At the same time, VicRoads do not want to encourage bikes and pedestrians on their roads, rather than on local authority streets. The reason for this is the higher speed limits, and throughput of vehicles as their priority number one. VicRoads wants to minimize areas of conflict, and keep the pedestrians and cyclists on the paths that are not on the main roads. Off road riding is encouraged a lot. The problem is that the off road paths often are detours.

Cyclists are like water, they will always find the easiest way. Therefore, having cycling as part of the planning approach is integral to success of institutionalizing it as a mode of transport. It is evident that despite the efforts of allocating road space, the cyclists are not prioritized. State road authorities in both Sydney and Melbourne get a lot of criticism from the proponents of cycling. They are accused to do planning on a map, and not in real life.

> We (Australians) do stuff Lego-like. Shared space is perceived to be great for everyone, but it's not. Theoretically we have nice designs but they don't work because the roads authority roads are not functioning. The long-term best outcome is to share the space but the current situation is not good for that right now. Separation is the first step to show the appetite for cycling. The way we backward-engineer things right now is awful.
>
> (David Borella, interview, 2015-04-14)

That physically separated lanes are needed in Australia right now are all respondents conforming to. Those lanes reduce interaction with motorized vehicles, hence increasing safety for the cyclists as well as their confidence. The greatest challenge for local, and state authorities is that on current roads, space restrictions and infrastructure limitations will not allow for this to happen. It is technically difficult because cyclists and pedestrians should not be mixed, and public transport has its reserved space. Hence, the only space that is left is that of cars and trucks.

In reality, the choice of where to put the bicycle infrastructure facility is usually where it doesn't affect the motor traffic or parking. That means retrofitting narrow bike lanes between driving cars, and parked cars – the spot where car-dooring[9] happens.

> In the cold phase it's the traffic engineer in the local council who is building it, and that person is probably not riding, and definitely not reading the national strategy. That person listens to its closest politician. It is hard to dilute federal visions to the ground.
>
> (Tony Arnold, interview, 2015-04-16)

A cycle way is only as good as its weakest link. Current practice in Australia is ending a bike lane in an intersection, where local roads cross state roads[10]. The lack of continuity is a deterrent for people to ride, and forces them to sometimes break the road rules to make it safe for them to ride. The disjointed network of bicycle infrastructure comes from the notion that in most of Australia's councils, cycling infrastructure is regarded as good – as long as it does not cost much, or take up space from motorized vehicles, making it hard for engineers to maneuver.

The reason for the disjointed network of bicycle infrastructure is the decentralization of transport planning in Australia. Since local authorities are responsible for local streets, state authorities for arterial roads and intersections, cohesiveness is hard to obtain. State road authorities are generally against cycling infrastructure, and local councils are authorized to decide for themselves to enable cycling infrastructure or not. The road design can therefore vary a lot within the cities.

There are some councils like the city of Yarra, and the city of Melbourne that give their engineers the tools to include cycling infrastructure on local roads. The city of Yarra, passed for instance a motion to have a bike lane on every street that is possible. They use it as a guideline, and it can encompass substantial constructions or just paint. A lot of other councils have

[9] Car-dooring is the event of an accident when a cyclist is riding next to parked cars. It happens because of the lack of awareness of car users when opening a car door. It is a common case of accident in Australia (Marylin Johnson, interview, 2015-04-16).

[10] State road authorities are responsible for all intersections with traffic lights (Fiona Campbell, interview, 2015-04-15).

guidelines on how roads should be designed. The standards are often done without concern to new green streets.

One of the reasons why Yarra is so successful is because people travelling through the council are riding short distances on non-aggressive streets. Yarra acknowledges the need to indicate species of riders; females for instance need more protection, such as separated lanes, because they are more risk-averse than men. Cycling is more normalized there, which is why cyclists feel safe resulting in slightly more than 50 percent of the cyclists commuting to work are women within the council. Such high levels of female cycling participation are not detected in any council in Sydney.

The city of Yarra is an inspiration for many of the respondents. Yarra has had substantial influence on its surrounding councils, and people in Melbourne seem to be more used to cyclists on the streets than in Sydney.

> The popularity of cycling has risen and safety has become more important. The increased demand has driven infrastructure investments as well as adjustments. Accidents have reinforced the need for cycling regarded as a mainstream mode of transport such as the car. That in turn has resulted in infrastructure changes. Increased safety leads to accessibility, which in turn leads to increased demand.
>
> (Geoff Lawler, interview, 2015-04-07)

A key for the institutionalization of cycling is hence good infrastructure. In the city of Melbourne a lot of planning has been done, and a lot of networks and corridors have been initiated. Now, advanced plans on how the networks should go and how it should look like in the future are developed. The next couple of years will serve to connect the links and increase capacity on the infrastructure.

The planning process has been slow in the city of Melbourne, however it serves as basis for long-term commitments. Therefore, changes take longer time since they need to be well supported and thought-through. This differs in Sydney, where commitments are intended to be long-term, but failing in reality.

One example of this is the newly constructed bicycle lane next to Hyde Park, which was built after extensive research and planning. Hindsight, the ministry of transport feels that it is built in the wrong place, and that it needs to be removed. Neither the transport planners who have developed the cycle lane nor the proponents of cycling understand the reason for this. Two independent respondents stated that one of the ministers experienced that his journey to work was prolonged by a couple of minutes. He blamed the cycle lane for this, and re-routed it.

Sydney and Melbourne both struggle a lot with the integration of cycling infrastructure as a norm in their current road design. One main difference is that Melbourne started the process of enabling cycling infrastructure earlier, and does it more consistently. Sydney started to invest in infrastructure more recently, and the proponents of cycling are hopeful:

> Sydney is a couple of decades behind Europe. I grew up in London. The roads here in Sydney are like in London two decades ago. London is not that great for cycling yet but it's way better than here. That gives me hope. It will come – slowly.
>
> (Pip Vice, interview, 2015-04-16)

4.3.2. Public transport

Sydney and Melbourne are experiencing a large population growth. The city of Melbourne grows with 1,500 persons a week, and people are settling in the suburbs. In Australia, there are few jobs in the suburbs. As a result, almost everybody commutes into the city's CBD to work. Suburbs have poor public transport connections into the city center, and distances are often too far to commute to work by bike. This leaves suburban residents with the car as the transportation norm.

People who decide to take public transport anyway are confronted with overcrowded car parks at railway stations, expensive tickets, and no time competitiveness at all. In addition to that there is free car parking provided in the cities, making public transport even less attractive. All our interviewees agree that the game-changer will be when public transport is prioritized before cars. The design of the public transport system must be redone in order to make it efficient to ride publicly, and change to happen. It is important not to forget the value of the car, when trying to institutionalize cycling:

> It's not about prohibition of cars; it's about using alternative modes. If you change you need alternatives there for the people, otherwise it will be unrealistic. If you remove cars in the suburbs you will face so much opposition, people still need two cars there.
>
> (Cameron Munro, interview, 2015-04-09)

Melbourne, already having a tram system, seems to have understood the value of public transportation, and offer free rides on the trams within the CBD. However, the train system is outdated, and very slow, hence not time competitive. The future of Sydney's transport story is, according to our Sydney-based respondents, regressive. The train stations are nicely built, but poorly equipped. They lack elevators for wheel chairs and baby strollers, and the platform height is not adapted to the train's height.

Right now, discussions are made about privatization of a new public transport system. How this will affect the institutionalization of cycling is not evident yet, but the Sydney-based proponents of cycling are outrageous.

4.3.3. Media perception

Media is a gatekeeper, and can drive a positive or negative view on cycling. Hence, the media influences the receivers' perception of appropriate behavior. Media in Sydney is generally against cycling. Alan Jones is a famous Sydney-based radio broadcaster who has been sued for defamation several times. He, and many other radio broadcasters find joy in attacking cyclists verbally. They refer to cyclists as cockroaches on the road, and applaud car drivers who report actual physical hostility against cyclists in their talk-in shows[11].

Australian media is justifying hostile behavior towards cyclists, and the reason for this is the minority status of cyclists today:

[11] Talk-in-shows are radio broadcasted shows where listeners can call in and talk about their experiences or opinions on-air (David Borella, interview, 2015-04-14).

> Anything controversial is nice to attack. Gender, sexuality or race is not socially accepted to attack anymore, so people need a new subject. That is how humans function. Cyclists are still a minority group; therefore they are easy to pick on. But this also gives me hope, because eventually, cyclists will be socially accepted, too.
>
> (Fiona Campbell, interview, 2015-04-15)

Cyclists are not the only ones being attacked by the media. Political supporters of cycling, such as the Lord Mayor of Sydney Clover Moore, get criticized and offended by both radio broadcasters and newspapers. Many of our respondents do not know why. Borella and Campbell suggest a reasonable idea that circulates around money. There is a lot of money in the car advertising industry. The more people that are stuck in traffic jams, the more people listen to the radio, which generates advertising revenue for the radio stations.

Media in Melbourne is not as influenced by the negative perception of cyclists as in Sydney. Although there are no attacks directed towards cyclists in general, Melbourne is fighting with the perception that cyclists do not obey the road rules. When a cyclist is hurt by a car or even killed, the general media perception – in both Melbourne and Sydney – is that it was the cyclist's fault:

> They spin the facts, because there is nothing sexy in just providing the facts. They focus on the negative things. They are not talking about how do we get more people to use our bike lanes? Oh, maybe we should make them safe and accessible, and by the way, where's the funding? Nobody asks that.
>
> (Kevin John, interview, 2015-04-15)

It was difficult for the Australian Cyclists Party to get media exposure. There was only one newspaper in Sydney, the Sydney Morning Herald, which agreed to publish a story about the lead candidate of the party, Omar Khalifa. The reason for this is that the Herald is a slightly more left-wing newspaper, which points out the problematic of politics in the normalization of cycling.

4.3.4. Politics and business

Politics largely influence the narrative of cycling. The federal government is seeing climate change as a pseudoscience. Prime Minister Tony Abbott refused to include climate change on the formal agenda for the G20 Summit in 2014, and is skeptical towards climate change. The majority of ministers in the federal government see pro-car behavior among the population as appropriate. Therefore, most Australians do not realize the urgency for sustainable transport solutions. The environment in Australia is not interesting for them right now.

Australia has no water shortage or air pollution. The public health consequences of the predominance of cars are not as evident as in Europe, where diesel molecules cause asthma. The cost benefit ratio from switching from a car to a cycle is much higher in Europe than in Australia. Melbourne and Sydney are two of the cleanest cities in the world, hence their citizens do neither see nor feel the environmental problem.

Since the environmental urgency is not tangible, politicians do not see it as their social obligation to change the status quo. The benefits of cycling that are promoted by the federal government are convenience, health, cost savings, and pleasure. The cycling advocacy groups need to change their sustainability approach on cycling in order to get political hearing:

> The challenge is to change the green, hippie, sustainability approach, and focus on mobility, transport and economic viability. It's naïve that people would promote sustainability. That makes you get punched down.
>
> (David Borella, interview, 2015-04-14)

Economic viability is important in order to get political support for cycling. Cyclist proponents need to be able to quantify all their plans and projects in economic data. This proves to be complicated, because a lot of the economic benefit of cycling reliefs the public health budget, which is hard to pinpoint and to measure. Another complicating factor are the voting rights in Australia.

Business owners and landlords are allowed to vote in local elections because they pay local property taxes. Politicians care a lot about the votes of businesses, especially because they in

some councils get two votes per business. Small and medium-sized businesses are generally against cycling. They associate cycling infrastructure with loss of car parking on the streets, and hence with lost revenue. In reality, all interviewees assure that it is car parking that is the reason for lost revenue:

> One car parking spot frees up space for twelve bike parking spots. Every car driver parks on average 45 minutes, and spends 28 dollars per hour. A bike stays 10 minutes, and spends on average 10 dollars per hour. Do the numbers and you will see who is more profitable.
>
> (Peter Burke, interview, 2015-04-09)

Larger corporations, especially banks, on the other hand are very supportive to bike infrastructure. A lot of their executives are lycra-men, who are ambitious and competitive, and demand end-of-trip-facilities[12]. Sufficient infrastructure would ensure a safe trip to work for them. In addition, cycling is making employees more happy and productive, which is why large corporations encourage cycling. Furthermore, it gives them green credit.

4.3.5. Disorganized lobbying

Advocacy has a central role in the institutionalization of cycling, but a big obstacle is the disagreements between the different cycling advocacy groups. They all have the goal to increase the cycling ratio in Australia, but they want to do it by their own means. Some of them want to abolish the helmet law others want to keep it. Because of their disagreements, it is hard for the government to know, which advocacy group they should listen to. The need for one voice is there.

The Australian Cyclists Party consists predominantly of former cycling advocates. It is the party's vision to be the voice for all cycling advocacy groups. They stood for election in the 2015 election for the New South Wales Legislative Council, but they did not get any seats. Whether or not they will be the united voice for all cycling advocates remains in the future, but in any case, they have attracted attention.

[12] End-of-trip facility is the term for a facility at the end of a cycle way, for instance a business, which provides changing rooms, showers, lockers, and secure bike parking (David Borella, interview, 2015-04-14).

When advocating cycling, it is important to provide economic data. Governments need a solid foundation to base decisions on. The evidence-based work of cycling advocacy groups is hence very important, but acknowledged by few:

> Some of the strongest opponents are other cyclists. They are like religious fanatics. Everything I want to do, I need evidence for, numbers, which I can present to the government. No evidence means that it doesn't work. We won't get any hearing or funding.
>
> (Gary Brennan, interview, 2015-04-10)

Cycling advocacy groups are often made up from cyclists, having their own priorities in mind rather than the cyclist infrastructure from a holistic picture. Many of them refer to Europe, especially Amsterdam and Copenhagen, as the ideal role model for bike infrastructure. The problematic with this is, that European cities differ a lot from Australian ones. Therefore, politicians believe that it is much more relevant to refer to cities in the USA or Canada for lessons on cycling and cycling infrastructure.

Cycling advocacy groups are not the only ones involved in lobbying. Insurance companies, car dealers, and taxi drivers are other examples of lobbyists. It is a big disadvantage for cycling advocacy groups, that those actors are organized, and hence have stronger arguments than the disorganized advocacy groups. Regular citizens are not there to lobby with the government, only those who – according to the proponents of cycling – have something to loose.

Except for lobbying with the government, it is important for the cycling advocacy groups to work on the blockers. In order to succeed with their effort to institutionalize cycling, they do not necessarily need support. It is more important to transform the blockers' opinion to neutral. As long there is no blocking, it is easier to gain support eventually.

4.3.6. Reluctance to change behavior

Advocacy groups are working with a lot of educational campaigns to increase awareness on and information about cycling. They believe that education enables behavior change, which is usually very hard to accomplish. They are distributing leaflets, and organizing events to pro-

mote cycling for the average Australian. Examples of such events are "Sydney-suit-ride" to get business people to ride, "National Ride2School Day", and teaching parents how to teach their children to ride accurately.

Those campaigns are necessary because cycling is not seen as an appropriate behavior yet. Therefore people are reluctant to adapt it as a new behavior:

> It's about social empathy. From empathy comes understanding. Normalization is social diffusion; it's like fashion, a trend. People take on riding because they know somebody who rides. Social diffusion is overwhelming. People want to copy, they want to be part of a trend, and copy the behavior of others. Attitudes are not important in the first place. We have to try to change their behavior. Normalization is about behavior change, and then you get the attitudes.
>
> (Gary Brennan, interview, 2015-04-10)

The average Australian is not the only one lacking sufficient information on cycling. Cycling is for instance a disproportional part of engineer students' program. Five hours in a four-year program are spent on how to incorporate cycling into construction. The norm of teaching needs to be changed.

4.4. CULTURAL-COGNITIVE ELEMENTS IN THE INSTITUTIONALIZATION OF CYCLING

The regulative and normative elements that exist in Australia are contributing to present cultural-cognitive patterns that hamper the institutionalization of cycling. Simultaneously, the cultural-cognitive elements influence current normative and regulative elements. The proponents of cycling have acknowledged six cultural-cognitive obstacles that have to be overcome before cycling can be regarded as a taken-for-granted mode of transport. The six cultural-cognitive barriers are the current institution of the car, the image of a cyclist, attitudes towards cycling, the terminology, the Australian Dream, and reluctance to change culture.

4.4.1. The institution of the car

The importance of culture for the institutionalization of cycling is evident in every interview we conducted in both Sydney and Melbourne. In the late 1800's, and early 1900's, Australia had the largest network of cycle lanes in the world, and Australia's economy was based mainly on wool. Shearers were getting around from farm to farm by bike, and the majority of the population used the bicycle as a mode of transport.

As wealth increased, mainly because of Australia's rising iron and coal industries, the car became the predominant mode of transport. Australians became comfortable, and forgot how to cycle. Today, there is a whole generation that never learned how to cycle, and hence cannot teach their children. The need to change this negative social pattern is evident.

Since the 1950's, cars have been institutionalized in the suburbs. Suburbs are either built without, or with inefficient public transport connections to the cities. Without efficient public transport from the suburbs, people are forced into car-dependency. There are no jobs in the suburbs, and people need to travel into the city to work, which has resulted in a car-centric culture. Approximately 20 to 30 years ago, the common perception of people riding bikes was that they were failures because they could not afford a car.

Recently, upper class and upper middleclass men have found pleasure in cycling, and it is referred to as the new golf. The reason for this is, as wealth increases, time is getting more important for them. Cycling is an efficient way to exercise and save travel time simultaneously. Another contributing factor of the upswing of cycling as a fitness activity is that in 2011, the Australian Cadel Evans won the Tour de France.

Evan's victory resulted in what is called the Cadel-effect. It was his victory, which lead to the live broadcasting of the Tour de France on Australian television ever since. This created a buzz for sports and recreational cycling. The standard cyclist in Australia now is a middle-aged man with an expensive bike, and lycra apparel who is riding his bike on weekends, and to work.

4.4.2. The image of a cyclist

A cyclist is often referred to as a road warrior. The expression comes from the perception that the majority of those middle-aged men in lycra do not respect the road rules, and try to compete with cars. They are often reckless riders who are seen as fast and fearless. Road warriors are contributing to the negative perception of cyclists in Australia, but it is less frequently acknowledged that cyclists disobey the rules because the road design is making them feel unsafe, or the lack of bike infrastructure. Chris Rissel, Professor of Public Health at the University of Sydney, exemplifies:

> I could say that I'm a cyclist since I ride everyday. However, I would much rather describe myself as someone who rides a bike. It's different from being a cyclist in advocacy line. I did a study, which showed that people think that cycling is good but that cyclist are bad. Being seen as a cyclist is not a good thing. A cyclist is perceived as someone who breaks the rules or is dangerous.
>
> (Chris Rissel, interview, 2015-04-21)

For many Australians a cyclist is like Lance Armstrong, and really sportive. Most car trips are less than five kilometers, but people think they need to be well trained to cycle that distance, and that it is not time efficient. The mentality right now is that if there is no bike lane, the cyclist has to defend its space on the road. The narrative about cycling in Australia is about sports and competition, which is neither safe nor suitable for women and children.

Cyclists, who are not road warriors, are often perceived – rightfully or wrong – as green left-wing hippies. With a federal government that promotes coal and mining, it is hard to focus on the sustainability aspect of cycling, and the urgency of institutionalizing it as a sustainable mode of transport. Prime Minister Tony Abbott is known as a recreational rider, and is often seen in lycra on weekends. However, he is not supporting bikes as a transportation mode. What the federal politicians think is very influential on the rest of the country, and partly explains the negative image of cyclists.

4.4.3. Attitudes about cycling

As long as the average Australian is not able to identify itself as a cyclist, it is difficult to justify investments in bicycle infrastructure. Because of the lack of cycling infrastructure, people – especially in Australian suburbs – are not exposed to cyclists. The low exposure to cyclists is due to the fact that cyclists have been relegated to off road cycle lanes and the backstreets, where car drivers cannot see them. Suburbs are close communities with too little numbers to get the social diffusion started.

> Cycling is regarded as such a minority activity. People are wondering why we take away cars that everybody uses in favor for bicycle infrastructure. A major barrier is people's attitude, mostly towards parking. It is hard to change attitudes when you have the low numbers. When putting in cycle lanes we often do something that benefits everyone such as plantings, pedestrian crossings, or traffic light improvements.
>
> (Fiona Campbell, interview, 2015-04-15)

Another reason for the current negative attitudes on cycling is the perception of safety, which is a recurring pattern in all interviews. Safety is a deterrent for people to ride, especially for women, who generally are more risk-averse than men. The promotion of all safety equipment for cyclists, like helmets and safety wests, creates an impression among the wider population that cycling is a dangerous activity and they have to be daredevils to participate.

> People do not act rational. When people get afraid of riding a bike, they think danger is much more common than it is. It's really hard to get over that perception. It's about behavior, we don't act rational, we have to recognize the risk and manage the risk. Your ability to assess risk is influenced by fear though. If you are afraid of the wrong things, you can't assess risk correctly. For example, people are afraid to be hit by a car from behind, and that it's dangerous to cycle, but it's not dangerous, and most crashes actually happen from the front. Wrong assessment of the risk of cycling is a huge problem.
>
> (Gary Brennan, interview, 2015-04-10)

The average Australian avoids cycling because it is an activity associated with an edge group. Cycling is not considered as mainstream. People do not want to be associated with lycra-men or left-wing hippies. It is not socially accepted to describe oneself as a cyclist if not being a part of neither of those two social edge groups.

There is no social diffusion among average Australians because there are too few who cycle, and those who do are not considered as cool. The Australian Cyclists Party has fought this perception in the past election. The majority of their members are middle-aged men; hence few women and young adults feel represented by them.
Bike ownership is only cool, when it is an expensive sports bike. When compared to a regular bike, a car symbolizes status to a larger extent, despite the condition of the car. People both see the car as a necessity due to current infrastructure but also as a symbol of success. Car brands are used to show off, comparing different brands or types.

There are also various trends for which car to buy. For the last decades, fuel-demanding sub-urban utility vehicles (SUV's) have become a part of the Australian culture. The symbolism of the car is hard to imitate by the bicycle, especially since it is considered to be a cheaper and less attractive substitute to the car. This hence largely influences the attitudes towards bicycles.

4.4.4. Terminology

The terminology for transport is framed with hostility. Some transport planners refer to cyclists as friction in the flow of traffic. "Corridor of death" is the name of a narrow bike lane between fast-going cars, and parked cars. This is the place where car-dooring happens. A "punishment pass" is when a car driver is annoyed with a cyclist, and shows it by driving past closely, and very fast to intimidate the cyclist. The terminology is socially accepted among large parts of the population. It de-humanizes cyclists, they are perceived as obstacles rather than humans.

As stated in section 4.3.3, radio stations refer to cyclists as cockroaches, and declare that they do not belong on the roads. The respondents believe that the problematic evolves from the simple fact that most cyclists drive a car, but far from all car drivers ride a bicycle. The lack

of empathy, and understanding is therefore huge. VicRoads is trying to abolish the car versus bike mentality through their "Share the Roads" campaign.

It is an educational campaign that explains that the streets are for everyone, not only cars. Right now, few Australians cycle and it is easy for car drivers to generalize cyclists, and even hate them. The average Australian needs to identify itself as a cyclist, or know someone who cycles, in order for such terminology to be socially unaccepted. The negative terminology amplifies the negative image and attitudes towards cycling, and needs to change in order for the bicycle to become a part of the Australian culture.

4.4.5. The Australian Dream

The Australian Dream is pointed out by the proponents of cycling as an essential part of the country's culture, which counteracts the institutionalization of cycling. It is largely influenced by the American Dream. A house in the suburb, two cars, and a lot of freedom is what Australians wish for. It is about millions of options, and possibilities. Stace experienced the force of the Australian Dream when writing the National Urban Policy. The Transport Minister back then called her into his office.

> He told me: "I am a right-wing guy, and when I read this I see it as a military left-wing paper. I don't want to read about getting people out of the car. Don't take away my option and my right to park and drive. It's about creating other options not taking them away".
>
> (Sara Stace, interview, 2015-04-17)

Entitlement is a central term associated with the Australian Dream. Australians feel entitled to drive their cars on the road. Everything that interferes with their space is seen as an impediment. The "punishment pass" is a result of the Australian Dream, because car drivers feel entitled to the whole road space. The notion that it is a cyclist's fault when an accident occurs is derived from such entitlement.

Some of the respondents have had bad experiences with car drivers being hostile. One of the respondents was intentionally hit by a car as punishment for taking up road space. Afterwards,

the car driver stopped, told her to stay off the road and left his business card to signalize his rightfulness. The police did not take this incident seriously because she was a cyclist.

The entitlement to space is a very sensible part of the transport discussion. Australia is blessed with space, but people have lost the sense for it. The need to close down space to re-humanize it is urgent. Re-humanization, such as lowering speed limits and giving more space to non-motorized modes of transport, is mentioned by all proponents of cycling as an integral part of the institutionalization of cycling. Re-humanization implies the adaptation of infrastructure to cyclists and pedestrians who have never been an area of focus for traffic engineers.

4.4.6. Reluctance to change

Australians have built up a culture around cycling that is negative and dangerous. To change shared understanding, and taken-for-grantedness requires big efforts. It seems illogical for the car-dependent Australians, who are led by a government that denies climate change, to choose another mode of transport than the car. They are stuck in the 1950's view on motorized vehicles as the only desirable mode of transport.

> We really do need generational change. Australia has some serious dinosaur attitudes. Not only towards cycling. The culture in Australia is so much behind.
>
> (Chris Rissel, interview, 2015-04-21)

Part of what Rissel means is a domestic issue in Australia. It is normal for the women to be the ones taking care of the shopping and the children, taking them to school, and leisure activities. When having to make all these additional trips, it is more convenient for women to take the car. Both because of the lack of secure bicycle infrastructure, and the perception that cycling is dangerous.

It is important to get the women to change. If women start to see the benefits of cycling, and realize that it is safe when good infrastructure is put in place, they will allow their children to cycle. If mothers, and children cycle, it is not that far-fetched to get the fathers to cycle, too. Women are therefore the priority number one in current campaigns of cycling advocacy groups.

Generational shift is required to fully change the Australian urban mobility culture. There has already been a decrease in car licensing for young adults in both Sydney and Melbourne. Car ownership growth has slowed down in both cities' CBD. This is explained by the millenials'[13] who are more likely to travel or study after high school, and starting families later, hence delaying the need for a car. When travelling, the millenials experience other cities' urban mobility cultures, which broadens their view on transport. Another phenomenon associated with millenials is that they prefer being present on social media, and public transport is more convenient for that than the car.

The respondents are hopeful that when the millenials obtain a position of power in the future, they will bring a generational shift. Such a shift will affect the culture, norms, politics, and legislation of Australia. Already today, there is a common perception that young transport planners are more open-minded to alternative transportation modes.

5. ANALYSIS AND DISCUSSION

This chapter analyzes important empirical findings in relation to existing cycling literature and Scott's (2014) three pillars of institutions, which are included in the preliminary theoretical framework, through Yin's (1994) pattern matching. New subheads were developed in order to better grasp the factors shaping the institutionalization of cycling. Essential change processes, which have been identified in the empirical findings as prerequisites for the institutionalization of cycling, are analyzed through the existing change literature. Conclusively, a revised framework will be presented.

5.1. ELEMENTS AFFECTING THE INSTITUTIONALIZATION OF CYCLING

The subheads placed under the three pillars of institutions are derived from the patterns detected in the empirical findings. These new subheads and their underlying factors were found to be the elements shaping the revised framework, including cycling, institutionalization as well as change processes. Scott's (2014) three pillars of institutions were found to remain an efficient tool to organize the analyzed factors enabling the institutionalization of cycling, and

[13] The generation born from the 1980's and onward.

were kept as a strategic choice in order to develop a revised framework that is generally applicable.

5.1.1. Regulative elements affecting the institutionalization of cycling

Regulative elements influence a country's cultural and normative patterns, and are also affected by them in return. Regulative elements are pointed out as essential in the creation of an institution by cycling researchers (Bauman et al., Pucher et al., 2011; Pucher & Buehler, 2012), institutional theorists (Hoffman, 1997; DiMaggio & Powell, 1983; Scott, 2014), and all respondents of the interviews. Overall, five factors were found, that result in the strength of the regulative pillar in the institutionalization of cycling. The five regulative factors are urban design, legal arrangements concerning the car, legal justification for cyclists, financial obligations and accountability.

5.1.2. Legal arrangements concerning the car

Theory states that current policies and practices favor motorized vehicles (Pucher & Buehler, 2008; Insall, 2013). Empirical findings support the theory and show that legislated guidelines currently are favoring motorized transportation modes in both Sydney and Melbourne. The car industry is heavily subsidized by the federal government, indicating the federal government's pro-car attitude. Their attitude is diluted through the regulative rules in Australia.

Preferential treatment of the car is also evident when it comes to parking legislation. The empirical findings pointed out that in both Sydney and Melbourne, free car parking is provided by the government. Pucher & Buehler (2008) assure the need for higher parking fees in cities, in order to obstruct taking the car there. An obvious compliance between theory, and reality is the parking situation in Australia. Both Sydney and Melbourne need to understand the importance to restrict cars in order to institutionalize cycling. Rules, laws and sanctions are according to Hoffman (1997) an efficient way to obtain coercion, and should therefore be considered.

Pucher et al. (2011) highlight the importance to restrict cars in order to enable people to ride more safely and efficiently. When the mobility of the car is constrained, it becomes a less attractive mode of transport. The cost of cars should be increased in order to shift car users to

cycle instead (Pucher & Buehler, 2008). In order to increase the cost of cars, Insall (2013) suggests the prohibition of cars on certain streets, congestion tax, higher parking fees, and the increased use of one-way streets. The empirical findings clearly reveal the necessity of realizing the cycling literature's recommendations in order to institutionalize cycling, but also the lack of enforcement in Sydney and Melbourne.

The use of one-way streets is more common in the city center of Melbourne, where the tram and walking have ousted the car as the predominant mode of transport. Hence, the grid in inner-Melbourne is facilitating the recommendation of Pucher & Buehler (2008), to restrict cars through the construction of one-way streets. Sydney, on the other hand, has bigger roads than Melbourne, no grid, and therefore less one-way streets. The empirical findings state that the city of Sydney is in the process of reshaping some of the roads in the CBD into one-way streets. Hence, they are complying with Pucher & Buehler's (2008) recommendation.

Cycling is not encouraged on state roads, due to high speed limits. Bauman et al. (2008) advise road agencies to lower speed limits for traffic calming reasons. Empirical findings indicate that rather than prohibiting cyclists on the roads, lower speed limits are an efficient way to create a safer road environment for both cyclists and car drivers.

Opponents of cycling argue that the bicycle is not time competitive when compared to the car. Hydén et al. (1998) call this notion time efficiency presumptions. As pointed out from the respondents, time efficiency presumptions are true in the suburbs, where distances are more substantial. There is however no significant difference in time for short-distance rides (Smith et al., 2011). The empirical findings are hence aligned with theory, and constitute a vital part in the institutionalization of cycling.

Many of the respondents agree that by lowering the speed limits, state road authorities would achieve coercion, and could sanction disobedience. Lowering the speed limit alone is not enough. Theory highlights the need for safe infrastructure in order to get more people to cycle (Rissel et al., 2008; Buehler & Pucher, 2012). The empirical findings assure this need, and point out that safe infrastructure could be enabled through legislated guidelines to oblige roads to become bicycle friendly.

Conclusively, the empirical findings clearly show that there are few enforced legal arrangements concerning the car, but many of the respondents assured the efforts made by local governments. For instance, empirical findings proof that it is possible for local councils, like the city of Yarra, to push up cycling ratios through enforcement of restrictive measures against the car. Yarra has the highest cycling participation rate in Australia, which according to the respondents depends on the constraint of cars there. Consequently, developing legal arrangements around the car is integral in order to institutionalize cycling.

5.1.3. Legal justification for cyclists

Bauman et al. (2008) have found a direct correlation between the quality of infrastructure and the cycling ratio. This is in line with the empirical findings that reinforce the need for safer cycling infrastructure. Safe cycle environment should be ensured through legislation and support the justification for cyclists on the road.

Traffic calming is proven to have a positive effect on road safety and the cycling levels (Bauman et al., 2008; Pucher & Buehler, 2008). The absolute majority of the respondents all wanted to enforce lower speed limits and rebuild the roads in Sydney and Melbourne to one-way streets. They saw it as an absolute necessity in order to restrict cars and eliminate their dominance.

The current legislation in Australia leans on cyclists´ ability to protect themselves through the use of helmets, bells, and fluoric safety wear (Pucher et al., 2011). The responsibility for ensuring safety is hence transferred to the individual. The empirical findings connected this to the common perception that it is the cyclist's own fault if they get hurt. By transferring the responsibility of protection to the cyclist, the Australian government circumvents the actual underlying problem, unsafe road environment.

The compulsory helmet law is an example of government trying to decrease the cycle injuries without changing the infrastructure or the aggressive behavior of car drivers that causes the accidents in the first hand. The effect from the helmet law could also be counterproductive, since theory states that it reinforces the perception of cycling being a dangerous activity. Preventing people from cycling and consequently lowering the cycling ratio (Robinson, 2005).

Hence, making the roads unsafe through the theory of safety by numbers (Jacobsen, 2003; Smith et al., 2011).

The theory and empirical findings are in alignment; the government should encourage cycling through legal justification instead of deterring it through a rigorous legal climate.

5.1.4. Financial obligations

Insufficient funding is identified to be one of the main reasons for the unfavorable cycling infrastructure according to the empirical findings. There are cycling friendly policies issued by the government, but neither of them is compulsory to oblige or has any attached funding. The respondents point out such policies as inefficacious and just a piece of paper without any real meaning to them, signaling the low level of priority that cycling has within the government. Instead of financing favorable cycling programs, the government chooses to subsidize the car industry, and to invest in motor infrastructure.

The economical profit of cycling has not been taken into account despite the obvious financial benefits. This empirical finding can be explained using March & Simon's (1985) notion of bounded rationality, the idea that individuals are subject to biases when assessing decisions (Kahneman & Tversky, 1986). This is applicable to the decision-making when prioritizing amongst projects to fund. Despite the economical and social benefits of cycling, decision-makers take the irrational decision to support motorized vehicles instead. Re-arrangement of the priority levels for transport funding should be done through legislative measures, leaving no room for irrational decision-making.

5.1.5. Accountability

The importance of accountability has been identified through the empirical findings, which has not been covered by existing cycling literature. Cycle-related matters are usually diffused between the state agencies and the local councils. Sydney alone has 42 different local councils, and Melbourne has 31. It is evident in the empirical findings that such decentralization stresses the importance of good collaboration and clear objectives. The decentralization has resulted in the problem of accountability. There is no clear notion of how the accountability is distributed within the cities. Councils are responsible for the local roads, but there is no one

holding them accountable for not including bicycle infrastructure, causing cohesion to be difficult to obtain.

One of the problems with cycling infrastructure is the disjointed network (Rissel et al., 2008). Empirical findings show that this is the result of the disparity in the level of priority cycling has between different councils. Establishing clear accountability is hence vital in order to improve the cycle environment. Another consequence from the absence of clear accountability is the fear of getting sued. Some of the local councils have even prohibited children to cycle to school, since they fear a potential lawsuit if something would happen on their roads.

Empirical findings also highlight that accountability can be problematic from a political dimension. Cycling is very much a politicized subject in Australia. Politicians are afraid of not being re-elected if they engage in matters that have strong opposition. Such behavior is in alignment with Smith's (1776) theory of wealth creation, where individuals make decisions based on maximizing their own benefit instead of serving the greater good. Politicians therefore typically avoid taking pro-cycling stands despite the clear benefits. They do not want to risk loosing their political position due to the strong political voice of the motorists in Australia, which is clearly evident in the empirical findings.

The fear of loosing a political position can be linked to Tversky & Kahneman's (1991) notion of loss-aversion. Stating that individuals rather avoid losses than obtaining gains, based on the theory of people being risk-averse (Kahneman & Lovallo, 1993). In sum, politicians tend to avoid pro-cycling engagements since they do not want to be held accountable by the opposition in the next election.

There is a legal tradition in Australia to send political propositions to public consultation before deciding over them. Deliberately issuing such statements during holidays or when the majority of the people are unaware of them is a way to keep it under the radar. The only people that usually show interest are the ones that are affected by it. Resulting in a misconstrued reality, where regular peoples' opinions aren't taken into account. The results that the politicians then receive could hence be a very biased outlook of the reality. Such biased reality subsequently affects the choices of the politicians.

5.1.6. Strong leadership

There was detection of a strong pattern in the empirical findings, where all of the respondents highlighted the importance of strong leadership. Advocating sustainable transport solutions is hard in a country where the Prime Minister is a climate change skeptic, and many high-positioned politicians who do not understand the value of cycling. Strong pro-cycling leaders are therefore especially sought after, and considered a necessity in order to normalize cycling. The connection between strong leaders and normalizing cycling isn't implausible, but not covered by existing cycling literature. The most prominent cycling council is according to empirical findings the city of Yarra, located in Melbourne, where Councilor Jackie Fristacky is active. The cycling proponents marvel at all her accomplishment. Cycling in Yarra is considered to be an integral part of the urban mobility culture, since about 40 % of the residents cycle.

Councilor Fristacky has overcome her opposition through bold efforts. Bicycle lanes were painted in secret during her authority, without permission from the state road authority. The city of Yarra is acting in alignment with the cycling literature in order to increase cycling levels (Buehler & Pucher, 2012; Pucher & Buehler, 2008; Bauman et al., 2008). They restrict cars by removing car parking, lowering the speed limits and building one-way streets. In addition, they have encouraging legislation through policy that includes bike lanes in every street.

Another positive effect from all these activities, besides the normalization of cycling, was found in the empirics. The city of Yarra has influenced other councils nearby, being a driving factor in the city of Melbourne's cycling projects. Being a strong politician does have its shortcomings. The Lord Mayor of Sydney shows great support for cycling but has been heavily criticized for her efforts by her opponents and the public. She continues encouraging cycling despite the criticism and risk for loosing the next election. She is contrasting the notion of Tversky & Kahneman (1991), that people are more afraid of loosing something rather than gaining something. Both Councilor Fristacky and the Lord Mayor are two examples of individuals who disregard norms and see the greater objective.

5.2. NORMATIVE ELEMENTS AFFECTING THE INSTITUTIONALIZATION OF CYCLING

Since normative elements justify certain context-specific behavior, they play an essential role in the creation of an institution (Hughes, 1936; March & Olsen, 1989; Scott, 2014). Cycling researchers (Bauman et al., Pucher et al., 2011; Pucher & Buehler, 2012), and all respondents of the interviews have mentioned current normative elements as deterrents for the institutionalization of cycling, since they justify pro-car, and anti-cycle behavior. Four normative factors have been identified that need to be in place in order to enable the institutionalization of cycling. Four factors that strengthen the normative pillar could be identified; cycling as integral part of transport planning, efficient public transport, de-politization of cycling, and organized lobbying.

5.2.1. Cycling as integral part of transport planning

Empirical findings verify that the current norm in Australia is to have a car-centric approach to transport planning. The respondents highlight the fact that vehicle throughput is prioritized rather than people throughput. One of the reasons why people do not see cycling as an appropriate mode of transport is because cars are determining how the urban design is configured. The lack of bicycle infrastructure deters cyclists from riding, and counteracts what Smith et al. (2011) refer to as normalization through exposure.

The notion of normalization through exposure is that a cyclist, by being part of a large physical group or mass, is less likely to be the victim of an accident, attack, or another negative event (Jacobsen, 2003). This, because car drivers, and other potential hazardous elements become more aware of cyclists when they see more of them more often. Empirical findings support the necessity of normalization through exposure. Currently, there are few cyclists on the streets in Melbourne and Sydney, which affects the behavior of car drivers as well as potential riders.

The respondents mention, that car drivers do not know how to behave appropriately when encountering a cyclist on the road. The negative media perception in Sydney has justified hostile behavior towards cyclists. Even though Melbourne is not as affected by the normalized hostility in driving behavior that Sydney has, the terminology in both cities is contributing to

the negative perception of cyclists. The negative terminology and the hostile traffic in turn are a deterrent for potential riders.

Empirical findings reveal that because of these deterrents, the need for normalization through exposure is extra evident in order to institutionalize cycling. Without normalization through exposure, politicians and non-riders will not understand the need to invest in bicycle infrastructure. This empirical finding can partly be explained through Arthur's (1989) path dependency. Path dependency is the notion that past decisions affect present and future decisions (Arthur, 1989). The respondents clearly state that since the 1950's, the government has fostered a road design that revolves around the car. It is easier to continue as is, and invest in infrastructure, rather than beginning to adapt current infrastructure to bicycles.

Even if cycling has not reached significant numbers yet, empirical findings disclose that the city of Melbourne has come a lot further than the city of Sydney when it comes to bicycle infrastructure investments. Melbournians are more used to seeing cyclists, and as Geoff Lawler, Director of City Planning and Infrastructure in Melbourne, points out, accidents have reinforced the need for safe infrastructure.

Empirical findings state that accidents with cyclists are not as common in Sydney as in Melbourne, because fewer people cycle there. Due to the notion of time compression diseconomies, the result of change is delayed when imitation is initiated (Dierickx & Cool, 1989). Therefore, the proponents of cycling are hopeful about future investments in bicycle infrastructure in Sydney. Because of the lack of infrastructure, the respondents point out that cyclists are frequently forced to break the road rules to make their journey safe. Empirical findings reveal that for cyclists to change their behavior, and for potential riders to change theirs, cycling needs to become an integral part of transport planning.

Concluding from the information obtained from the interviews, the notion of transport planning today is that cycling infrastructure is good – as long as it is cheap, and does not affect motorized vehicles. Transport planners need to understand the importance of building safe infrastructure rather than retrofitting bicycle lanes between parked and driving cars. Empirical findings also highlight that transport planners need to be enabled to do so by their closest politicians. Hence, politicians have to provide transport planners with the authority, and the tools to create a safe and accessible bicycle lane network.

5.2.2. Efficient public transport

A relevant factor, which cycling literature has not covered yet is the importance of public transport for the institutionalization of cycling. This was certainly evident in all interviews that were conducted. The respondents agreed, that the game-changer for the normalization of cycling would be an efficient public transport system.

To use public transport is not seen as an appropriate behavior for Australians today. The norm is to drive a car, as it is the most frequently used mode of transport. Empirical findings show that it is both easy, convenient, time efficient, and affordable to take the car from the suburbs into the city center. Free parking is provided, and the infrastructure favors cars. When public transport is prioritized before car infrastructure, governments will adapt the notion to emphasize people throughput instead of car throughput.

Re-prioritizing amongst the transportation modes in such way would benefit cycling according to the empirical findings. The suburban residents, who use the public transport system, mostly drive to the train stations. Such distances are usually short, and are according to Hydén et al. (1998) and Smith et al. (2011) suitable for cycling. Empirics however show that there are few bicycle connections between residential areas and train stations in neither Sydney nor Melbourne.

The public transport system in both Sydney and Melbourne is deficient in many ways. The trains in Melbourne are slow and outdated. Whereas respondents pointed out that platforms in Sydney were not adapted to the height of trains, making it hard for bring baby strollers or wheelchairs onboard. Melbourne does however offer free tram rides within the CBD area. The presence of the tram system influences people's attitudes towards alternative transportation modes. According to empirical findings, this could influence the higher cycling participation in Melbourne.

5.2.3. Political support for cycling

That cycling is perceived as an activity for lycra-men is acknowledged in known cycling literature (Daley et al., 2007). Empirical findings state that this is true, but historically, cycling was more common among the more left-wing parts of the population, creating the notion of

cycling being for either lycra-men or hippies. The problem in Australia seems to be of a much bigger scope than just the political perception of cyclists.

The Prime Minister, and the Minister for Infrastructure and Regional Development are known to be openly skeptical towards climate change. The Prime Minister cycles only for recreational purposes, and he is against cycling as a mode of transportation. Many of the respondents are outrageous about this, and find it difficult to work with such a regressive federal government.

Since climate change is regarded as a pseudoscience, politicians do not see it as their social obligation to change the status quo of car-dependency. Empirical findings display the environmental ignorance in Australia. The average Australian is for instance not confronted with diesel particles in the air; hence air pollution is not tangible for them.

According to all the respondents, the negative effects of car-dependency that are tangible, such as congestion, are quickly solved by politicians initiating new road projects instead of addressing the actual problem, which is the abundance of cars on the roads. The political reality that Australia has shaped is that voters demand road space for their cars from politicians. Politicians therefore give their voters more car space, because they want to get re-elected. The presence of risk-aversion is hence evident.

This macro problematic is according to the empirical findings the reason for the lack of political support for cycling. All proponents of cycling agree that as long as cycling is a political matter of left and right parties' disagreements, the institutionalization of cycling lies in a distant future. The need for normalization through exposure in order to obtain political support for cycling is evident in the empirical findings. As long as cyclists are few, it is hard for politicians to justify investments in bicycle infrastructure, which take away space from the car because politicians *believe* that they will loose voters.

5.2.4. Organized lobbying

Organized lobbying is another really important factor, which would contribute to the institutionalization of cycling in Australia. Lobbying is not acknowledged by existing cycling literature, probably because this literature mainly focuses on countries that have rather high cycling

ratios, hence lobbying is not necessary there to the same extent as in Australia. Consequently, the empirical findings provide the foundation for this factor.

Empirical findings show, that the cycling advocacy groups today have divided opinions about how to normalize cycling. They all feel that their social obligation is to normalize cycling by their own means – with or without the helmet law, with or without separated bicycle lanes – and they all approach the government. It is difficult for the government to know, which cycling advocacy group they should listen to. Some of the advocacy groups propose changes to adapt the infrastructure to European bicycle infrastructure. In many cases politicians are reluctant to listen to European examples of bicycling.

They think that because of the similarities of urban design in the USA and Canada, knowledge can be gained from those countries. These countries are according to Pucher & Buehler (2008), together with Australia among the countries with the worst cycling ratios. It is therefore highly doubtful that lessons can be learned from the USA and Canada. Bounded rationality is as previously stated a deterrent for change to happen (Kahneman & Tversky, 1986), and a rational approach from the politicians would benefit the institutionalization of cycling.

Another mistake that some advocacy groups make, was detected in the empirical findings. The sustainability approach of cycling is wrong to emphasize when trying to get hearing from a government that promotes coal and mining, and is skeptical towards climate change. According to the proponents of cycling, the narrative of cycling needs to be changed from the sustainability aspects to the health benefits, convenience and cost savings in order to get cycling on the political agenda.

Many respondents highlighted the importance of evidence-based work as an important variable in advocacy work. Governments need to base their decisions on economic data; therefore advocacy groups need to provide this information. This, and the negative media perception of cyclists has helped the advocacy groups research to be able to contradict the assumptions that the media has, but also to underpin the advocacy groups' evidence when trying to get government attention.

The Australian Cyclists Party was a valiant attempt to form a united voice of the cyclists in Australia. The name of the party might be a deterrent for people to vote for, since the word cyclist is associated with negativity. The problematic that all respondents point out is that the party predominantly consists of middle-aged men, gladly wearing lycra. Females and young adults are less likely to feel represented by them. Once again, without normalization through exposure, cyclists are not able to gain in number and diversity, and institutionalization is complicated even further.

5.3. CULTURAL-COGNITIVE ELEMENTS AFFECTING THE INSTITUTIONALIZATION OF CYCLING

Cultural-cognitive elements give the behavior of humans meaning (Hofstede, 1991; Berger & Luckmann, 1967; Scott, 2014), and are therefore of utter importance when trying to institutionalize cycling. Existing cycling literature (Daley et al., 2007; Bauman et al., 2013) as well as all respondents point out culture as huge barrier for cycling. In order to institutionalize cycling, five cultural-cognitive factors were identified in the empirical findings, namely the positive image of cyclists, positive attitudes towards cycling, education, abolishment of the car-dependent culture, and entitlement.

5.3.1. Positive image of cyclists

Both cycling literature (Dailey et al., 2007; Pucher & Buehler, 2012), and the empirical findings verify that the overall perception of cyclists is bad. A cyclist is according to Dailey et al. (2007) associated with danger, competition, and fitness. Empirical findings confirm this, and reveal the nickname of such person as a *road warrior*. Road warriors are usually men, with expensive bikes, and a reputation for breaking the road rules.

Such reputation is partly derived from actual rule breaking, and from road warriors exploiting the road space. People call them rule-breakers without knowing that insufficient infrastructure is the foremost reason for such disobedience of the law. There is often no other option than breaking road legislation in order for them to cycle safe on the road.

Another identified image of the cyclist is that they are left-wing hippies. There is no image of a regular Australian that cycles because they are too rare. Those who cycle belong to an edge

group. The theory of normalization through exposure (Smith et al., 2011), and empirical findings are in alignment regarding the importance of exposure to cyclist. Places such as the city of Yarra, with their high cycling participation rates, are an exception in Australia.

The higher cycling ratio in Melbourne derives partly from the higher exposure they have to cycling from all the cyclists from the city of Yarra. Cycling in Melbourne is more common than in Sydney, and is therefore not considered to be as abnormal. One of the respondents in Sydney highlighted that he was not a cyclist even though he cycled. He did not want to be associated with the edge-groups mentioned above, since it would hurt his reputation.

Such mindsets are reinforced by Scott & Span's (2009) theory that people distance themselves from cycling in order not be associated with the negative image that cyclists have. Social diffusion is subsequently challenging since the people that cycle are a minority, and too few of them identify themselves as cyclists.

5.3.2. Positive attitudes towards cycling

Both theory and empirical findings stress the need to change current attitudes towards cycling. Positive attitudes would facilitate the institutionalization of cycling. Current attitudes deter cycling (Buehler & Pucher, 2012). The empirical findings reveal that the negative association of cyclists impedes the justification of cycling as a normal transportation mode. If no one recognizes themselves as cyclists, why should the government investments in cycle lanes when no one is claiming to use them? People who actually use them are not always visible since they are rare, and hence not exposed to the public, especially in places with low cycle infrastructure. The low exposure counteracts the normalization that Smith et al. (2011) reinforce. Restricting normal transport modes such as the car in favor of minority transport such as cycling is then hard to justify to the public.

Both the empirical findings and the theory verify that a negative attitude toward cyclists reflects the behavior of motorists (Johnson, 2011; Australian Government, 2009). It is not uncommon for motorists to behave in an aggressive, and intimidating manner in order to discourage or punish people for cycling. Such behavior reinforces the perception of cycling as an unsafe activity.

Negative attitudes towards cycling are as previously stated partly derived from the safety barrier, where cycling is perceived as a hazardous activity despite the evidence against. Such perception is especially evident to deter women, which are recognized to be more risk-averse than men according to Pucher & Buehler (2012). When assessing the risk of cycling, people are not always thinking logically (Bauman et al., 2008; Sanders, 2013). They are restricted by their perception of fear and lack of information. Such irrationality is supported by Kahneman & Tversky's (1986) concept of bounded rationality.

5.3.3. Education

The negative attitudes towards cycling that are a part of the Australian culture are according to empirical findings the lack of knowledge about cycling. Theory confirms that people know little about cycling, and have faulty presumptions (Hydén et al., 1998; Bauman et al., 2008; Sanders, 2013). This deters people from cycling, and makes politicians take irrational or poorly substantiated actions.

The problematic of congestion is such an example found in the empirics. It is scientifically proven that cycling decreases road congestion, and contributes to traffic flow (SQW, 2007; Pucher & Buehler, 2008; Victoria Transport Policy Institute, 2013). Still, politicians feel obliged to provide more road space to their car-dependent population in congested areas. This in contrast to the fact that cars aggravate congestion, hence making it a self-fulfilling prophecy.

Empirical findings show that education is important in order to institutionalize cycling. The "Share the roads" campaign in Melbourne has raised awareness of cyclists on the streets, and justifies their presence. Sydney is offering even more educational campaigns directed towards potential cyclists and car drivers. However, empirics highlight that without sufficient infrastructure in place, educational programs will only have a limited effect. This, because of the prevailing presumption that cycling is more dangerous than it actually is (Jacobsen, 2003). Insufficient infrastructure aggravates this presumption (Bauman et al., 2008). Empirical findings reveal that a cyclist in Melbourne and Sydney has to defend its road space, making it dangerous to cycle.

The helmet law is a safety measure aimed at preventing injuries, and making cycling less dangerous. However, it has been shown to be counterproductive (Robinson 2005; 2006) as it contributes to the perception of cycling being a dangerous activity. It is associated with decreased number of cyclists, and viewed as a deterrent for potential riders (Robinson, 2005; 2006). Low numbers of cyclists contradict the notion of safety by numbers (Jacobsen, 2003).

Consequently, it is important to educate non-riders about the actual risks of cycling, which are significantly lower than commonly believed (Bauman et al., 2008). Also, it is important to provide them with information about the benefits that cycling brings, such as improved personal health, cost savings, and improved mobility options (Shepard, 2008; Hamer & Chida, 2008; Küster, 2013). Empirical findings show that many are unaware of such benefits, and only have negative associations with cycling.

Education should be provided in order to enable individuals, and decision-makers to make more rational decisions about cycling. This is a vital prerequisite in order to institutionalize cycling.

5.3.4. Entitlement

The proponents of cycling refer to the Australian Dream as a deterrent of the institutionalization of cycling. Entitlement constitutes a part of the dream, Australians feel entitled to drive on the road, and do not want to share their road space. Koglin (2013) has conducted research on road space, and points out urban space wars as evidence of the marginalized space that cyclists often suffer from. Urban space wars occur between car drivers and cyclists as a result of cars' perception that the road space is theirs alone (Koglin, 2013). Theory and the empirical findings are consistent.

The sense of entitlement has according to the empirical findings reached a level of absurdity. People are acting irrational (Tversky & Kahneman, 1986) because the Australian Dream largely influences them. Some of the respondents point out the Minister for Infrastructure and Regional Development as blocking important restrictive measures on cars from national policies. Two of the respondents are also highlighting the police's low level of enforcement when it comes to cyclists. The feeling of entitlement of road space belonging to cars, is deeply rooted in the Australian culture, and hampers the institutionalization of cycling.

For Koglin (2013) the only way cyclists can avoid space wars, is by creating a better environment for them. Empirical findings show that the only way for cyclists to get a better environment in both Sydney and Melbourne is through separated lanes. Cyclists need to feel safe, and they are not safe on cycle lanes between parked and moving cars, neither in the hostile driving environment in Sydney nor the unawareness about cyclists in Melbourne.

Cyclists need to get their own dedicated, and protected road space; otherwise car drivers will not acknowledge their road space. Some of the respondents call this process re-humanization, because humans are introduced on the road, and social empathy with them. This is making the road environment more "human" and hence less aggressive. Empirical findings show that as long as a car is allowed to drive, and in certain exceptions to ride on bicycle lanes, bicyclists will never feel entitled to their share of the road space.

5.3.5. Abolish the car-dependent culture

Theory stresses the fact that the car has been allocated far too much room in industrialized countries' culture (Koglin, 2013). Empirical findings underline the importance to abolish the car-dependent culture that Australians have built up, in order to institutionalize cycling. Institutional theorists point out cultural patterns as extremely complex, and hard to influence (DiMaggio & Powell, 1983; Scott, 2014). Therefore, the proponents of cycling face much opposition when trying to shift the urban mobility cultures of Sydney and Melbourne.

The car-dependent culture is apparent in every subhead in this section, and seems to be an essential factor that needs to change in order for the institutionalization of cycling to happen.

5.4. INTERRELATION OF THE THREE PILLARS

Having analyzed Scott's (2014) three pillars of institutions from a cycling perspective, it becomes evident that the pillars are closely intertwined. The challenge to design a framework for the institutionalization lies in them not being separable, which makes it difficult to recognize what pillar it is that drives the factors that are most significant for the institutionalization of cycling. Since they affect one another, a chicken-and-the-egg dilemma evolves.

The government in Australia has created a political reality that facilitates for their predominant car culture. However, they only have their car-centric norms because their regulations legalize them. The politicians satisfy the wishes of the majority of the people, in fear of being ousted from their political positions. The majority's wishes are derived from the existing urban mobility culture, which is generated by the car-dominated culture. Such culture is subsequently derived from car-favoring infrastructure, road rules and the entitlement to road space. The car-favoring infrastructure is a result of the notion that the car is the only legitimized mode of transport, and the legislation structured around it.

Norms and culture evolve from social patterns and human sense making (March & Olsen, 1989). For a cultural or normative shift to happen, bicyclists need to feel entitled to their road space. Such entitlement will only occur when cycling is recognized as a normal mode of transport, and provided sufficient and safe infrastructure. The car-dependent culture in Australia influences all the other pillars, centering legislation and norms in transport planning on the car.

Empirical findings showed that norms and culture are largely influenced by path dependency, making them extremely reluctant to change. To focus all energy on changing the regulative pillar, might be a way to drastically break with normative and cultural patterns, and hence path dependency. Through coercion, the problem of time compression diseconomies could be addressed, too. In ideal cycling cities, laws and regulations partly restrict cars, and partly enable cyclists (Koglin, 2013). In theory the thought of introducing this notion in Australia and make it coercive, is good. The practical part is harder though.

Neither politicians nor the public want to abandon their car-centric lifestyles; hence, to enforce the regulative pillar solely would face complete opposition from the public. The problem needs to be addressed through safe infrastructure, legislation and educational campaigns simultaneously, and even more important gradually. To institutionalize cycling will take time, it is not a trend that gains momentum in one day. The notion of social diffusion was mentioned in the empirical findings, and perfectly describes the way cycling should be introduced to society. Namely, through gradual normalization through exposure, which drives demand on infrastructure investments, which will justify pro-cycling legislation, which will further drive demand.

5.5. ENABLERS OF CHANGE

Strong leadership, accountability, political support, and education are four elements that were identified in the regulative, normative and cultural-cognitive pillar. Initially, they seemed to belong in one of the respective pillars. After thorough analysis of the four elements, however it was concluded that they affect all three pillars of institutions. They are therefore decoupled from one specific pillar, and constitute external enablers for change.

Kotter (1996) as well as Rainey & Fernandez (2006) stress the need for strong leadership in order for change processes to succeed. The empirical findings verify their recommendation for successful change management. The Lord Mayor of Sydney and Councilor Fristacky are examples of leaders that push cycling on the political agenda, with no regard to opposition. Strong leadership in cycling-matters of Australia is rare but has proven to be successful, as the highest cycling participation in Yarra proofs. Strong leadership has therefore been identified as a vital enabler for the institutionalization of cycling.

Empirical findings show that leadership is accompanied by accountability. The anger of the opponents of cycling is directed straight at the Lord Mayor of Sydney and Councilor Fristacky, and they get criticized heavily. Accountability has proven to be of major importance when trying to institutionalize cycling not only in a political context. The dysfunctional collaboration between state road authorities and local councils when it comes to bicycle infrastructure is another big factor.

Political support is hard to obtain and is highlighted by Fernandez & Rainey's (2006) change management framework. The notion to gather support is also acknowledged by Kotter (1996) as well as our respondents. The institutionalization of cycling requires political support. Without political support, investments in bicycle infrastructure or inclusion of legislation are hard to achieve. Political support encompasses not only the benevolence of politicians, but also of voters, in other words the public. It is therefore a critical enabler of change in the process of creating cycling as an institution.

As long as neither state road authorities nor local councils are obliged to provide bicycle infrastructure, nobody can be held accountable for not including it in urban design. Neither Kotter (1996) nor Fernandez & Rainey (2006) acknowledge accountability in their change

management framework. Nevertheless, the evidence in the empirics was striking, and therefore accountability is identified as an enabler of change for the institutionalization of cycling.

The educational aspect, which was found in the empirical findings, is also acknowledged by both Fernandez & Rainey (2006) and Kotter (1996). They both use educational aspects as clarification for their steps of change management. The educational deterrents of cycling, which were found in Australia are however of too large a scope to subcategorize, and therefore education represents one enabler in the change dimension, that has been identified.
Following the implications of the analysis, it is important to include all three pillars of institutions in the revised framework for the institutionalization of cycling. This is the case because no pillar can be identified as the best way to follow. They all affect each other; hence, neither of them can be recommended as *the* optimal approach to institutionalize cycling. The change dimension is important to include in the revised framework as well, since it constitutes the four enablers that were identified that need to be in place in order for institutionalization to happen.

6. REVISED FRAMEWORK

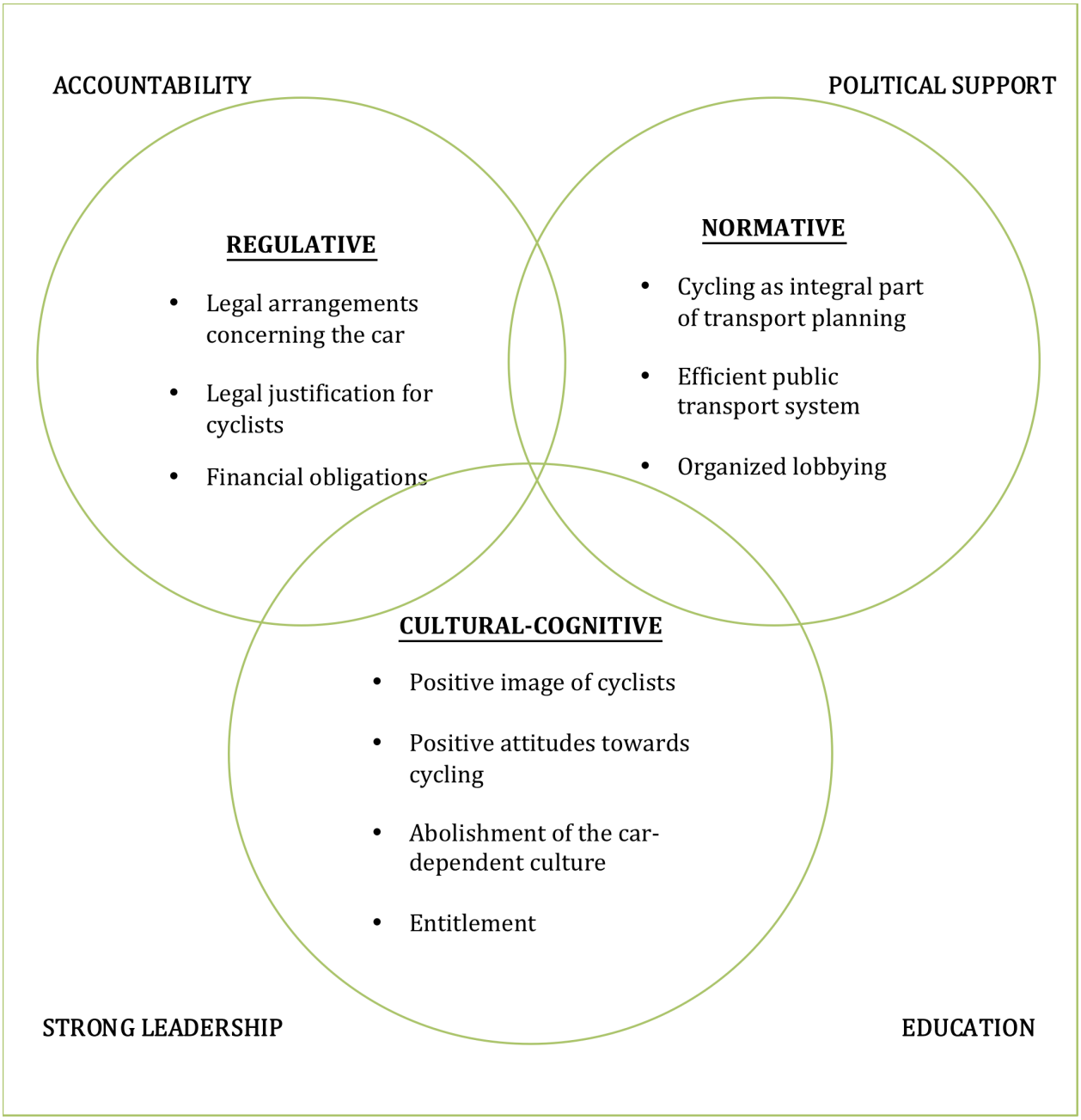
Revision of the preliminary framework was derived from the empirical findings with support of existing theory. The revised framework is concluded on Scott's (2014) three pillars of institutions as basis together with the 10 mechanisms identified to be vital for the institutionalization of cycling as an established transportation pattern in the society. A change dimension is added as well.

6.1. SUMMARY OF THE IDENTIFIED MECHANISMS IN THE REVISED FRAMEWORK

Empirical findings showed clear evidence of the need to change current regulative, normative and cultural-cognitive elements, in order to institutionalize cycling. Consider figure 3 for the revised framework. Regulative elements have shown to influence cultural-cognitive and normative elements. Cultural-cognitive elements clearly affect normative and regulative elements. Normative elements in turn have an effect on regulative and cultural-cognitive elements. Since all pillars are evidently intertwined, they are illustrated as circles in the revised framework. The points of intersection show the overlapping of the pillars into each other.

Within each circle, the vital factors influencing the respective pillar in order to accomplish institutionalization of cycling are stated. A brief summary on each pillar is provided in the following sections. The pillars of institutions are surrounded by a square. The square visualizes the change dimension, meaning the prerequisite for the institutionalization of cycling to happen. In the corners of the square, four essential change elements are placed. They are all equally important for institutionalization to happen.

Figure 3. Revised framework



6.1.1. Regulative elements that favor the institutionalization of cycling

Regulative elements were found vital in order to institutionalize cycling. It became evident that laws must be established in order to restrict the car use instead of favoring it. Such restrictions were identified as making the roads more inaccessible for motorized vehicles in form of lowered speed limits, one-way streets, reduced parking, and increased car taxation. Equally important is the establishment of a law system encouraging cycling as a transportation mode. Changing the road rules in preference for cyclists, and dismissing discouraging legislation such as compulsory helmets. Continuously, financial obligations were found to be essential throughout the study. Sufficient funding of cycling infrastructure projects should be prioritized. Authorities should have incentives or be forced in order to prioritize such funding.

6.1.2. Normative elements that favor the institutionalization of cycling

Empirical findings and theory point out normative elements as vital in the process of institutionalizing cycling. To have cycling as an integral part of transport planning is of utter importance to create a safe environment for cyclists. If cycling becomes a norm in transport planning, an important step towards the institutionalization of cycling is done. Equally important is the provision of an efficient public transport system for cycling. If alternative modes of transport are made more attractive, chances are higher that the bicycle will be considered as a mode of transport. To provide bicycle infrastructure to and from public transport facilities is of course integral to success. Organized lobbying has also been identified as an evident element in the creation of the institution of cycling. Only when advocacy groups are united, governments know who to listen to, and they are provided economic data on bicycle investments and projects, institutionalization will happen.

6.1.3. Cultural-cognitive elements that favor the institutionalization of cycling

Cultural-cognitive elements are also an essential part in the institutionalization of cycling, acknowledged by both empirical findings and theory. The perception of both cyclists and cycling need to change, and become more positive, in order for the average population to be able to acknowledge cycling as a taken-for-granted mode of transport, and identify themselves as cyclists. The car-dependency that characterizes the culture of industrialized countries needs to be abolished in order for institutionalization of cycling to happen. As long as

humans' lives completely evolve around the car, it will be difficult for politicians to justify bicycle infrastructure investments. Without sufficient infrastructure, it will not be easy to get more riders, which will hamper infrastructure investments; hence this obvious chicken-and-the-egg problematic must be overcome in order to institutionalize cycling. The more riders emerge, the more entitled they will feel to their road space, reinforcing the need to legislate about cars being prohibited to intrude on their space. Entitlement is therefore an important variable in the institutionalization of cycling.

6.1.4. The change dimension of the institutionalization of cycling

The change dimension in the revised framework is of utter importance for the institutionalization of cycling to happen. The regulative, normative and cultural-cognitive pillars affect one another, but will never gain momentum if the four enablers of change are not prevalent. All four enablers are important for all three pillars of institutions. They are placed where they according to the empirical findings, and the analysis of this report, will have the highest impact. Strong leadership, accountability, political support and education are the enablers of change that could be identified in the empirical findings.

Strong leadership is vital in order for change to occur, when governments are the drivers of change. Bold leaders are needed to deal with the opposition, and should be respected politicians. They have to be prepared to receive criticism, but most importantly their mission is to try and change the cultural-cognitive elements in society. This is illustrated by the placement of strong leadership in the framework. Strong leaders should function as champions, and try to abolish the prevalent car-dependent culture.

Strong leaders are good not only from a champion perspective that enables change to happen. They are an excellent way to establish a first sense of accountability. Clear directive of accountability must be established, in order for organizations and people to know who is accountable to whom. Centralizing such accountability would assist in reducing confusion.

Opponents of cycling will hold the strong leaders of cycling accountable. To determine a sense of accountability is great for the institutionalization of cycling, because legal arrangements can be justified. Also, councils could be held accountable, if they had financial obliga-

tions to invest in bicycle infrastructure. Therefore, accountability has the highest impact on the regulative pillar, but affects of course all three of them.

Political support is another enabler of change that has been identified in the study as essential in the institutionalization of cycling. From accountability comes political support. Political support will create a sense of social obligation. If politicians are positive to cycling, transport planners and the public in general will accept cycling as a norm of transport. Political support is hence placed close to the normative pillar.

Education is the change enabler that is placed closest to the cultural-cognitive pillar. Education will broaden the populations' view and change their perception of cyclists and cycling. Only if faulty presumptions are eliminated, cycling gets a fair try to become an established mode of transport. Deterrents to cycling are mostly in people's cultural mindset; hence cultural-cognitive elements are mostly affected by education as a change enabler. Through education of people – be it politicians, average citizens or opponents to cycling – strong leadership gets more socially accepted, continuing the momentum of the change enablers.

7. CONCLUSION

This chapter begins with a brief presentation of the results of this research, and how it can be related to the study's purpose. It then provides theoretical and practical implications of the empirical findings in this research, as well as the validity and limitations of the result. The chapter concludes with suggestions for further research.

7.1. RESULTS IN RELATION TO PURPOSE

The purpose of this study is to establish a framework for the mechanisms that support the institutionalization of cycling as a mode of transport.

Because of the lack of existing literature on the institutionalization of cycling, the research was initiated through the separate identification of change perspectives, cycling literature and factors that contribute to institutionalization. A theoretical framework as preliminary "answer" to the purpose was developed. To investigate and develop the accuracy of the theoreti-

cal framework, and to find new insights, empirical data was gained through personal interviews with people knowledgeable about cycling in Sydney and Melbourne. The empirical findings were analyzed and discussed, resulting in a revised framework visible in figure 3. The revised framework was developed from the empirical findings, supported by existing theory, and constitutes a useful and easy-to-grasp tool that city governments or others concerned with policy related to cycling can benefit from. Through the use of the framework, cities can increase their cycling ratios, and possibly become more sustainable.

7.2. THEORETICAL AND PRACTICAL IMPLICATIONS

If the need for sustainable cities and societies is as urgent as existent reports and research want to assert, then our study provides a useful tool, which helps to decrease the negative effects of current urban mobility cultures and increases cities' contribution to a sustainable world. Our research suggests a framework that is aimed at city governments and their decision makers. Due to its direct and useful format, it is relatively simple to apply, and can also be used by cycling advocacy groups, teachers, businesses and other stakeholders of cities who are interested in contributing to the institutionalization of cycling.

The persuasiveness of the revised framework in this study is that it is not only applicable to instances aiming at sustainability, but to anyone interested in cycling for other reasons, such as health. Cycling contributes to the decrease of congestion and traffic jams, an evident need in many industrialized countries. Politicians that are skeptic to climate change can use the framework from a congestion-solving perspective, and do not need to be "green" to do so – although we hope that this study can function as a wake-up call for some federal Australian politicians to realize their regressive behavior.

Our result is not only applicable for use in industrialized countries. Countries in the third world become increasingly industrialized, and have started to develop the same car-centric urban mobility culture as industrialized countries have. By using the revised framework presented in this study, developing countries are enabled to save a lot of government spending by not investing heavily in motorized vehicles, whose infrastructure will be obsolete in a near future.

Developing countries have the great advantage to be in the starting blocks of industrialization. If their governments already today would realize the value of the bicycle, they could use the revised framework to create sustainable societies. They would benefit from a healthier population, less air pollution, and less congestion. Cyclists would emerge as a natural part of the urban mobility culture, and they would feel entitled to their road space.

From a theoretical perspective, the study reaffirms the validity of Scott's (2014) three pillars of institutions, and that the creation of an institution needs elements from all three pillars in order to be successful. There was no change framework for the process of institutionalization in a public sector environment encountered when studying the existing literature.

7.3. VALIDITY AND LIMITATIONS OF THE RESULT

The revised framework serves as a tool for the institutionalization of cycling in cities. It acknowledges regulative, normative, and cultural-cognitive factors that together with four essential change processes can lead to the institutionalization of cycling. Such a framework has not been encountered in existing literature on cycling before. The revised framework is hence one of a kind, and answers the study's purpose in a comprehensive and exhaustive way. The design of the revised framework is general and easy to grasp. The three pillars of institutions encompass relevant factors that affect the creation of cycling as an institution, and are reinforced through four change processes that are of significant value when trying to institutionalize cycling.

Due to its direct and usable format, the revised framework can be used as a guideline for city governments that try to normalize cycling in order to become more sustainable, or to solve congestion and public health problems. Since the three pillars are intertwined, and the four change processes affect all three pillars, the revised framework is applicable in a variety of settings. It serves therefore as a tool for city governments in a variety of cities that are faced with different prerequisites and objectives.

There are many factors that could possibly limit the applicability of the framework. The political environment in Australia might not be the same in other countries wanting to institutionalize cycling. Australia is typically a very warm country with vast topographical differences, which probably affect the applicability of the framework in a more general context. Also,

Sydney and Melbourne are mega cities with millions of inhabitants. Cities with smaller populations or other suburban development might experience difficulties when trying to apply the framework. Also, cities that already have enforced factors in one of the three pillars might not find it as useful as countries being as premature in the use of the cycle as Australia. There, other institutional factors might be the ones hampering or favoring the institutionalization of the bicycle.

When considering the evolution of the revised framework, other limitations can be detected. The empirical findings that the revised framework is based on were derived from 24 respondents in Sydney and Melbourne; hence, despite the framework's applicability, it is suggested to be most applicable in Sydney and Melbourne. Cities in other parts of the world, other demographic, or other urban mobility culture might find the need to exchange, eliminate, or add some factors or change dimensions. Also, the study was conducted in a certain period in time, which makes it difficult to foresee its applicability in the future due to ever-changing external circumstances.

One can argue that some of the factors are placed in the wrong pillar, or that they are somewhat similar or overlap to some extent. Distinguishing the regulative pillar from the other two was relatively uncomplicated, whereas it was harder to make a distinction between the normative and cultural-cognitive. This was completed to the best of the authors' ability. While it is important to categorize the findings according to the three pillars of institution, one can argue that the most vital part is that the underlying phenomenon of institutionalization is identified as whole.

7.4. FURTHER RESEARCH

The revised framework presented in this study is one of a kind, because there are no equivalent theories on the institutionalization of cycling, and it should therefore be investigated for its validity by future research. Although the framework is general for its circumstances, it was derived from empirical findings from two Australian cities. An interesting aspect that future research should cover is hence the variation of factors that contribute to the institutionalization of cycling in countries that have a political, social or economic environment that differs from Australia. The politization of cycling in Australia has large consequences for the regulative, normative and cultural-cognitive elements that are in place there. Therefore, countries

that are subject to other institutional factors than Australia are interesting to highlight in future research. Additional empirical material on the institutionalization of cycling is needed in order to bring more depth and scope to the revised framework. Also, the change processes that were identified in this study need to be investigated further, to verify the impact they have on the creation of institutions.

8. REFERENCES

Appelbaum, S., Habashy, S., Malo J., & Shafiq, H. 2012. Back to the future: re-visiting Kotter's 1996 change model, ***Journal of Management Development*****,** 31: 764 – 782.

Arthur, B. 1989. Competing Technologies, Increasing Returns, and Lock-In by Historical Events. ***The Economic Journal***, 99: 116-131.

Australian Bureau of Statistics, 2010, ***Population Distribution.***

Australian Conservation Foundation. 2009. ***Investing in sustainable transport: our clean, green transport future.***

Australian Government. 2009. ***Cycling Infrastructure for Australian***. Infrastructure Australia. Background paper.

Austroads, 1999. ***The Australian National Cycling Strategy, 1999-2004*****.**

Austroads, 2010**.** ***The Australian National Cycling Strategy, 2011-2016*****.**

Bauman A., Rissel C., Garrard J., Ker I., Speidel R., & Fishman E. 2008. ***Cycling: Getting Australia Moving: Barriers, facilitators and interventions to get more Australians physically active through cycling***, Cycling Promotion Fund, Melbourne.

Beer, M. & Nohria, N. 2000. ***Breaking the code of change.*** Harvard Business School Press.

Benton-Franklin Council of Governments. 2010. ***Regional bicycle and pedestrian transportation plan***.

Berger, P. L., & Luckmann, T. 1966. ***The social construction of reality: A treatise in the sociology of knowledge.*** New York: Anchor Books.

Brundtland, G. 1987. ***Our Common Future: The World Commission on Environment and Development***. Oxford: Oxford University Press.

Brunsson, N. 1982. The irrationality of action and action rationality: decisions, ideologies and organizational actions. ***Journal of Management Studies,*** 19(1): 29–44.

Brunsson, N. 2002. ***The organization of hypocrisy: talk, decisions and actions in organizations***. Malmö: Liber ekonomi.

Bryman, A., & Bell, E. 2011. ***Företagsekonomiska forskningsmetoder,*** Liber AB. Press: 1:2

Bryman, A., & Bell, E. 2003. ***Företagsekonomiska forskningsmetoder.*** Liber AB. Upplaga 1:2

Bryman, A. 1995. ***Research methods and organization studies*****.** Oxford University Press.

Bryman, A. 2012. ***Social research methods.*** Oxford University Press.

Burdett, R., & Rode, P. 2011. Introduction in Burdett, R., & Sudjic, D. (red.). ***Living in the endless city: the Urban Age project by the London School of Economics and Deutsche Bank's Alfred Herrhausen Society.*** London: Phaidon Press Ltd

Buehler, R., & Pucher, J. 2012. Walking and cycling in Western Europe and the United States: trends, policies, and lessons. ***Transportation Research Board, 280.***

Burnes, B. 2009. Reflections: Ethics and organizational change – time for a return to Lewinian values. ***Journal of change Management*****,** 9.

City of Sydney. 2014. ***Cycling Strategy and Action plan 2007-2017***

Victorian Government, 2012. ***Cycling in to the future 2013-2023***

Transport for NSW. 2014. ***Cycling Safety Action Plan 2014-2016***

Daley, M., Rissel, C., & Lloyd, B. 2007. All Dressed Up and Nowhere to Go?: A Qualitative Research Study of the Barriers and Enablers to Cycling in Inner Sydney. ***Road & Transport Research: A Journal of Australian and New Zealand Research and Practice***, 16: 42-52.

Daley, M., & Rissel, C. 2011. Perspectives and images of cycling as a barrier or facilitator of cycling. ***Transport policy*****,** 18: 211-216.

DETR (Department of the Environment, Transport and the Regions). 2000. Transport 2010, The 10-Year Plan. DETR, London.

DiMaggio, P. 1983. Can culture survive the marketplace? ***Journal of arts management and law,*** 13(1): 61-87.

DiMaggio, J., & Powell, W. 1991. ***The new institutionalism in organizational analysis.*** Chicago: The University Press.

DiMaggio, P. 1997. Culture & cognition. ***Annual review of sociology.*** 23: 263-287.

Eliasson, J. & Proost, S. 2014. Is sustainable transport policy sustainable? ***Transport Policy*****,** 37: 92-100.

Emanuel, M. 2012. Trafikslag på undantag – Cykeltrafiken i Stockholm 1930-1980. Stockholm: Stockholmia Förlag.

City of Sydney. 2010. ***Enabling Cycling Strategy***

Eriksson-Zetterqvist, U. 2009. ***Institutionell teori – idéer, moden, förändring.*** Malmö: Liber AB.

Organisation for Economic Cooperation and Development.2004. ***National Policies to Promote Cycling***. European Conference of the Ministers of Transport in Paris.

Fernandez, S., & Rainey, H.G. 2006. Managing successful organizational change in the public sector: an agenda for research and practice. ***Public Administration Review*****,** 66: 168-176.

FHWA. 1999. ***National Bicycling and Walking Study Five Year Status Report.***

Gaggi, S., Fluhrer, T., & Janitzek, T. 2013. ***Innovation in urban mobility: policy making and planning.***

Garrard, J. Rose, G., & Lo, S. K. 2008. Promoting transportation cycling for women: the role of bicycle infrastructure. ***Preventive medicine*****,** 46(1): 55-59.

Garrard, J. 2009. ***Active transport: adults. An overview of recent evidence.*** Victorian Health Promotion Foundation.

Golafshani, N. 2003. Understanding reliability and validity in qualitative research. ***The qualitative report*****,** *8*:597-607.

Guba, E. G. 1985. The context of emergent paradigm research. ***Organizational theory and inquiry: The paradigm revolution*****.** Sage Publications

Hagedorn, K., Arzt, K., & Peters, U. 2002. Institutional Arrangements for Environmental Cooperatives: a Conceptual Framework. In: Hagedorn, K. (ed.): ***Environmental Cooperation and Institutional Change: Theories and Policies for European Agriculture.*** New Horizons in Environmental Economics.

Hamer, M., & Chida, Y. 2008. Active commuting and cardiovascular risk: a meta-analytic review. ***Preventive medicine*****,** 46(1): 9-13.

Heclo, H. 2008. ***On thinking institutionally*****.** Boulder, CO: Paradigm Publishers.

Hoffman, A. 1997. From heresy to dogma: ***An institutional history of corporate environmentalism.*** San Francisco: New Lexington Press.

Hofstede, G. 1991. ***Cultures and Organizations: Software of the Mind.*** London: McGraw-Hill.

Hoornweg, D., & Freire, M. 2013. ***Building sustainability in an urbanizing World: A partnership report.*** World Bank, Washington.

Hughes, E. C. 1936. The ecological aspect of institutions. ***American Sociological Review***, 1:180-189.

Hull, A. 2008. Policy integration: What will it take to achieve more sustainable transport solutions in cities? ***Transport Policy***, 15: 94-103.

Hydèn, C., Nilsson, A., & Risser, R. 1998. ***Walcyng–How to enhance walking and cycling instead of shorter car trips and to make these modes safer.*** Final Report. Department of Traffic Planning and Engineering, University of Lund, Sweden & factum Chaloupka, Praschl & Risser OHG, Vienna, Austria.

Iles, V., & Sutherland, K. 2001. ***Organisational change – a review for health care managers, professionals and researchers.*** National Coordinating Centre for the Service Delivery and Organisation (NCCSDO).

Insall, P. 2013. Active travel: Transport policy and practice for health. ***British Nutrition Foundation – Nutrition Bulletin,*** 38: 61-69.

ITF/OECD, 2012. ***Transport Outlook 2012 – Seamless Transport for Greener Growth***. International Transport Forum, Paris.

IISD (International Institute for Sustainable Development). 2010. ***Sustainable Development: From Bruntland to Rio 2012***. Background Paper.

Jacobsen, P. L. 2003. Safety in numbers: more walkers and bicyclists, safer walking and bicycling. ***Injury prevention***, 9: 205-209.

Jepperson, R. 1991. ***Institutions, institutional effects, and institutionalism in organizational analysis***. Chicago, IL: The University Press.

Jepperson, R., & Swidler, A. 1994. What properties of culture should we measure? ***Poetics***, 22: 359-371.

Jeurissen, R. 2004. Institutional Conditions of Corporate Citizenship. ***Journal of Business Ethics,*** 53: 87-96.

Johnsson, M. 2011. ***Cycling safety: An investigation of how cyclist and drivers interact on the roads.*** Doctoral dissertation, Monash University. Faculty of Medicine, Nursing and Health Sciences. Accident Research Centre; Monash University. Monash Injury Research Institute.

Kahneman, D., & Lovallo, D. 1993. Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking. ***Management Science,*** 39(1): 17-31.

Kahneman, D. 2003. Maps of bounded rationality: psychology for behavioral economics. ***The American economic review***. 93: 1449-1475.

Karp, T., & Helgø, T. 2008. The future of leadership: the art of leading people in a "post-managerial" environment. ***Foresight,*** 10: 30-37.

Khayesi, M., Monheim, H., & Nebe, J. 2010. Negotiating "Streets For All" in urban transport planning: The case for pedestrians, cyclists and street vendors in Nairobi, Kenya. ***Antipode,*** 42:103-126.

Klinger, T., Kenworthy, J. R., & Lanzendorf, M. 2013. Dimensions of urban mobility cultures–a comparison of German cities. ***Journal of Transport Geography***, *31*: 18-29.

Klinger, T., & Lanzendorf, M. 2015. Moving between mobility cultures: what affects the travel behavior of new residents?. ***Transportation***, 1-29.

Koglin, T. 2013. Vélomobility – A critical analysis of planning and space. Doctoral dissertation, Lund University. Lund: Media-tryck.

Kotter, J.P., & Schlesinger, L.A. 1979. Choosing strategies for change. ***Harvard Business Review***.

Kotter, J. 1996. ***Leading Change.*** Watertown, MA: Harvard Business School Press.

Kotter, J., & Schlesinger, L. 2008. Choosing Strategies for change. ***Harvard business review***, *86*.

Kuipers, B.S., Higgs, M., Kickert, W.J.M., Tummers, L., Grandia, J., & Van der Voet, J. 2014. Managing change in public organizations: a review of the literature between 2000-2010. ***Public Administration***, 92: 1-20.

Küster, F. 2013. Calculating the economic benefits of cycling in EU-27. European Cyclist Federation http://www.ecf.com/wp-content/uploads/ECF_Economic-benefits-of-cycling-in-EU-27.pdf

Lagerstedt, E. 2011. ***Individers reaktioner I förändringsprocesser***. Lund: Ekonomihögskolan Lund.

Lagerwey, P. 2011. ***23 ways to fund bicycle and pedestrian programs***.

LaPiere, R.T. 1934. Attitudes vs. Actions. ***Social Forces,*** 13:230-7

Liebowitz, S. & Margolis, S. 1999. ***Winners, losers & Microsoft.*** Oakland: Independent Inst., cop.

Lincoln, Y. S. 1985. ***Organizational theory and inquiry: The paradigm revolution.*** Sage Publications.

March, J., & Simon, H. 1958. ***Organizations.*** Oxford: Blackwell.

March, J.G., & Olsen, J. P., 1989. ***Rediscovering Institutions.*** New York: Free Press.

Martens, K., & Spinney, J. 2014. ***Barriers and Facilitators to Cycling in European Cities: A Comparative Case Study of Cycling in London and Amsterdam.***

Myers, N., & Kent, J. 2008. ***The citizen is willing, but society won't deliver: The problem of institutional roadblocks.*** International Institute for Sustainable Development. Winnipeg.

Myers, N., Beddoe, R., Constanza, R., Farley, J., Garza, E., Kent, J., Kubiszewski, I., Martinez, L., McCowen, T., Murphy, K., Ogden, Z., Stapleton, K., & Woodward, J. 2009. ***PNAS,*** 106: 2483-2489.

FHWA. 1999. ***National Bicycling and Walking Study Five Year Status Report.***

Nordback, L. G., K., & Figliozzi, M. 2013. ***Institutionalizing bicycle and pedestrian monitoring programs in three states: Progress and challenges.*** TRB 2014 Annual Meeting.

North, D., & Thomas. R. P. 1973. ***The Rise of the Western World-An Economic History.*** New York: Cambridge University Press.

North, D. 1990. ***Institutions, institutional change and economic performance.*** Cambridge University Press.

Onwuegbuzie, Dickinson, Leech & Zoran. 2009. A qualitative framework for collecting and analyzing data in focus group research. ***International Journal of Qualitative Methods***, 8: 1-21.

Porter, M., & Kramer, M. 2011. Creating shared-value. ***Harvard Business Review.***

Pucher, J., & Buehler, R. 2008. Making Cycling Irresistible: Lessons from The Netherlands, Denmark and Germany. **Transport Reviews,** 28(4): 495-528.

Pucher, J., Garrard, J., & Greaves, S. 2011. Cycling down under: a comparative analysis of bicycling trends and policies in Sydney and Melbourne. ***Journal of Transport Geography*****,** *19*: 332-345.

Pucher, J., & Buehler, R. 2012. ***City cycling.*** MIT Press.

Rissel, C., Garrard, J., Ker, I., Speidel, R., & Fishman, E. 2008. ***Cycling: Getting Australia Moving: Barriers, Facilitators and Interventions to Get More Australian Physically Active Through Cycling: Executive Summary***. Melbourne: Department of Health and Ageing.

Rissel, C. E. 2009. Active travel: a climate change mitigation strategy with co-benefits for health. ***New South Wales public health bulletin***, 20: 10-13.

Rissel & Wen, 2011. The possible effect on frequency of cycling if mandatory bicycle helmet legislation was repealed in Sydney, Australia: a cross sectional survey. ***Health Promotion Journal of Australia*****,** 22.

Robért, K.-H., Broman, G., Waldron, D., Ny, H., Byggeth, S., Cook, D., Johansson, L., Oldmark, J., Basile, G., Haraldsson, H., Macdonald, J., Moore, B., Connel, T., & Missimer, M. 2012. ***Sustainability Handbook.*** Lund : Studentlitteratur AB.

Robertson, P.J., & Seneviratne, S.J. 1995. "Outcomes of planned organizational change in the public sector: a meta-analytic comparison to the private sector", ***Public Administration Review*****,** 55: 547-557.

Robinson, D.L. 2005 Safety in Numbers in Australia: more walkers and bicyclists, safer walking and bicycling. ***Health Promotion Journal of Australi*****a,** 16(1): 47–51.

Robinson, D.L. 2006. No clear evidence from countries that have enforced the wearing of helmets. ***BMJ***, 332: 722–725

Sanders, R. L. 2013. ***Examining the Cycle: How Perceived and Actual Bicycling Risk Influence Cycling Frequency, Roadway Design Preferences, and Support for Cycling Among Bay Area Residents.*** Doctoral dissertation, University of California Transportation Center, California.

Scott, R. 2008. Approaching Adulthood: the maturing of institutional theory. ***Theory and Society.*** 37: 427-442.

Scott, R. 2014. ***Institutions and organizations: ideas, interests and identities.*** SAGE publications, Inc.

Scott C. & Span D., 2009, ***Research into Barriers to Cycling in NSW***. AMR interactive, NSW.

Self, D., Armenakis, A., & Schraeder, M. 2007. Organizational change content, process, and context: a simultaneous analysis of employee reactions. ***Journal of change management,*** *7*(2): 211-229.

Selznick, P. 1949. ***TVA and the Grass Roots.*** Berkeley: University of California Press.

Simon, H. 1957. ***Models of man.*** New York: Wiley.

Shenton, A. K. 2004. Strategies for ensuring trustworthiness in qualitative research projects. ***Education for information,*** *22*: 63-75.

Shephard, R. J. 2008. Is active commuting the answer to population health?. ***Sports Medicine,*** 38: 751-758.

Smith, A. 1776. ***The wealth of nation.*** New York: Modern Library Edition.

Smith, P., Wilson, M., & Armstrong, T. 2011. ***'I'll just take the car': improving bicycle transportation to encourage its use on short trips.*** NZ Transport Agency research report 426.

SQW. 2007. ***Valuing the Benefits of Cycling: A Report to Cycling England, Cycling England.*** Department for Transport.

Stern, N., Zenghelis, D., & Rode, P. 2011. City solutions to global problems. Cited in Burdett, R., & Sudjic, D. (red.). ***Living in the endless city: the Urban Age project by the London School of Economics and Deutsche Bank's Alfred Herrhausen Society.*** London: Phaidon Press Ltd.

Stinchcombe, A. 1997. On the Virtues of the Old Institutionalism. ***Annual Review of Sociology***. 23: 1-18.

Stradling, S., Meadows, M., & Beatty, S. 2000. Helping drivers out of their cars - Integrating transport policy and social psychology for sustainable change. ***Transport Policy,*** 7: 207-215.

Sveningsson, S. & Alvesson, M. 2008. ***Förändringsarbete I organisationer – om att utveckla företagskulturer***. Liber.

Sveningsson, S. & Sörgärde, N. 2013. ***Organisationsförändring: hur, vad och varför?*** Spanien: Studentlitteratur.

State of New South Wales through Transport for NSW. 2013. ***Sydney Cycling Future,***

Tainter, J. 2006. Social complexity and sustainability. ***Ecological*** *Complexity*, 3: 91-103.

Thompson, D. 2013. ***Suburban sprawl: Exposing hidden costs, identifying innovations.*** Sustainable Prosperity report, University of Ottawa.

The City of Melbourne, 2012***. The Bicycle Plan 2012-2016***

The City of New York. 2014. ***Transportation Planning: Bicycle and Greenway Planning.***

Tversky, A., & Kahneman, D. 1981. The framing of decisions and the psychology of choice. ***Science***, 211: 453-458

Tversky, A., & Kahneman, D. 1986. Rational choice and the framing of decisions. ***The journal of business.*** 59: 251-278.

Tversky, A., & Kahneman, D. 1991. Loss aversion in riskless choice: a reference-dependent model. ***The quarterly journal of economics.*** 106: 1039-1061.

UNEP (United Nations Environment Program). 2011. Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. www.unep.org/greeneconomy.

Unit, M. C. 2011. ***Our Cities, Our Future: a national urban policy for a productive, sustainable and liveable future.*** Australian Government, Canberra.

U.S. Department of Transportation. 2004. ***National Bicycling and Walking Study: Ten Year Status Report.*** Washington, DC: Federal Highway Administration.

U.S. Department of Transportation. 2010. ***National Bicycling and Walking Study: 15 Year Status Report.*** Washington, DC: Federal Highway Administration. http://katana.hsrc.unc.edu/cms/downloads/15-year_report.pdf

Van de Kerk, G., & Manuel, A. R. 2008. A comprehensive index for a sustainable society: The SSI-the Sustainable Society Index. ***Ecological Economics***, 66: 228–242.

Van de Ven, A., & Poole, M. 1995. Explaining Development and Change in Organizations. ***Academy of management review.*** 20: 510-540.

Van der Voet, J. 2014. "The effectiveness and specificity of change management in a public organization: transformational leadership and a bureaucratic organizational structure", ***European Management Journal***, 32: 373-382.

Van der Voet, J. Ben Kuipers Sandra Groeneveld. 2015. "Held back and pushed forward: leading change in a complex public sector environment", ***Journal of Organizational Change Management,*** 28: 290 – 300.

State of Victoria. 2012. ***Victorian Cycle Action Plan 2013 & 2014.***

Victoria Transport Policy Institute. 2013. ***Cycling reduces congestion. Transportation Cost and Benefit Analysis II – Congestion Costs.***

Voronov, M. & Vince, R. 2012. Integrating Emotions into the Analysis of Institutional Work. ***Academy of Management review.*** 37: 58-81.

Yin, R. 1994. ***Case-Study Research – Design and Methods.*** SAGE Publications.

Yin, R. 2004. ***The Case Study Anthology.*** SAGE Publications.

Yin, R. K. 2011. ***Applications of case study research***. SAGE Publications.

9. APPENDIXES

9.1. APPEDIX 1. RESPONDENTS

APPENDIX 1. Respondents

Name	Position	Date and Place
Fleur Maidment	Community Relations Coordinator, City of Melbourne. Author of *The City of Melbourne's Bicycle Plan 2012–2016.*	2015-04-07 Melbourne
Geoff Lawler	Director of City Planning and Infrastructure, City of Melbourne	2015-04-07 Melbourne
Geoff Robinson	Manager of Engineering, City of Melbourne	2015-04-07 Melbourne
Councillor Richard Foster	Councillor of the city of Melbourne	2015-04-08 Melbourne
Councillor Jackie Fristacky	Councillor of the city of Yarra	2015-04-08 Melbourne
Alistair McDonald	Bicycle Strategy Project Manager, city of Yarra	2015-04-08 Melbourne
Jim Kourlas	Network Improvements Policy, Vicroads	2015-04-08 Melbourne
Aimee Boulton	Integrated Network Strategy Coordinator, Vicroads	2015-04-08 Melbourne
Rachel Carlisle	Senior Policy Officer, Road User Access and Mobility, Vicroads	2015-04-08 Melbourne
Michael McClean	Network Policy and Standards Officer, Vicroads	2015-04-08 Melbourne
Dr Cameron Munro	Transport planner consultant, Principal, CDM Research	2015-04-09 Melbourne
Peter Burke	General manager, Cycling Promotion Fund	2015-04-09 Melbourne
Sasha Yarwood	Senior Project Manager at the Department of Economic Development, Jobs, Transport and Resources, Victoria	2015-04-09 Melbourne
Gary Brennan	CEO Bicycle Network,	2015-04-10 Melbourne
Dr Marilyn Johnson	Research and Policy Manager at the Amy Gillett Foundation	2015-04-10 Melbourne
David Borella	President Bike Sydney	2015-04-14 Sydney
Kevin John	Principle, Austraffic	2015-04-15 Sydney
Fiona Cambell	Manager Cycling Strategy at City of Sydney	2015-04-15 Sydney
Tony Arnold	Executive Officer, Australian Bicycle Council	2015-04-16 Sydney
Pip Vice	Lower House Candidate for the Seat of North Shore at Australian Cyclists Party,	2015-04-16 Sydney
Sara Stace	Active transport, urban design and policy consultant. Former Director of National Urban Policy in the Commonwealth government's Major Cities Unit	2015-04-17 Sydney
Stephen Greaves	Professor in Transport Management at the University of Sydney	2015-04-21 Sydney
Chris Rissel	Professor of Public Health at the University of Sydney	2015-04-21 Sydney
Chris Standen	PhD Candidate at the Institute of Transport and Logistics Studies at the University of Sydney	2015-04-21 Sydney

9.2. APPENDIX 2. INTERVIEW GUIDE

1. Background factors of today's planning for bicycling.

Can you tell us *briefly* about the history of bicycling in Melbourne/Sydney and its development from 1900 to today? What happened when motorized vehicles became part of society?

How would you describe the bicycling culture in Melbourne/Sydney?

What is your perception of transport planning, and how has it developed over the years? When and how did planning for bicycling become a factor of concern for transport planners?

What has influenced planning for bicycling?

What has had the biggest impact on transport planning?

What are Melbourne/Sydney's citizens' attitudes to bicycling, and how does their attitude affect transport planning?

How do politicians exert influence on transport planning? Are there any disagreements among the different parties concerning planning for bicycling?

Are federal politicians engaged in matters of traffic and bicycling? Since one of the two largest cities in Australia is affected, national politicians might be interested in planning the city.

What are the present plans and goals regarding cycling?

2. Other factors that might have an influence on planning for bicycling and bicycling policies

How is the road system in Melbourne/Sydney governed?

What does the interaction between transport planning and planning for bicycling look like? What is given the highest priority within transport planning?

How is Melbourne/Sydney's council working to increase bicycling?

How is giving priority to bicycling promoted in Melbourne/Sydney? What is done to make bicyclists feel that they are prioritized?

How does the city of Melbourne/Sydney prioritize among other types of traffic?

What other actors do you believe have an impact on transport planning?

What does the interaction between motor vehicles and bicyclists look like in Melbourne/Sydney?

What are the laws in Australia concerning bicycling? Do they differ among the *states*?

Do Australian laws give priority to bicyclists?

Does the existence or non-existance of a car industry affect bicycling policies and planning for bicycling? Lobbying groups for and against bicycling?

How do the media look upon bicycling and cyclists?

3. Other factors of planning for bicycling:

How do you incorporate the Australian Cycling Strategy into your work?

Are citizens/cyclists involved in transport planning processes?

How safe are bicyclists in Melbourne/Sydney?

Does the federal government provide sufficient funding for bicycling initiatives?

Is there any corporation with other Australian councils?

To what extent did you as a citizen/politician/lobbyist/transport planner influence transport planning and planning for bicycling?

Do you regard current conditions for bicycling and planning for bicycling in Melbourne/Sydney as satisfactory? At whose expense do you expand? Cars/busses/ pedestrians/bicyclists?

Do you believe that bicycling can become an integral part of society, making it more sustainable?

How is it possible to produce institutional commitments and practices for reorienting Australian cities towards bicycling?