Helsinki towards a firmly grounded cycling culture: a study about all-year-round cyclists

Cristina Bianchi

kristina.bianchi@gmail.com

Abstract

The emergence of always more complex and ill-defined societal challenges has induce governmental institutions to look into alternative methodologies to tackle them. The growing necessities of engaging citizens in managing services, finding tools to visualize systems, rapidly prototyping solutions, extending partnerships and affecting interconnected issues, has raised public institutions interest for design methodologies. This paper seeks to test the validity of a combined approach, which involves a strategic design process of inquiry and ethnographic research methods in the public utilities' scope . Tools and methods are applied to a case study, whose challenge consists of identifying the limiting factors that have prevented investments and strategic plans from doubling the cycling modal share in Helsinki city during the last two decades. Breakthrough interventions to achieve the current goals, which have been set by the municipality, are proposed as a result of the research. To conclude, the suitability of the design process and methodologies together with the contribution of strategic design in enhancing transformations in public utilities are discussed.

KEYWORDS: strategic design, ethnographic research, behavioural change, public sector innovation.

Introduction

The incredibly fast urbanisation of cities has drawn much attention to the complex systems that form them. The constantly-growing population in urban environments has opened up new opportunities but also caused the emergence of new challenges for ensuring liveability in these areas. Solutions to increase the usage of alternative mobility systems have been lately receiving growing consideration all around the world. Among these, utility cycling seems to have become a prominent subject of interest for many city planners worldwide.

As many other European municipalities, Helsinki has, for the last two decades, also been committed to increase cycling as a mode of transport, with a view to at least doubling the

local cycling traffic volume. As the local public transportation offical publications report (YTV),during the last twenty years, efforts have been channeled in the establishment of an easy-accessible cycling network, developing strategies and sensitizing politicians to the issue. Whilst such measures have met a large degree of success throughout the decades, the final quantitative goal has not been fully achieved.

The hindrances traffic planners have faced in Helsinki are frequently encountered. As cycling planning related global conferences witness, many cities have been recently implementing multiple tailored measures to increase the amount of their cyclist population. However, radical changes have been rarely accomplished. Currently, according to the latest publication released by HSL(Helsingin Seudun Liikenne, 2011), the Helsinki regional transportation system, and to the municipal strategy for 2012 (Penttilä, 2011), increasing the modal share of journeys made by bicycle from 6 to 12% is the major objective, which Helsinki needs to met by 2015. It can be agreed that doubling Helsinki cycling share is a problem with no single remedy, which features lack of consensus about where its core may lie. Because of the complex dynamics of the systems involved, issues such as this require new tools of enquiry and innovative architectures of solutions instead of purely scientific-rational approaches. With the emergence of analogous challenges, which Rittel and Webber already indicated in 1970s with "wicked problems"(1973) , public institutions have been growing interested in new instruments and unconventional methods provided by the design discipline. According to Bason (2010a), considering briefs as experiments, challenging the status quo, valuing end-users perspective and going concrete are four main aspects which have brought design in the spotlight in the context of public utilities. The work of different organizations, such as public innovation labs, think tanks, private service design firms, governmental agencies and international institutions has proven the successful impact of the design practice in the public sector. Especially service and user centered design have been applied to envision new opportunities in the scope of health care, education and sustainability. Additionally, research projects have recently been exploring the potential of design when applied to systems and people's behavior transformations.

In this regard, strategic design has grown popular as a new research area to bridge insights from organizations and end-users, in order to identify breakthrough interventions and tackle problems related to public planning and social policies (Boyer et al., 2011). This paper aspires to test the validity of a combined approach, which included a strategic design process of inquiry and ethnographic research methods. As results, ten guidelines are suggested to summarize essential measures, which local governmental departments should adopt in order to pave the way towards the creation of a more firmly-grounded cycling ecosystem. At the end, the paper examines the potential of strategic design and design research in the context of public sector innovation.

Methodology

The process of enquiry was articulated into two sections, which respectively focused on gathering insights from public utilities' and end-users' perspective. During the first phase, public officials were interviewed, past strategic plans and outcomes of the BYPAD survey reviewed. The second phase included a user study to which around fifty participants contributed. This consisted of a thirty-day personal diary, in-situ, in-depth interviews and cultural probes. The collected material was successively interpreted by using affinity diagrams, brainstorming and mindmaps. At the end of the extensive investigation, findings

were visually summarized through user-profiles and infographics, which helped elaborate potential breakthrough interventions.

The initial part aimed at developing an understanding about the macro phenomenon of urban cycling renaissance. Different sources mainly deriving from the field of cycling planning and social psychology were revised in order to coin a definition of the term "cycling culture"(Bikesnobnyc, 2010) and to identify the aspects which differentiate a cycling culture from a cycling subculture. A framework based on Maslow´s theory of hierarchy of needs (Maslow, 1943) was created to visualize the connections between people´s motivations to ride a bicycle and implemented measures which target specific human needs(Fig.1). By assuming that cycling cultures are shaped by prioritizing the fulfillment of prime utilitarian human necessities (Andersen, 2010), international practices were assessed with the built framework.

Figure 1. The framework illustrates the connection between Maslow's pyramidal hierarchy of human needs and different phenomena related to urban cycling.

Copenhagen and London were chosen among some European municipalities and their policies were analyzed. The Danish capital was selected as best practice and as main example which would support the structure of the framework, whereas the British city was chosen

to test the stated assumptions and to identify the neglected initiatives which would impact more effectively on its road system. The examination of the cycling policies of the two European capitals (Nelson, 2007)(Transport for London, 2010) provided an overview of two municipalities at different stages of their cycling culture development and two necessary terms of comparisons for successive considerations of Helsinki´s cycling ecosystem.

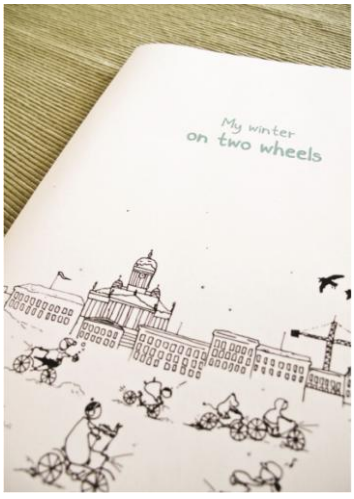
As following step, the area of investigation narrowed down to Helsinki city. Seven experts, i.e. transport planners, researchers and public officials involved in the local cycling decisional process, were firstly interviewed. The choice of the interviewees was based on their active participation in the municipal cycling strategic planning, which was documented by the public transportation system throughout the past two decades (YTV). They contributed to the context inquiry by commenting on previous efforts, current challenges and suggesting recommendations for future planning. The heterogeneous and at times contrasting collected insights offered valuable material to start sketching up a preliminary draft of the local cyclingscape. Secondly, the acquired information was integrated with a review of strategies and recent studies, which had been conducted about cycling trends within Finland. The analysis of such documentation pointed out the allocation of investments and clarified the role of some of the main players involved in the decision making. European policy

evaluative tool, which was utilized in 2003 from the planners of Helsinki Metropolitan area (Helsingin Kaupunki Talous- ja Suunnittelukeskuksen julkasuja, 2003). The resulting outcomes were examined in order to gain a more objective picture of the Finnish capital level of cycling policies implementation.

At the end of the first phase of the context inquiry, the various stakeholders involved in the Helsinki cycling decision making system were mapped out to visualize already existing, missing and potential fruitful interconnections.

By progressively collecting material about the Helsinki cycling system, the scope of the inquiry shrank to the selected final users. The choice fell on all-year-round cyclists because they were easily identifiable compared to seasonal and non-cyclists and because of their positive consolidated inclination towards the cycling activity, which makes these individuals a best case scenario to learn from. People, who are used to cycling in the harshest conditions, prove indeed to have undergone a process of mindset establishment more than a mere behavioral transformation. Furthermore, the analysis of additional quantitative considerations concerning winter cycling trends (Helsinki Times, 2010) supported a deeper look into all-year-round cyclists positive attitude. The user-study included different methods, such as a personal empathic diary, in-situ-, in-depth interviews and empathic probes, which were constantly iterated with quantitative data and literature reviews.

The daily diary consisted of a 30-day-field research, in which people's behaviors were observed and environmental conditions monitored. Personal feelings, hindrances, unexpected inconveniences and encounters were illustrated through anecdotes, self-taken pictures and sketches. As for the in-situ interviews, they were conducted during the field research. They aimed at supplying an initial snapshot of the diverse user groups. Additionally, the objective of interviewing winter cyclists during their everyday practice was to dig out their spontaneous impressions about bicycle commuting. The volunteering participants were stopped indiscriminately in different locations throughout the city and during various times of the day.



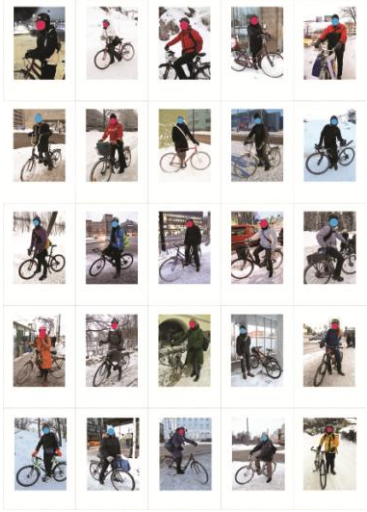


Figure 2 and 3 display respectively the daily diary and in-situ interviewees.

After collecting data through contextual research, in-depth interviews were used in order to delve into people's attitude and mindset. Individual long interviews investigated people's relationship with their bicycle/s, and to the cycling experience, what they consider valuable, what they consider frustrating, their level of confidence and the process through which this was built, their motivations and beliefs. The questions were not self-formulated but followed

Ajzen´s "Theory of Planned Behavior" framework, a persuasion theory, which has been gaining considerable attention within the field of consumer behavior and advertising, since it provides basis to cope with consumers' behavioral change (Blackwell et al., 1995). The choice fell on Azjen's Theory because of its popularity in traffic psychology and healthcare.

The outcomes from the personal diary and interviews, encouraged a further deeper inquiry. Some recurrent patterns triggered interest for winter cycling's lifestyles, past, rooted beliefs, values and in their ways of relating to the outdoor, than just concentrating on the cycling practice itself. As cultural probes have been proven repeatedly to be a useful tool for exploring intimate aspects of people's everyday life, they were selected as proper tool to apply. As Mattelmäki underscores:

> *"Probes collect information about potential users, their experiences, attitudes and needs. (…)They can record detailed information about people's daily lives (…) as well as the equipment and locations, along with factors affecting the experience such as family life or attitudes. Probes can also address themselves to people's actions and emotions in situations where the time and place for the events cannot be agreed on in advance" . (2006)*

In total, five participants were recruited. The process of the kit delivery included an informal interview, which averagely lasted for an hour. When the material was returned, the contributors were interviewed for the second time and asked to elaborate their answers and illustrate their responses.

Figure 4 shows the probe-kits

After receiving back the probe-kits, all the data were analyzed, clustered, rearranged in affinity diagrams. By combining the information collected through the user study, four profiles were identified and illustrated by means of personas. The creation of a user segmentation helped define the existent profiles which determine the all-year-round cyclist population and simplified the process of recognition of the missing ones.

To conclude, the insights collected from the first and second phase were merged in a map which underscored the findings related to the public utilities analysis and the outcomes of the ethnographic research. Having the data condensed in a single image facilitated the design of possible interventions (Fig. 5).

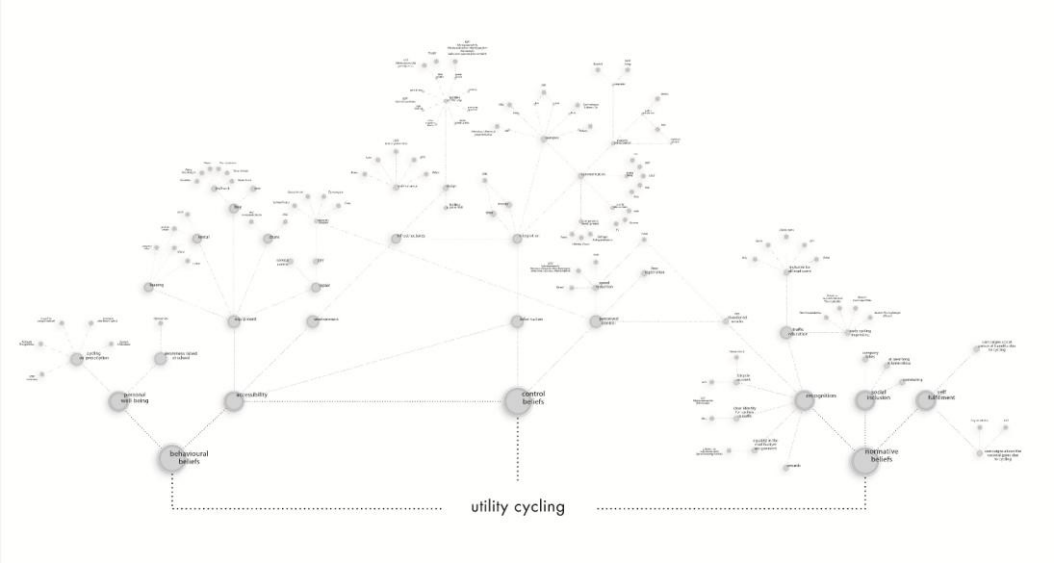


Figure 5 illustrates the final map where data are merged und summarized in a single image.

Strategic Decalogue

The results acquired by the research provided an overview of the present estate of the cycling system in the Finnish capital. In the past twenty years, local stakeholders supported the consolidation of a cycling subculture. As interviewees mentioned and YTV strategies depicted, resources were mainly conveyed to hardware solutions, such as bike-lane network expansion and improvement of facilities. According to the BYPAD evaluative tools (Langzaam Verkeer, 2008), the attention drawn on infrastructural developments together with the public reliance on the City Traffic Department and an apparent missing shared understanding of the target audience characterized Helsinki cycling policy.

The user study, which was conducted on the winter cycling phenomenon, stressed these aspects and highlighted the importance of the phenomenon itself in the establishment of a "firmly grounded" cycling culture.

Not only Copenhagen, where 70 % of commuters keep riding their bicycles during the year (Nelson, 2007), scores high in terms of winter cycling rate but also some Finnish cities like Oulu and Rovaniemi do (Perälä, 2003). These also register high utility cycling. Supporting the growth of the all-year-round cyclist population would create an ideal condition, where businesses and public institutions would perceive cycling as a more profitable solution if turned into a twelve-month-option. Favoring all-year-round cycling would indeed generate a self-sustaining mechanism for attracting investments. In view of these reasons, measures to increase winter cycling rate should prioritized especially while defining strategies and policies.

The table which follows describes the key-insights and material which were gained during the two research phases conducted throughout the study.

1st Phase: public utilities	strategies review	Emphasis throughout the decades drawn on the creation of the local bike-lane network. Bike lanes concentrated on the coastline and in less-congested areas. Urban cycling became a leisure activity, traffic not affected and the achieved critical mass spread and fragmented. Cyclists and pedestrians belonged to the same user segment, causing consequently lack of identity for cyclists. Cyclists not recognized as defined part of the road ecosystem.
	interviews	City Traffic Department main player in the realization of strategies. The role of other stakeholders has been marginal. Helsinki cycling as a "employee driven innovation" result, i.e. dedicated officials were mainly responsible for radical new solutions. New vision recently introduced, which promotes a utilitarian usage of the bicycle. New inclusive approach recently encouraged to involve other essential players.
	BYPAD analysis	Scarse understanding of the targeted-audience. Qualitative research limited. Lack of systemic thinking. Reduced attention to "soft" solutions, i.e. education, information, marketing.
2nd Phase: end-users	30-day diary	Scarse presence of students. All-year-round cyclists = utilitarian cyclists. Poor bike lane cleaning and maintanance as first deterrent to use the bicycle.
	interviews (in-situ/in-depth)	Cycling favored to car, because of easy-maintainance, easy parking, reduce expenses. Cycling public transportation because of the freedom from timetables. Cycling considered best choice when time and money saving are connected with improvement of personal mental and physical health. Confidence built throughout years of cycling practice. Experience as a first guarantee of safety.
	probes	Cycling as an incentive to compete against ageing and as a reason to feel independent and self-fulfilled. Possibility of intermodal connections, increases the perception of safety "Utility cycling imprinting"=habit consolidation process. Cycling as a means to enhance social interaction at the working place and the feeling of community-belonging All-year-round cyclists as indirect influencial cycling advocates.

Table 1 summarizes the findings obtained through the two phases of the study.

Based on the developed map(Fig.5) and on the illustrated resulting information(Tab. 1), the following ten guidelines were developed to help traffic-, city planners, traffic researchers establish holistic vision and shared understanding about essential initiatives, which need to be undertaken in order to achieve significant changes. The first five suggest a transformation in vision while the remaining indicate more practical principals to be followed.

1. Assess qualitatively. The impact of adopted measures should be also evaluated by considering how solutions affect the local cycling culture "stability".
2. Regard cycling as a system. As a qualitative study from the London Transport Research Lab reports, "cycling is not a single, homogenous activity. It is a number of different activities that have in common the use of a two-wheeled unpowered vehicle (…) and these activities may involve different ways of understanding"(Buttress et al., 2010). Therefore, cycling policies should be integrated with multiple policy fields.
3. Plan user-centric. Strategies should be tailored by monitoring the local cycling population. Knowing the targeted audience and being aware of the implications of the absence of certain user-groups should be an essential requirement to effectively prioritize interventions.
4. Reduce cycling politicization. Flags, with no regard of what colors they have, can unite but also separate. Cycling should be promoted simply as a quick healthy safe means of transportation which fulfills the primary human need of moving from A to B. Cycling should be associated with better livability in order to reach a wider audience.
5. Intensify public discussion.
6. Increase accessibility to winter cycling. A solid cycling culture is built on the population of all-year-round cyclists. The vaster this is, the more plausibly it will inspire business opportunities for investors.
7. Enable "cycling imprinting". Ensuring favorable conditions to take up with cycling at an early stage of life is a long-term investment which will pay back. Sensitizing young children to consider cycling as a convenient transportation solution would facilitate the process of building up their confidence. Tight collaboration among the Department of Education, Health, Social Services and local authorities would be necessary in order to target end-users comprehensively through multichannel measures.
8. Extend traffic education. Traffic educational programs should include all road users. Having well-educated cyclists would contribute to improve the public image of the overall cycling practice, and consequently the perception of status.
9. Target researchers, young entrepreneurs. They are an enormous unexploited asset in Helsinki area. They are the young families of today and tomorrow and have a significant impact on the local cycling ecosystem. Incentives and tax deduction should be increased in order to make bicycle usage more attractive than the car, especially for businesses located in the metropolitan area.
10. Integrate cycling with public transportation. Utility cycling should be actively supported by the local public transportation system. Carrying bicycles on buses, trams, metros and trains should be allowed and be financially convenient. The introduction of a ticket which would charge according to the distance covered would encourage people to use the bicycle for short distances or undertake longer journeys by bike.

Conclusions

The growing interest for utility cycling and the repetitively unmet goal of doubling the cycling modal share in the Finnish capital required a systemic approach to reframe the problem and the combination of unconventional research tools which would not result in usual infrastructural improvements and alternative mobility promotional initiatives. The project presented in this paper has been an attempt of presenting an iterative process which included theoretical and empirical research and dealt with the back (public utilities and private stakeholders) and front-stage (end-users) of a system which features intricate dynamics. It also aimed at providing a relevant case study for addressing ill-defined complex challenges which deal with design for behavioral change, which in this specific case could be rather defined as "different mindset development".

The design research process, succeeded in bridging the governmental side with people behavioral structure by involving approaches from multiple practices, such as traffic and city planning, urban design, sociology and human psychology and highlighted the complex relationships between stakeholders, adopted solutions and impacts on individuals.

Whilst the study equips designers with a valuable reference, the process may appear incomplete because of the restricted selected end-user group. It can be argued that the scope of the project excludes significant aspects which can have gone neglected and that the suggested solutions cover partially and simplistic a challenge of a wider calamity. The ethnographic study presented in this paper focuses indeed on a best case scenario and does not extensively cover the overall phenomenon of urban cycling in the Finnish capital; however, it provides researchers with a evaluative principals and tools to conduct further inquiries. Therefore, it needs to be underscored that, in order to gain a more comprehensive picture of Helsinki's bicycle user segmentation and propose a more exhaustive strategic plan, further studies during different seasons would be necessary.

As additional remark about the role of strategic design in public sector innovation, it needs to be pointed out that tighter collaboration between design researchers and public utilities should be strongly supported when dealing with analogous issues. Projects concerning societal challenges that municipalities are currently facing should be more frequently proposed in the academic context. These should not focus only on the development of architectural or urban design solutions, rather on suggesting strategic and new research approaches. This would be beneficial for both the municipalities, which could acquire novel methodologies and tools of enquiry and the students/researchers, who would feel more empowered because of the larger impact their contribution may have locally. Public utilities would become more aware of the significant potentials that design has and involve strategic designers in playing a more active role in municipal departments. As Bason also emphasizes, closer and more frequent cooperation between designers and civil servants may also help convey a diverse role of the design discipline (Bason, 2010b). Practices like the English National Health Service(NHS)and Kent Council have already prove such tight collaboration to be successful.

References

Andersen, M.C. (2010) Presentation at Megapolis 2025, Helsinki, Aug 2010

Bason, C.(2010a) Leading innovation in Public Sector Co-creating for a better society, The Policy Press, pp145

Bason, C.(2010b) Leading innovation in Public Sector Co-creating for a better society, The Policy Press

Blackwell, R.D., Engel J.F., Miniard P.W.(1995) Consumer Behaviour, Eight Edition, The Dryden Press, USA, pp389-pp391

Bikesnobnyc (2009) Systematically & Mercilessly Realigning the World of Cycling, *Chronical*, pp120- pp130

Boyer, B., Cook, J.W, Steinberg, M. (2011) In Studio: Recipes for Systemic Change, Available at: http://helsinkidesignlab.org/peoplepods/themes/hdl/downloads/In_Studio-Recipes_for_Systemic_Change.pdf

Buttress, S., Christmas, S., Helman, S., Newman,C., (2010) Cycling, safety, and sharing the road: qualitative research with cyclists and other road users, Transport Research Laboratory, London, pp15

Helsingin Kaupunki Talous- ja Suunnittelukeskuksen julkasuja (2003) Helsingin pyöräilyn kaksinkertaistamisohjelma - Helsinki Economic and Planning publications (2003) Helsinki cycling doubling programme.

Helsingin Seudun Liikenne - Helsinki Regional Transport (2011) HLJ 2011 Kävely ja pyöräily Helsingin seudulla - Walking and cycling in Helsinki Region, Helsinki

Helsinki Times (2010) Popularity of winter cycling rising in Finland, 27 Dec. 2010, Available at: http://www.helsinkitimes.fi/htimes/domestic-news/general/13664-popularity-of-winter-cycling-rising-in-finland.html

Langzaam Verkeer (2008) Bypad. Cycling, the European approach, Fgm-AMOR, Velo: consult and the European Cyclists´ Federation, Available at: http://bypad.org/docs/BYPAD_Cycling_The_European_approach.pdf

Maslow, A. H. (1943). A Theory of Human Motivation, *Psychological Review*, pp50

Maslow, A.H. (1970) Religions, Values, and Peak-Experiences, Penguin Books, USA Inc

Maslow, A. H. (1972) The Farther Reaches Of Human Nature, An Esalen Book, Penguin Books, USA Inc

Mattelmäki, T. (2006) Design Probes, University of Art and Design, Helsinki, pp71-82

Nelson, A. (2007) Livable Copenhagen: the Design of a Bicycle City, Centre for Public Space Research, Copenhagen, University of Washington, Seattle, Available at: http://greenfutures.washington.edu/pdf/Livable_Copenhagen_reduced.pdf

Perälä,T. (2003) Talvipyöräilyn laajuus, sen esteet ja motiivit sekä terveysvaikutukset - Winter Cycling, barriers, motivations and effects on health, Oulu, pp17, Available at: http://www.liikenneturva.fi/www/fi/liitetiedostot/turvatieto/talvipyorailytutkimus.pdf

Penttilä, H. (2011) Tulevaisuus on pyöräilyn ja kävelyn - The future belongs to cycling and walking, [PowerPoint slides]. Retrieved from http://www.tut.fi/verne/wp-content/uploads/2011/09/2011-09-16-Py%C3%B6r%C3%A4ilyverkosto.pdf

Rittel, H.W.J. , Webber, M.M. (1973) Dilemmas in a General Theory of Planning, Policy Sciences , Elsevier Scientific Publishing Company, Inc., Amsterdam, Vol. 4: pp. 155–169

Transport for London (2010) Cycling Revolution London, Retrieved from http://www.tfl.gov.uk/assets/downloads/Cycling/cycling-revolution-london.pdf

YTV(1997) Pääkaupunkiseudun pyöräliikennetutkimus - Helsinki regional bicycle traffic survey

YTV(2000) Pyöräliikenteen strategiasuunnitelma - Bicycle traffic strategic plan

YTV(2004) Kevyen liikenteen haastattelututkimus 2004 - Cycling and walking research 2004

YTV(2006) Pääkaupunkiseudun jalankulun ja pyöräilyn strategiasuunnitelma - The metropolitan area cycling and walking strategic plan