

# UTILISING THE CONCEPT OF MOBILITY MANAGEMENT IN A PUBLIC ADMINISTRATIVE ORGANISATION

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Abstract <p>The concept of mobility management is still fairly new in Finland. The need for utilising sustainable transportation modes is significant. The Centre for Economic Development, Transport and the Environment for Central Finland (ELY centre) recognised their need for a customised mobility plan. Environment, occupational safety and logistics were selected as the main focus points in the study.</p> <p>Quantitative research was selected as a research method. The aim was to find out the current situation at ELY centre and how it could be developed. In order to get reliable results, an Internet based questionnaire was made for the personnel with five main categories: commuting, business trips, occupational safety, accessibility and mobility management.</p> <p>The questionnaire aroused a great deal of interest among the employees. The response percentage was 52%, which was considered to be a success. The results gained from the research supported the recognised need. The main transportation mode in commuting and in business trips was a personal car. Popular options for both were cycling, bus and carpooling. There were several issues where development would be required, but seven main development focus points were selected. These selected points were dealing with company ticket, car parking problems, remote work possibilities, video-conferencing, carpooling networks, the attractiveness of cycling and the current resources.</p>		
Keywords Mobility management, mobility plan, commute, business trip, sustainable development.		
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Tiivistelmä <p>Maailmalla jo hyvin tunnettu käsite liikkumisen ohjaus on Suomessa vielä hieman tuntematon. Tarve kestävien kulkumuotojen kehittämiseksi on kuitenkin suuri. Keski-Suomen elinkeino-, liikenne- ja ympäristökeskus (ELY-keskus) tunnisti tarpeen henkilöstönsä liikkumisen ohjaukseen niin työ- kuin virkamatkoilla. Työtä tarkasteltiin taloudellisesta, ympäristöllisestä sekä logistisesta näkökulmasta.</p> <p>Tutkimustavaksi valittiin kvantitatiivinen tutkimus. Työn tavoitteena oli selvittää miten ja miksi ELY-keskuksen työntekijät liikkuvat ja mitä työntekijöiden mielestä tulisi kehittää tulevaisuudessa. Henkilöstölle toteutettiin Internet-pohjainen kysely, joka koostui viidestä pääkategoriasta: työmatkat, virkamatkat, työturvallisuus, esteettömyys sekä liikkumisen ohjaus.</p> <p>Talvella 2011 suoritettu työ- ja virkamatkakysely nosti selkeästi esille kehittämiskohteita Keski-Suomen ELY-keskuksella, joista osa oli tunnistettu jo ennen työn aloittamista. Korkea vastausprosentti toteutetussa kyselyssä (52 %) mahdollisti yleisten johtopäätösten tekemisen matkustustottumuksista sekä muutoshalukkuudesta.</p> <p>Työmatkoilla vastaajat käyttivät eniten henkilöautoa sekä kesällä polkupyörää. Virkamatkoilla suosituin matkustustapa oli henkilöauto ja juna. Kyselyn perusteella tunnistettiin lukuisia kehittämiskohteita, joista valittiin seitsemän pääkohtaa. Nämä valitut kehittämiskohteet koskivat työsuhdematkalippua, pysäköintiongelmia, etätyömahdollisuuksia, videoneuvotteluja, kimpakyytejä, pyöräilyn houkuttelevuuden lisäämistä sekä nykyisten resurssien hyödyntämistä. Kyselystä nousi esille myös jatkotutkimusmahdollisuuksia esimerkiksi esteettömyyteen ja kimpakyytisivustojen luomiseen.</p>		
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## TERMINOLOGY

<b>Commute</b>	A journey that an employee undertakes between home and workplace.
<b>Business trip</b>	Trips that are made during an employee's working hours. An example could be travelling from Jyväskylä to Helsinki for a customer meeting.
<b>Work-related trips</b>	All trips that are made either between home and workplace (commute) or during working hours (business trip).
<b>Carpooling</b>	When two or more people are sharing a car for commuting or business trips.
<b>Company bicycle</b>	A bicycle that a company provides for its employees so that they can make work-related trips by bicycle. It can be leased or a company's own bicycle. Employees can use these bicycles also during their free time.
<b>Company ticket</b>	Public transportation ticket that a company supports financially for its employees. The ticket can be used also during free time.
<b>Remote work</b>	Work that is done somewhere else than in the work place. Work does not require any travelling.
<b>Car sharing</b>	Company offers cars for employees to share. They can use those cars during office hours for business trips and also for their private use. When using the car during free time an employee must pay the agreed fee (usually based on driven kilometres).
<b>Fringe benefit</b>	Fringe benefit can be given according to employment and is a non-financial benefit. Examples could be a company car, company ticket or meal tickets.

# 1 INTRODUCTION

## *1.1 Towards Sustainable Future*

Using personal cars has become more and more popular in Finland during the last decade. Even the shortest trips are made by cars because public transportation, cycling and walking are perceived as being more complicated and time consuming. The fact still is that the negative effects on the environment are growing continuously. Around the world a widely known concept “Mobility management” (MM) is still fairly new in Finland but has already aroused interest within some organisations. By implementing this managing strategy companies are able to introduce and motivate their employees towards sustainable development.

These same problems can be seen in the Jyväskylä area. There are several ongoing projects trying to find solutions to how to develop the area so that it would draw more attention towards sustainable transportation modes (cycling, walking and public transportation). The main focus, according to recent research, is to improve cycling and walkway safety, redesigning parking policy and improving the public transportation network.

Work-related trips are the second largest travelling group after free time trips in Finland. By influencing employees’ travelling habits, major improvements can be made. For an organisation it is essential to know what the current situation is and what should and needs to be done in order to make changes. Companies can manage their transportation behaviour by implementing a mobility plan. The plan aims for a more efficient and effective use of the company’s resources by encouraging employees to select more sustainable transportation modes. (Robert 2007, 17.)

## ***1.2 Aim for the Thesis***

There is a great need for developing sustainable thinking in organisations throughout Finland. People prefer personal cars because they are convenient and easy to use in everyday life. Sometimes in workplaces employees do not even know about other options that are available. The same problem was discovered in the Centre for Economic Development, Transport and the Environment for Central Finland (ELY centre). They wanted to implement a mobility plan for their employees, which could work as a great example for other organisations in the Jyväskylä area.

The research part of this thesis will constitute one section in ELY centre's new environment programme, which will be introduced later in 2011. The main idea was to find out the current situation and travelling habits in commuting and in business trips. Based on the results new ideas and methods will be recommended. ELY centre wanted to have a specific focus on environmental issues, occupational safety and logistics aspects.

Three main aims for this thesis:

1. investigating the current situation in the ELY centre
2. finding reasons and explanations for travelling habits
3. presenting possible development ideas for work-related trips.

## ***1.3 Research Method***

In this thesis a quantitative research method was used. It was selected because the topic requires a thorough investigation of the current situation. Essential topics in quantitative research are that it uses conclusions from previous researches, it defines the used concepts and the results are presented in a statistical way (Hirsjärvi, Remes & Sajavaara 2009, 140).

A questionnaire was made and distributed among the ELY centre employees. The questionnaire was planned so that it would arouse discussion and interest among the employees. Google Docs was used for the technical implementation of



the questionnaire. An Internet based solution was selected because it gives answers quickly and in an electronic form. This saves time and unnecessary paper work.

## 2 ELY CENTRE

### 2.1 History and Present

The Finnish government reformed its state administrations in 2010 and established fifteen new Centres for Economic Development, Transport and the Environment. Before reformation there were several administrative agencies in each region, which were united into two agencies, 15 ELY Centres and 6 Regional state administrative Agencies (AVI). (See Figure 1.)

The aim of this reformation was to gather all authorities under one roof, so that they could work efficiently and successfully in the best interest of customers and regions. ELY Centres have a large variety of tasks that they are performing:

- regional road maintenance, traffic control and public transport
- library services, sports and physical training services
- advisory, financial and development services to companies, development of economic life and innovation environment
- environmental protection, nature protection, usage and management of water resources etc.



FIGURE 1. Reformation in 2010. (KesELY intranet 2011)

ELY Centres are responsible for three main areas:

1. business and industry, the labour force, competence and cultural activities
2. transport and infrastructure
3. the environment and natural resources.

These responsibilities may vary between different centres because in some cases they may handle duties on each other's behalf. Figure 2 illustrates how these centres and their responsibilities have been divided through Finland.

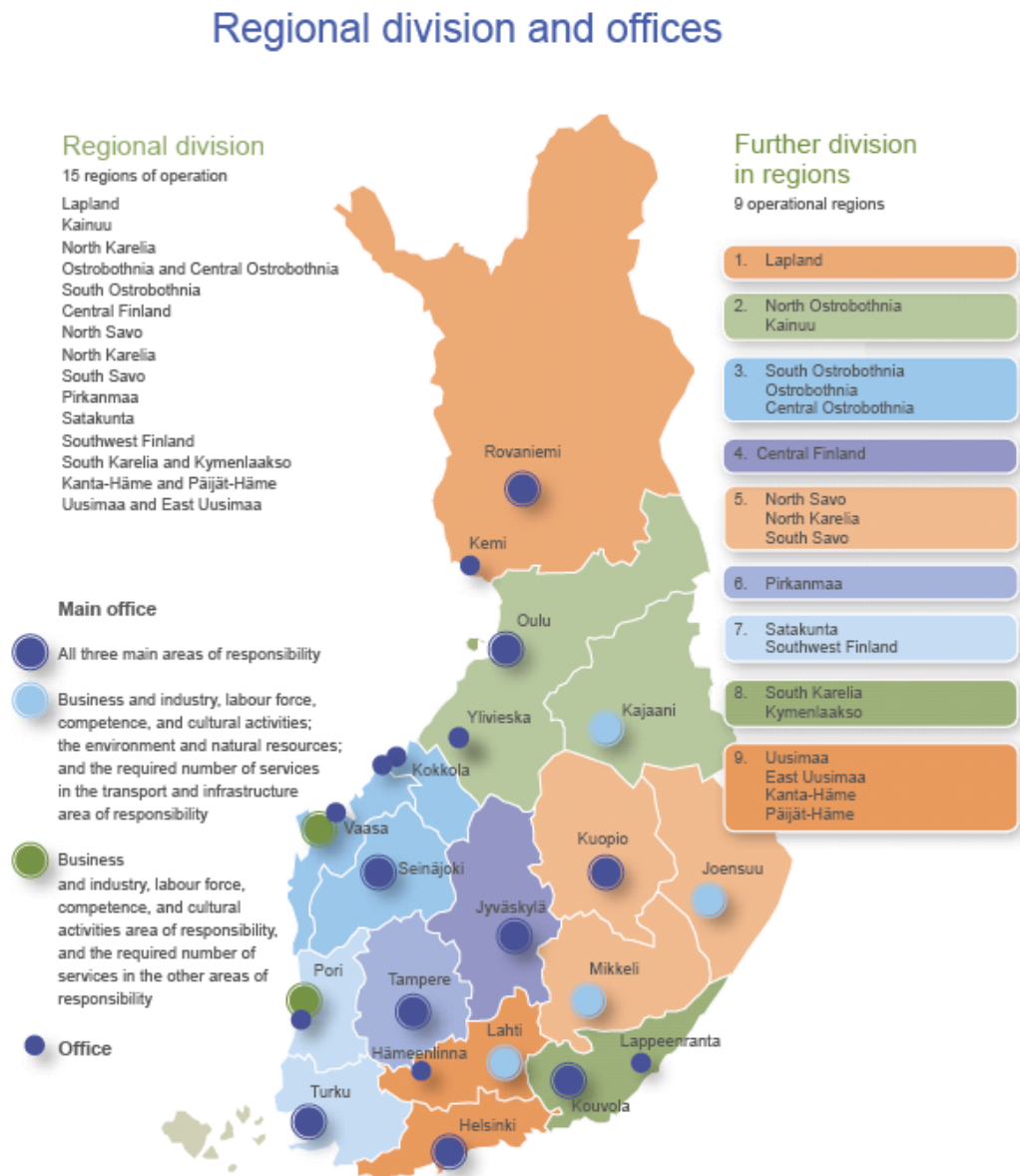


FIGURE 2. ELY Centres' regional division and offices. (ELY intranet 2010)

## ***2.2 ELY Centre in Central Finland***

The ELY Centre in Central Finland was established at the beginning of 2010. Approximately 260 employees from different administrative agencies were gathered together to form a new ELY Centre. Their new office is located in the centre of Jyväskylä in a historic building called “Wanha Lääni”.

Central Finland includes one of those ELY Centres that have all three areas of responsibility. In their vision it is stated that the ELY Centre is committed to serve and develop local industry, labour market and agriculture without forgetting the importance of protecting nature and the environment. They also follow two main strategic focus points, which are giving guidelines for their everyday work:

1. improving regional competitiveness and inhabitants’ welfare
2. controlling climate change and improving sustainable development. (ELY intranet 2011.)

## **3 PASSENGER TRAFFIC IN FINLAND**

### ***3.1 The Reasons and Ways How People Move***

Moving and travelling from one place to another is a civil right for all people in Finland. The reason why people are moving can be divided into three main categories and each of these has approximately a 30 % share of all trips made in Finland:

1. Trips related to work, school or study
2. Free time trips
3. Shopping and personal business trips.

According to a research conducted by the Finnish Transport Agency, people in Finland usually make three trips per day with an average time of 25 minutes for each trip. The average length for those trips is 15 kilometres, which can be

explained by long distances, and the fact that centres of population have spread widely in many cities. (Liikenneministeriö 2009.)

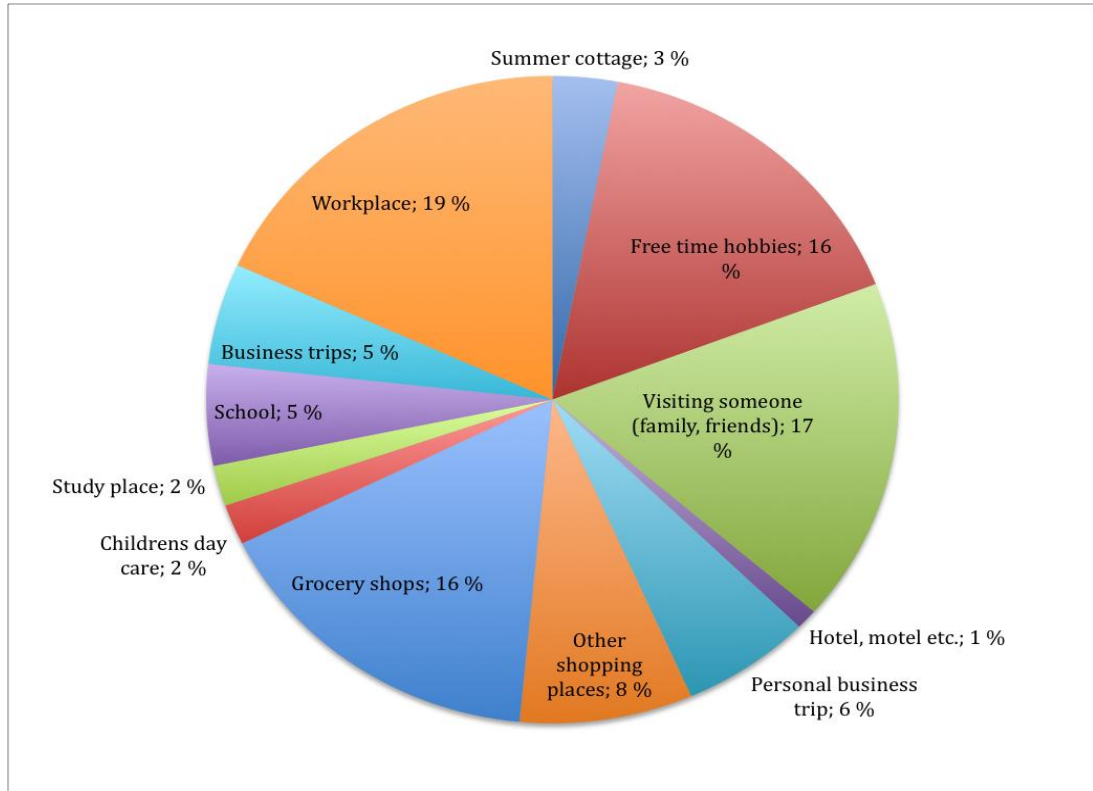


FIGURE 3. Travel destinations in Finland excluding travelling to home (WSP LT-Konsultit 2006, 23).

Approximately 80 % of all trips made in Finland either start from or end to home. The rest are divided as Figure 3 presents. There are four main reasons to travel: grocery shops, visiting someone, hobbies or going to work. Most of these trips (58 %) are made by a personal car. (WSP LT-Konsultit 2006, 16-23.)

The use of personal cars has increased during the last decade mainly because the standard of living has been increasing. Figure 4 shows how the number of passenger cars has increased during a longer period between the years 1966-2009. Especially women have become more interested in travelling by car and that has increased the total number of trips and kilometres travelled by a car. Car trips have also continued to replace sustainable transportation modes such as cycling, walking and public transportation. (WSP LT-Konsultit 2006, 35.)

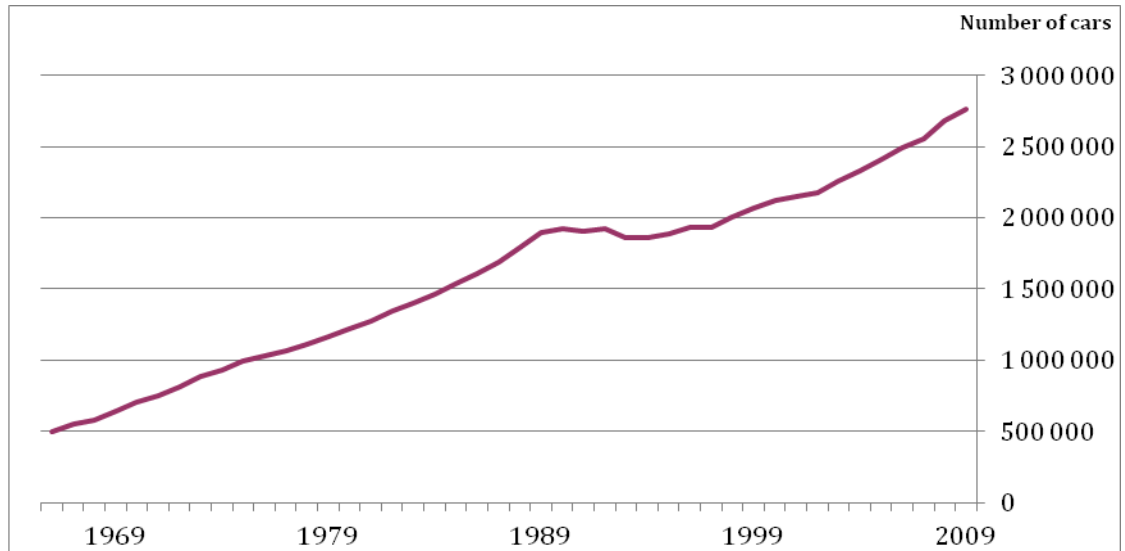


Figure 4. The number of personal cars (Trafi 2009).

Public transportation in Finland is used mainly for trips related to work or school. Approximately 8 % of all trips are made using public transportation. Usually women are more likely to, and frequently select, this transportation mode. When choosing public transportation people usually consider how it affects the time travelled, whether there are good connections available and how accurate the given schedule is. (Sinisalo 2006, 16.)

Walking and cycling are still used for over 30 % of all trips made in Finland. The future trend seems to be decreasing even though several projects have been set up for attracting people to use these sustainable modes. These modes are most popular in short trips (less than 5 kilometres) and in city centres where the needed infrastructure is maintained. (Kävelyn ja pyöräilyn valtakunnallinen strategia 2020 2010, 5.)

Out of all the work-related trips, 67 % are made by a personal car, more than 10 % by public transportation and approximately 22 % by walking or cycling. Work-related trips are made most of the time during peak hours, which has a great effect on traffic jams especially around the city centres. (Motiva 2011.)

### 3.2 Travelling Habits in Central Finland

Major passenger traffic research was conducted in Central Finland during the year 2009. The focus was to gather information about how people are travelling in the Jyväskylä area. Over 4000 people took part in that research by answering phone, e-mail or paper surveys. The number of inhabitants in the Jyväskylä area has increased almost by 15 000 during the last ten years and is now approximately 170 000. Also the number of workplaces has continued to rise steadily. Approximately 80 % of labour in Central Finland are working in Jyväskylä. (Jyväskylän seudun liikenne 2025 2010, 8.)

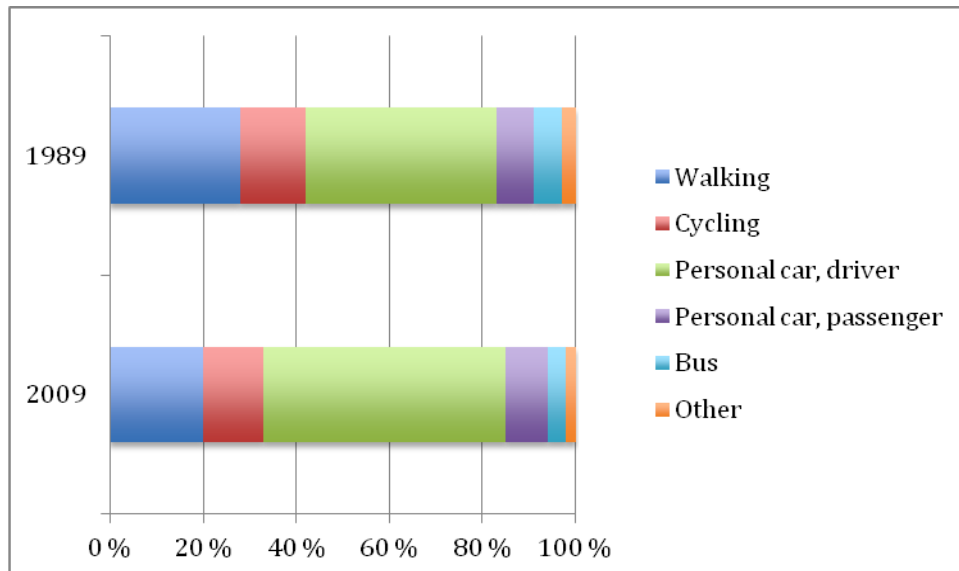


FIGURE 5. Use of different transportation modes in 1989 and 2009 (see the original figure: Jyväskylän seudun liikenne 2025 2010, 6).

In Figure 5 it can be seen that the same phenomenon that has happened in the whole of Finland has also happened in Central Finland. Personal cars have replaced sustainable modes and are becoming more popular. What differs from bigger cities is the use of public transportation. In Central Finland only 5 % of all trips are made by public transportation and almost none of the business trips. (WSP LT Konsultit 2009, 24.)

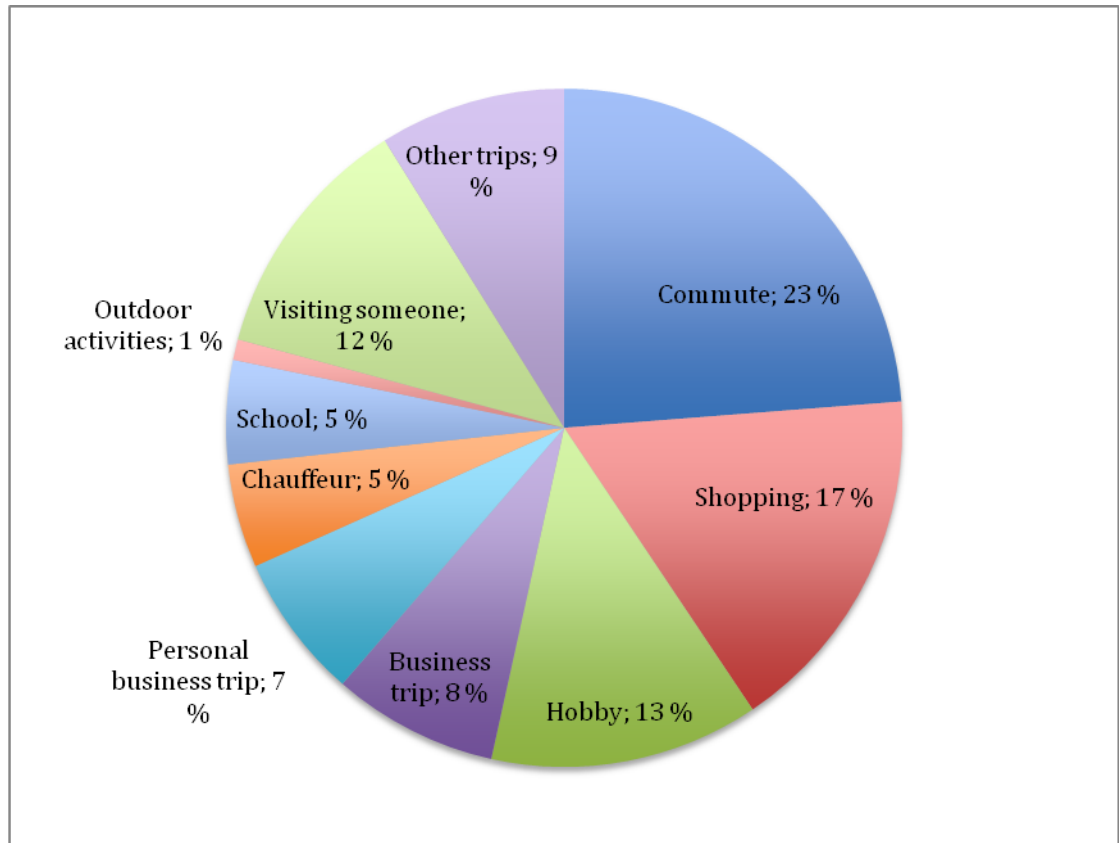


Figure 6. The reasons for travelling in Central Finland (Kalenoja 2009, 16).

Figure 6 shows why people are moving in Central Finland. The biggest shares are trips related to commuting, shopping and hobbies. Respondents' age had a great influence on their travelling habits. The most active travellers were people between 30-54 years, who made approximately three trips per day. The majority of the trips were made in the late afternoon, which is the biggest peak hour time. (Kalenoja 2009, 15-17.)

The main idea of this research (Jyväskylän seudun liikennetutkimus 2009) was to find out where and why people are moving, so that the infrastructure around the Jyväskylä area could support the inhabitants travelling needs. The city of Jyväskylä has started several projects in order to develop sustainable thinking. The latest is "Jyväskylän seudun liikenne 2025", which has several important focus points especially concerning the city centre to increase cycling and walking possibilities among other community related upgrades. (Jyväskylän seudun liikenne 2025 2010, 4.)

## **4 MOBILITY MANAGEMENT**

### ***4.1 General***

Mobility management (MM) is a well-known term around the world but in Finland it is still a quite new issue. In many countries throughout Europe, mobility management is more of a rule than an exception. Mobility management as a tool is a valuable resource to find solutions to problems caused by the increasing use of personal cars in the urban environment. The starting point for mobility management is a demand for sustainable travelling caused by environmental, economical or safety reasons. The main idea is to affect peoples' attitudes towards sustainable modes of transport by using so called soft measures. These measures can be, for example, better communication and information networks for employees or different incentives. (European Parliament 2010, 21.) By offering better and deeper knowledge, people might start to consider sustainable alternatives as real options. Usually the main problem is that people just do not know these other alternatives.

In 2001 the European Parliament established a mobility centre in order to find solutions to growing traffic problems in Europe (Atterbrand, Jorde, Kasin, Krag, Silverberg, Skur & Stenvall 2005, 19). During the same year the EU presented the White Paper on Common Transport. The main purpose of this paper was to develop the balance between modes of transport. Negative impacts on the environment, popularity of personal cars and congestions all over Europe were stated as main problems to be solved. (European Parliament 2010, 18.)

### ***4.2 Mobility Management in Finland***

According to a research titled "Mobility Management in the Nordic Countries" (Atterbrand et al. 2005, 22) Finland has a great interest in this topic but is slightly behind other Nordic and European countries. There are active generators like the Ministry of Transport and Communications, the Ministry of Environment and the Helsinki Metropolitan Area Council's Transport Department. They have



presented several publications considering this topic such as “Possibilities of company mobility management in Finland” (Liikenne ja viestintäministeriö 2005), “Mobility plan for City of Helsinki” (Helsingin kaupungin ympäristökeskus 2005) and “Improving traffic safety and reducing environmental effects of work-related traffic” (Pöllänen, Lund, Kalenoja & Mäkelä 2003).

Several companies in Finland have developed programs or incentives for their employees so that they would start to consider and actually use environmentally friendly commuting options. A few of them are introduced here.

A company called Pekkaniska Oy introduced the “In praise of fitness” programme that presents several ways for employees to earn extra money and at the same time, to become more physically fit. If an employee travels to work either by walking or cycling she/he will receive 1 €/km and if employees go jogging or walking together during their free time and it is over 5 kilometres, they will receive the same 1 €/km. They are also organising fitness tests for volunteers every six months and by getting a result from the highest class, an employee will receive a bonus of 40€. (Motiva 2006, 22.)

Mobility management was one of the major aspects when a consulting company, Linea Konsultit Oy, decided on its new location for business. Before they selected a new place, employees were asked how they are travelling and what should be considered when selecting a new office. Because some employees were commuting by bicycle, new and better social facilities were built in the new office and they made sure that they would have adequate bicycle parking places inside. The company also introduced car sharing, which City Car Club provided. Employees were able to use those cars during office hours as well as in their free time. They also started to provide company tickets to motivate employees to use public transportation and gave everyone an opportunity to do remote work when possible. Mobility management has been working in Linea and it can be seen from their business trips. Only 10 % of the employees’ business trips were made by car. (Motiva 2006, 22.)

In Central Finland a project towards mobility management was started in 2010. The project is conducted and funded in co-operation between Motiva, the Finnish Transport Agency and the Ministry of Transport and Communications. The aim is to start a pilot project with the employees of the city of Jyväskylä. After the results and development ideas have been obtained during 2011, they can be transformed and introduced to other organisations as well. (Älykästä työmatkaa 2011.)

### ***4.3 Company Mobility Plan***

Each and every company has its social responsibilities and in the future a mobility plan could be a major highlight for a Finnish company. Those responsibilities are not based on law but are commonly approved as guidelines for sustainable and profitable business. If a company wants to be responsible in social matters it takes the environment, economy and society into account in their everyday operations. (Järvinen 2004, 34.) These three factors, also called the Triple Bottom Line, must be in balance and connected to each other (Figure 7). In that way they are supporting the organisation's values and their mission.

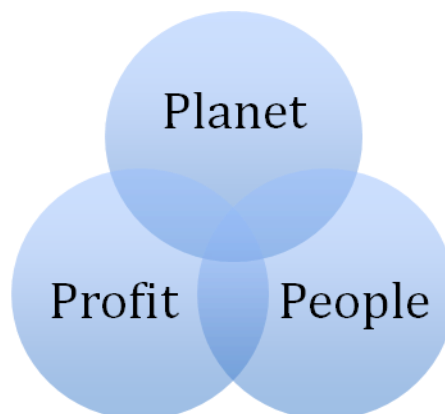


FIGURE 7. Triple Bottom Line. The required balance in a company's social responsibilities.

The Triple Bottom Line describes how organisations should balance their values. Usually organisations believe that the profit and economic responsibility is the most important aspect because without profitable business there cannot be

sufficient development in the other ones. By following the given environmental rules, developing sustainable thinking and taking care of employees will also support the organisation's economic success. Organisations should understand the importance of the balance between these items. (Ilomäki, Tuomainen & Kauotto 2007, 10.)

The concept of a mobility plan has its roots in the United States but has spread quickly around Europe. One major advocate and network for countries in Europe is the European Platform on Mobility Management (EPOMM), which is a non-profit organisation that represents a network of governments in Europe. Their purpose is to gather knowledge and support for their member countries and for all those who are interested in developing sustainable ways of travelling. (EPOMMa n.d.)

When starting to think about a mobility plan, a company should first go through a general operations model, which gives an outline for the plan (See Figure 8). A mobility plan is always demand orientated and must be customised and planned specifically for each company. The most important part of this whole process is the commitment of employees and especially top-level managers.

The aim for a company mobility plan is to introduce options for changing from the personal car use to more sustainable modes while at the same time not forbidding the use of car. That is why so called soft measures like abundant information and communication are used when introducing new ideas. (Taniguchi & Fujii 2006, 2). Before new concepts can be introduced, a company must know its current situation. Facts like how the employees are now performing work-related trips and how they could change those are vital background information for the research.

When a mobility plan is tailored for a specific company, both the employees and the employer can receive significant benefits. One of the most important factors is the commitment of the whole organisation. Superiors and managers should be leading the change. Environmental and health related benefits can be received when travelling habits are changed towards more sustainable modes.

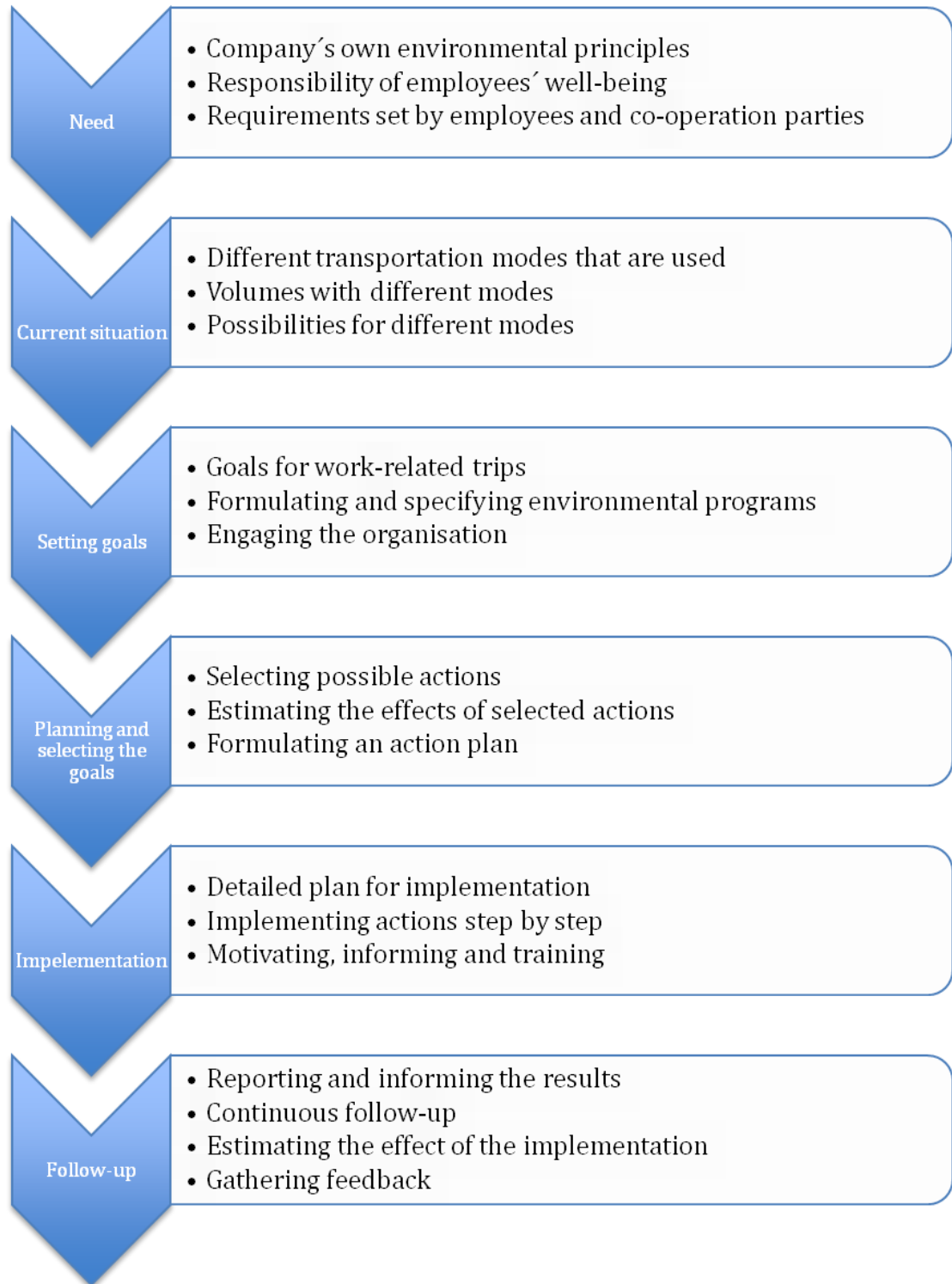


FIGURE 8. General operations model for formulating a company mobility plan (free translation: Pöllänen et al. 2003, 89).

## ***4.4 Reasons for Reducing Personal Cars***

### **4.3.1 Environment**

Pressure towards green thinking and protecting nature and the environment continues to grow all the time. That is why companies are paying more attention to environmental issues. They want to take special notice of the effects their business has on the environment and how they could improve the situation. Introducing a company mobility plan is one way to show to the general public that companies do care about this topic.

There is a good reason behind this increasing interest. In Finland 20 % of all carbon dioxide emissions come from traffic, and from that percentage more than 70 % comes from road traffic. Even though car manufacturers have developed new car models with lower emission rates, these figures are becoming worse because road traffic and distances travelled continue to grow year by year. Fuel consumption is directly proportional to carbon dioxide emissions, which means that by reducing kilometres driven by a personal car, emissions could be reduced simultaneously. (AKE n.d., 4.)

Benefits for the environment can be maximised when reducing the use of personal cars both in commuting and in business trips. Public transportation, and especially buses, are producing plenty of emissions but compared to personal cars they are still considerably more environmentally friendly.

### **4.3.2 Health and Well-being**

Reducing the use of personal cars lowers the emission rates, but it also has a positive effect on the employees' health. Usually people think that in order to maintain a good level of health they need physical exercise every day for long periods of time. In Finland the National Institute for Health and Welfare promotes the idea of including exercise in peoples' everyday life. For an adult to maintain a normal level of health, 30 minutes of exercise per day would be sufficient. These 30 minutes can be divided into shorter periods during the day.

An easy way to include exercise in daily routines is by using a bicycle instead of a car or walking up the stairs and not using the lift. (Terveyden ja hyvinvoinnin laitos 2009.)

Studies have proven that exercise accompanied with the right diet has a significant effect on peoples' self-respect, social skills and self-development (Vuori 2003, 33). Even the smallest changes can have remarkable effects on peoples' health and well being.

#### ***4.5 Ways to Reduce the Use of Personal Cars***

One major aspect of sustainable development is the use of sustainable transportation modes. The problem has been how to integrate them into companies' everyday operations. There are many fairly easy ways how organisations could motivate employees to use sustainable modes. Most of the actions mentioned here are just different ways of looking at common issues. Travel by car is and is going to be one of the most popular ways of travelling in work-related trips. That is why it is important to develop the idea of how we should travel by car. It does not have to be a personal car or driving alone.

##### **4.5.1 Remote work**

Remote work, or sometimes called teleworking, is a form of work where an employee completes given tasks either at home or at some other location. Sometimes when the distance between home and the workplace is long and travelling takes plenty of time, it is wise to consider remote work possibilities. If both parties are committed, remote work can reach several goals:

- Remote work enables an employee to plan and implement work duties in a more flexible way.
- Family and work are easier to consolidate.
- Unnecessary travelling can be avoided.
- Negative environmental effects can be reduced.
- Time can be saved when unnecessary travelling can be avoided.

Remote work should be seen as a tool to increase work efficiency but also to enhance employees' well being. There are several individual and personal reasons why an employee would want to change from normal work to remote work, but usually it is either related to the long travelling distances or the employee feels there is a need for a peaceful place to work in without any disturbing factors. (Helle 2004, 22.)

#### **4.5.2 Company ticket**

The Finnish taxation system defines a company ticket as follows:

*The Finnish income Tax Act 64 § defines a company ticket's tax-free part in terms of euros. A company ticket is tax-free up to 300 euros. In addition a company ticket is tax-free income when it is more than 600 euros but is less than 3400 euros. The amount of tax-free benefit is therefore no more than 3100 euros per year. When an employer offers a company ticket to its employee and the value of the ticket is between 600 euros and 3400 euros, the benefit's taxable part is 300 euros. (Verohallinto 2010, free translation.)*

A company ticket is a public transportation ticket for employees, which the employer can offer as a non-financial benefit. It also promotes the organisation and their values. A company ticket can attract new potential employees and shows an interest in green and sustainable thinking. The ticket is meant mainly for work-related trips, but can also be used during free time. (Kalenoja 2004, 7.)

Recent studies show that in several cities in Finland, most employees have a positive attitude towards company tickets. Employees feel that it would be a great opportunity to reduce motoring especially in places that are situated in city areas. (Helsingin kaupungin ympäristökeskus 2005.)

### 4.5.3 Video-conference

When technology develops, it means that the world we are used to is also changing. For some companies it might feel difficult or strange to consider video-conferences instead of normal face-to-face negotiations, but it is actually one of the easiest ways to reduce unnecessary travelling. By using this method, companies could arrange meetings and negotiations more freely without needing to think about the time travelling would normally take. Those conversations can be recorded, which means that companies could always go through them if unclear situations occur. (VideoFUNET 2009.)

Video-conferencing always requires at least two parties who have the needed equipment and know-how. It is crucial that companies will include co-operators and clients in their planning and reformation process. Video-conferencing brings clear benefits only when co-operation works effectively and efficiently.

### 4.5.4 Company bicycle

The Finnish taxation system defines a company bicycle as follows:

*If a company purchases a company bicycle with the leasing principle, the fringe benefit of the bicycle in employee's taxation is an expense for the employer (leasing price / month) minus the office expenses (Verohallinto 2009, free translation).*

A company bicycle works in the same way as a company car. An employer can offer a company bicycle to its employees as a non-financial benefit. It is meant for work-related trips, but can also be used during free time. An organisation can either buy the bicycles or then use the leasing option. The leasing principle means that the organisation makes a contract, usually for two years with a leasing company, and pays a monthly fee for the bicycle. It is important that the rules are stated clearly for everyone. It must be mutually agreed upon how the employer provides the fringe benefit.



#### **4.5.5 Carpooling and a new parking policy**

When employees are travelling in the same direction, they could easily consider carpooling as an option to reduce personal car usage. Usually the situation especially inside a large company is, that the employees simply do not know where their colleagues are coming from. Other aspects are the uncertainty about time schedules, reliability towards other people and possible personal reasons.

One example of carpooling is a system that Yale University in New Haven uses for its employees. It is recommended that everyone takes part in this system. It offers the option for people who want to share their car with only one extra person, or then with two or more. If two persons are carpooling they both receive a 60 % discount from their normal parking rates, but carpooling with three or more people will give free parking for every member. If something happens and one member cannot get home after work because carpooling is cancelled, Yale has created a "Guaranteed Ride Home" system, which then enables employees to get home free of charge by taxi. This carpooling system has reduced unnecessary travelling, and finding a car parking place is no longer a problem at Yale University. (Yale University 2011.)

Carpooling could be organised through a carpooling web site to which everyone inside the company would have access. There are several examples in Finland where private persons are either trying to find or offer carpooling. One good example is the web page [kimppakyyti.fi](http://kimppakyyti.fi), which seems to be used actively.

The biggest problem normally in city centres is the lack of car parking places. Research has shown that by increasing the parking permit rates people are softly forced to consider different options (EPOMMb n.d).

## 5 MOBILITY PLAN FOR ELY-CENTRE

### *5.1 Questionnaire*

In January 2011 a questionnaire about work-related trips was conducted in ELY centre. The idea was to find out the current situation and the areas which could possibly be developed. The questionnaire was made with an Internet based free software offered by Google Docs. Respondents had one week to answer the questionnaire through a link sent by e-mail. The e-mail message was sent to all ELY centre personnel (264 employees). The total number of respondents was 138, which equals to a response rate 52 %. Of all respondents 57 % were women and 43 % men. To encourage employees to answer, there was a lottery for recreational vouchers. The questionnaire can be seen in Appendix 1.

Two terms were used to describe how employees can move and travel:

**Commuting** = Trips made between home and the workplace

**Business trip** = All trips made within working hours

The questionnaire was constructed with five main sections:

1. Commute
2. Business trips
3. Occupational safety
4. Accessibility
5. Mobility management

## 5.2 Current Situation

### 5.2.1 Commuting

In this section the respondents were answering questions about their travelling habits when commuting. More precisely they were asked to specify their main transportation mode: how long the journey takes and also the differences between seasons (summer / winter). At the end of this part possible options for their main transportation modes were also asked about.

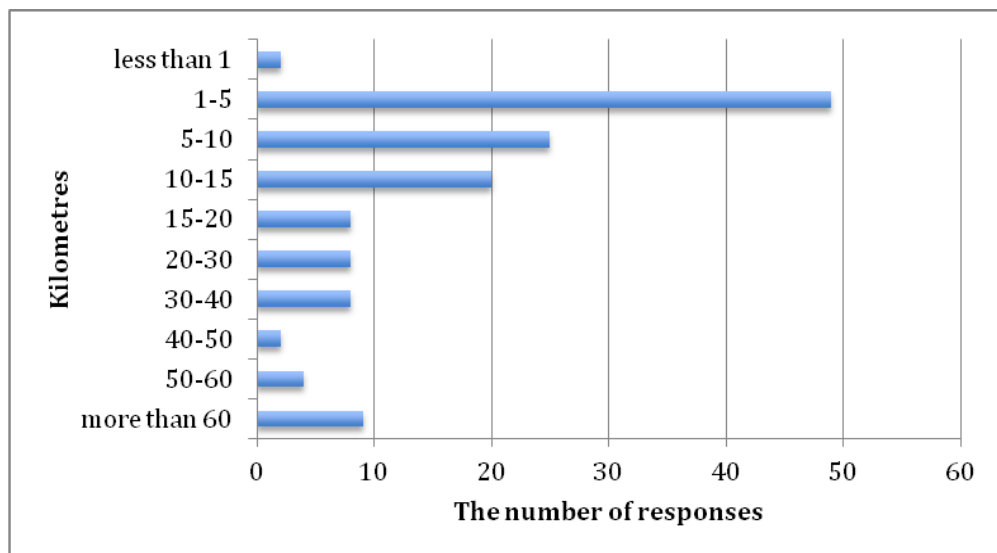


FIGURE 9. The distance that respondents are commuting.

As shown in Figure 9 of all the respondents 37 % live within five kilometres and 69 % less than 15 kilometres away from ELY centre. However, approximately 30 % lives further than 15 kilometres away. The most popular mode of transport is personal car, either driving alone or carpooling. Because the amount of carpooling is rather high, it can be assumed that many employees are travelling together with family members.

Figure 10 shows how the travelling habits are divided among the respondents and what kind of effects seasonal variation has. During the summer, bicycle is the most popular way of travelling (28 %) but in the winter the popularity of cycling

drops dramatically (7 %). Walking on the other hand, works the other way around. People using public transportation remain with their mode regardless of what season it is.

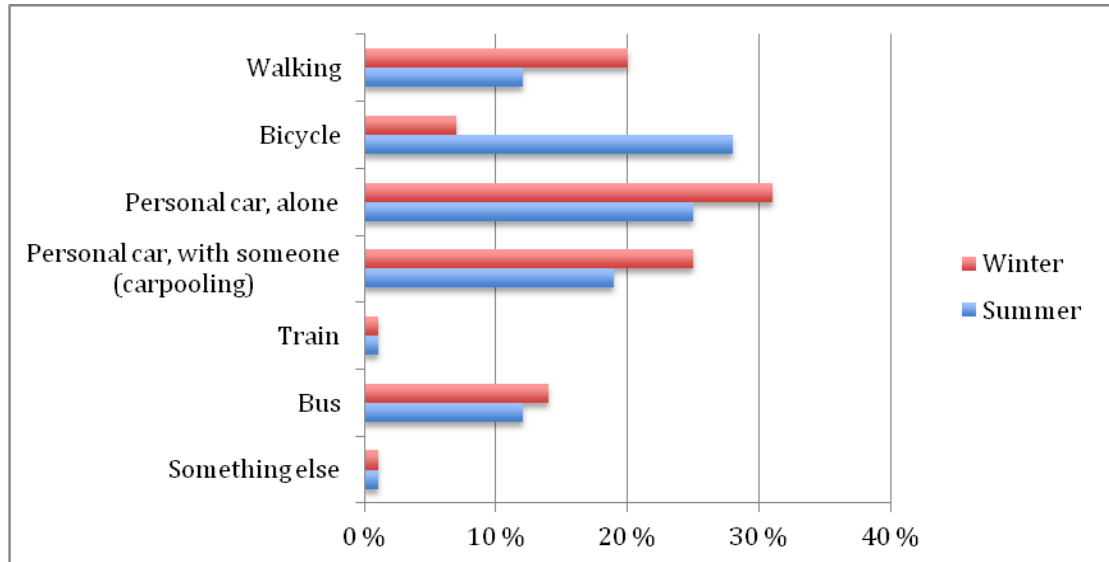


FIGURE 10. Differences between the main transportation modes during summer and winter seasons.

When asking about the reasons why the respondents are using their main transportation modes, people travelling by a bus or a personal car selected from the given options the easiness of everyday life and the flexibility. For many respondents the main transportation mode is the only possible one (30 %). The environment and exercise were mentioned among respondents whose main mode was bicycle or walking. During the summer time, the importance of exercise increases. More than 30 % think it is an important factor when selecting their transportation mode. (See Figure 11)

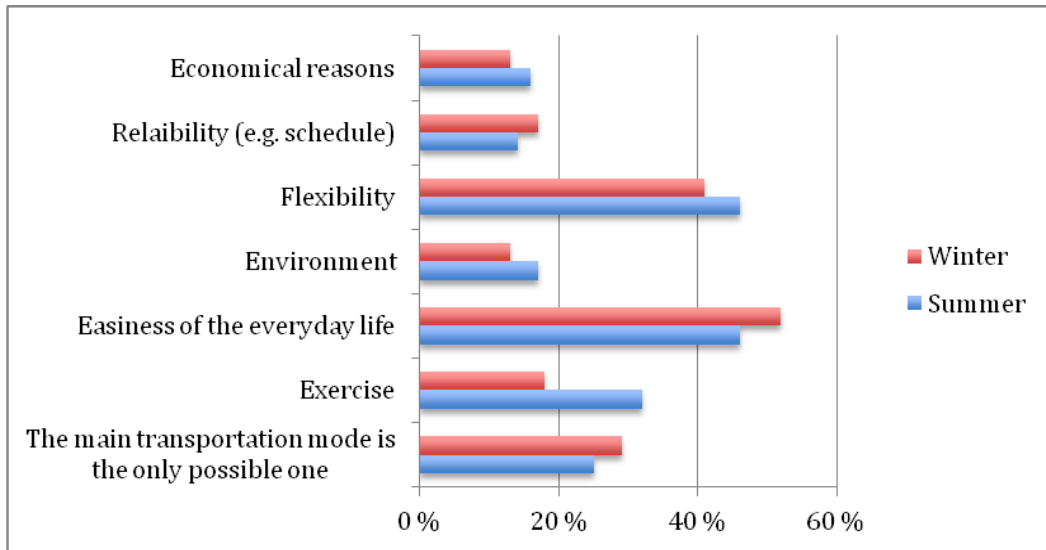


FIGURE 11. Reasons for selecting the main transportation mode.

There is not a huge variation between travelled times during the different seasons (See Figure 12). The majority of the respondents estimated their commuting to take 10-20 minutes. There is still a considerable number of respondents who are commuting longer than 30 minutes one way. This has a great effect on the selected transportation mode. These estimated times could also be matched to travelled distances.

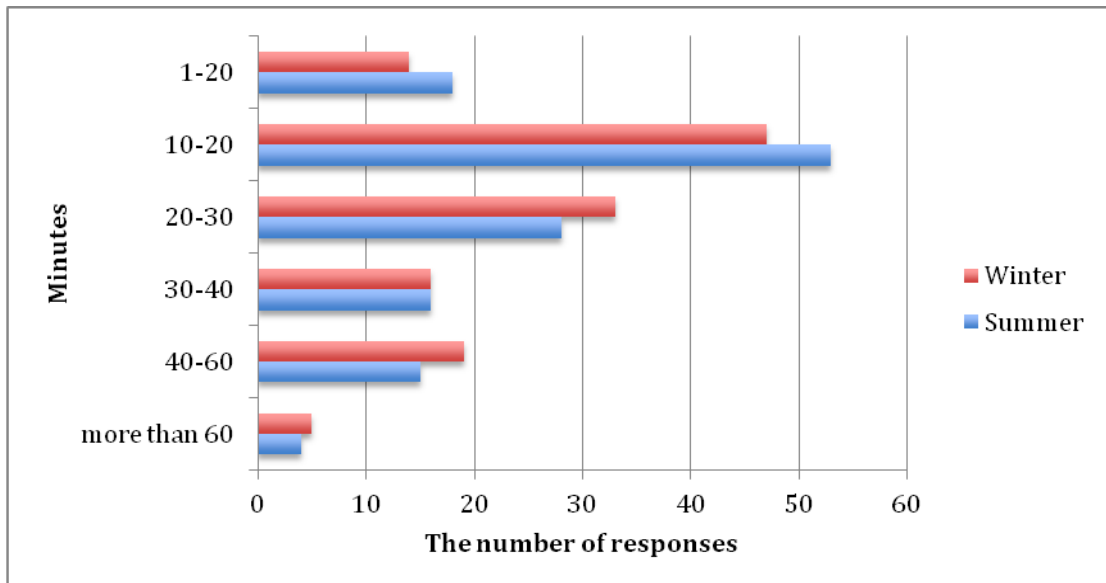


FIGURE 12. Variation between travelled times (min) in different seasons.

The biggest group of personal car users are women from the age class 45-55 years. They are also the biggest group for using public transportation. This result can be explained with the highest response activity in that specific group. Both the sexes are equally using the sustainable transportation modes of walking and cycling. People who are using a bicycle during the summer season change their mode to some of the other transportation modes in winter. Almost one third of the respondents have a public transportation ticket and from that number, 74 % are women.

The last part in commuting was a question about possible options for their main transportation mode. The differences between seasons were huge and those can be seen in Figure 13. During the summer, 45 % of the respondents could consider bicycle as an option but only 20 % during the winter. Walking was considered as an option throughout the whole year. Public transportation, especially bus, was seen as the best option in winter (47 %).

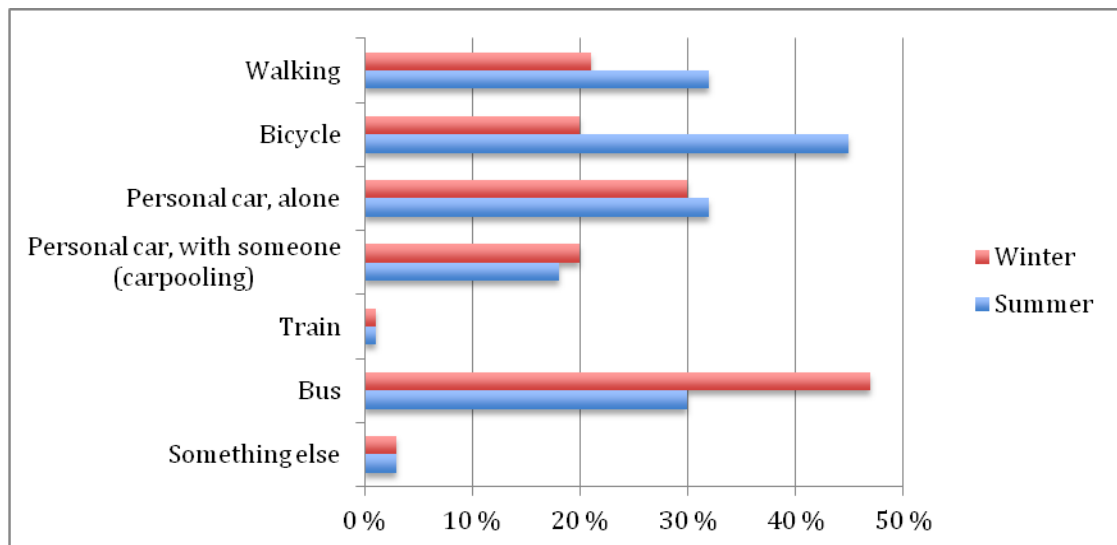


FIGURE 13. Options for the main transportation mode.

## 5.2.2 Business trips

The second part of the questionnaire was almost identical to the first section, but handled business trips made during working hours.

In the ELY centre the official business trip instructions state that the main transportation mode in business trips should be public transportation, a company car, rented car or a bicycle. Only in special cases an own car can be used. Public transportation is recommended because it is environmentally friendly and economical.

The number of business trips in the ELY centre is quite high, but they are not made very frequently. The majority of the respondents (66 %) go on business trips a few times per month or less frequently. Only four respondents make business trips every day.

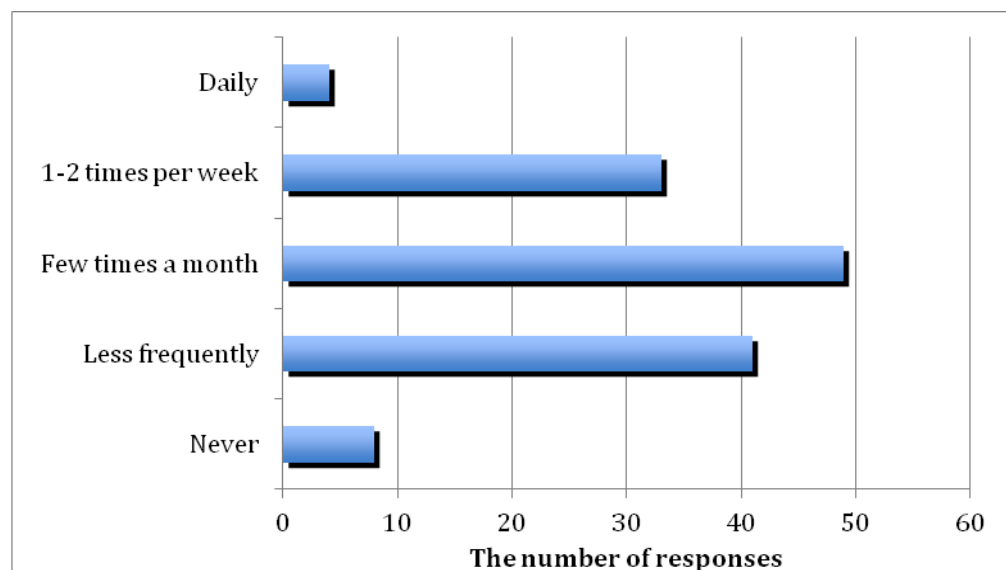


FIGURE 14. Frequency in the business trips among the respondents.

The main transportation mode for business trips is either one of the ELY's own cars or train. During winter, the employees use train more often for business trips. The ELY centre has 17 cars including its own and leased cars. According to the reservation calendar, those cars are used daily throughout the year. During

the summer months, extra cars have been rented according to a specific need and that increases the amount of personal car users. From trips that are made with personal cars, 93 % are made with the ELY centre's own cars and the rest with employees' own cars, for which they receive a compensation. According to ELY centre's environment inspection in 2010, employees drove slightly less than 500 000 kilometres in company cars and approximately 370 000 in their own cars.

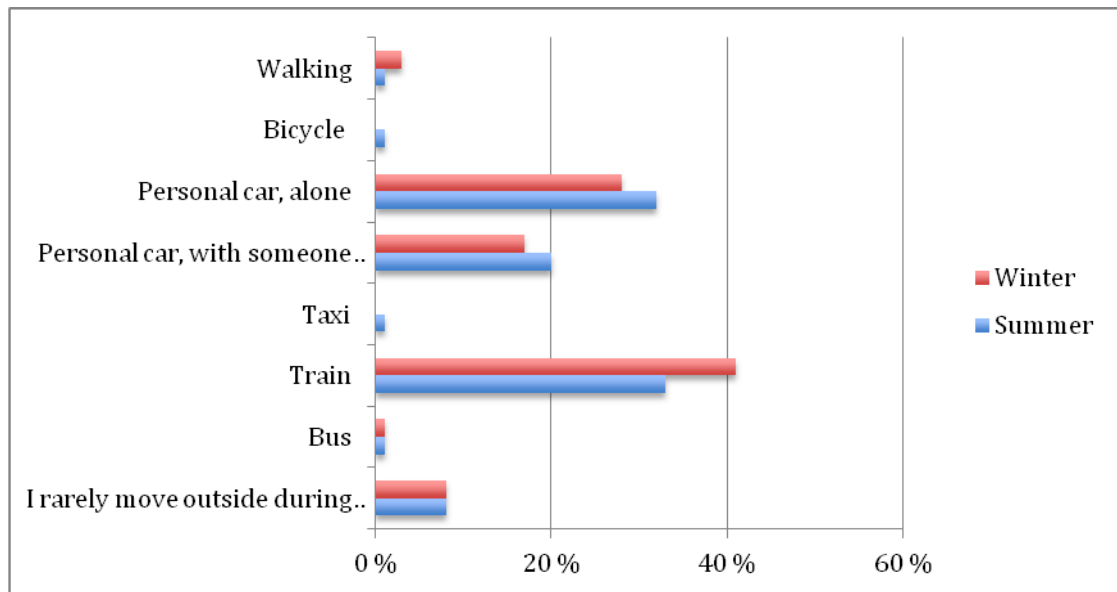


FIGURE 15. The main transportation mode in business trips.

When asking about possible options for main transportation modes, the majority of the respondents chose video-conferencing (45 %). The same interest was seen in the ELY centre's environment inspection. According to the results from that inspection, most of the employees felt that in some cases video-conferencing could replace traditional business meetings. Besides video-conferencing, respondents saw that other good options could be carpooling and phone negotiations.



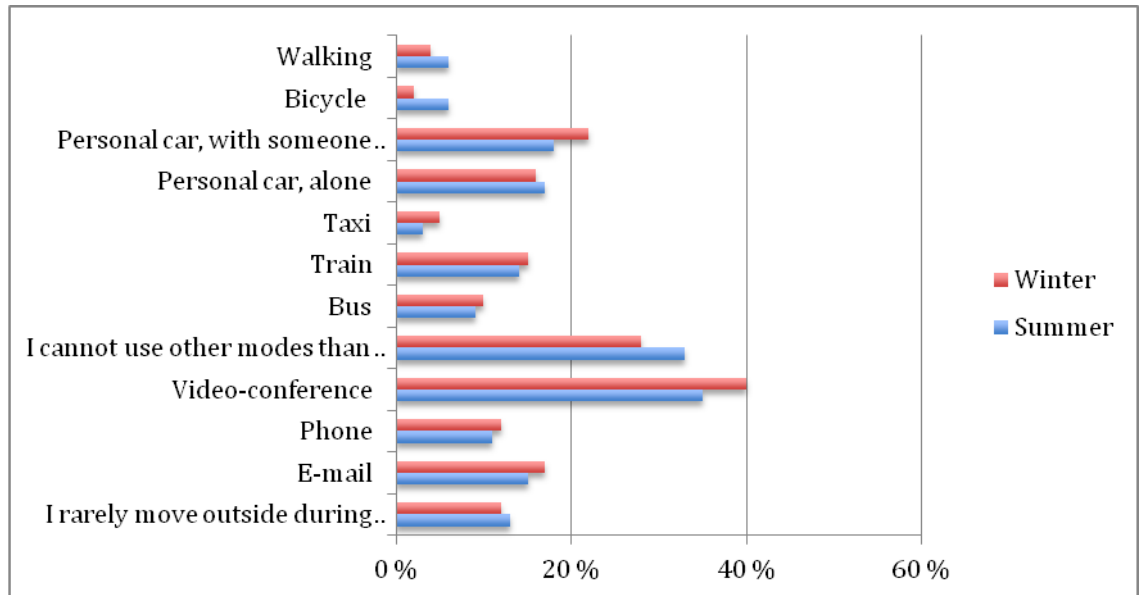


FIGURE 16. Possible options for main transportation modes in business trips.

In this section there were questions about the Outlook-based reservation system and the M2 travel management system. The respondents were mainly happy with these systems (80 %) but some critical feedback was also given.

The reservation system was felt generally practical but time consuming. Especially for car reservation the respondents suggested one simple system for all cars. Now there are individual calendars for each car which makes the reservation process complicated. A few development ideas were introduced among the respondents:

- A similar reservation system that hotels are using when reserving rooms
- A mobile version that enables possibilities to reserve for example cars regardless of the place or time.

The negative sides of the M2 travel management system were related mainly to it having a complicated user interface. The system was also felt to be time-consuming because the majority of its users use it rarely. The respondents hoped for simple guides and more training.

### **5.2.3 Occupational safety**

In 2010 four ELY centre employees went to see a doctor because of a work-related accident. Of all employees who answered the questionnaire 16 % had been in a work-related accident and approximately 50 % had faced risky and dangerous situations in work-related trips.

Answers to the question about what kind of situations and facts affect to employees' insecurity when travelling, differed between respondents. The biggest risk factors were bad weather and inadequate visibility, other reckless drivers and the continuous rush. Comments were given also about the insufficient level of equipment in the ELY centre's cars. Respondents were hoping for better security equipment (e.g. vests and hands free devices) and comprehensive training for using company's cars.

Employees who are constantly travelling long distances noted that the current parking policy increases the safety risks. They have to leave home really early so that they could receive a parking place. This means that they are tired and are more likely to cause an accident. Also in this section the possibility to use video-conferencing came up. Unnecessary travelling during extreme weather conditions could be avoided.

### **5.2.4 Accessibility**

In this questionnaire employees were asked about their opinions regarding accessibility in the building. There was also an open box for free answers. From the respondents 75 % thought that the accessibility was adequate. The rest of the respondents felt that there was a need for re-planning the most problematic and dangerous places.

Most of the given answers were related to the spiral stairs that can be found in many places in the ELY centre. Those stairs were said to be insecure to use and slippery, especially during winter. Also the fact that without a key it is impossible

to walk around the building was considered to be annoying. Locked doors and an illogical way of using them were stated as a considerable safety risk.

### 5.2.5 Ideas from employees

In the questionnaire, employees were asked to choose from a given list what they would consider as good ways to improve mobility management. Everyone could select three options.

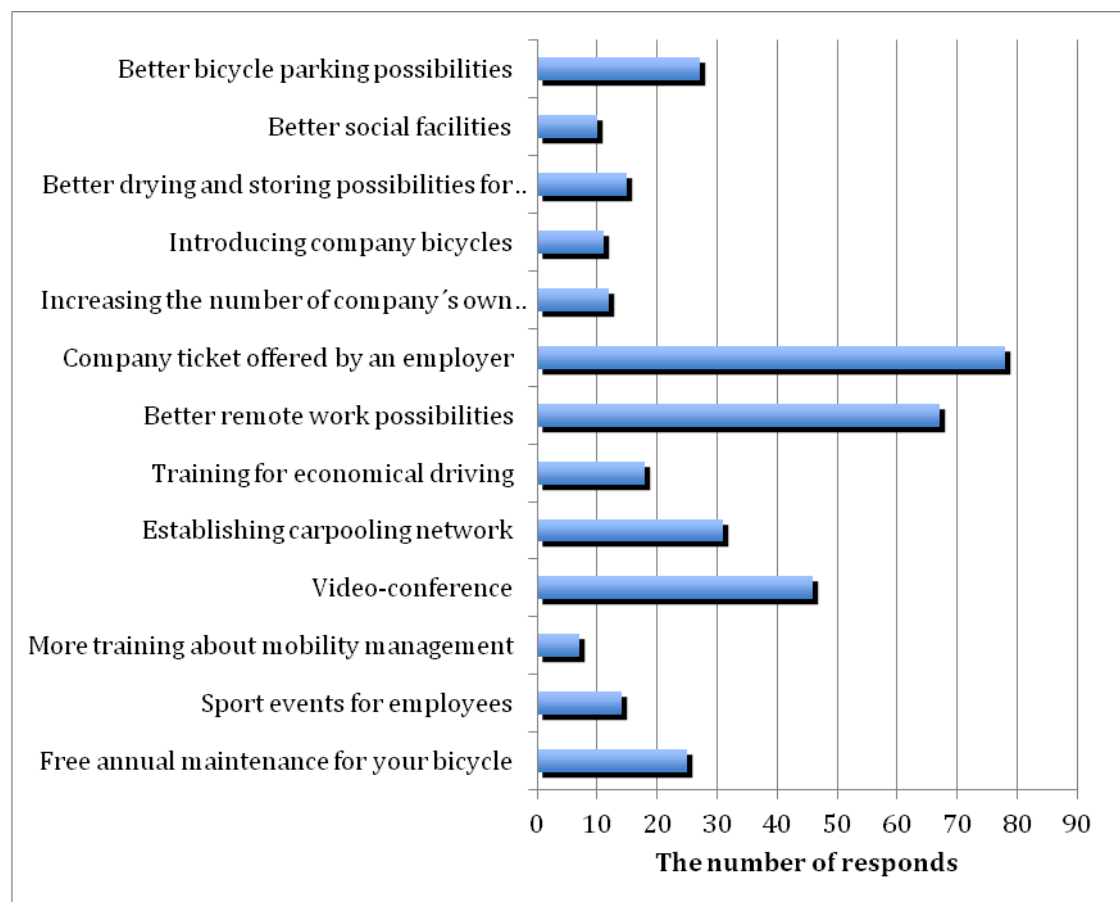


FIGURE 17. Options for improving mobility management.

The most popular ways to improve mobility management according to respondents were a company ticket and developing remote work and video-conference possibilities. These same options came up from a section where the respondents had the possibility to give answers freely.

Especially employees who are commuting long distances felt that the most important factors would be improving remote work possibilities and offering more flexible working hours. These improvements would enable them to plan more flexible workdays. In order to promote cycling the respondents hoped for better and safer parking possibilities both inside and outside of the building. Respondents also hoped a clearer parking system for bicycles in the car parking hall. Some of the respondents were ready for radical changes like considerably high parking costs, in order to ease the current situation.

One of the most crucial factors in mobility management is sufficient information and communication between the employer and its employees. This also came up from the answers. Employees were hoping for more training sessions about different subjects. Because the ELY centre has a wide variety of specialists and experts, they could be used as a resource in those training sessions. These sessions could be organised also online, where everyone could have the opportunity to take part.

Several respondents pointed out that the ELY centre has resources that are unknown to the majority of people. One good example is the company's four bicycles that are meant for business trips. These resources should be promoted more frequently.

### ***5.3 Auditing the Real Estate***

The real estate was audited in January 2011. This auditing was concluded based on an auditing form (see Appendix 2). The template for this form was taken from a previous research made by Vähä-Rahka (2002, 62). With the help of a caretaker all needed locations were easy to find.

#### **5.3.1 Car parking**

It is commonly known that in the city centre car parking is always one of the biggest problems. There are never enough free parking places for employees. In the ELY centre the need would be approximately 100 car parking places instead

of the present 84 places. From these parking places, 60 can be found in the backyard (30 with an electric heating pole) and 24 inside the car parking hall.

If an employee wants to have a parking place at the ELY centre property they must pay either 5 € per month for outside parking or 40 € per month for inside parking. Places inside the hall are drawn once a year between employees.

### **5.3.2 Bicycle parking**

There are four different places where bicycles can be parked. During the auditing, most of the bicycles were parked in the inside hall. There is a corner for bikes to be parked but that will not be sufficient during summer months, when cycling becomes a more popular transportation mode. Outside the building there are three other possibilities where bicycles could be parked. In all of those locations, there are places for 20 bicycles. The first location is outside the main entrance, the second one in the backyard and the third one is next to the street Hannikaisenkatu. The last one is under a roof, which gives better protection against hard weather conditions.

The ELY centre has four company bicycles and two of those are equipped with winter tires and helmets. These bicycles can be found in the inside parking hall between parking places 5 and 6. All of these bicycles are going to be numbered so the reservation system is easy to implement.

### **5.3.3 Social facilities**

For both men and women, the ELY centre offers fairly new and decent social facilities. Both facilities have three showers, approximately 40 lockers and a separate drying room. That room adds value especially for employees who are cycling or walking to the workplace and want to change their clothes. These facilities can be accessed through the inside hall or the main entrance.

What makes these facilities even more desirable is the gym next to men's room. It is well equipped and provides a variety of different workout options. There are

also a few showers and toilets in the gym. According to a visitor diary the gym has been used almost daily.

Besides these facilities, there is also a separate resting room for anyone who feels the need for a rest. The room is very simple but important in a case of a sudden health emergency or exhaustion.

#### ***5.4 Improving Safety***

In 2009, The Centre for Occupational Safety and Finnish Liikenneturva (*traffic safety*) (2009) published an extensive guidebook for organisations about occupational safety. The aim of that guidebook was to increase the knowledge about the risks related to everyday work and how to deal with those problems.

Annually approximately 15 000 Finnish people are injured during work-related trips. The majority of these accidents happen to people walking or cycling even though their share from the total number of work-related trips is only 20 %. Usually slipping or falling down causes the accident and injuries are fairly small. Over 50 year old women are the biggest risk group, because they walk and cycle more than men or other age groups.

Accidents with a personal car are rare but are causing more damage. Usually the main reason behind a car accident is a tired driver. Car drivers should also remember that even a small portion of alcohol increases the risk of an accident dramatically.

Approximately four out of five Finnish employees go on business trips during working hours. They think that the biggest risk factor is rush and stress caused by the work itself. Pre-planning should be priority number one before each trip. Support from the work society and encouragement towards rush free travelling are essential when reducing the risks.

The utilisation rate of the ELY centre's cars is high which means that safety factors in those cars should be considered carefully. The Finnish law prohibits using a mobile phone while driving but still thoughtless drivers annually cause several accidents. It is the employers' responsibility to provide hands free devices and training for how to use them for the personnel.

An organisation can support its employees with detailed instructions and rules about occupational safety. It is important that everyone knows the mutually agreed rules. An employer can also provide incentives to motivate its employees. These incentives could be, for example, a free reflector or bicycle helmet.

Hints for workplaces are as follows:

- Always remember to use reflectors. Doing so allows motorists and other travellers to see you more easily.
  - When cycling always use a helmet. Your head is the most important tool for your work.
  - Especially during winter remember to use a sufficient front light on your bicycle.
  - When bad weather conditions occur remember that you can always make use of the flexible working hours.
  - Consider remote work if weather conditions are extreme.
  - Do not drive when you are tired or you have been drinking.
- (Työturvallisuuskeskus ja liikenneturva 2009.)

## 6 DEVELOPMENT IDEAS

According to the answers given by the respondents, there are seven important and crucial topics to be developed. In the following table they will be introduced with suggestions how these improvements and changes should be made. Some of these changes can be implemented in all work-related trips but not all. In Table 1 development ideas and their focus points are introduced.

TABLE 1. Summary of the development ideas.

<b>Suggestion</b>	<b>Focus</b>	<b>Implementation</b>
Company ticket	<ul style="list-style-type: none"> <li>• Commute</li> <li>• Business trips</li> </ul>	<ul style="list-style-type: none"> <li>• Co-operation with Jyväskylän Liikenne</li> <li>• New intranet page for public transportation</li> </ul>
Better remote work possibilities	<ul style="list-style-type: none"> <li>• Commute</li> </ul>	<ul style="list-style-type: none"> <li>• Comprehensive training and info sessions</li> <li>• Clear rules</li> </ul>
Increasing the use of video-conferencing	<ul style="list-style-type: none"> <li>• Business trips</li> </ul>	<ul style="list-style-type: none"> <li>• Comprehensive training and info sessions</li> <li>• Pilot projects with selected customers</li> </ul>
Increasing the attractiveness of cycling	<ul style="list-style-type: none"> <li>• Commute</li> <li>• (Business trips)</li> </ul>	<ul style="list-style-type: none"> <li>• Better bicycle parking possibilities</li> <li>• Theme days</li> <li>• Introducing company bicycle</li> </ul>
Introducing a carpooling network	<ul style="list-style-type: none"> <li>• Commute</li> <li>• Business trips</li> </ul>	<ul style="list-style-type: none"> <li>• Co-operation with Universities</li> <li>• Developing a new intranet page</li> </ul>
New parking policy	<ul style="list-style-type: none"> <li>• Commute</li> </ul>	<ul style="list-style-type: none"> <li>• Parking permits according to carpooling rules</li> <li>• Increasing the cost of the parking permit</li> </ul>
Utilising current resources	<ul style="list-style-type: none"> <li>• Overall satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>• Accessibility report</li> <li>• Organising more comprehensive training sessions about different subjects</li> </ul>



## ***6.1 Introducing a Company Ticket***

According to the respondents, the best way to assist personnel in mobility management is providing a company ticket. During winter 47 %, and summer 30 % of the respondents would consider bus instead of their main transportation mode. Bus was also seen as a fairly good option for business trips.

From the respondents, 36 % are living within a five-kilometre radius from the ELY centre but from those only 20 % have a public transportation ticket. Those employees within that radius are living closest to the best public transportation network in Jyväskylä. That group of people in itself shows a great potential for a company ticket.

A company ticket could be a smart option in the ELY centre because of its central location. There are several bus stops close by and they are easily accessible. Even the long distance bus stops are not further than one kilometre away. As a new service, Jyväskylän Liikenne offers a "Journey Planner" on their web page ([www.jyvaskylanliikenne.fi](http://www.jyvaskylanliikenne.fi)) for their customers. By using that planner travellers can plan their trip beforehand and get precise directions and timetables for their specific journey. (Jyväskylän Liikenne n.d.)

Because ELY centre has its own intranet, that could be used as a channel to inform the personnel. There could be important links (e.g. to route planner and time schedules) and general information about public transportation. This page would bring flexibility into the employees' planning processes.

### **Suggestions for how to implement the changes:**

- Developing co-operation with Jyväskylän Liikenne.
- Electing a person / persons who would be responsible for creating a new intranet page. They should also decide how to maintain and update that page.
- Finding ways to inform and motivate the personnel about public transportation.

## ***6.2 Better Remote Work Possibilities***

The answers from the questionnaire showed that approximately 30 % of the respondents are living further than 15 kilometres away from the ELY centre. That number itself proves that there is potential for developing remote work possibilities. Remote work should be presented to all the personnel so that everyone could have an equal starting point.

When planning remote work possibilities, the following issues should be considered:

- Remote work tasks are clear.
- There are clear targets for remote work.
- Work tasks do not require a constant presence in the workplace.
- Communication possibilities can be provided through telecommunication channels.

ELY centre has its own intranet, where employees can find a link to the instructions for remote work. They are available for anyone who is interested. This issue could be introduced in a meeting for all the personnel.

### **Suggestions for how to implement the changes:**

- The ELY centre should organise an information and training session about remote work possibilities and its benefits for all the personnel.
- There should be clear rules for remote work and how it can be implemented in the ELY centre.

## ***6.3 Increasing the Use of Video-conferencing***

There are four meeting rooms in the ELY centre that are equipped with video-conference devices. Some of the employees have also video-conference possibilities in their own office. The questionnaire showed that there is a great potential and interest in video-conference possibilities.

There is a huge potential to increase the use of video-conferencing in the ELY centre. The main reason why the current utilisation rate is so low is the lack of knowledge. The employees do not know or they are unsure about how the equipment works. In order to increase the interest, proper training should be provided to everyone. These changes require co-operation with different parties as well. Even if everyone at the ELY centre was ready to use video-conference but none of their clients were, the whole system would collapse.

Besides video-conference possibilities with partners or clients the need for an Internet based communication system between the ELY personnel was brought up. Data security is one of the biggest risks when using Internet based solutions. This is why different options should be studied carefully before introducing anything. This kind of communication tool would be helpful for those who have difficulties to move around the workplace or the ones who are doing remote work from other locations.

### **Suggestions for how to implement the changes:**

- Electing a person/persons who would be responsible for video-conference equipment and training.
- Gathering a list of co-operation parties and clients who are known to be capable of holding video-conferences. Organising pilot projects with selected partners where video-conferencing replaces normal face-to-face meetings.
- Organising a training session for all the personnel where adequate information is provided to everyone. General but specific instructions how to use those devices and who to contact when problematic situations occur.
- One option for a communication tool for employees could be Microsoft Lync, which offers safe communication possibilities for organisations and their employers. This software has the same level of security as their other products (e.g. Outlook) have.

## ***6.4 Increasing the Attractiveness of Cycling***

As it was shown in the real estate auditing, there is a need for better and safer bicycle parking. The only warm place to park bicycles is in the car park hall. In that hall there is only a small corner reserved for bicycles, which is not sufficient to attract new cyclists. One radical suggestion came up from the respondents. By reducing two car places in the parking hall, that space could be reserved for bicycles. When there was a lottery about car places in that warm hall all employees were informed that if the ELY centre will face a need for increasing the number of company cars, the last persons who won places in that lottery are losing their parking permit. That same rule could be used in this case as well.

The ELY centre owns four bicycles but they are not often used and it seems that employees do not even know that they exist. One good way to promote cycling would be a theme day and it could be organised in co-operation between the ELY centre's own recreation committee, ELVI, and University of Jyväskylä or JAMK University of Applied Sciences. This theme day could include training sessions, annual maintenance for employees' own bicycles and a supervised bicycle trip around Jyväskylä.

A company bicycle is still a fairly new concept but could be a great opportunity for employees to change old transportation habits in to more sustainable ones. The opportunity to receive a company bicycle should be studied carefully and then introduced, for example, during that theme day. These bicycles could be used in all work-related trips as well as during the employees' free time. The ELY centre could either buy bicycles or then use a leasing option.

In the Jyväskylä area Bike Planet offers these leasing bicycles for companies. They offer a 24-month contract, which includes yearly maintenance. After the contract ends, the company can buy the bicycle or give it back to Bike Planet. Each bicycle is customised according to the customer's needs. On their web page, Bike Planet offers a leasing calculator, which gives a starting point for companies. (Bike Planet 2011.)

TABLE 2: Example of costs when leasing a bicycle (Bike Planet 2011).

Price for the bicycle:	425,00 €	725,00 €	1 125,00 €
Extra spare parts*:	75,00 €	75,00 €	75,00 €
Total:	500,00 €	800,00 €	1 200,00 €
Monthly fee**:	<b>42,30 €</b>	<b>53,40 €</b>	<b>68,30 €</b>

\* Includes lock, rack and carrier for drinking bottle

\*\* Contract for 24 months

Another option for leasing a normal bicycle is to invest in electrical bicycles. They are becoming more popular in Finland and are considered to be a real option for cars. Electrical bicycles are environmentally friendly because there are no emissions and they are easy and cheap to use. It would be a good option for those who do not want to drudge on their way to work. (Nordic AC n.d.)

### **Suggestions for how to implement the changes:**

- Planning and implementing new parking places for bicycles.
- Organising a theme day where employees would have an opportunity to familiarise themselves with bicycles and cycling. Recreation committee ELVI could plan co-operation with universities and bicycle providers.
- Training sessions about health issues related to sustainable transportation modes. Providing a deeper knowledge to the personnel about cycling and walking benefits.

## 6.5 Introducing a Carpooling Network

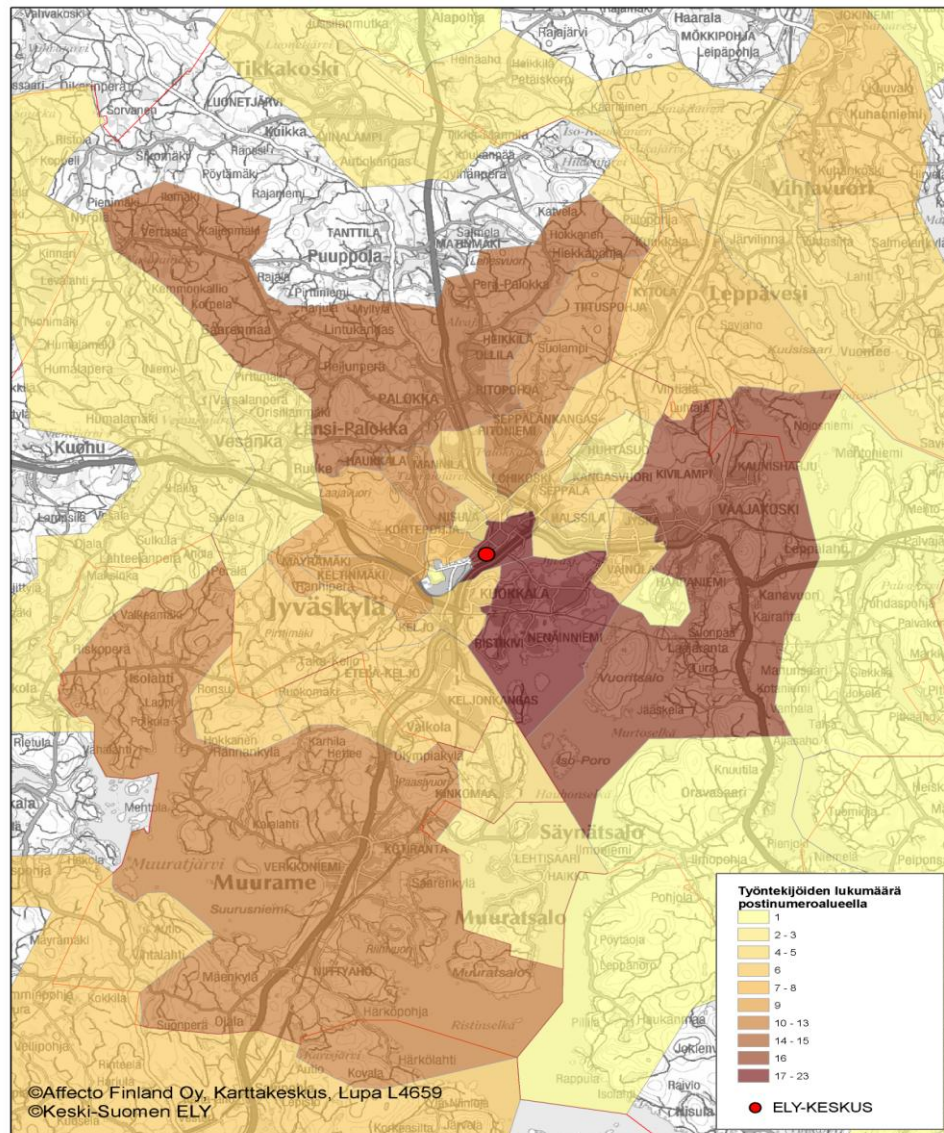


FIGURE 18. Distribution of Jyväskylä's ELY centre's employees on a map.

Figure 18 illustrates the distribution of ELY centre's employees on a map. The different colours represent the density of the employees living in a specific area. The darker the area, the more people are living there. The red dot on the map shows the location of ELY centre. This map shows that there are possibilities in carpooling if there would be people who were interested enough. The largest volumes are commuting from Kuokkala, Vaajakoski, Muurame and Palokka.

When people are commuting from the same directions, carpooling could be one possible solution for car parking problems. The ELY centre could introduce a new

parking policy, which would support carpooling networks by offering discounts or free parking for employees who are using carpooling with co-workers when commuting.

The ELY centre's intranet could be utilised when planning a carpooling network. There should be two different intranet pages for networks; one for commuting and another one for business trips. The page for commuting could be similar to those carpooling web pages which can be found from the Internet. A carpooling network for business trips should be connected to the reservation calendar for the ELY centre's cars. Currently the reservation status of the organisation's cars must be checked from their individual calendars, which makes the whole process time consuming and enables overlapping reservations. When starting to plan these carpooling intranet pages, the ELY centre could outsource this task, for example, to University of Jyväskylä or to JAMK University of Applied Sciences.

The planning and implementation of both network pages can take time. Before they work properly, it would be wise to consider establishing a new calendar in Outlook for business trips to Helsinki, because it is the most popular destination for business trips in the ELY centre. This calendar would work in a similar way to those reservation calendars for cars. Everyone who is planning to go to Helsinki could add himself or herself into that shared calendar. By doing so, everyone could see who is going to Helsinki and when. It enables more flexible planning for carpooling.

**Suggestions for how to implement the changes:**

- Conducting a survey of the needed resources. Co-operation with University of Jyväskylä or JAMK University of Applied Sciences.
- Establishing a new calendar "Business trips to Helsinki". Could be used while new carpooling networks are planned, designed and implemented.
- New intranet pages will require constant maintenance and updates. ELY centre should select a person / persons responsible for needed tasks.

## **6.6 New Parking Policy**

If the carpooling intranet pages can be designed, planned and implemented in a desired way, they could give guidelines for the new parking policy. In the current situation, everyone can obtain a parking permit by paying 5 euros per month, but there are more permits than there are parking places. Places with heating opportunities are the most popular ones, especially during winter. This was one of the biggest problems that the respondents stated.

One opportunity is to apply Yale University's parking policy the ELY centre. That would mean that some parking places would be reserved only for those who are using carpooling with other employees, the ones who are travelling from really long distances or who have small children. This system would decrease the safety risk for employees travelling long distances, because they would not have to be afraid of losing a parking place. The ELY centre must consider this option carefully because carpooling network, especially in commuting, does not suit for everyone because of the family issues etc.

### **Suggestions for how to implement the changes:**

- Using the carrot and stick method when introducing a new parking policy. Employees must feel that when something is taken away from them they will receive something else instead.
- Free/lower prices for employees using carpooling with other employees.
- For others there would be a notable increase in parking expenses.



## **6.7 Utilising Current Resources**

The respondents felt that accessibility was mainly well taken care of. There are still several factors in the real estate that affect the accessibility and general safety. Development could be focused on problems introduced next:

- Throughout the real estate all doors are locked and in some places the key that is currently used is complicated. There are several options that could replace these keys, for example keys working with the RFID technology. A new key system would help people moving from one place to another.
- Acquiring automatic doors at least to all main entrances. Almost all doors are heavy and hard to use at the moment.
- Spiral stairs are slippery especially during the winter. Anti-skid devices could be installed.
- Updating the equipment in the ELY centre's cars. Every car should have at least one hands free device.

The majority of the respondents were hoping for more training and education possibilities to support their work. In the ELY centre there are professionals from several different sectors, who could be used as a resource when planning these training sessions. Environment specialists could share their knowledge about sustainable development and road professionals about road traffic safety. The ELY centre organises every second Tuesday so called "morning schools" where employees can share their know-how. These morning schools could be utilised also for these training sessions.

### **Suggestions for how to implement the changes:**

- Examining the accessibility in the real estate (could be an option for another thesis),
- Acquiring hands free devices for all cars,
- More training sessions, for example, about the M2 travel management system, video-conference devices and sustainable transportation modes,

- Planning and creating simple guidebooks with the users (M2 etc.),
- Considering driving education for the employees who are constantly driving company cars.

## **7 CONCLUSIONS**

The interest in mobility management is increasing in Finland. This means that similar research is going to and should be done in the future. Different cities in Finland have already started pilot projects in order to see how this concept could be implemented with the desired results. There are several possible obstacles in Finland related to long distances or insufficient public transportation networks in rural areas. This means that the subject and possible changes will require close co-operation between organisations and the government. The future will show how quickly organisations can adapt these new ideas and ways of doing business.

The questionnaire showed the real need for changes in ELY centre's travelling habits. Employees were clearly interested in mobility management and were ready for new development ideas. There was plenty of feedback about current parking problems, carpooling possibilities and safety issues. Many of the problems at the moment are thought to be traditions that are followed because that is what has always been done. After the organisational reformation in 2010, the situation is new to everyone and that gives opportunities for great changes in old habits.

The most important matter that enables these changes is the commitment of all the personnel. Without proper planning and follow-up these modifications to old habits are just going to remain in the planning phase. Motivation is the key to success. The employees must also feel that their opinions and ideas are important and valued. A lack of information is the most critical influence that mobility management could have. Versatile training opportunities and adequate information would encourage the personnel to try and understand new matters and opportunities.

Because the company mobility plan will be a part of the ELY centre's environmental programme, there must be a thorough plan for the follow-up. The most important matter is that there will be a person or persons who will be responsible for the follow-up. They must know the current situation so that they are capable of comparing the results when the new study is conducted. The plan and its effects should be studied every couple of years. The questionnaire for the personnel could be conducted every year so that the possible changes could be seen. There are already auditing and follow-up instructions for the environmental programme so the questionnaire could be one part of that auditing process.

There are several ways to measure the development. Here are a few suggestions:

- Employees' travelling habits in different seasons
- Increase / decrease in expenses (company ticket / bicycle)
- Kilometres driven using the ELY centre's cars
- Calculating the annual carbon footprint
- Annual work-related accidents.

The aims stated at the beginning of this thesis were achieved. The current situation was analysed with a response percentage of 52 %. This can be considered to be a success. The number of respondents represents more than one half of all the personnel, which enables the study to make general assumptions about the travelling habits and possible changes for the ELY centre. The results also showed the possibility for future studies, for example, about accessibility and the implementation of a carpooling network. These issues could be topics for future theses at the ELY centre.

The thesis showed that there is potential for change at the ELY centre. Employees understood the problems and wanted to change old habits. If the suggested development ideas are going to be implemented and they give desired results, this study could also work as a model to other ELY centres in Finland.

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# APPENDICES

## Appendix 1. Questionnaire form about work-related trips

3.3.2011

QUESTIONNAIRE ABOUT WORK-RELA...

### QUESTIONNAIRE ABOUT WORK-RELATED TRIPS

#### GENERAL INFORMATION

##### Sex

- woman  
 man

##### Age

- under 25  
 25-35  
 35-45  
 45-55  
 55-65

##### Place of residence

##### Postal code

##### Do you have a public transportation ticket?

- No  
 Yes, self-paid  
 Yes, offered by an employer

##### Do you have children under 12 years old?

- No  
 Yes

#### 1. COMMUTE

##### 1.1 What is your main transportation mode when travelling between home and the workplace during SUMMER?

- Walking  
 Cycling  
 Personal car, alone  
 Personal car, with someone (carpooling)  
 Train  
 Bus  
 Something else

##### 1.2 What factors are affecting your choice of main transportation mode during SUMMER?

- Economical reasons  
 Reliability (e.g. schedule)  
 Flexibility  
 Environment  
 Easiness of the everyday life  
 Exercise

spreadsheets.google.com/viewform?fo...

1/6

3.3.2011

## QUESTIONNAIRE ABOUT WORK-RELA...

1.3 What is your main transportation mode when travelling between home and the workplace during WINTER?

- Walking
- Cycling
- Personal car, alone
- Personal car, with someone (carpooling)
- Train
- Bus
- Something else

1.4 What factors are affecting your choice of main transportation mode during WINTER?

- Economical reasons
- Reliability (e.g. schedule)
- Flexibility
- Environment
- Easiness of the everyday life
- Exercise

1.5 Estimation about traveled time and length

a) Estimate how long a one-way trip from home to workplace takes during SUMMER (min)?

- 1-10
- 10-20
- 20-30
- 30-40
- 40-60
- more than 60

Estimation about travelled time and length

b) Estimate how long a one-way trip from home to the workplace takes during WINTER (min)?

- 1-10
- 10-20
- 20-30
- 30-40
- 40-60
- more than 60

c) Length of a one-way trip between home and the workplace (km)?

- less than 1
- 1-5
- 5-10
- 10-15
- 15-20
- 20-30
- 30-40
- 40-50
- 50-60
- more than 60

1.6 Which from the next list could be possible options for your main transportation mode during SUMMER?

You can select several

- Walking
- Cycling



3.3.2011

QUESTIONNAIRE ABOUT WORK-RELA...

- Personal car, alone
- Personal car, with someone (carpooling)
- Train
- Bus
- Something else

1.7 Which from the next list could be options for your main transportation mode during WINTER?

You can select several

- Walking
- Cycling
- Personal car, alone
- Personal car, with someone (carpooling)
- Train
- Bus
- Something else

## 2. BUSINESS TRIPS

2.1 Are you making work-related business trips

- Daily
- 1-2 times per week
- Few times a month
- Less frequently
- Never

2.2 What is your main transportation mode for business trips during SUMMER?

- Walking
- Cycling
- Personal car, alone
- Personal car, with someone (carpooling)
- Taxi
- Train
- Bus
- I rarely move outside during working hours

2.3 What is your main transportation mode when travelling between home and the workplace during WINTER?

- Walking
- Cycling
- Personal car, alone
- Personal car, with someone (carpooling)
- Taxi
- Train
- Bus
- I rarely move outside during working hours

2.4 If you are using a car for business trips, is it:

- Company's car
- Own car with paid compensation
- Own car without compensation

Estimate how many kilometers per year you are driving on business trips with a car:

[spreadsheets.google.com/viewform?fo...](https://spreadsheets.google.com/viewform?fo...)

3/6

3.3.2011

QUESTIONNAIRE ABOUT WORK-RELA...

2.5 Which from the next list could be possible options for your main transportation mode for business trips during SUMMER?

- Walking
- Cycling
- Personal car, alone
- Personal car, with someone (carpooling)
- Taxi
- Train
- Bus
- I cannot use other modes than personal car (e.g. because of the equipment needed)
- Video-conference
- Phone
- E-mail
- I rarely move outside during working hours

2.6 Which from the next list could be possible options for your main transportation mode in business trips during WINTER?

- Walking
- Cycling
- Personal car, alone
- Personal car, with someone (carpooling)
- Taxi
- Train
- Bus
- I cannot use other modes than personal car (e.g. because of the equipment needed)
- Video-conference
- Phone
- E-mail
- I rarely move outside during working hours

2.7 Are you happy with the Outlook reservation system?

e.g. when reserving company's cars

- Yes
- No
- I do not know what it is

If you answered no, why and how should it be developed?

Are you happy with the M2 travel management system?

- Yes
- No

3.3.2011

QUESTIONNAIRE ABOUT WORK-RELA...

- I do not know what it is

If you answered no, why and how should it be developed?

### 3. OCCUPATIONAL SAFETY

3.1 Have you been involved in a traffic accident during work-related trips?

- Yes  
 No

3.2 Have you faced any risky situations during work-related trips?

- Yes  
 No

If you answered yes, what kind of situations and factors are increasing the risk of being involved in an accident?

### 4. MOBILITY MANAGEMENT IN YOUR WORKPLACE

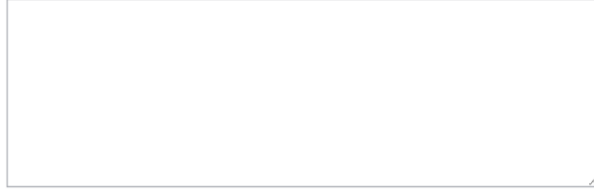
4.1 Choose from the next list 3 most important ways how you think your employer could improve mobility management?

- Better bicycle parking possibilities
- Better social facilities
- Better drying and storing possibilities for clothes
- Introducing company bicycles
- Increasing the number of company's own bicycles
- Company ticket offered by an employer
- Better remote work possibilities
- Training for economical driving
- Establishing carpooling network
- Video-conference
- Sport events for employees
- Free annual maintenance for your bicycle

Tell your own ideas about how mobility management could be improved in your workplace:

3.3.2011

QUESTIONNAIRE ABOUT WORK-RELA...

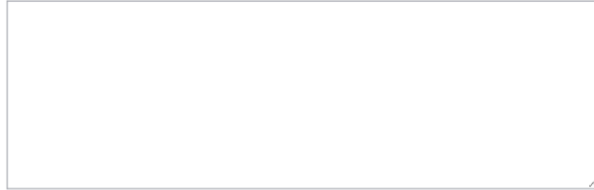


## 5. ACCESSIBILITY

5.1 Do you think accessibility has been taken into account sufficiently in your workplace?

- Yes  
 No

5.2 If you answered NO, what factors or places should be improved in your workplace?



## Lottery

If you want to take part in the lottery please send me your details through e-mail.

**THANK YOU FOR YOUR ANSWERS!!!!**

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## ***Appendix 2. Real estate auditing form***

### **REAL ESTATE AUDITING**

#### **Evaluation form**

Workplace \_\_\_\_\_

Address \_\_\_\_\_

How many employees are there in total \_\_\_\_\_

Day of the evaluation \_\_\_\_\_

Name who evaluates \_\_\_\_\_

Used scale in this evaluation 1=poor, 5=excellent, y=yes, n=no

#### 1. Bicycle parking

	Place 1	Place 2	Place 3
Distance from the closes entrance (m)			
Roof, outdoor, indoor?			
Is the bicycle stand attached to the ground?			
Number of bicycle parking places			
Is the a parking place indoors?			
Are bicycle stands visible?			

The number of bicycle stands \_\_\_\_\_

Have any bicycles been stolen \_\_\_\_\_

Estimate how adequate the parking possibilities are(1-5) \_\_\_\_\_

Estimate how functional are the parking possibilities:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### 2. Social facilities

<b>Show</b> er rooms	Place 1	Place 2	Place 3
For men			
For women			
The number of showers			
Cleanliness			
The number of lockers			
Drying possibility for clothes			

Is the route between shower rooms and bicycle parking places clear and accessible?

\_\_\_\_\_

\_\_\_\_\_

Is the route from shower rooms to workstations clear?

---



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How many people can use the showers: \_\_\_\_\_  
 Estimate the sufficiency of shower rooms (1-5) \_\_\_\_\_  
 Estimate how well the shower rooms work (1-5) \_\_\_\_\_

### **Clothes and drying**

Are there facilities to store and dry clothes during working hours? If yes, where and what kind of?

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	Place 1	Place 2	Place 3
Estimate the sufficiency of clothe storing (1-5)			
Estimate the function ability of clothe storing (1-5)			
Estimate the sufficiency of clothe drying opportunities (1-5)			
Estimate the function ability of clothe drying opportunities (1-5)			

### 3. Car places

The number of car places received for employees	
Distance from the closest entrance (m)	
The number of car places received for organisation's cars	
Distance from the closest entrance (m)	

Price of the car place for the employees (€/day/week/month/year) \_\_\_\_\_  
 Total number of car places \_\_\_\_\_  
 Estimate the sufficiency of car places \_\_\_\_\_  
 Estimate the function ability of car places \_\_\_\_\_

Is there a priority principle when deciding who is getting a car place? If yes, what kind of?