

Summary:

Physical and virtual mobility – interaction between daily travel pattern and PC use

Information- and communication technology – an important part of everyday life

Information – and communication technology (ICT) is becoming more and more important in people's everyday life. The distribution of Internet in the population has increased considerable during a short time. In 2000 half of the population (52 percent) had access to Internet at home in Norway. In 2005 the percentage was 74. Simultaneously ownership and use of the mobile phone have also increased. Use of the mobile phone seems to result in less planning and more spontaneous activities in organizing everyday life in families.

The access to ICT has created new conditions for organizing activities in time and space. Sequence of actions can be broken up, be fragmented in both time and space. Activities like work, shopping, entertainment etc can be carried out from the private home, and activities that previous were restricted by opening hours, can be done 24 hours a day, if desired.

What is the impact on physical mobility of this new way of organizing everyday life?

In this report we have studied Internet based activities that are taking place in people's homes. The study includes e-shopping, teleworking/telecommuting, use of bank services, and activities like attending discussion groups, chatting and playing games. This "virtual mobility" are then tried related to physical mobility.

In the discussion about interaction between physical and virtual mobility four possible effects has been suggested: *Substitution or replacement* - new technology (ICT) replace old (transport/travel purpose). *Modification* – new technology is used to conduct or change planned activities. *Generation* – new technology means more information, new acquaintances and possibilities that induce more travel. *Addition* – new technology comes in addition to old. In the discussion about substitution it is important to take into consideration that a considerable part of the of the communication by ICT would not have resulted in a trip if the technology had not existed.

The results in this report are based on a survey carried out on the Internet. About 2700 persons have answered questions about their use of Internet at home. The respondents were recruited through the Norwegian national passenger travel survey from 2005 (NPTS 2005). During the interview (by telephone) in NPTS

people 18 years or older with access to Internet at home were asked to participate in a survey about activities carried out by the use of Internet. Data from these two surveys were merged.

Half of the employees can work at home

A little less than half of the employees (48 percent) have the possibility to work at home, and the majority of them occasionally do so. In total 40 percent of the employees say they work at home on irregular basis. Only 9 percent have a written agreement concerning work at home with the employer. Nearly 60 percent say that they do not have a special agreement with the employer.

The possibility to work at home is most prevalent among men, employees over 35 years, people living in the larger cities, those with high occupational status, high income and education. This is in accordance with international research.

Men work more often at home than women

The results show that 72 percent of this group work whole days or parts of a day home during a month; 34 percent usually work whole days at home and 66 percent say they work part of a day at home.

Those who have the possibility to work at home do it 1,3 whole days and 3,8 part of a day in average per month. These two measures are significantly correlated, which indicate that those who work whole days also work part of days at home. Those who usually work home whole days during a month work in addition 5,7 part of days. If we assume that a month includes 20 working days, these employees do some work at home every fourth day.

More men than women work at home, both whole days and part of the days. People in age group 25-54 years work most often parts of the day at home. The same do singles with children and people living in the least urbanized areas.

Work pressure the most important reason to work at home

Reasons related to work like; *have much to do, can work when I want, more easy to concentrate at home, and work more efficiently at home*, are the most important reasons to work at home. Each of the two categories related to children are of less importance. The transport related reasons are mentioned by less than 10 percent.

Table 1: The most important reasons to work at home. Up to three reasons could be mentioned N=913. Percent.

		Percent
Work	Have much work to do	37
	Can work when I want	29
	More easy to concentrate at home	23
	Work more efficiently at home	23
	Save time	20
	Avoid stress at work	11
Family	Sick children, days off at school/day care	10
	Easier to combine with taking children to school/day care	10
Transport	Long distance to work	7
	Traffic queues	3
	Poor public transport supply	2
Movement	Have physical movement problems	1
Other reasons		25

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Difficulties keeping work time and leisure time apart – a disadvantage by working at home

As much as 42 percent say that it is difficult to keep working time and leisure time apart when they work at home. This is the most frequent mentioned cause by working at home. At the same time nearly every fifth find that working at home has no disadvantages. One of four say that they work too much, while only four percent claim that they work too little.

Table 2: The most important disadvantages by working at home. N=913. Percent.

Disadvantages by working at home	Percent
Difficult to keep work time and leisure time apart	42
Work too much	25
Lose information about what happens at work	24
Too little contact with colleagues	23
Less access to equipment at home	17
Get disturbed in various ways	9
Get disturbed by the family	7
Other in the household expect me to do housework	7
Difficult to concentrate	6
Too little is being done	4
It gets too silent	4
Difficult to get started in the morning hours	3
Other disadvantages	4
No disadvantages	19

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Minor differences in travel pattern between those who work at home and those who don't

When comparing travel activity and transport mode for those who work at home with those who don't, only minor differences are found. Contrary to conventional wisdom those who work at home travel longer distance by car in total than those who don't. The reason for this might be that the most usual way to work at home is part of a day, not a whole day, which means a substitution of the work trip. The possibility to work at home first of all increases the flexibility both in time and space, but the results from this survey do not show a reduction in transport measured in vehicle km.

Many people use Internet to search for information

In the survey the respondents were asked if they use the Internet to find information about the following goods and services; books and music, films, theatre, concerts etc, timetable, delays etc for public transport, holiday trips, charter tours, hotels etc.

Table 3 Searching for information on the Internet and frequency of searching. Percent

Search for information about	Percentage who search	Frequency of searching			
		4-7 times a week	1-3 times a week	1-3 times a month	Less often
Books, music	72	18	30	36	16
Cinema, theatre, etc	69	3	14	54	29
Public transport	65	7	18	46	39
Holidays, hotel etc	93	4	13	44	39

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Holidays, long trips, hotel etc are the most frequent information people are searching information about, 93 percent use Internet for this purpose. About 60 percent search for this type of information at least once a month. Those who often search for such information also have significantly more long journeys than others.

Searching for information about books and music is also popular, and nearly half of the respondents do this one or several times a week.

Searching for information about films, theatre plays and public transport are done less frequently. But more than 70 percent are looking for information about these cultural events at least once a month, and about 60 percent find information about the daily public transport in the same time interval.

In general young people in the age group 18-24 years search for information on Internet more than other age groups. Only for holidays, hotel etc people 45-54 years are the most frequent users of Internet.

Education and occupation have an impact on the use of Internet for searching information. Except information about daily travel, professionals use Internet for information searching more than people with other occupations. People with education on university level are those who most frequently search for information about films, theatre plays etc, while those with middle level education search more often for information about books and music together with information about daily transport. Many of these are young people who have not finished their education.

Travel and holidays are the goods most often purchased on Internet

Booking hotels, tickets for holiday travel etc are the goods and services most often bought on Internet. Nearly 80 percent say they purchase this type of goods on Internet. More than half of the respondents buy tickets for cinema, theatre, concerts etc on Internet. A little less than half of the respondents buy books, music, DVD/CD, while about 25 percent buy clothes etc. In addition 55 percent say that they also buy other unspecified products on Internet.

Those who buy tickets for long trips, hotel etc most often are:

- Women
- People in the age group 35-44 years
- People living in Bergen, Trondheim and Stavanger (large cities)
- Professionals
- People with high education and income

Those who buy tickets to cinema, theatre etc most often are:

- People in the age group 25-34 years
- People living in the four largest cities
- Professionals
- People with high education
- Both low and high income groups

Books, music, DVD/CD are most frequently bought by:

- People in the age group 25-34 years
- People living in Oslo
- Professionals
- People with high education
- People with low income

Cloths, shoes and textiles are most frequently bought by:

- Women
- People in the age group 35-44 years
- Couples with children
- People living in small town and sparsely populated areas

- People with middle occupational status
- People with middle educational level and income

Internet are used for many purposes

As many as 92 percent use Internet banking services, 85 percent read the newspapers on Internet, 63 percent download music etc, 38 percent attend discussion/chatting groups and 31 percent use the Internet for playing games.

Internet banking are most frequently used by:

- People in the age groups 25-44 years
- Couples with children
- People living in one of the four largest cities
- People with high occupational status
- People with middle educational level
- People with high income

Reading newspapers are most frequently done by:

- Men
- People in the age groups 25-34 years

Playing games are most frequently done by:

- Men
- People in the age groups 18-24 years
- Singles with children
- People living outside the cities
- People with low occupational status
- People with low educational level and income

Chatting, attending discussion groups etc are most frequent among:

- People in the age groups 18-24 years
- Men
- People living in household with several adults
- People living in one of the four largest cities
- People with middle educational level
- People with low income

Interaction between virtual and physical mobility

Based on the results from this survey it is difficult to draw an unambiguous conclusion about the relationship between physical and virtual mobility. The results indicate that the frequent users of Internet for various purposes also have a relatively high level of physical mobility. The distribution and use of Internet are continuously increasing, and those who take this new technology in use are

different from those who don't. When access to this technology becomes even more common, this will probably change.

The distinction between users and non-users are significant in this survey. Those who do not have access to Internet have also less access to private transport resources. It seems that the highly mobile groups also are the "high-frequent" Internet users. When we do not find statistical relations between virtual and physical mobility, this might be part of the explanation. The technological "pioneer groups" are high-mobile. Without the new communication technology their travel activity might even have been higher.

As this survey is the first of its kind in Norway (to our knowledge this type of comprehensive study of ICT and travel patterns has not been carried out before), we have no possibility to compare with previous research. This is a cross-sectional study which gives a picture of a phenomenon under development. This phenomenon will be of great importance for organizing the temporal and spatial aspects of activities for both private households and economic life onwards. It is therefore important to conduct follow-up studies.