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New forms of work and their impacts on traffic (Preliminary study)

Auswirkungen neuer Arbeitsformen auf den Verkehr (Vorstudie)

Funding: National (Switzerland)
Duration: Jan 2003 - Jan 2005
Status: Complete with results

Background & policy context:

Forms of work are currently changing in response to globalisation and flexibility trends. Working hours have become more flexible, work locations are changed more frequently, the proportion of part-time employees is increasing and new technologies have led to the development of new forms of work such as telecommuting, video conferences and remote maintenance. These trends and their traffic impacts have been analysed in various Swiss and foreign studies already. Yet, these studies deal only with partial aspects. What is still missing, is an overall view of the different effects and the interpretation regarding the Swiss planning directives.

Objectives:

This research is designed as a preliminary study: it gives an overview of new forms of work and shows the present state of research on their impacts on transport. It also provides a basis for deriving the necessary adaptation of the planning principles relating to private transport, public transport and pedestrian/bicycle traffic. The preliminary study is designed to show if a primary research phase is feasible and which direction it should take.

Methodology:

The study makes use of three different methods:

- Literature analysis
- Expert interviews
- Comprehensive workshops.

Parent Programmes:
SVI - Swiss Association of Transportation Engineers (various projects)

Institute type: Private foundation
Institute name: Association of Transportation Engineers
Funding type: Public (national/regional/local)

Partners:
INFRAS, Switzerland

Organisation: INFRAS
Address: Mühlemattstr. 45
Zipcode: CH-3007
City: Bern
Contact country: Switzerland
Key Results:

The expression "new forms of work" was defined comprehensively within the framework of the preliminary study. It describes those modified patterns of work resulting from technological and socio-economic changes. In a first step, the current state of research and the statistical evidence were combined and their impact on transport demand was qualitatively assessed:

- The new forms of work based on socio-economic changes (part-time work, flexible work and opening hours) have a significantly greater impact on passenger transport than those based on the new technologies (e.g. telecommuting). However, the latter still need to be kept in mind over longer time periods as significant variables with a view to their future growth potential.
- Taken together, these new forms of work have less influence on the total transport demand than their spatiotemporal allocation. They mainly extend the morning and evening peak hours. However, they are more likely to extend the capacity limits rather than alleviate them in any absolute sense (taking into consideration a further general increase in transport volume). In general, there is more pressure on late-evening and (secondary) weekend traffic.
- Spatially, the new forms of work primarily affect densely populated areas. As a result of overlay effects – especially between flexible working and opening hours – the spatial impacts are greater on specific densely populated areas in urban centres and agglomerations than across the entire region. Over the long term, many of the new forms of work will actually be able to support these spatio-temporal changes thanks to the acceptance by commuters of longer distances between home and work locations.
- A factor common to all new forms of work is increased flexibility. Individual transport offers greater advantages than public transport in this respect. With regard to choice of transport mode or future services, therefore, public and combined transport faces a major challenge in preventing the loss of market share to individual transport.

Adaptation demand of planning principles:

The second part looks at the most important planning principles in public and road transport and their potential need.

Policy implications

The preliminary study has shown that the influence of new forms of work on transport is substantial, not so much because of the total traffic volumes but rather in view of their spatiotemporal distribution. On the other hand, however, concrete adaptations or new work aids require more basic empirical information on their impact on transport volumes, on future developments of new forms of work as well as on their interrelationships with other transport impacts. More fundamental data is also necessary in view of new pricing instruments such as road pricing or e-ticketing which permit peak/off-peak tariffs.

The preliminary study comes to the conclusion that a main research phase is necessary. With very slight adaptation of the existing research programme of the Swiss Association of Transportation Engineers (SVI) 2004-2008, two separate but highly coordinated studies are proposed; on one hand “the effects of e-commerce”, and on the other hand “the effects of new forms of work on transport”. E-commerce has different action modalities than the new forms of work (more relevant to freight than passenger transport) and must therefore be treated separately. In conclusion, a new research concept with initial methodological approaches is being drafted for the second research paper. It is subdivided according to three major research topics:

1. Developing new forms of work
2. Effects of transport
3. Work aids for transport planning.

The first two parts deal with an extension of the basic empirical data. The concept is derived pragmatically, so that we will have to perform our own additional data search, although this will concentrate on new forms of work which are quantitatively relevant (part-time work, flexible forms of work). Currently, not enough information is available for a quantitative impact analysis of the current form of daily activities (e.g. daytime separation of part-time workers and their requirements for parking space) and future trends. Against the background of in-depth impact analyses and their assignment to other transport-impact parameters, fundamental principles for road and rail-transport planning will be formulated in the third part.

The preliminary study showed that what is needed is a preparation of concrete planning aids rather than a direct adaptation of the standards. Individually, the insights gained will lead to a demand for
adapting existing standards or creating new ones. However, this is not a focal topic of the main resear

**STRIA Roadmaps:** Network and traffic management systems

**Transport mode:** Multimodal transport

**Transport sectors:** Passenger transport

**Transport policies:** Decarbonisation, Societal/Economic issues

**Geo-spatial type:** Network corridors