Transport Infrastructure, Tourist Behaviour and Spatial Structure in Landscapes and Habitats of the Alps

Prof. Dr. Kay W. Axhausen
Institute of Transportation, Traffic, Highway and Railway Engineering (IVT, ETH Zurich)

Peter Keller (IVT ETHZ)
Philipp Fröhlich (IVT ETHZ)
Robert Schlich (IVT ETHZ)
Martin Tschopp (IVT ETHZ)

Concept

This research-project deals with the relationships between the *infrastructure* and *tourist behaviour* and their *impacts on the usage of the landscape*. This interdisciplinary research question is typical for the current research practice in the regional and transport sciences.

The present situation as well as the developments and the changes since 1950 will be investigated. While we will study the large scale issues using national data, the local questions will be addressed using a small sample of typical tourism locations (*case studies*).

Large-scale accessibility

The national transport system is a crucial prerequisite for the usage of the alpine landscapes, because it determines their accessibility. Additional capacities and new network elements in the transport system extend the spatial catchment areas of the regions and consequently improve their competitive advantages. There are several new projects scheduled, which are likely to affect future developments, e.g. at the national level the New Rail Link through the Alps (NRLA), the upgrading / expansion of the road networks, or on the European level the various transcontinental high speed rail systems.

Our analysis will take these infrastructures and the services provided on them as given. The detailed network models available at the IVT will allow the detailed calculations of the accessibility of the various regions studied.

Local landscape access

Transport and leisure infrastructures within a tourist region are important prerequisites for the carry out of the desired activities. The diversification and other improvements of infrastructures make an expanded spectrum of tourist behaviour possible and increase the competitive advantages of a region - also foreign ones. New facilities are therefore often connected with far reaching spatial, environmental, social and economic impacts.

The detailed description and characterisation of these infrastructures and their services is essential for modelling of tourist behaviour. An existing national level database will be refined, especially with regards to the levels of services offered.

Destination and mode choice; frequency of visit

Not only the provided transport and leisure infrastructures are changing, but also the tourist behaviour. In general, the frequency of journeys and the travelled distances increased during recent years, while the duration of each journey diminished. These developments are accompanied by a more and more fierce competition between the different destinations.

The aim of the study is to understand how national and local accessibilities as well as the existing leisure facilities influence the behaviour of the visitors given the other characteristics of the destination and of the traveller. The link between the modelling of the frequency of visits and the destination and mode choice are suitable measures of accessibility. The level of local

accessibility will be a central variable in the description of the quality of the destinations. Both quality and accessibility are then tested in a discrete choice model.

Behaviour at destination

The tourist behaviour at the different destinations has changed because of the wider range of facilities and changing attitudes. Over the last years the requirements of the tourists have become higher and more specialised.

Given the lack of previous studies it is necessary to undertake specialised surveys of the tourism behaviour in selected regions (*case studies*). These surveys will trace the activities of the visitors and their landscape use over a small number of days.

The main interest of the analysis will be the interactions between the levels of accessibility, the type of tourists and their behaviour. A crucial question will be how far the visitors to a particular location are self-selected.

Expected Results

The following points should be answered by this project:

- The relationship between the transport system (all modes of transport) and the accessibility of different alpine tourist regions (at a national scale)
- The relationship between the local accessibility of the landscape (supply of lifts, roads, railroads etc.) and its usage by the tourists
- The relationship between the accessibility and the spatial structure of the communities (leisure infrastructure)
- The influence of the interaction between large-scale and local scale accessibility on the number and type of visits to the tourist regions
- The feedback mechanisms between usage and the improvements in local and large-scale accessibility

Networking (Selection)

- Mobidrive - Dynamik und Routinen im Verkehrsverhalten
  (IVT ETHZ, PTV Karlsruhe, ISB RWTH Aachen, 1999-2001)
- Gesetzmässigkeiten des Wochenendfreizeitverkehrs
  (IVT ETHZ, 2000-2002)
- Kontrasträume und Raumpartnerschaften - Nachhaltige Wachstumschancen im Freizeitverkehr
  (IVT ETHZ, ISS TU Berlin, IfS TU Berlin, ZTG TU Berlin, CPI Zürich, 2000-2002)
- Development of the Transit Transport System and its Impact on Spatial Development in Switzerland (COST 340)
  (IVT ETHZ, IVS Uni Bern, IH Uni Neuchâtel, 2001-2003)

On-site Research Places (Case studies)

The investigations comprise desk work as well as field studies. The case study regions will be selected to contrast the levels of local accessibility (car free or not; size of lift system; access to the lifts from the accommodations). In addition, we want to control for the style of the resort (price level, preferred market segments) and location (German-speaking/French-speaking and accessibility at the national level).