Priority topic:
Promoting Interconnectivity between various modes of Transport

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The report describes developments with regard to multi- and inter-modal traffic information platforms in Switzerland and Europe, in particular in Austria. Furthermore the results of a feasibility study by the canton of Zurich for a traffic information platform are presented, together with the future procedure that would be based on it.

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1 Status and development

1.1 Supply-side news

More and more traffic information platforms and corresponding apps are coming onto the market from more and more suppliers with different spatial references, mono-, multi- and intermodal content and a diverse range of application options. According to the European Commission, there are already more than 100 multi-modal traffic information platforms in Europe (European Commission, 2014). In Switzerland as well, there is an increasing number of applications, but the information content is mostly mono- or multimodal; intermodal traffic information platforms are only available in rudimentary form (see Löchl, 2013).

One such offering, which is under development, is the communication and information platform ueila! (www.ueila.org). The aim of this non-commercial platform is that a transport participant obtains the intermodal traffic information of relevance to him/her when travelling around via an app at the push of a button and can thus make the optimal personal decision on how to get to his/her destination. However, the users or members are supposed not only to retrieve information but also, through their own reports on the traffic situation, to improve the information available to all users. This commitment on the part of the members is to be rewarded and encouraged by a personal ranking that is made transparent. Points are awarded for reports as well as inputs and they can be exchanged later for discounts with partners. Ueila! is run by a foundation, with all income from service partners, patrons and sponsors being re-invested in the further development of the app. ueila! would like to adopt the perspective of transport participants or users and act as an advocate for their needs and a better mobility offering. The first module of the platform or app has been completed; as from autumn 2014, work is to start on a pilot project for an – initially – closed circle of private companies, and in the first half of 2015, the ueila! app should become accessible to the public (Frei, 2014; Tagesanzeiger, 2014).

The EU-funded platform UrbScout (www.urbscout.mobi) shows one possible way to provide a fast overview of existing traffic information platforms or apps (in some cases with websites) for a particular region. Since the summer of 2014, users have been able to search free of charge via various terminal devices (websites, IOS or Android) and with diverse search criteria for apps for currently 11 major cities in other European countries. The listed apps are not linked to each other in terms of content, and they also have to be installed or selected individually. For example, for the city or region of Vienna, 16 apps are currently available from the co-modal traffic information platform AnachB (see below) via the apps of the Austrian Federal Railways and Wiener Linien, and via various other provider-specific taxi- und car-sharing apps right down to rideshare and bicycle-related apps.

1.2 Results of a feasibility study by the canton of Zurich

The Canton of Zurich conducted a feasibility study for an intermodal traffic information platform (Office of Transport of the Canton of Zurich, 2014) as part of the further development of the “Regional control centre for the Zurich traffic area” (RL-VRZ). The study analysed the needs of different user groups and the possibilities of their being implemented appropriately. In addition, issues were examined with regard to contents, organization and financing. The improvement of traffic and control quality and data availability was defined as the objective of an intermodal traffic information platform, with the following requirements:

- full spatial coverage (the whole canton of Zurich)
- intermodal (MIT, PT, P+R, B+R)
- credibility, availability and quality
- data in real time
- benefit for strategic planning and operational tasks
- interface for data transfer to third parties
- modular structure, implementation in stages.

The study recommends a gradual approach for Greater Zurich with the following key points:

- Creation of a public interface in the form of a “data hub” to enable data exchange between the public sector and data transfer to third parties (not end-users).
- Creation of a multimodal representation of a traffic situation based on the data of the interface and intended for the transport participants.

- A central contact point within the information hub is to be created by establishing a coordination point for traffic data. Its function will be to coordinate the requests of the data users and data providers, to act as a contact point for data access and the terms and conditions of use and to promote the further development of the platform in terms of content and technology.

The study assigns a low priority to the provision of an (intermodal) routing, mainly due to cost/benefit considerations. This task could also be left to commercial providers.
Based on the results of the study, the following next steps were approved for the next two years by the Supervisory Committee of the RL-VRZ:

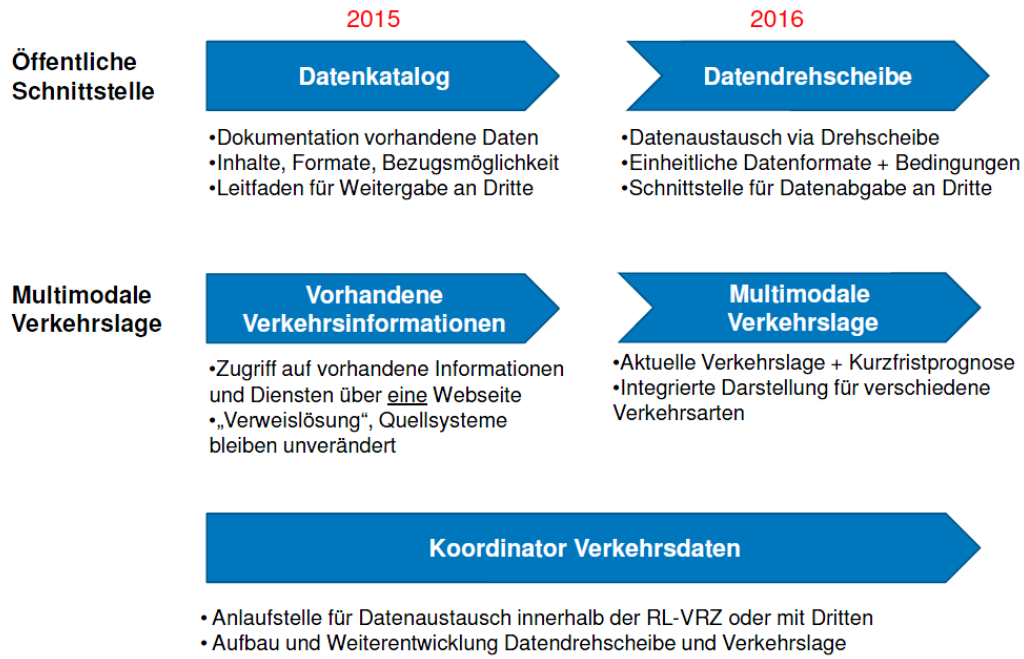

Figure 1: Procedure for establishing a traffic information platform, Zurich (Unseld, 2014)

1.3 European level

In June 2014 the European Commission published a working document which summarized the status of multimodal journey planners in Europe and contained a plan for the next steps (European Commission, 2014). It stresses, among other things, the need for freely available data, but also the definition of data standards and exchange formats. The document considers that one challenge will be to define these specifications without hindering technological innovations.

In the summary of the European Commission's 2013 ITS Conference, the following statements can be found, among others (European Commission, 2013):

- The intention of public authorities at all levels is to set a favourable framework for ITS deployment and to act as a platform for the services to operate. This is to be done by proposing a step-by-step agenda and further support measures such as a corresponding policy and funding measures. But industry should be left the necessary space for innovation and market developments.
- There is strong evidence that the benefits related to opening both public and private data resources (Open Data) will fast outweigh the costs associated to it.

2 Traffic information in Austria

Austria is regarded as a positive example in Europe when it comes to the preparation and provision of traffic information, particularly in the form of multi- and intermodal traffic information platforms. What follows is an overview of the foundations and offerings in our neighbouring country.

2.1 Graph Integration Platform (GIP)

The Graph Integration Platform (GIP, www.gip.gv.at), which has been developed for several years with public funding, forms the central basis for traffic information in Austria. This is a joint data platform of the infrastructure operators and competent authorities at the local, federal province and federal levels. It now includes nationwide data on the transport network such as footpaths and cycle tracks, municipal and country roads and motorways, but also the rail network, in a uniform, routable data format. In addition it also contains further information such as house numbers, road signs, road markings, roadworks, events, special transport services, route concessions etc. The data are constantly updated locally by the participating partners. With the GIP.gv.at project, the foundation was laid for new electronic administrative procedures in traffic and transport. The fundamental data are kept up to date for traffic control and traffic information by means of e-government processes and are of such high quality that they are used for legally binding administrative procedures. There is no dependency on commercial graphs such as Teleatlas and their updating cycle. The budget for establishing GIP totalled approx. 4 million euros (Unterluggauer, 2013).

The standard description of GIP is contained in the Austrian guidelines and regulations for public highways and lays down specifications which ensure the consistency of the subgraphs and which are necessary for nationwide exchange of traffic references. The minimum standard ensures that the routing, cartographic representations and basic inter-province e-government applications (accident data localization, exchange of street names and kilometric indications) work uniformly throughout Austria. The beyond-standard structure of GIP determines how the data are to be captured (Austrian Road Rail Transport Research Institute, 2014).

GIP is used, inter alia, as a basis for a wide variety of traffic information for end users. In addition to the applications mentioned below, GIP is also used, for example, for the route planners of the Austrian company Autobahnen- und Schnellstrassen-Finanzierungs-AG (Austrian motorway and highway financing company, ASFINAG Roadpilot) and the Austrian Automobile Association (ÖAMTC), navigation applications for bikers and wheelchair users or temporarily for a route planner intended for residents, businesses and their customers during roadworks on a major shopping street in Vienna.

2.2 Traffic Information Austria (VAO)

VAO is an intermodal traffic information platform for the whole of Austria of uniformly high quality which covers all traffic events and all modes of transport, intermodally and in real time (www.verkehrsauskunft.at). A large number of information sources is combined for this purpose. For door-to-door routing, dynamic data such as traffic reports (roadworks, traffic jams, etc.), the current traffic situation and delays or breakdowns in public transport are also taken into account, as are park-and-ride and bike rental locations and their capacity utilization rate (number of free bikes and parking slots). The roadworks information is virtually up-to-the-minute as a result of direct incorporation of corresponding administrative decisions of the federal provinces (Kurier, 2013). Traffic Information Austria's comprehensive approach is made possible by the VAO consortium, which is a cooperation of federal provinces and cities (Vienna, Graz), ASFINAG, the Austrian Federal Railways, the integrated regional transport systems, the Austrian Automobile Association, ITS Vienna Region and ITS Austria West. All partners jointly make their traffic data, traffic situation, journey time calculations and traffic reports available to VAO (including via GIP). The system has been online since summer 2014, but is still being further developed, optimized and expanded, for example with car sharing and ridesharing offers. The budget until summer 2015 amounts to nearly EUR 14 million.

VAO makes the information directly available to users, but it can also be used as a basis for the partners' traffic information. VAO is not intended to be just another information platform. The system has replaced the

project partners' routing offers, although users have probably not noticed it. The image of the existing service offerings has in fact hardly changed, the VAO surface has been individually designed for each supplier (Kurier, 2013).
The diagram below shows the system concept of data suppliers, GIP, VAO and further applications or services.

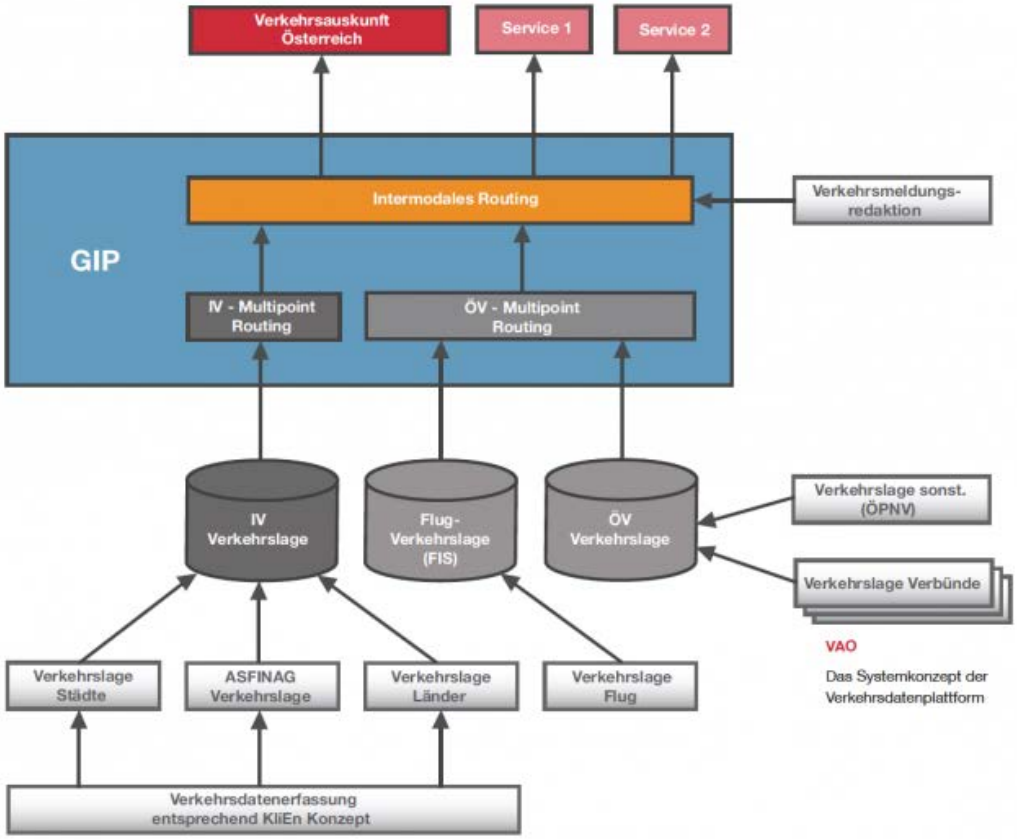

Figure 2: System structure of traffic information in Austria (Source: http://www.gip.gv.at/vao-technische-details.html)

2.3 AnachB / VOR

"AnachB / VOR" is the name of the intermodal traffic information platform of ITS Vienna Region and the Eastern Regional Integrated Transport System (VOR, http://www.vor.at/efa/anachb-vor-mobile-app/). It has been operating since summer 2014 also on the basis of GIP and VAO; previously AnachB was a standalone application for Greater Vienna, which went online in 2009 and was already using GIP. In addition to the Traffic Information Austria functions, personal departure points and routes can be saved as favourites. Route information can also be entered in the personal electronic calendar or be sent by SMS, e-mail or Twitter. The data input, in particular from the Vienna area, includes sensor data from 360 road cross sections as well as Floating Car Data from 3,500 taxis (Unterluggauer, 2013).

2.4 Smile

"Smile – Smart Mobility Info & Ticketing System Leading the Way for Effective E-Mobility Services" (http://www.smile-einfachmobil.at/) is a project that has been running since 2013 under the supervision of Wiener Stadtwerke AG. In addition, numerous other partners are involved (including Austrian Federal Railways, Wiener Linien and various private-sector companies). The aim is to develop and test a prototype for an intermodal, integrated traffic information, booking and payment system that intelligently links all modes of transport (in particular individual e-mobility services, but also public transport, taxis, car sharing, rented bicycles, etc.). Standardized interfaces also give other mobility providers access to this system. A core element of Smile is the reproduction of a common ticket for each trip booked without any change of the fare structures. The corresponding Smile App facilitates the trip with the best possible routes in real time and

offers appropriate routing and cancellation mechanisms. Season tickets, reductions, memberships e.g. with sharing providers etc. can be saved in the user's individual mobility profile. When the Smile app is installed on a mobile phone, it should be possible in future, for example, to open the barriers in a parking deck and obtain car sharing vehicles, rental bicycles and power at e-service stations. The pilot operation is planned for winter 2014/2015. The project cost amounts to EUR 6.7 million.

2.5 General conditions and success factors

The examples of projects and applications described above show how diverse and well-developed the traffic information offering is in Austria. The most important prerequisite for providing these services was the sufficient use of public funds. Thus the establishment of GIP, VAO and Smile was each funded to the tune of 50% from the Climate and Energy Fund, while the remaining budget was also provided by public bodies. In Austria, the view is taken that there is no business case for traffic information. The information should be free of charge to end users and the traffic safety aspect additionally justifies the activities of the public sector (Schleser, 2014). Furthermore, cooperation and collaboration between the stakeholders in Austria is very well developed. All the partners who worked to establish VAO were involved in all the important organizational, technical and design decisions of the consortium (the unanimity principle). In this case the possibility of partner-specific front end development was a key to success. This allowed all partners to use the same information, but to adapt it to the needs of the individual users (www.verkehrsauskunft.at).

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