

THE AUSTRIAN TRANSPORT AND LOGISTICS STRATEGY

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***Abstract:** This paper investigated the national transportation and logistics strategy of Austria. The special focus was on situation analysis, conceptual goals as well as a selection of measures and the quantitative analysis of the position of Austria compared to its European peers. The country is focusing on the possibility to provide intermodal freight transportation facilities in order to maintain its position as an attractive business location. The Austrian transportation policy is based on four pillars: the transportation system of the future should be more social, safer, more environmental friendly as well as more efficient. Major projects will provide modern infrastructure as well as a framework of regulative measures to enhance safety and reduce emissions and traffic congestion. Exchange of best practices on a European level is likely to have a positive impact on technological advancement projects.*

Keywords: austria, transport, strategy, analysis, environment

1. Introduction

1.1. Geographic and economic background

Austria's transport system is, from a geographical point of view, a central part of the European transport system. Traditionally, the country has been active in "bridge-building to the east", increasing contacts at all levels with Eastern Europe. Due to the length of Austria's infrastructure and the international connections through the country, the transport network is considered highly-developed and the quality of the infrastructure – high [1]. There are several specifics that need to be taken into consideration designing the Austrian Transport Policy. Firstly, the country has a relatively large capital. Vienna is much larger than the other Austrian cities and is an important urban, transport and economic center. There are several urban agglomerations around some other cities like Linz, Graz and Salzburg, which are characterized by more intense traffic. Furthermore, the morphology of the country makes the infrastructure construction more complicated and expensive. The Alps are a challenge for the connection between Italy and Northern Europe. There are also missing links to the neighboring countries. Last but not least, the Danube River is a part of a waterway that links the North Sea to the Black Sea. The main national and international transport corridors are shown in Pict. 1.

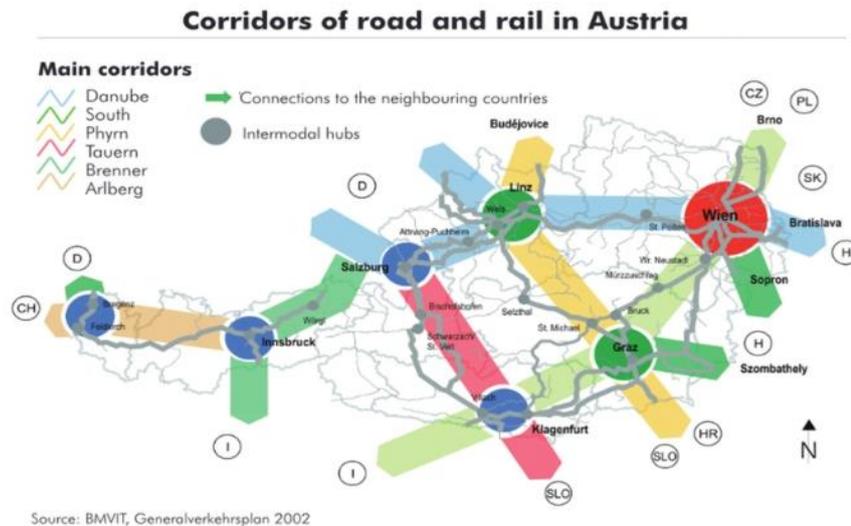


Figure 1: Transport corridors in Austria

Source:

http://www.bmvit.gv.at/verkehr/gesamtverkehr/statistik/downloads/TIF_11_english_2011_2013_0627.pdf

Austria is generally well integrated in the European trade and has a particularly strong position in the Eastern-European markets. According to the Federal Ministry of Transport, Innovation and Technology (bmvit), the trade with Germany accounts for the highest value of export and import. A considerable value of import and export is generated also with Switzerland and Italy, and lower levels with the Czech Republic, Hungary, Slovakia and Slovenia [2].

1.2. Transport Strategy

Mobility is identified by bmvit as an essential social need and crucially important for the development of the economy. An effective and efficient transport system is important for maintaining national and the European Union's competitiveness, prosperity, and social welfare. Hence, states and public organizations influence the transport market in a manner favorable to the economy through transport policies. Transport policy is defined by strategic and program documents at national and European level [3]. The aim of the European Traffic Policy, described in the White- Book is the modal-shift of long distance traffic. The National Transportation Strategy of Austria aims to provide the necessary mobility by environmental-friendly means of transportation. Since mobility increases dynamically, it is important that the rapid traffic growth is managed in a sustainable, environmental-friendly and socially just manner. The development of the transport infrastructure is a priority for Austria in order for the country to establish itself as an important business location, to reduce the negative regional differences and to reduce the disparities between the federal provinces. The policies developed in this direction should consider also social and environmental aspects of the measures [4].

2. Situation analysis

2.1 Transport network analysis

Road Network

The Austrian road network is shown in Pict. 2

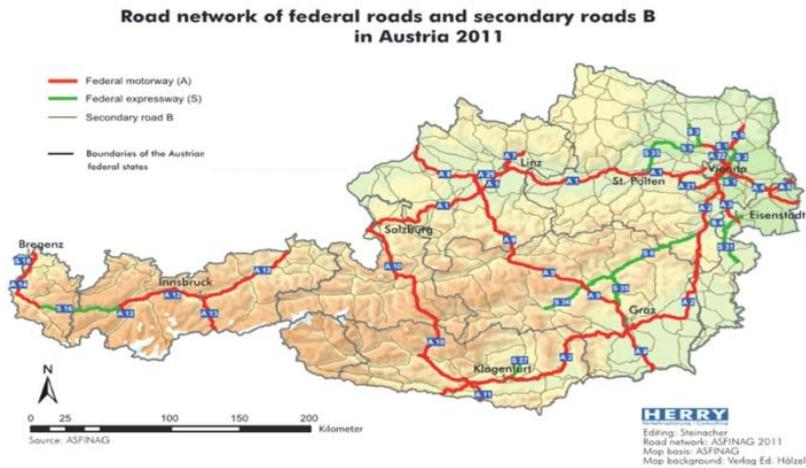


Figure 2: Road Network Austria

Source:

http://www.bmvit.gv.at/verkehr/gesamtverkehr/statistik/downloads/TIF_11_english_2011_2013_0627.pdf

Austria has the ninth position in terms of length per motorway network per land area in the EU, being above the average value. As an alpine region country, the road network of Austria is characterized by many tunnels and bridges. The main alpine road crossings are constructed as motorways and expressways, their quality is regarded sufficient at the moment.

A priority is the upgrade of the national highway network with the objective to:

- Close the missing links to the eastern and northern neighboring countries (mainly to the Czech Republic and Hungary)
- Relieve bottlenecks in and around agglomerations
- Upgrade capacity in important intercity connections (Danube and Southern corridor)

Rail network

The Austrian railway network is a combined one – both for passenger and freight. A map is given in Pict. 3.



Figure 3: Rail Network Austria

Source:

http://www.bmvit.gv.at/verkehr/gesamtverkehr/statistik/downloads/TIF_11_english_2011_2013_0627.pdf

The investments in rail network are supported by the integration projects of the European Union and particularly the Trans-European axis. Austria has the eighth longest rail network per land area in the EU in 2008 [2] [4]. Currently, major investments in railroad network are made in order to fulfill requirements of a Trans-European high capacity railroad network, which provides a possibility for intermodal connections. The greatest challenge for the railway infrastructure development is to realize high performance tracks for the Alpine crossing. The only solution is constructing base tunnels, which require significant investments and expertise of the construction companies. There are three projects for base tunnels and another project for a high-speed line Vienna-Linz [4]. In 2007 a Brenner Corridor Platform (BCP) was set up to guarantee an integrated approach for the Brenner Corridor between Munich and Verona, which is a major bottleneck on the Scandinavian-Mediterranean Corridor. The project is part of the TEN-T policy, which supports the completion of priority projects, representing high European added value. Austria is a member of BCP and is involved in the implementation of measures that promote an efficient use of the cross-border rail connection. The main element of the Brenner Railway is the Brenner Base Tunnel, which is expected to be completed in 2025. It runs through the Alps between Austria and Italy, it will be the longest under-ground tunnel in the world [5] [6].

Inland waterways

The inland waterway transport has certain advantages like high reserves of capacity and low environmental impact. It is used by companies in the heavy industry for supply with materials. Compared to the other EU members, Austria has a relatively low waterway density. The Danube River is the most important inland waterway, with a length of 350 km in Austria. The most important ports along the Austrian part of the Danube are Vienna and Linz. The drought for vessels of the river varies during the year and the water level is not sufficient in some periods, some measures are planned to deal with this problem (Ministry of Transport, Innovation and Technology, 2011).

Intermodal freight terminals

The dynamic development of production and transportation requires adaptation of new infrastructure and logistics concepts. Intermodal freight terminals give the opportunity to switch between transport modes. There are ten bimodal (road and rail) and four tri-modal (road, rail, water) hubs in Austria. Pict. 4 provides an overview of the intermodal terminals' locations.



Figure 4: Intermodal Terminals Locations Austria
 Source: <http://Www.Bmvit.Gv.At/En/Verkehr/Hubs/Index.Html>

Air traffic

Austria has six international airports, located in Vienna, Linz, Klagenfurt, Salzburg, Innsbruck and Graz. Vienna is by far the most important one, both in terms of passengers and air cargo volume. Important is also the proximity of the Bratislava airport and the Swiss St. Gallen Altenrhein [2].

2.2. Environmental measures

As it will be discussed later, environmental sustainability is an important part of the Austrian Transportation Strategy. Some measures have already been implemented. A specific example is the setting of Low Emissions Zones, which aim to reduce emissions from road traffic. Such zones are Vienna, Lower Austria, Steiermark and the A12 highway in Tyrol. In these areas the movement of lorries and heavy-goods vehicles (HGV), which do not conform to certain ecological standards like Euro 2 or Euro 3 is not allowed. The regulations for the A12 highway include also a night-driving ban on pre-Euro 6 HGVs over 3.5 tones, sectorial driving ban for HGV over 7.5 tones, a speed limit of 100km/h for passenger cars, dependent on emissions, a night time speed limit (all vehicles), and a ban on overtaking (lorries over 3.5 tones). These measures are estimated to reduce the level of NO₂ with 10%. The European Commission, however, decided to bring proceedings against the sectorial driving ban in Tyrol, because it prevents the free movement of goods within the EU [7].

3. Conceptual goals

The Austrian Transport and Logistics Strategy is based on conceptual goals. Those goals were defined by the Austrian Federal Ministry for Transport, Innovation and Technology. The conceptual goals take into consideration both national economic, social as well as environmental targets and EU legislation, such as the EU Transportation White Paper. The aims of the Austrian transportation policy are based on four pillars: the transportation system of the future should be more social, safer, more environmental friendly, and more efficient. In the following the four main dimension and the associated goals of the Austrian transportation policy will be described in more detail.

3.1. Social dimension

The social aspect of the Austrian traffic master plan is concerned with respecting the needs of the different stakeholders and users of the transportation system. Furthermore, it is strongly focused on public transportation. Four sub-dimensions should ensure achieving the goal of this, those are affordability, reachability, quality, and accessibility. It is the goal of Austria's Transportation Ministry to design mobility in an affordable and fair way that guarantees access to public transportation also to low-income households. Price increases should not surpass inflation to guarantee basic mobility for all citizens.

When it comes to reachability, ensuring good connections is key in order that public transportation can be used. Besides the urban agglomerations Vienna and the federal capitals, Austria is rather fragmented. The goal is to have also short ways to stops and stations of public transportation, such as train stations, in those areas. Together with decent intervals this is supposed to increase the attractiveness of public transportation and facilitate the shift towards environmental friendly means of transportation. Public transportation is more attractive if the offered quality is high. That is why a quality management system was introduced to monitor public transportation according to objective as well as subjective criteria. Accessibility to ensure the participation of all population groups in public transportation is a further goal of the social dimension. It concerns persons with special needs, such as parents with buggies, travelers with a lot of luggage, and elder people. By 2015, all train stations with more than 2.000 travelers per day will be barrier-free. In addition, trains and busses will be gradually redesigned or replaced with new barrier-free ones.

3.2. Safety dimension

The Federal Transport Ministry wants to make Austria's transportation system one of the safest in the EU. This is about the safety of all its participants. The main focus lies on road transportation because of its over-proportionally high number of incidents. The number of road traffic deaths decreased steadily already from 2004 until 2012. Compared to its European peers, Austria was average in terms of traffic deaths per 1000 people in 2012.

Despite the fact that railway is already one of the safest modes of transport (64 times safer than road) further investments are made to increase safety.

Last but not least, the transportation of dangerous goods is in the focus. Environmental as well as indirect damage to human health are aimed to be avoided through efficient and target-oriented controls as well as improvements in the transportation infrastructure: Highways and freeways must be designed in a way that emergent liquid substance does not reach soil and phreatic water.

3.3. Environmental dimension

When it comes to the environmental goals of the Austrian traffic master plan, EU legislation plays a major role. The target is to make transportation more resource-friendly, eco-friendly, energy-efficient, and less noisy. Negative side effects of transportation are minimized by a bundle of regulative measures, financial incentives, and technological progress.

In terms of climate protection goals, Austria committed itself to target values in accordance with the EU 20/20/20 plan. Until 2020, greenhouse gases should be reduced by 16%, the share of renewable energy of total energy consumption be at minimum 34%, and the share of renewable energy in the transportation sector be at minimum 10%. Besides greenhouse gas, air pollutants reductions are also targeted: NO_x emissions and fine dust should be lowered. Technological progress has a big impact on reaching those goals.

3.4. Efficiency dimension

The ultimate goal in terms of efficiency is to ensure a high level of mobility with lowest possible consumption. In addition, it is the aim to maintain predictability and transparency. Predictability means that the transport policy has to be foreseeable and help to plan accordingly. This is supported by framework plans. Furthermore transparencies in infrastructure investment decisions are tackled with clear rules and a proactive information policy. These measures should help to increase the acceptance of big infrastructure projects. Concerning resource efficiency, both energy as well as space are to be used efficiently and meaningful. This means a targeted reduction in energy consumption of the total transportation system as well as only a very low increase of land requirements for transportation infrastructure. As a last goal, travel times should be shortened and become more predictable and accurate at the same time to support multi-modal transportation. Investments in railway infrastructure and trains as well as intelligent traffic systems on the roads are key drivers to achieve that.

4. Programming

The following 6 sections give a brief overview on a selection of strategy implementation areas with a special focus on a comparison of Austria's performance with those of other EU countries.

4.1. Long term infrastructure investments: Street network

For 2015, ASFINAG, a government-owned company for the construction and maintenance of high-order traffic infrastructure, has announced high investments into the new construction and the maintenance of the existing street network. These are part of the current six-year plan that includes a total investment of seven billion EUR for the high-rank street network in Austria. Those projects being in construction at the moment or commencing in 2015. As was pointed out earlier, the extension of the street network, primarily as a means to reduction of congestion in agglomeration areas is one of the highest priorities of the Austrian transport strategy, followed by enhancement of safety in road traffic. This is represented in the construction projects being currently conducted or about to start, where network extension for congestion reduction makes up 61% of the total spent, followed by safety projects amounting to 31,3% with the remainder being distributed across noise protection and general maintenance.

4.2. Spatial development

As part of the efficiency dimension of the strategy aims, space is supposed to be used more meaningful. Due to the fact that on average of 25 hectares of land are used for new

constructions and the extension of the transport network each day and are therefore lost irretrievably, this goal aims to keep land consumption to a minimum [8].

The “targeted reduction in the growth rate of permanently sealed surfaces” [8] therefore appears reasonable and fact-founded. Austria increased the length of its “other roads” by almost 9% in 2011, compared to 2010.

4.3. Noise reduction

According to ASFINAG, 80% of those noise reduction projects that were planned in 2007 have already been realized by now [9]. The percentage of people affected by noise in Austria was indeed noticeably higher than in the rest of Europe. The strategy to keep reducing noise pollution to the population thus seems well founded in comparative figures. Apart from the population being affected, the bmvit recognizes the impact of noise on the ecological environment as another motivator to reduce noise impact [10].

4.4. Advancement of electro-mobility

Measures for the achievement of climate goals comprise, among others, incentivizing the advancement of electro-mobility, which is a central point of the strategy. The amount of cars that are exclusively powered by electricity, however, amounted to only 0.04% by the end of 2013. AustriaTech (2014) has found in an analysis from August 2014 that incentive system in Austria performs significantly below international average. A study published by bmvit in 2014 stated that the percentage of electric and hybrid cars newly registered in Austria in 2013 was 0.02%. The strategy has thus embraced the advancement of electro-mobility, e.g. to become an integral part in urban logistics planning [11].

4.5. Reduction of greenhouse gases

A direct contributor to the achievement of climate change targets is the reduction of greenhouse gases (GHG). E.g. by promoting “soft” transportation means, i.e. walking and cycling, the Austrian government pursues this part of the strategy [12]. In the industry segment of transport and storage Austria has experienced a significant increase in CO₂ production from 2010 to 2011, followed by a minor reduction. The contribution of Austria’s CO₂ production to that of whole Europe has been growing since 2010. Thus, in relative terms, Austria kept increasing its CO₂ production over this time period.

It can be concluded that the strategy has not yet shown full effect in the respect of GHG reduction. Even more so, the data support the importance of the ongoing efforts in its pursuit.

4.6. Reduction of Pollution

The changes in the emission of particles are smaller than 10µm between 2009 and 2012 for those European countries for which the data was available. This type of matter emission was chosen as an indicator of air pollution. While Romania experienced an increase over this time period of approximately 20% in total, Cyprus achieved the strongest reduction which amounted to 64%. The amount of pollution caused by these particles in Austria remained relatively constant with an overall reduction of 2%. In each of the three years analyzed, the percent reduction of particle emission was less than the EU28 average, even showing an increase from 2010 to 2011 while on average there was a constant decrease in the EU28 countries.

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