

Heiner Hautau*

PROSPECTS FOR TRANSPORT AND LOGISTICS IN THE EUROPEAN UNION

The article deals with the changes in the transport and logistics sector. The author describes trends which have influenced the transport sector in recent decades. Text also highlights the consequences of transport activity, such as environment aspects. The author tackles the problem of logistics business and presents the strategies of modern logistics. The challenges for future transport policy in the European Union are presented.

Keywords: mobility, transport policy, transport and logistics sector

Preliminary comments

The transport activities observed every day are the main symptom of the mobility of people and goods in our society. The free and unhindered mobility of goods is a prerequisite for a highly developed economy in which work is subdivided, and therefore continuously generates new advances in productivity which boost our prosperity. The job of logistics is to optimise all of the goods movements associated with this subdivision of work by maximising business economics and technology, and therefore also to ensure that the flow of information required for this purpose is also maintained.

Transport policy in a society based on free liberal principles must ensure that the necessary frameworks are in place to maintain the unhindered mobility of people and goods. On the other hand, it also has the obligation of reducing the

* Prof. Dr. rer. pol. Heiner Hautau – Universitaet Bremen, Niemcy.

negative consequences of transport operations so that transport satisfies the needs of environmental protection: known today as the “sustainability” of transport.

What are the foreseeable changes which influence transport and logistics in the states in the European Union, and to what extent do our states satisfy the demand for unhindered mobility? What are the demands of transport science, and which demands on transport policy can be derived and formulated from this?

1. Transport development trends

The first part highlights which dominating development trends have influenced the transport sector in recent decades, and which transport-induced consequences this has engendered. The most important environment-relevant aspects of transport are also presented, and the effects of environmental protection measures on the transport sector are also highlighted.

2. Regional development and transport

Transport development and regional development have a very strong mutual influence on one another. The following lines of development can be identified in this regard:

1. The political opening of borders has accelerated the development of globalisation, and led to a global expansion in the size of economic zones. The subdivision of work extends over larger areas as a result, and increases the transport distances for all modes of transport.
2. The spatial concentration of economic activities becomes more intense and more differentiated, and is associated with a greater concentration of transport operations in conurbations.
3. In terms of shipping, this development boosts intercontinental maritime transport on the one hand, but also European continental marine transport (short-sea-shipment) and transport on inland waterways on the other hand.
4. The port hinterlands of European seaports have extended further eastwards, giving rise to increasing land transport and feeder shipping over longer distances.

5. With respect to the ports, they are becoming more specialised to satisfy the demands of the market, in particular with regard to container transshipment, which has led to a radial alignment of the hinterland transport and feeder shipping serving the port regions.

3. Transport development and economic growth

The globalisation of the markets, and the opening of borders in the direction of eastern Europe, had a major impact on the European transport systems. The central European countries have been particularly strongly affected by this.

1. According to the transport forecasts for the EU states, there will be a further growth in passenger and freight transport volumes for all modes of transport. Over-proportional growth is expected in particular for seaport-relevant hinterland transport into and out of the North Sea and Baltic Sea ports.
2. A consideration of the relationships between economic growth and transport capacity reveals that these continue to be very closely connected.
3. Passenger transport alone shows signs of reaching saturation point and resistance to traffic, whilst freight transport enjoyed a new stimulus through the expansion of economic zones associated with globalisation and the eastern enlargement of the EU.

4. Freight transport and logistics

The job of logistics is to optimise the movement of goods at a business level. The associated flows of transport which this generates are crucially influenced by the production strategies of companies and the associated logistics concepts.

The modern logistics concepts give rise to the following demands on goods transport:

1. The decentralised organisation principle behind just-in-time production (JIT) places a demand on logistics to ensure the punctual control and optimisation of the flow of materials. The demands on transport operations which result from this are high degrees of transport punctuality for smaller sizes of deliveries, which in turn lead to an increase in the effort required for bundling.

2. The general trend to reduce manufacturing depth in production leads to a rise in the number of deliveries. Instead of eliminating this effect, modular sourcing transfers it to the upstream production phase. The effect this development has on inducing transport can, however, be reduced by bundling the goods shipments.
3. The strategies of companies to intensify their internationalisation efforts have had knock-on effects, including a European and/or global sourcing policy. The general transport-inducing effects of these strategies are intensified further in this regard by an increase in the transport distances.
4. The internet-based e-commerce has initiated fundamental changes in the economy, and created new challenges for the logistical handling of internet orders (e-fulfilment). This applies primarily to the end-user business (B2C) with its numerous small and micro orders. The transport-inducing effects of this development can be reduced by the logistics industry by also bundling shipments in this case as well.
5. The objective of supply chain management (SCM) to optimise the logistics network as a whole does not give rise to any transport-inducing effects. Unlike the conventional organisation of the logistics chain, which is associated with frictional losses and uncertainties at the interfaces, SCM is a model for co-operation in logistics networks. From a transport point of view, SCM therefore opens up an opportunity to enhance the transport efficiency of intermodal transport, and therefore to play a part in reducing the impact of transport on the environment.
6. The efforts undertaken by logistics to move the rising volumes of road haulage with high levels of efficiency has played a part in increasing the capacity utilisation of vehicles, despite the growth in vehicle size, thanks to the measures implemented for bundling shipments and optimising routes. This means that fewer transport route capacities are utilised per transported weight unit (t), as well as giving rise to a reduction in emissions of pollutants and noise.
7. A general conclusion for all of the strategies discussed above is that their implementation reflects a rational economic calculation: comparing the production and logistics unit costs (including transport costs). The optimum is achieved when the total of both costs has reached its minimum level. If real logistics unit costs decrease as they have in recent decades, the cost-reducing specialisation increases the size of the sales areas (and

thus the transport distances), at the same time as giving rise to lower product prices.

5. Transport and the environment

Road transport has given rise to an exorbitant increase in motorisation in all EU countries in the last 50 years.

1. Because the overall distance driven and the fuel consumption of vehicles in future will develop in an under-proportional way or continue to decline, there will also be a decline in the transport-specific impact on the environment associated with exhaust gas emissions. These reached their peaks towards the end of the 1980s, and have been in decline ever since.
2. This relative improvement in the environmental impact of the transport sector was achieved by more stringent exhaust gas regulations (EURO STANDARDS). From a technical point of view, these standards were achieved by the development of new engine technologies and exhaust gas cleaning technologies, as well as continuous improvements in fuels.
3. Transport emissions, including those associated with goods transport, will therefore continue to decline overall. The implementation of the Euro 6 standard and further enhancements in vehicle technology, will slash the exhaust gas emissions for the total road vehicle fleet by 90% in 2020 compared to the peak reached at the end of the 1980s.
4. The noise generated by road traffic continues to be seen as the most serious impact on the environment of all modes of transport.
5. The environmental protection measures implemented in the transport sector in recent decades was aimed, amongst other things, at reducing noise emissions by improving vehicle technology. Some significant advances have already been made in this context.
6. Significant improvements in the noise situation are expected in the long term by improving the interaction between road surfaces and tyre profiles. Notwithstanding this move, the environmental impact of traffic noise will also be further reduced by an implementation of all passive noise protection measures in transport, urban and regional planning.

Shipping over long distances is undoubtedly the most environmentally-friendly form of transport, and boasts a high energy efficiency per tkm. The

over-proportional growth in world trade as a consequence of globalisation is also one of the factors which has expanded the global shipping fleet further.

However, with the aim of promoting sustainable transport, consideration must be given to the fact that shipping is also associated with a considerable amount of environmental pollution:

- shipping is responsible for approximately 7% of the CO₂-emissions from the transport sector,
- at a global level, approximately 2% of all CO₂-emissions are derived from shipping,
- in addition, approximately 7% of all SO₂-emissions and 12% of all NO_x-emissions are generated by shipping,
- the amount of oil that enters the world's oceans as a result of shipping is estimated to be 555,000 t per year.

All of the seaports in EU countries have experienced a very strong rise in the number of ships entering the ports, which means that the European countries have a high level of interest in making shipping environmentally friendly. All demands therefore need to be supported which incorporate shipping within the international endeavours to reduce emissions and protect the climate.

From a technical point of view, the use of environmentally-friendly low-sulphur fuels can already make a contribution to considerably reduce the environmental impact of shipping – which led to the implementation of Sulphur Emission Control Areas (SECAs) in the North Sea and the Baltic Sea.

To achieve sustainable shipping, the accompanying application of environmental-economic instruments via the following measures continues to be discussed:

- charging an environmental tax (user pays) for shipping, which rewards shipping operators with associated bonus regulations if they implement high environmental standards,
- incorporating shipping in the regulations for emission rights trading according to the stipulations being implemented as part of the Kyoto protocol.

In addition, it is also important to remember that the measures implemented to improve maritime and inland waterways, to adapt them to nautical and economic requirements, always have an impact on the ecological situation of the waters involved. In the sense of the “sustainability” of transport, careful weighing up is required to take into consideration the economic and environmental needs. And this in turn also needs to take into consideration that every shift in transported

goods from land or air to water already makes a significant contribution to reducing the effect on the environment.

6. Challenges for transport policy

The trends discussed above give rise to the following challenges for future transport policy in the EU:

1. How can the capacity of the transport infrastructure (especially the road transport infrastructure) be adjusted to the requirements of the infrastructure to prevent any negative impact on the economic situation and economic growth in EU countries?
2. How can the existing reserves in the capacities of other modes of transport (rail, coastal and inland shipping) be used better to optimise the overall system?
3. How can continuous financing in the long term be guaranteed for the necessary capacity adjustments of all modes of transport, and optimisation of the interfaces between the various modes of transport?
4. How can the necessary adjustment to the capacities and the transport routes, and the expected rise in the amount of traffic, be harmonised with the environmental sustainability objectives?

7. Key future-oriented objectives

The job of transport policy is to control and configure transport activity in such a way that it successfully tackles the challenges faced by transport in future. Transport problems will increase further if this fails or is only inadequately achieved.

A future-oriented and sustainable transport policy must therefore be oriented to visions which can only be successfully implemented on the basis of a strategy, which in turn must be aligned to key objectives.

1. Merging the economic and environmental areas of action for transport into an overall transport system via an integrated transport policy.
2. Harnessing the innovation potential, and promoting and further developing transport technologies aimed at energy savings – emissions reductions – safety – cost efficiency.

3. Ensuring the long-term financing of the transport infrastructure by the statutory binding of “user-pays” charging revenues (tolls) for the construction and maintenance of transport routes. This will also create additional financial flexibility for financing models on the basis of public-private-partnerships (PPP).
4. Creating fairer competitive conditions between the modes of transport at a European level by creating a framework of identical taxation, and user-oriented charging for the costs of transport routes.

8. The demands of transport science

The following requirements are identified by the transport science institutions against the background of the aforementioned key objectives for a needs-oriented sustainable transport policy, with the aim of ensuring that the necessary goods mobility is also available in future:

Development and enlargement of the capacity of the transport infrastructure.

The expansion and enlargement of the capacity of the transport infrastructure of road, rail and waterways, must be continued in a needs-oriented way in all EU countries to safeguard the future mobility of passengers and goods.

Expanding European transport networks.

As transit countries, the key states of the EU have to bear the special transport burden associated with the eastern expansion of the EU. The expansion of the Trans-European Networks (TEN) and transport corridors, therefore needs to be pursued as a priority to increase the capacity of these transport routes.

Earmarking motorway toll charges to finance the transport infrastructure.

The necessary funding for the expansion and maintenance of the transport infrastructure must be made available in the long term. The implementation of mileage-dependent toll fees for road freight traffic creates an opportunity to use the toll revenues for a specific purpose.

Goods mobility must be configured in an environmentally-compatible way.

The development in mobility must be harmonised with the environmental-compatibility of transport to satisfy the demands of all of society’s stakeholders. Aligning transport policy to sustainability criteria requires the objective weighing

up of the measures to take into consideration their transport benefits and their environmental-compatibility.

Intermodal networking of modes of transport.

Intermodal networking of transport systems, and the further development of an integrated transport policy, must continue to be rigorously pursued. Transport policy should promote the implementation of these modes of transport by implementing lower charges for the use of infrastructure by intermodal transport (truck/rail/inland shipping).

Optimising the interfaces.

Interfaces between the modes of transport require technological and business-economic optimisation. Supply chain management is a means of controlling efficiency and using new technologies to reduce costs in this context. The implementation of uniform standards in this regard supports the release of additional rationalisation potential.

Maximising the use of spare capacities.

The maximisation of the use of the spare capacities of rail, inland shipping and coastal shipping needs to be intensified. This involves an improvement in the conditions for intermodal networking with road haulage, and to harness cost-savings potential by optimising the interfaces.

Harmonising transport systems.

The competitiveness of cross-border rail cargo can be considerably boosted by improving the interoperability of the European rail network, which will enable the market potential to be opened up for longer transport distances. This applies in particular to transport in the new eastern European countries.

Harmonising transport policy frameworks.

It is high time that the common transport policy with identical statutory regulations as formulated in the EEC treaty in 1958 is finally realised without any more delay. Establishing equal opportunities for the different modes of transport can only be achieved by harmonising the competitive conditions in Europe.

Promoting innovative transport technologies.

Transport productivity is largely driven by innovation. Research and development into innovative transport technologies (transport systems, control technology/regulatory technology, IT and communications technology) must therefore be

assigned a higher priority. The objectives of sustainability will only be achieved in the long term by applying new drive systems.

Outlook

In conclusion, it should therefore be emphasised again here that there is a widening gap between development in transport volumes and the expansion of the transport infrastructures in the countries of the European Union. This is a consequence of the failure to allocate public resources to the transport sector over a period of many decades, which has therefore neglected the complementary production factor “infrastructure”, and has therefore had a negative impact on the economic growth and the competitiveness of European countries.

However, the associated call for transport policy to create a demand-oriented infrastructure cannot be concentrated in a one-dimensional way on the roads. What is required instead is that all endeavours are also aimed at the further development of integrated transport systems, and specifically, to prioritise multimodality and co-operation between all modes of transport. This is not a short-term task. It requires a long-term strategy and the transport policy commitment to implement it.

However, transport has a negative impact on the environment. Technical progress and innovations have continuously improved its environmental compatibility. The objective must therefore be to make our transport systems even more efficient, safe and cost-effective for the future, and also to ensure that this is done in an environmentally-friendly way. This requires the utilisation of all resources, and promoting research and development in the transport sector.

The changes in transport and logistics which are now on the cards require clear transport policy objectives and the courage to implement them. Only then will transport have good prospects in the future, also in terms of sustainability.

PERSPEKTYWY TRANSPORTU I LOGISTYKI W UNII EUROPEJSKIEJ

Streszczenie

Artykuł przedstawia zmiany w sektorze transportu i logistyki. Autor opisuje trendy, które wpłynęły na transport w ostatnim czasie. Podkreśla również konsekwencje działalności transportowej, takie jak np. aspekty środowiskowe. W artykule przedstawiono strategię współczesnej logistyki. Zaprezentowane zostały również wyzwania dla przyszłej polityki transportowej Unii Europejskiej.

Słowa kluczowe: mobilność, polityka transportowa, sektor transportu i logistyki

Tłumaczenie Agnieszka Gozdek