



INTRODUCTION

The transport sector is facing tremendous challenges. The demand for transport, of people as well as goods, is continuously increasing as a result of economic growth and globalization. A modern society is unthinkable without access to transport. At the same time, increasing transport has negative side-effects. The transport sector's contribution to climate gas emissions is rapidly growing; road accidents cause 1 million fatalities worldwide each year; and the impact of transport infrastructure on land use is becoming critical in urban regions throughout the world.

The transport sector is of critical importance to Swedish society. We are, as a commodity-producing country in the vicinity of European and global markets, extremely dependent on highly efficient transport. Sweden has been recognized

for its high level of knowledge in transport and logistics, and also for its position among the world leaders in vehicle manufacturing, and in road, rail and air transportation. But, remaining in this competitive position requires continuous innovation and knowledge development in order to meet future challenges.

The Swedish and European parliaments have both called for an evolution of a transport system that contributes to the positive development of society through increased industrial competitiveness and less impact on the environment, combined with the simultaneous improvement of mobility and accessibility for people and goods. Technical development, e.g. fuel-efficient engines and new infrastructure, is not enough to reach the goals set. The full potential of technology and infra-

structure can only be released when they are used in efficient systems, and the development of such systems requires a holistic approach, which must be based on close collaboration between all actors in the transport sector.

The project Transport 2030 was established in collaboration between industrial actors, vehicle manufacturers and transport-service providers, and authorities and academia. The aim of the project is to establish a platform for cross-sector cooperation, and from this to develop a vision for the future development of the transport system in a 20-year perspective. The measures required for fulfilling the vision over the coming 20 years need to be identified.

SETTING THE SCENE

Transport-system development will reflect driving forces in society as a whole. It is closely linked to economic and political development worldwide, and also the development of how we live privately.

Economic growth and globalization

The European economy is expected to grow at an average of 2.2% per year until 2030. In other parts of the world there is much faster growth, up to 7% annually, in countries like China and India. For foreign trade and associated transport, the rapid growth in Asia is of key importance. Historically, we have also seen a gradual decrease in transport costs, which has been an important driver of international

trade. Looking forward, we expect transport costs to increase, in real terms, for the first time, due to energy-supply restrictions and environmental constraints. These will have a limiting effect on transport development, but for so long as the differences in production costs remain global, there are no reasons to expect changes in worldwide trade patterns and hence transport demand.

Information technology development

The development of information and communication technologies (ICT) will have an important impact on our society and, in particular, on our opportunities to deliver efficient transport. The “internet of

things” will enable goods items and carriers to be traced and rearranged to match the supply and demand of transport facilities. We will also see behavioral changes, with e-meetings instead of business travel, and with internet shopping rapidly replacing downtown shopping, where retail stores will turn into showrooms. These developments will also be driven by the shortening lifetime of products, which makes all kinds of store-keeping obsolete. It is evident that they will have an impact on travel patterns, but there is no evidence that the citizens of the future will travel less than they do today. Rather the opposite.

Continued urbanization

The proportion of the population living in cities has been increasing for many years, globally as well as in Sweden. The economic and population growth of the future will be even more oriented towards cities. Today, 70% of EU inhabitants live in cities, and they account for almost 85% of GDP. The Swedish population and economy are concentrated in the urban regions around Stockholm, Gothenburg, and Malmö/Copenhagen, where more than half the population already lives and nearly 60% of GDP is generated.

Changes in lifestyle and demography

Up to 2030, the Swedish population is expected to grow by 12% to slightly over 10 million. During the same period, the population will become older; in 2030, 25% of inhabitants will be above 65 years of age, in comparison with today's 17%. Developments at European level point to

a slower growth in population, mainly due to migration, and an even more pronounced aging of the population.

These trends, alongside urbanization and rapid ICT development, will have an important impact on the transport system. Traveling will become more varied and individualized; we will not spend more time traveling but travel at greater speed, thus increasing our range of access. There are good reasons to expect travel to become smarter, e.g. to avoid congestion, but we do not expect people to travel less.

Industrial transition

As structural changes in industry continue, more people will be active in service production, including tourism, which is a driver of mobility. Also, goods transport is being transformed, as the economy turns from bulk to specialized products, and customers become increasingly differentiated.

Expected developments in travel and transport

As indicated above, Transport 2030 is based on expectations of future developments, as they have been defined in national and international transport policies. Within the time frame given to us, 20 years, it is evident that there will be no major changes in infrastructure capacity. Even though huge investments are planned, in Sweden and abroad, their contribution to overall capacity will be very limited. The best potential for uninterrupted growth can be seen in sea transport, while road and rail transport will face severe capacity problems if expected transportation growth, in the order of 50% by 2030, materializes in the form of more vehicles on roads and railways.

TRANSPORT 2030 – VISION AND GOALS

The partners in Transport 2030, representing authorities, academia, industry and transport operators, have defined a common vision for the transport system as a basis for development, and also set five overarching goals for the realization of that vision.

VISION

Our transport system offers world-class transport in respect of efficiency, safety and security, cost effectiveness, and environmental and societal impacts. The transport system will thereby contribute to strong continued Swedish growth and sustainable development in international collaboration.

GOALS FOR TRANSPORT SYSTEM DEVELOPMENT

The vision has been developed into five overarching goals for the transport system.

An energy-efficient transport system supporting the climate and environment

Dependency on fossil fuels shall be phased out in accordance with national transport and environment policies. Transport 2030 will propose measures to drive the desired transition towards a sustainable transport system, and thereby preserve finite national resources.

A transport system supporting growth

Through interaction between industrial, transport, research and innovation policies and active international collaboration, we will contribute to the development of Europe into a dynamic global leader in knowledge-based economic activity, with Sweden in a leading position. By addressing global challenges concerning safety and security, climate change and the environment, and by identifying and developing our spearhead competence and our capacity to innovate, we will strengthen Swedish and European competitiveness within industry, research and innovation. This will also create conditions for strong economic growth.

50% greater efficiency in transport in 2030

Through better use of carriers and infrastructure, higher cost-effectiveness and more knowledge and collaboration within the transport sector, we will be able to produce comparable transport services with 50% less resources per person and ton-kilometer in 2030 than today.

Better accessibility, reliability and security for passengers and goods

Through more efficient use of our transport resources and development of their international connections, we will be able

to offer improved accessibility and security for both passenger and goods transport in urban and rural areas. Improved management and control systems will reduce the risk of incidents and disturbances, and provide efficient handling tools to manage the problems that arise. This will give us a more robust and reliable transport system, thereby improving citizens' quality of life and industries' competitiveness.

A competitive research and innovation system

Innovation and research are carried out in close collaboration between public-sector, industry and research environments in accordance with a powerful innovation policy. This makes for highly efficient R&D activities, and also a world-class knowledge-based transport system, with the capacity to implement new findings from R&D. Our research environments will become world-leading through targeted efforts in priority areas, and attract both international excellence and international funding.

SUSTAINABLE MOBILITY 2030

A transport system where the vision is fulfilled and the goals reached. What does it look like? This question was answered at the first phase of Transport 2030, and a few examples are given below.

Integrated planning

The introduction of the Swedish Transport Administration, where all transport modes are brought together for synchronized management and planning, was the first step towards a new model for transport-system planning. Another important change was the regionalization of Sweden. By shifting the planning horizon from municipalities and cities to regions and including all transport modes in an integrated process, comprehensive transport strategies could be developed. As both citizens and enterprises were invited to participate, the potential outcomes were well rooted in the community before implementation.

World leader in transport research and innovation

A coordinated policy for research, innovation and industrial development within the transport sector resulted in a series of coordinated Large Scale Actions, which placed Sweden at the forefront of international transport research and development. The vehicle industry has been heavily involved in the work, which has resulted in integrated solutions, where modern vehicles interact with efficient transport solutions.

Improved collaboration between stakeholders and increased resources have allowed innovations to proceed from demonstration through to introduction on the market. Since public and private actors work together throughout the innovation process, we have also seen new transport solutions emerge, such as small automated vehicles and interchange points, which generate new business and industrial development. The opportunity to measure transport system performance, as a basis for transport pricing, has created new knowledge. Research activities have provided the tools required to calculate the “environmental footprints” of transport activities, which allow for optimization of transport resources. This has brought Sweden to the absolute forefront in logistics, and an attractive market for logistics operators.

Personal transport

Mobility is still of great importance for citizens and enterprises, but travelers have to take greater responsibility for

all costs related to their transportation. This, together with improved service quality, has generated a tremendous rise in public transport patronage. Public transport has become simpler and more comfortable; payment is interoperable between systems; and it is also easy for the occasional visitor. Increased capacity and frequency (in particular in the railway system) give shorter travel times, and the interchange points are increasingly welcoming and secure. Public transport remains a natural component of sustainable mobility in 2030.

The concept of transport corridors, previously adopted for goods transport, has been shown also to be of utility for personal transportation. The principle of “green transport corridors” has been established as a form of quality labeling for more environmentally friendly travel alternatives.

Passenger cars are still in frequent use in these corridors, but the fleet is dominated by small short-distance electrical and hybrid vehicles. Intelligent Transport Systems are in wide use, and vehicle sensor systems ensure that collisions are avoided; regulations and control measures automatically guide the vehicles. This has also changed our perception of road transport; in particular, safe, small, quiet cars at lower speeds have made a great difference in urban areas. Also, the road pricing systems that have been introduced Europe-wide help to distribute traffic in both time and place. Streets are less congested, and accidents are rare. The famous Swedish “Vision Zero” for road safety is close to being attained! When governments found that the tax base offered by fossil fuels was rapidly deteriorating, many politicians turned to massive support for road pricing.

The good city

The urban environment has become nicer, safer and greener, and it is continuously being made easier for cyclists and pedestrians to move around in the city. Neighboring city districts and villages have been linked by separated bicycle paths, and particularly important connections have been equipped with high-speed bicycle lanes. Accessibility for pedestrians, bicyclists and public-transport users have been given priority in city centers, which have become more attractive. Thanks to active and purposeful planning and collaboration between actors, urban sprawl has been transformed into urban densification. This has improved the social functioning of cities,

and allows better services to be provided to residents and visitors.

Transport and distribution of goods

Delivery of groceries is coordinated and takes place during off-peak hours using designated multi-purpose city-logistics vehicles. As a result, less congestion and a higher load factor contribute to a better environment. Improved exchange of information between actors engaged in city distribution has resulted in coordinated planning and joint logistics solutions. This process has been supported by public incentives and regulations, but the benefits of competition have never been in question.

Durable goods and other less frequently purchased products are in general ordered via the internet, or through the showrooms that have replaced the traditional retail stores. In either case, the goods are delivered to your door or to your neighborhood pick-up facility.

Freight transport has become much more efficient, at all levels. Seamless freight corridors and high-capacity transport nodes have supported improved accessibility and reliability. Road and rail corridors link to important harbors, airports and other modal interchange points. We have also seen the introduction of heavier and longer trains and trucks in designated corridors, which gives higher efficiency in infrastructure usage.

The introduction of “Amadeus for Freight”, an open booking system for freight transport that enables flexible pricing, has reduced the amount of empty carriers on road and rail. Also sea transport, and in particular short coastal sea links, has increased following the introduction of mode-independent pricing schemes for infrastructure usage across Europe.

Impact on the climate and environment

Emissions from the transport sector, including noise and particles, are now so low that limits are rarely exceeded. Also, modern airplanes and ships have very low emissions, and continuous renewal of the fleets ensures steady improvement. This is the result of coordinated international action, which has achieved rapid results.

It was not easy for Sweden to succeed with the commitment on emissions made in 2020, but it has been attained through coordinated action on innovation. Swedish success was an important

driver and role model for the rest of Europe in its striving to succeed with the goals set for 2030. There has been a 50% reduction in emissions from 1990. The national targets that have been de-

finied in order to achieve the European targets now also encompass the transport sector, and Sweden has continued to lead the way, aided by research and innovation, and by major efforts to

achieve knowledge formation throughout the transport sector.

THE WAY FORWARD

Transport 2030 proposes a range of activities in the short term to embark on the path towards the realization of Sustainable Mobility.

A national forum for transport research and innovation strategy development

The forum will bring together the need for innovation from all actors in the transport sector, in order to develop joint visions and strategies for development. This will include the identification of areas of innovation and research that should be in focus in Sweden. The forum will also serve as a meeting-place, where ideas for joint research and development are explored and put into action. It shall also follow-up ongoing research in order to support the implementation of results in real-life operations.

The forum will also support coordination of Swedish representation in European bodies, and facilitate the development of joint Swedish stances in relation to the European R&D agenda. This includes the development of an action plan for increasing Swedish influence on the European agenda, and also for how Sweden is to make better use of results from international research and development.

Large Scale Actions

For the realization of innovation strategies, Transport 2030 proposes a national strategy for the development and execution of Large Scale Actions.

Demonstrations of innovations will involve stakeholders from all areas, and facilitate the transition from research to implementation in operational systems. Transport 2030 has identified 10 candidate actions, covering different innovation challenges in the transport sector, which are considered mature enough to be launched. The focus on Large Scale Actions is motivated by the opportunity to attract international support, e.g. from EU research funds, but also by the need for real-life tests of business models, including specification of actors' roles and responsibilities, and by the possibilities offered for thorough evaluation.

And also...

1. New methods need to be implemented in societal planning to allow for requirements from the transport sector to be integrated into the planning process, thereby supporting efficient transport in built-up areas.
2. Swedish transport research should focus on vigorous research and innovation environments that are internationally competitive. This can be achieved through increased use of targeted and need-based research programs as the basis for research funding. The transport-research area also needs to widen its base to include competencies from the social sciences so as to meet the complex needs of future citizens and industry.

3. Current plans for transport-system development, including the ambition to double the share of public transport in travel, entails a considerable increase in the need for educated staff in the transport sector. At the same time, large-scale withdrawals from the sector are anticipated. The authorities and organizations concerned need to develop a plan to ensure access to competence and staff in the transport sector over the years to come.

Transport 2030 points to the need for highly visible and forceful political leadership in the transport area, with a particular focus on innovation and a strengthening of the Swedish position in relation to European collaboration. A well-functioning transport system is critical to the development of sustainable mobility in a prosperous society. Twenty years is not a very long time in transport-system development. Important actions need to be taken now in order to reach the goals set for 2030, and these actions must be based on a joint strategy, embracing all stakeholders in the transport sector.

TRANSPORT 2030

Transport 2030 is a foresight project focusing on the transport system for goods and people and its infrastructure with a perspective up to the year 2030. The purpose of the project is to bring about practical collaboration to address the long-term development and changes that are needed.

Purpose of the Transport 2030 project

The purpose of the Transport 2030 project is to bring about broad-based collaboration focusing on long-term development of the entire transport system. This will be achieved by analysing who needs to do what in order for Sweden's transport system to make a greater contribution to the positive development of society, improve competitiveness in industry and make it easier for people to travel in larger regions.



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