

Infra Sweden

Programme description

JULY 2022



Sweden's transport infrastructure

Having stable, long-term funding for infrastructure is not enough; innovation for smarter, more sustainable and more efficient transport infrastructure is also needed.

In Sweden, transport by road and rail has increased significantly over the past 50 years. Urbanisation, globalisation, specialisation and economic growth have helped to increase and alter transport needs for both passengers and freight. These changes have resulted in capacity shortages and congestion in major cities, while making it more difficult to maintain basic accessibility in less densely populated areas. Sweden's competitiveness and future prosperity are reliant on an efficient transport system that is appropriate for future transport needs and mobility services. A reliable, safe and sustainable transport infrastructure that responds to the new demands provides a basis for this. Although significant new investments are being made, our future transport infrastructure consists mainly of what was built in previous decades and has to be managed efficiently and sustainably.

Development trends

Transport infrastructure development is influenced by a number of trends and development streams in society. These trends can have a direct impact on the development of the actual infrastructure, or an indirect impact by defining new conditions for potential change, such as when new ways of transporting freight and passengers emerge, or when people start to change their travel behaviour or prioritise one mode of transport over another.

Examples of general trends that may affect the development of transport infrastructure include sustainability, digitalisation, urbanisation, altered business models and societal security and vulnerability. Trends more specifically affecting the transport infrastructure sector involve electrification, automation, mobility services, accessibility, resilience, new business models and forms of procurement based on sustainability requirements, for instance.

Developing trends are constantly creating new opportunities and challenges both in specific areas and at system level. In many cases,

developing new solutions is not enough: changes in individuals and organisations, new forms of cooperation and adapted frameworks for doing business are also required.

The 2030 Agenda

The 17 global goals of the 2030 Agenda for Sustainable Development aim to lead the world towards socially, economically and ecologically sustainable development and should be achieved by 2030. The global goals include several goals that have a direct bearing on transport infrastructure development, including "Goal 5: Gender Equality", "Goal 9: Industry, Innovation and Infrastructure", "Goal 11: Sustainable Cities and Communities" and "Goal 12: Responsible Consumption and Production".

Achieving the goals of the 2030 Agenda generally requires fundamental changes in many of society's processes and activities – a development requiring a transformative shift in a number of respects. The transformative shift relates to groundbreaking changes in the predominant structure, technology and lifestyles in society.

Rate of innovation

There are many driving forces for a higher rate of innovation in transport infrastructure; not least with regard to society's and industry's shift towards the 2030 Agenda and climate neutrality. Keeping existing infrastructure in good condition is essential from a sustainability and socioeconomic perspective.

As regards to new designs, sustainability and circularity present challenges that require new solutions in a range of fields such as material selection, design solutions, construction methods and so forth. A future fossil-free vehicle fleet places demands on the design of the transport infrastructure through the need for charging infrastructure, for example. The building and construction industry has worked within the framework of the Fossil Free Sweden initiative to develop a roadmap showing how competitiveness can be strengthened by becoming fossil-free or climate-neutral. New solutions also challenge business and procurement practices that need to be reviewed and renewed.

Work towards the global goals of the 2030 Agenda is driving development, but things are not moving fast enough to achieve the goals by 2030. One reason for this is that development work usually takes place via incremental initiatives, but small, gradual changes in the right direction will not suffice.

Moreover, there is usually a large gap between the development of new innovative solutions and their implementation. There are various reasons for this, such as regulatory frameworks failing to be updated frequently enough and business

models being incapable of embracing new solutions. The change itself, doing things in a new way, is also a process that takes time.

Cooperation

Innovation only happens when an innovative solution is implemented. Successfully disrupting circles and doing things in new ways generally requires cooperation between the relevant stakeholders. Cooperation between stakeholders is even more important when it comes to addressing challenges at system level and bringing about fundamental

changes. The transport infrastructure sector has a complex and fragmented value chain, with many stakeholders involved at different stages. Ensuring that the desired long-term development takes place requires a collaborative approach among stakeholders and interaction between innovation development, new forms of business and procurement, and development of policies and regulatory frameworks.



InfraSweden meets the challenges

Vision

A sustainable transport infrastructure that supports the transition towards the 2030 Agenda and will achieve climate neutrality by 2045

INFRA SWEDEN

Is one of Sweden's 17 strategic innovation programmes funded up to 50 per cent by Vinnova, the Swedish Energy Agency and Formas. These innovation programmes are an initiative in which the business community, the public sector and academia all join forces to identify solutions to global societal challenges and increase international competitiveness.

Aims to strengthen Sweden's competitiveness and increase the sustainability of Swedish transport infrastructure.

InfraSweden should use collaborative innovation to contribute to ecologically, economically and socially sustainable solutions in the built transport infrastructure*, which in turn forms part of and is linked to the sustainability and efficiency of the transport system as a whole.

The success of the programme is guaranteed by the fact that stakeholders in the sector are contributing with their own resources and expertise for both problem formulation and potential innovations.

Involvement of other sectors' stakeholders is also essential if the programme is to achieve its objectives. Its activities are therefore based on creating an arena and an opportunity to join forces and harness the potential for development of transport infrastructure.

Objectives

The programme should achieve the following interim objectives as it works towards the vision:

Increased sustainability

The programme should contribute to sustainable development of the transport infrastructure system and transport by means of innovations. An ecologically and economically sustainable transport infrastructure is a prerequisite for the creation of a socially sustainable society that is characterised by accessibility, equality, safety and security. The programme supports infrastructure innovations that help to bring about climate-neutral transport and increase the resilience and robustness of the infrastructure system to unexpected and radical changes.

Competitive innovations for transport infrastructure

The programme should promote the development of competitive products, processes and services that will be in demand both nationally and internationally. Through openness and cooperation with the outside world, innovations developed elsewhere could help to create a climate-neutral transport infrastructure in Sweden. It is also important to be aware that a climate-neutral transport infrastructure also enables or contributes to the creation of efficient and climate-neutral transport of passengers and freight.

Open, dynamic and attractive sector

The programme should promote creativity, interdisciplinary efforts, stakeholder cooperation and a holistic approach. A strong and dynamic transport infrastructure sector is built by talented people. To encourage such talents to get involved, the sector has to be able to demonstrate how their work will help to create a sustainable society, and that their duties as such are also organised in a sustainable manner; that they are characterised by openness, cooperation, innovation and development opportunities. Diversity and gender equality are obvious starting points and objectives for this work.

*For InfraSweden, transport infrastructure refers to infrastructure for land-based traffic such as walking, cycling, motorised traffic and rail traffic. Land structures at ports and airfields can also be included in InfraSweden, but the main infrastructure for shipping and aviation cannot.

Programme activities

InfraSweden identifies and exploits innovation opportunities, intelligence requirements and cooperation potential that have an impact on the future development of transport infrastructure.

Open calls for proposals, individual/strategic projects and various activities cover all stages from planning and design to construction, operation and maintenance and decommissioning. Digitalisation, creation of sustainable business models, management of regulatory frameworks and procurement are key enablers. The programme's work with innovation competitions, project coaching, client networks and cooperation with other strategic innovation programmes and other relevant stakeholders is of major importance in this regard.

InfraSweden works continuously with its member organisations and other stakeholders to gather intelligence and track trends for the agenda in question and relevant calls for proposals.

The internal work of the programme involves preparing and planning future initiatives and activities, supporting what is ongoing and following up and evaluating what has already been done.

The work is conducted in five focus areas:



Climate-neutral and climate-resilient transport infrastructure



Connected transport infrastructure



Materials, design solutions and construction methods



Increased productivity and quality



Sustainable maintenance of transport infrastructure

PERFORMANCE TARGETS

DIRECT EFFECTS

LONG-TERM EFFECTS

Programme start 2015

Impact targets 2030

Impact logic

InfraSweden's activities should result in the achievement of a number of identified objectives and impacts in the short and longer term. The programme is based on identified needs and uses its resources to plan and implement various types of initiatives. The outcome of these should lead to the programme achieving its specific performance targets, which in turn should help to bring about direct impacts in the transport infrastructure sector and long-term impacts at a societal level.

The relationship between means, objectives and impacts for InfraSweden is presented using the programme's impact logic.

This impact logic makes it possible to monitor how the programme intends to contribute, step by step, to the changes deemed necessary to achieve the defined performance targets and expected impacts.

InfraSweden's impact logic is used to analyse completed initiatives, plan and prioritise future initiatives and monitor the programme's achievement of its objectives in the short and long term. Performance indicators and impact indicators are used to monitor the achievement of objectives. This makes it possible to compare the objectives with actual deliverables from the programme's projects and activities.

Impact logic is also used as a communication tool to demonstrate the programme's objectives and explain how the operational work and strategic work are interlinked.

Project monitoring

Project monitoring is an important part of the programme's work. Emphasis is placed on strengthening the projects' ability to implement innovations: this is done by means of coaching. To succeed in innovation, just having a working technology and/or product is not enough. Other requirements, such as a working business model, a consortium with the right stakeholders and a team with the right skills and capabilities are also needed to take the solution all the way to innovation.



Organisation and management

InfraSweden started in 2015, is evaluated every three years and runs for up to 12 years depending on the programme's results. Operational work is led and implemented by the programme office at the Royal Institute of Technology, which is InfraSweden's programme coordinator. Support is provided by the programme's expert council and focus area groups, as well as contracted resources such as cooperation and innovation managers and focus area managers.

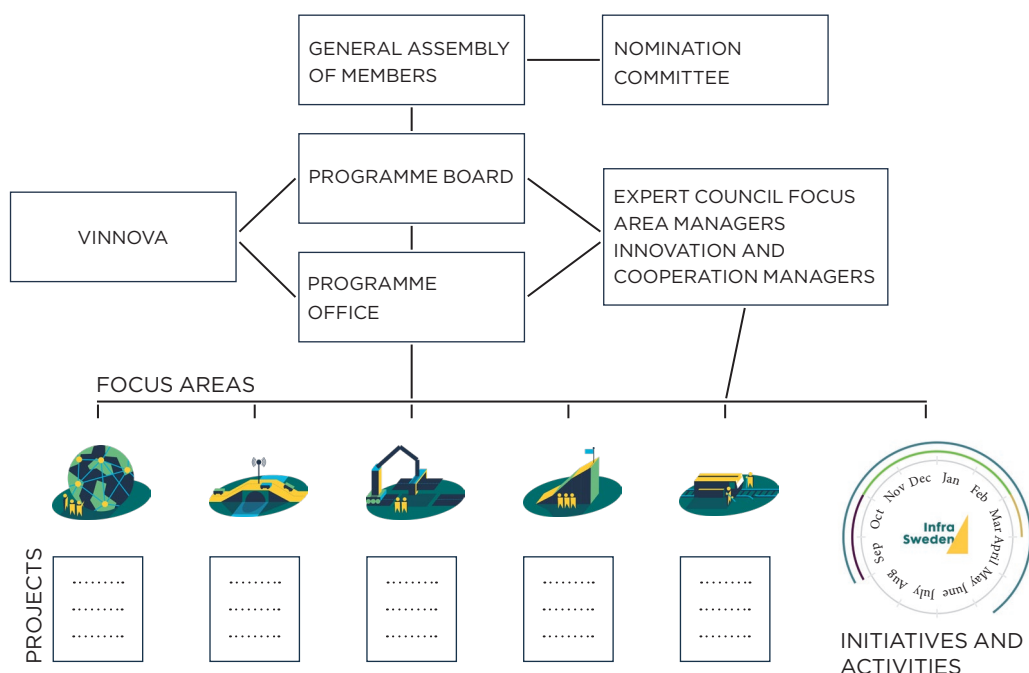
The overall governance of the programme is provided by the member organisations in that the programme board is elected at the general assembly of members. Board members – who are mostly recruited from the member organisations – are proposed by the nomination committee, which comprises representatives from the programme coordinator, the business community and public client organisations.

Any organisation wishing to assist with InfraSweden's efforts towards a smart, sustain-

able and competitive transport infrastructure can become a member of the programme. Membership is free of charge. Members influence the programme's activities and development through the general assembly of members, and by participating in various strategic programme tasks.

The expert council is tasked with providing the programme with assessments in respect of needs, trends, opportunities and risks in the programme's field of activities. The work of the expert council is coordinated by the programme office. The focus area managers and the innovation and cooperation managers also assist with ongoing efforts to keep the programme's agenda up to date.

InfraSweden's organisational structure and procedures for management and governance are described in the document entitled "Operational governance – roles and responsibilities".



A year with InfraSweden

Project funding within the scope of InfraSweden mainly takes place via an annual open call for proposals which focuses on innovation projects in areas deemed important for transport infrastructure development. In addition to this, the programme supports a number of individual projects each year in order to address common challenges or needs for the transport infrastructure sector.

The board decides on the focus of the annual call for proposals and the individual/strategic projects following discussions and preparatory work carried out continuously at various meetings, workshops and strategy days. The assessment of project applications for open calls for proposals and decisions on the allocation of project funds are managed by Vinnova.

InfraSweden conducts a series of activities every year in the form of workshops, seminars, webinars, project conferences or member meetings. The purpose of these

activities is to disseminate results, track trends and encourage stakeholder cooperation, among other things. The activities are organised either by InfraSweden or in cooperation with other strategic innovation programmes or R&D stakeholders.

InfraSweden offers active support to projects via innovation coaching so that they can progress towards the final objectives of their innovation work. The methodology used aims to help projects to gradually increase their level of maturity in all innovation-critical areas such as technological capability, customer relations, business potential, IPR, funding and project teams.

An open annual general assembly is held once a year in which the programme's member organisations participate with voting rights. The annual general assembly is followed by the programme's annual open house.

- Seminars, workshops, individual projects, project support and monitoring
- Open call for proposals, information meetings
- Project conference, member meeting
- Annual general meeting, open house

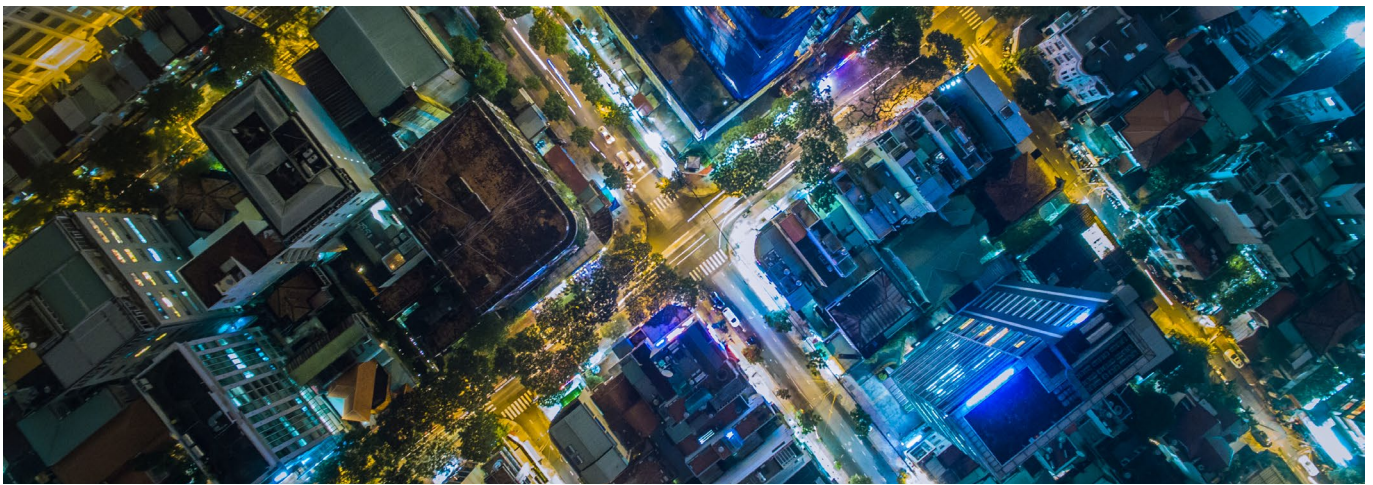


Focus area

Climate-neutral and climate-resilient transport infrastructure



This is a general focus area which includes initiatives aimed at achieving climate neutrality and resilience in the planning, construction and maintenance of transport infrastructure. Innovation in business models, procurement and regulatory frameworks is needed in order to achieve this.



EXAMPLES OF INNOVATION AREAS

Decision-making data for climate neutrality

Innovative solutions are needed that take into account the entire lifecycle perspective in the planning, construction and management of roads, streets, railways and other transport infrastructure. This involves optimising service life, using and designing existing and new transport infrastructure to minimise the climate impact of the transport system as a whole. This includes solutions for flexibility and use of the infrastructure for multiple functions, tools to coordinate and optimise investment and management, methods and tools for planning infrastructure with emphasis on climate neutrality and sustainability, and methods for

cooperation and procurement leading to implementation.

Resource efficiency and climate-neutral construction and maintenance processes

This involves developing methods, materials, processes, tools and machinery to minimise the climate impact of transport infrastructure from the construction, operation and maintenance stages from a lifecycle perspective. This may, for example, include improving resource efficiency and increasing the reuse of materials by creating circular processes, and by developing new and existing construction materials with net zero emissions. It also involves developing and using digital tools to

optimise designs and reduce the use of resources, as well as developing new methods and techniques that are capable of upgrading ageing transport infrastructure to increase its service life and durability.

A durable and climate-friendly transport infrastructure

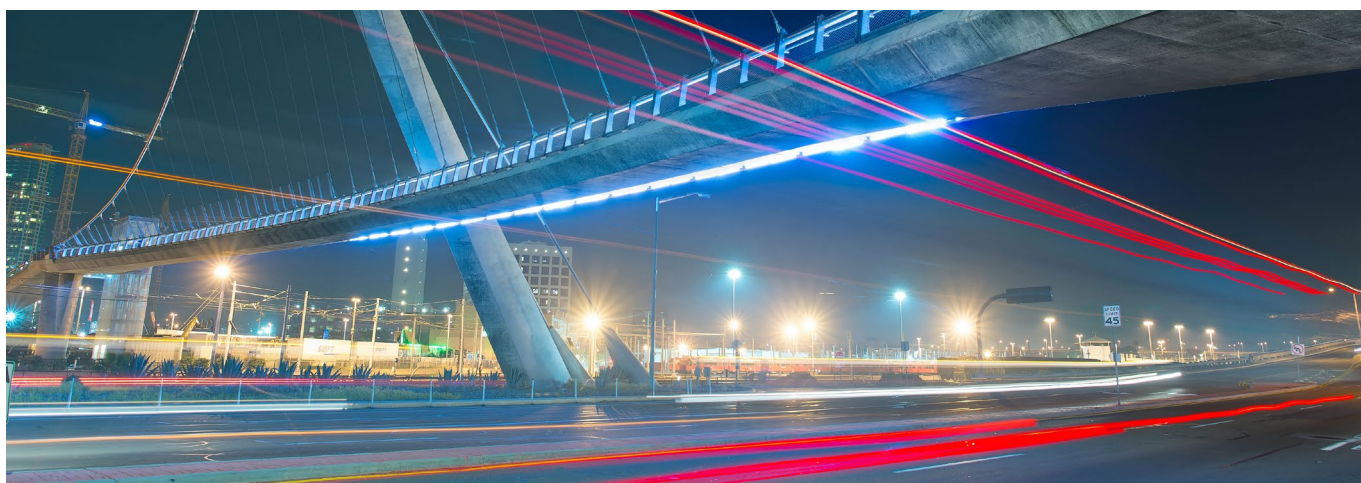
Long-term climate change and extreme weather events will have a major negative impact on the functioning of transport infrastructure. This is why new solutions need to be developed in planning, construction and management so as to help enhance infrastructure resilience and adaptation to future climate change.

Focus area

Connected transport infrastructure



A general focus area covering digitalisation, data communications including information and communication technologies, and machine learning including artificial intelligence and automation. A connected transport infrastructure increases the chances of the right information reaching the right decision-makers at the right time, radically increasing the potential for more efficient use of resources. Moreover, new technologies are paving the way for new business models that provide industrial competitive advantages while helping to achieve climate neutrality and other climate goals in the sector. Digitalisation is a key enabler in all focus areas.



EXAMPLES OF INNOVATION AREAS

Insightful design and efficient planning process

New infrastructure is costly, affects the climate and increases future maintenance costs. Effectively sharing information early on in the planning process means that design and construction can take place with greater insight and control over construction costs, construction schedules, climate and environmental impact and future maintenance costs.

Data-driven operation and maintenance

One way to eliminate the maintenance debt in transport infrastructure is to apply new data-driven and more automated work processes, as well as new procurement and business models that promote this. Implementing innovation methods that aim to increase preventive maintenance and automated monitoring in both rail and road infrastructure is a priority. Quality-assured data and reliable models for data utilisation, such as forecasts and impact assessments, are of major significance here.

Internationalisation and export of services

There are a number of large companies in Sweden with good prospects for establishing new data-driven solutions and services on the international services market together with smaller companies. Increased international involvement entails cooperation and knowledge development that also paves the way for use of innovations made outside Sweden.

Focus area

Materials, design solutions and construction methods



This focus area covers everything from the development of innovative and functional materials to design solutions and construction methods. The common objective is to build a climate-neutral, sustainable and resilient transport infrastructure.



EXAMPLES OF INNOVATION AREAS

Materials and circular processes

Transport infrastructure has a long history of using traditional materials in the form of natural resources. However, materials technology is evolving very rapidly, which is making it possible to develop new construction materials that are capable of replacing natural resources or tailor specific or adaptable material properties.

There is also a need to reward circular material flows with net zero waste production, as well as standardised and modular construction that allows for more features to be added over time. This requires structural design for reuse so that materials can help to promote functionality over multiple technical lifecycles.

Resilient design solutions and lifecycle perspectives

Design solutions play an important part in how the transport infrastructure sector meets societal challenges. The transport infrastructure of the future is expected to be adaptable to changing mobility needs and new transport solutions, to be capable of integration into intelligent transport systems, to be resilient to climate

change and to ensure service functions in extreme weather conditions. Structural design has a major impact on addressing these issues, and there is major scope for innovation and new approaches. New challenges in the form of climate change and more limited extraction of natural resources call for innovation and development. These requirements need to be met if infrastructure is to be capable of meeting transport needs in a sustainable manner.

It is important to take a holistic view of infrastructure projects as early as the planning stage, as the choice of materials, design and construction methods are linked to how future operation, maintenance and management are to be organised. A lifecycle approach, circularity and smart technical solutions also call for new business models, new forms of procurement and increased standardisation.

Construction methods

Many components used in transport infrastructure have high density and are therefore heavy. These materials are difficult to handle and transport, demanding a lot of energy and labour. In addition to new materials that are easy to use, innovative

construction methods are needed that reduce energy consumption and hence environmental impact while enhancing productivity and the working environment.

Digitalisation and automation

Today's rapid development of digital tools offers major opportunities for working with active design and quality monitoring directly in the field during construction. For instance, built-in sensors on construction machinery can provide real-time information on the strength of the structure and how it corresponds to the conditions assumed at the design stage.

Industrialising and automating parts of the construction process allows a safer and more controlled construction environment to be created. This has the potential to extend the sustainability of the structure and reduce both the construction time and occupational accidents. A more efficient construction process with fewer accidents and disruptions to traffic during construction will benefit society and help to promote social sustainability.

Focus area

Increased productivity and quality



In this focus area, the emphasis is on developing solutions (products, processes and tools) that are most effective and sustainable from a societal perspective, and on creating sound business conditions within the supplier market in order to apply them.



EXAMPLES OF INNOVATION AREAS

Measures promoting productivity

There is an urgent need to develop measures promoting productivity in the form of new technologies and processes that reduce costs over the entire lifecycle and/or enhance quality. Data-driven planning and implementation is an important opportunity here. Productivity can also be increased by means of faster processes for permit assessments and regulatory frameworks: in this regard, being proactive can provide opportunities for regulatory frameworks and environmental requirements to enhance innovation capacity rather than delaying processes.

Measurable functional requirements

Functional requirements in procurement procedures can promote business development and increase healthy competition between suppliers and different types of solutions. These solutions can in-

crease productivity through positive effects such as savings, better quality and increased efficiency. Functional requirements can also benefit creative businesses and help them make better use of their skills. Moreover, functional requirements can promote the business concept by giving partners more scope for negotiation and by making the contract more flexible in respect of changes, for instance, in the event of technical development or changes in performance. However, it is important for functional requirements to be clear and well-defined, ideally standardised, and measurable.

Standardised and measurable functional requirements should be developed in order to help promote sustainable infrastructure in terms of construction, use and circularity. Functional requirements can be developed with a view to achieving climate neutrality and ecological, economic and social sustainability.

Industrial approach throughout the construction process

Taking an industrial approach has great potential to lead to reduced costs and improved efficiency. Long-term and continuous productivity and innovation development in the field of transport infrastructure is supported by an increased industrial approach that permeates the entire construction process from the early stages to the management stage.

Business models that promote innovation

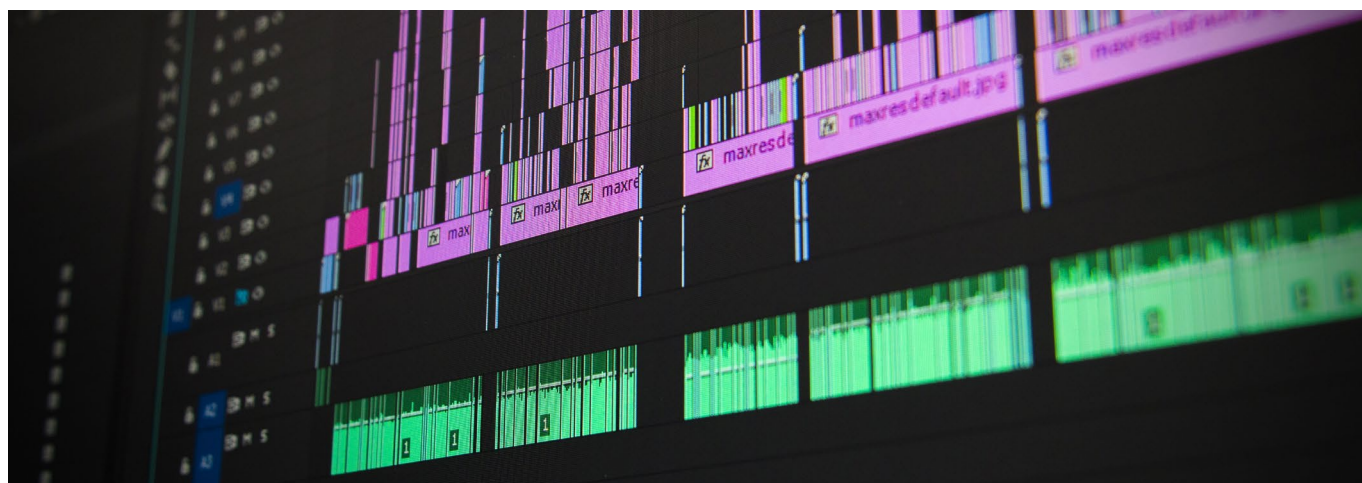
There is an urgent need to give contractors and technical consultants throughout the chain more freedom to think outside the box, for instance through transparent handling of ancillary and alternative tenders or other innovative forms of procurement. The aim here is to develop contracts and forms of business and procurement that make more efficient use of market resources.

Focus area

Sustainable maintenance of transport infrastructure



Proactive, productive and sustainable maintenance is essential in order to ensure safe, robust and sustainable transport infrastructure. The focus in this area is on applying data relating to the condition of facilities for proactive and more sustainable maintenance. Maintenance work should also contribute to the climate neutrality of transport infrastructure.



EXAMPLES OF INNOVATION AREAS

Decision data and intelligence on infrastructure conditions

Infrastructure maintenance must be based on relevant, reliable and readily accessible information about the infrastructure and its condition.

The infrastructure sector needs to be able to use analytical methods based on reliable information concerning the condition of the facility, as well as data and models for calculating the evolution of the condition of the infrastructure. Methods and analyses linked with LCC/LCA for various measures at the infrastructure facility are key to enabling long-term sustainable maintenance.

There are many development and innovation projects – both within and outside InfraSweden – that relate to the development of methods and tools for measurement and systematic analysis of the conditions of

facilities. This intelligence needs to be translated into models for decisions on operation and maintenance measures, if it is to benefit the transport infrastructure system.

Sustainable maintenance

The infrastructure sector promotes long-term and sustainable maintenance from an ecological, economic and social perspective. What maintenance is ordered and how it is implemented affects the surrounding environment and also the climate, both in positive and negative ways. That is why it is important for the environment, health and climate to form an integral part of all decisions made regarding infrastructure measures. To achieve this, there needs to be more of an understanding of the impact of infrastructure maintenance on the environment, health and climate. This is also true for circularity; recycling/reusing materials in connection with maintenance.

There also needs to be more intelligence on future maintenance requirements in the light of climate change. This can be achieved by developing analytical models so as to classify, assess and prioritise climate adaptation measures for existing transport infrastructure.

Maintenance of the electrified and automated transport infrastructure of the future

Successful implementation of automated and electrified transport systems requires effective interaction between the infrastructure and vehicles with their new features. It also places demands on the development of regulatory frameworks and business models.

Interaction with the outside world

Relevant national and international initiatives provide opportunities for knowledge and experience sharing, cooperation and potential co-funding.

InfraSweden monitors what is happening elsewhere in terms of development trends, challenges and development needs of various stakeholders and ongoing research, development and innovation programmes whose agendas are in line with the programme's objectives and development plans. One aim of such strategic intelligence is to keep the programme's agenda up to date and relevant so that it can have a significant impact on the development of the field. Another, even more important, aim is to contribute to increased consensus and pooling of resources for the development of the sustainable transport infrastructure of the future through knowledge and experience sharing or cooperation with key stakeholders and related initiatives.

InfraSweden has gained a position in the innovation ecosystem in respect of the transport infrastructure sector on account of its efforts. By actively interacting with the outside world, the programme is able to exploit its position and play a clear part in advocacy and influencing social policies. One important part of this involves establishing dialogue with politicians on priority issues. One of the objectives of targeted dialogue with politicians is to help highlight structural challenges at a national level that are perceived as obstacles to the necessary transformation towards a more resource-efficient infrastructure sector that makes a strong contribution to national sustainability and climate goals while attracting employees among future generations.



InfraSweden already has ongoing partnerships with several key stakeholders in client organisations, trade organisations, academia, industry and institutes at a national level. The programme is also working in partnership with several other strategic innovation programmes, particularly those focusing on the civil engineering sector. There is scope for broadening and deepening the programme's national cooperation activities, and every reason for doing so. For instance, as part of an SME initiative (Small and Medium-sized Enterprises) InfraSweden has developed a support model based on innovation coaching in cooperation with the Smart Built Environment strategic innovation programme with a view to supporting and creating better conditions for start-ups in the building and construction sector. Going forward, the SME initiative should be scaled up in cooperation with additional

strategic innovation programmes, trade organisations and government funding agencies.

On an international level, there are a number of different initiatives aimed at developing existing infrastructure and finding the transport systems and traffic solutions of tomorrow. InfraSweden views these as important sources of information when it comes to prioritising and selecting initiatives within the programme. Most of the international initiatives can also be viewed as potential partners and appropriate networking

environments for the sharing of knowledge and experience. InfraSweden has an internationalisation strategy that is based on establishing strategic partnerships, bringing innovations to Sweden, supporting international financial growth of the programme's projects and stimulating the projects in order to export the innovations developed.

A selection of relevant research, development and innovation initiatives in the programme's environment which are important for networking, exchange and cooperation are presented here.

SWEDEN

STRATEGIC INNOVATION PROGRAMMES

- Smart Built Environment
- Drive Sweden
- Viable Cities
- RE: Source
- SIP LIGHTer
- IoT Sweden

INDUSTRY PROGRAMMES

- Fordonsstrategisk Forskning och Innovation (FFI, Strategic Automotive Research and Innovation)
- Branschprogram för forskning och innovation avseende Byggnadsverk för Transportsektorn (BBT, Sector programme for research and innovation regarding structures for the transport sector)
- Bana väg för framtiden (BVFF, Paving the way for the future)
- Branschsamverkan i grunden (BIG, Sector cooperation as the foundation)
- Järnvägsbranschens samverkansforum (JBS, Railway sector cooperation forum)
- Kapacitet i järnvägstrafiken (KAJT, Rail transport capacity)

RESEARCH CENTRES AND CENTRES OF EXCELLENCE IN ACADEMIA

- Road2Science, Royal Institute of Technology
- Integrated Transport Research Lab (ITRL), Royal Institute of Technology
- Järnvägsgruppen (Railway group), Royal Institute of Technology
- Charmec, Chalmers University of Technology
- SAFER, Chalmers University of Technology
- Järnvägstekniskt centrum (JVTC, Railway technology centre), Luleå University of Technology

EUROPE AND THE NORDIC REGION

RESEARCH PROGRAMMES

- Digital vinter (Digital winter)
- Mistra Carbon Exit
- Mistra InfraMaint

CROSS-SECTORAL INITIATIVES

- Fossilfritt Sverige (Fossil Free Sweden)
- Smart City Sweden
- Sustainable Innovation

FRAMEWORK PROGRAMMES

- Horisont Europa (Horizon Europe)
 - EU Rail
 - EIT Urban Mobility
 - EIT Digital
 - EIT InnoEnergy

COLLABORATIVE ORGANISATIONS/PLATFORMS FOR RESEARCH, DEVELOPMENT AND INNOVATION

- Conference of European Directors of Roads (CEDR)
 - CEDR Transnational Research Programme (TRP)
- European Road Transport Research Advisory Council (ERTRAC)
- European Rail Research Advisory Council (ERRAC)
- Forum of European National Highway Research Laboratories (FEHRL)
 - Forever Open Road Programme (FOR)
 - Forever Open Road, Rail, Runway and River Programme (FORx4)
- Construction Innovation Hub, UK
- Nordic Road Association (NVF)

USA

RESEARCH PROGRAMMES

- National Cooperative Highway Research Program (NCHRP)
- Innovations Deserving Exploratory Analysis (IDEA)
 - NCHRP Highway IDEA
 - Rail Safety IDEA
 - Transit IDEA
- Exploratory Advanced Research Program (EAR)
- Transportation Pooled Fund (TPF) Program



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