

SATIE

Preliminary Concept of ELSA for transport

Main Author
Version date

Matti Roine, VTT
4 April 2012



Table of Content

TERMS AND ABBREVIATIONS	p3
TERMS	p3
ABBREVIATIONS	p3
1 INTRODUCTION	p4
1.1 SATIE GOALS	p4
1.2 AN OPEN INVITATION	p4
2 WHY A EUROPEAN LARGE SCALE ACTION	p5
2.1 SOCIETAL CHALLENGES	p5
2.2 INNOVATIONS FASTER TO THE MARKET	p5
2.3 A NEW ENVIRONMENT FOR DEPLOYMENT AND BUSINESS DEVELOPMENT	p6
2.4 SATISFYING CUSTOMER AND MARKET NEEDS	p7
3 ELSA CONCEPT AND ELEMENTS	p8
3.1 CONCEPT	p8
3.1.1 STRATEGY AND GOALS	p8
3.1.2 ELSA STRUCTURE AND ARCHITECTURE	p8
3.1.3 LARGE SCALE ACTION AREAS	p10
3.1.4 INNOVATION MANAGEMENT AND INNOVATION INCUBATORS	p11
3.2 ELSA ELEMENTS	p13
3.2.1 GOVERNANCE AND PARTNERSHIP	p13
3.2.2 FINANCING AND BUSINESS MODELS	p13
3.2.3 INNOVATION SEQUENCE AND MANAGEMENT	p14
3.2.4 MONITORING THE PROGRESS	p14
3.2.5 PAN-EUROPEAN DIMENSION	p15
3.2.6 AREA ACTION PLANS	p15
3.2.7 COMMUNICATION AND DISSEMINATION	p15
4 IMPLEMENTATION	p16
5 INVITATION TO TAKE PART IN THE NEXT STEPS	p17

Terms and abbreviations

Terms

TERM	DEFINITION
Test-bed	A test-bed is a research or development infrastructure instrumented and composed of road and traffic infrastructure, back-office systems, ICT hardware and software, and organisational/legal arrangements supporting technology verification, field operational tests, pilot deployments, methodology validation and impact assessment.
Innovation incubator	Innovation incubators work in the interface between the sets of innovation and entrepreneurship supporting entrepreneurs to develop business.
Test Bed Innovation Incubator (TBII)	TBII is a key element of ELSA concept, which integrates test-bed with market oriented innovation incubator.

Abbreviations

ADAS	Advanced Driver Assistance Systems	ITS	Intelligent Transport Systems & Services
BIC	Business and Innovation Centre	KPI	Key Performance Indicators
EBN	European Business & Innovation Centre Network	NGO	Non-Governmental Organisation
EIB	European Investment Bank	PT	Public Transport
EIP	European Innovation Partnership	PPP	Public-Private Partnership
ELSA	European Large Scale Action	P2P	Public-Public Partnership
ERDF	European Regional Development Fund	R&D	Research and Development
ESA	European Space Agency	RTD	Research and Technological Development
ESINET	European Space Incubators Network	SATIE	Support Action for a Transport-ICT ELSA
FOT	Field Operational Test	SME	Small and Medium-sized Enterprises
ICT	Information and Communication Technologies	TBII	Test Bed Innovation Incubator

1 Introduction

1.1 SATIE Goals

Deployment in Europe of ICT solutions for mobility and transport remains fragmented, limited in scale and impact, while a European mass market is still waiting for the starter's gun. A European large scale action is needed in order to bring the many valuable results of research, development and innovation projects together, focus them towards deployment and apply them to address today's mobility challenges.

A large-scale action approach should:

- shorten the innovation cycle of research, development and market introduction
- link developments throughout Europe
- give authorities and users a larger role in defining needs the industry could respond to
- create partnerships among the industry stakeholders as well as between authorities and industry
- bring together funding from various sources
- link local, regional, national and European development programs and funding
- be directed towards addressing societal goals as well as business development for small and medium-sized enterprises (SME) and larger companies alike.

The European Commission appointed the SATIE project to explore options for defining and launching a European Large Scale Action (ELSA), which fulfils the criteria above.

1.2 An open invitation

This document is an open invitation to help prepare for a future European Large Scale Action (ELSA) for innovation and deployment of ICT for transport and mobility in Europe. Reading this document should help you understand why ELSA is urgently needed. You will get an overview of the preliminary concept proposed by the SATIE consortium for ELSA: a model based on partnerships, where local and regional initiatives across Europe can be linked to achieve a critical mass and become a true network comprising test-beds, innovation incubators and pre-market implementations.

SATIE is identifying and contacting potential ELSA participants to understand their needs and expectations regarding a large-scale initiative in their domain and area. We invite you to read and react to this short paper, and tell us what you think via the SATIE website (www.satie.eu) or in person at one of our public workshops. The next workshop will be held in Athens following the Transport Research Arena (TRA) conference, on Thursday, the 26th of April.

To whom is this document addressed? We think ELSA for ICT in transport and mobility will need the participation of a diverse group comprising academic and industrial researchers, system developers, service providers, transport network operators, public authorities, automotive and traffic system manufacturers, telecom operators, etc. Without strong commitment from stakeholders bringing innovation and/or investment power, a Transport-ICT ELSA would not be successful. This document is therefore intended to awaken a first expression of interest from stakeholders with these capacities, who are willing to be part of a Europe-wide endeavour leading towards large-scale deployment.

2 Why a European large scale action

2.1 Societal challenges

Pressure is growing to reduce the environmental impact of our transport systems, and to make the mobility of people and goods safer, more convenient and more efficient. We should strive to achieve these goals without massive spending on new physical infrastructure, and simultaneously make sure to enhance the global competitiveness of European industry. Meeting these challenges can probably be attained only with the help of applied information and communication technologies.

The European Union has defined a long-term vision for 2050, centred on “an integrated, sustainable and efficient transport system” (the Transport White Paper¹). The 2009 EC Communication “A strategy for ICT R&D and Innovation in Europe: Raising the Game ²” proposes an approach to establish Europe’s industrial and technology leadership in information and communication technologies (ICT), seen as vital tools to recover from the current economic slowdown. ICT for transport, or “Intelligent Transport Systems (ITS)”, are expected to deliver solutions for the problems listed above and help reach policy goals. ITS should also deliver major business opportunities, creating new jobs for Europe.

The Transport White Paper expresses goals for 2050, including:

- reducing fatalities by 50% by 2020
- reducing congestion that currently wastes the equivalent of 2% of GDP
- increase energy efficiency and cut CO₂ emissions by 60% by 2050
- integration of different transport modes towards a seamless transport system
- make use of research, development and innovation including ICT
- reducing dependency of oil and impact of increasing oil prices
- reducing noise and air pollution in cities

While the challenges are clear, the scale of transport-ICT deployment has until now not met the needs. SATIE addresses specifically this need for action on a hitherto unseen and pan-European scale.

2.2 Innovations faster to the market

During the past decade, many Transport ICT projects have been aimed at researching, developing and demonstrating systems and new technologies in the field of e.g. traveller information, traffic management, and Advanced Driver Assistance Systems (ADAS). There are already a great deal of efficient ITS systems and services available, which are able to deliver benefits solutions to identified transport problems. However, their benefits are proven on an individual, small-scale level. Despite the support of the EC and the involvement of important stakeholders, this approach has not yet led to large-scale service deployment. To prove effectiveness, justify investments for large-scale deployment and grow from technological development into a deployment-oriented innovation, more proof on system or societal level is needed. Besides technological aspects, successful innovation also includes solutions for moving the barriers related to organisational and institutional issues, markets and business models, finance and funding, legal, political/strategic, decision making/coordination aspects. Finally, industry readiness to produce and user acceptance to consume should not be overlooked as important goals.

For successful innovation of the transport system, these barriers have to be managed in an integral and holistic way: they require large-scale action, directed with a perspective on pan-European solutions and a pan-European market. It is necessary to increase the speed of ITS take-up and deployment. New innovation cycles need to be created e.g. building a chain from development and trialling of smart mobility systems;

¹ EU Commission (2011). Commission staff working-document. Accompanying the White Paper – Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system. SEC(2011) 391 final. Brussels, 28.3.2011

² A new ICT R&D and innovation strategy: Raising the Game ², COM2009(116).

implementing an open standard service platform for vehicles and mobile devices; developing a plan for ITS investment; building partnerships for smart mobility deployment; creating demonstration projects for sustainable urban and interurban transport; improving the regulation environment and standardisation; and creating new funding frameworks.

A holistic view on these will lead to a redesign of the deployment of ICT in transport and subsequently to a faster and more efficient adoption in society. Connected hotspots and test-beds that actively exchange best practices and contribute to awareness and willingness among all stakeholders will create nuclei for innovations and deployment.

The EU ITS Action Plan already provides a first step in this direction. It identifies main action areas of ITS deployment and development in Europe's Member States. Deployment and investment is seen to be very fragmented and requires the removal of existing barriers. The EC and Member States have a clear role in creating the right framework for an accelerated and coordinated deployment of ITS. The priority areas for new ITS measures are: 1) Optimal use of road, traffic and travel data, 2) Continuity of traffic and freight management ITS services, 3) Road safety and security applications, 4) Integration of the vehicle into the transport infrastructure, 5) Data security and protection, and liability issues, and 5) European ITS cooperation and coordination. An ELSA for ICT in Transport should bring this together and advance it towards the next level: large-scale deployment.

2.3 A new environment for deployment and business development

As stated by the European Commission³, the “deployment of ITS in road transport has been much slower than in other modes of transport, and ITS services have often been deployed on a fragmented basis”. To speed-up and achieve more impact in terms of market adoption the gap between research results and market requirements needs to be bridged. In generic terms, this issue is easy to address. Yet, in order to achieve impact, a more specific view is required to create the circumstances and appropriate measures for successful scaling up.

This view should take into account the following key issues:

- The stakeholders and their expertise. RTD project partners should look beyond the end of a project and consider exploitation issues. For example which new stakeholders are needed in the following stages, and whether a decision-making process exists after the end of the project. In addition, technical challenges addressed by researchers need to respond to requirements of marketers and business developers; these persons are usually not working together in one project.
- Information and results of R&D projects are disseminated mainly within the R&D community, so the stakeholders who are crucial within the next stage of development or deployment have little awareness. Also, the use of new technology often requires other types of relations and recognising the roles of the stakeholders involved.
- Due to various constraints (scientific, operational, financial, etc.), the volume of evidence from current projects is limited. The impacts in current Field Operational Test (FOT) projects are assessed by means of simulation and/or small-scale experiments. This is not sufficient for investment decisions and implementation of the anticipated innovation. Large-scale testing with high penetration level, over a longer period of time in the real transport environment, and under real traffic conditions, is needed to convince all required stakeholders. The environments and facilities (test-beds) to support real large-scale testing require continuity of available expertise, a long-term perspective and commitment of the relevant stakeholders. The conditions for such test-beds are not met yet.

To set the stage for business development and successful market adoption an innovation management model is needed that integrates business interests tightly with the innovation process and provides new professional operators with large-scale testing facilities. The innovation management process has to unite authorities and other implementation organisations responsible for procurement with companies interested in co-creation and financial inputs.

³ ACTION PLAN AND LEGAL FRAMEWORK FOR THE DEPLOYMENT OF INTELLIGENT TRANSPORT SYSTEMS (ITS) IN EUROPE. European Union, COM(2008) 886 and 2010/40/EU

In addition, the management model should focus on:

- establishment of the appropriate environment for large scale testing of technological issues hand in hand with the needs of the demand side;
- selection of projects that balance scientific issues and deployment issues all in one, within a program that addresses long-term goals;
- creation of a network of stakeholders and environment that supports awareness and the conditions for a decision making process towards deployment;
- preparation of new business concepts for the future interaction between stakeholders in a collaborative ITS environment;
- organisation of a learning process that ensures the transfer of knowledge of results and best practices.

Business opportunities will arise from an effective cooperation and innovation process putting together demand requirements with new technology and business innovations. Successful business processes have to bring innovations continuously to the market, not only as the final result of a long innovation chain.

2.4 Satisfying customer and market needs

ELSA has to be able to match relevant technological solutions with real market needs, as all too often good research-driven ideas – despite their intrinsic value – do not yield large-scale, coordinated deployment. It is thus essential to overcome the fragmentation, which constitutes the cornerstone of this challenge. On the one hand, it is fundamental that potential addressees of the innovation, such as road authorities, private road infrastructure operators and end-users, are fully aware of the available solutions and the advantages they can bring for them. On the other hand, it is obvious that the solutions in question must at the same time properly address the real needs of the user-side, and duly take into account their actual capacity to innovate, their readiness to invest in or buy a product or service of a given quality at a given cost.

In order to identify the “winning” transport-ICT products/services the needs of the supply and demand sides should meet; this necessitates a stable policy framework and realistic deployment scenarios based on a coordinated European approach. In the same vein, there is a need to show that ICT solutions make sense, that new products and services are the key to address the important challenges in the transport domain, and that the necessary innovation and deployment require appropriate financing and viable business case. New services do not necessarily have markets and efforts to create markets are required.

Even though the above-mentioned issues appear obvious, in reality there too often appears to be a glass wall preventing relevant solutions from being deployed, in particular because of a lack of appropriate partnerships encompassing all the relevant stakeholders that intervene across the entire innovation chain. Against this background, an ELSA is required to establish such partnerships with a view to ensure the much-needed exchange of information, communication and coordination between political decision-makers and regulators, the supply side and the demand side.

3 ELSA concept and elements

3.1 Concept

3.1.1 Strategy and goals

The strategy and design of an ELSA should address major societal challenges of transport, boost the economy and European competitiveness, while helping to overcome barriers for transport-ICT deployment. The demand side at local level - public authorities, road operators, end users - should be in the lead in defining the actual problems to be tackled with a large-scale action, in cooperation with the business sector. The demand side can also support the take-up of ITS in European and global markets, e.g. by innovative and pre-commercial procurement.

An ELSA should support a shift from a technology research orientation to a deployment focus through a demand-led strategy plan, vision and goals. These will be defined in cooperation between all stakeholders, reinforcing the commitment of the participants. An ELSA is expected to operate during 6-8 years with pre-defined phases and progress evaluations. All actions within an ELSA would support continuously the introduction of new products and services into the market. Each phase would have clear goals, and key performance indicators would be set to enable the evaluation of each ELSA action. In addition to traditional research project evaluation criteria, the goals would include indicators measuring started business and deployment activities.

A significantly larger scale of action demands correspondingly larger funding: an ELSA would therefore find synergy amongst several available financial instruments. The goal would be to multiply the effect of individual funding instruments by combining and focusing them on a single initiative, thus pooling EU and national, public and private resources. An ELSA would set up a Coordinated Funding Framework enabling easy access to funding e.g. via Innovation Incubators.

An ELSA would also create a European network of stakeholders with similar needs and provide new mechanisms for sharing information. Learning from others and sharing of information would be enabled in all levels of ELSA activities e.g. by linking resources and sharing results and data. Since an ELSA should create a high level of awareness, communication will be one of the key activities. Each ELSA action area would have its own strategic plan with a European level vision, goals and roadmaps, as well as some special local requirements. ELSA action areas would therefore offer flexible embedding of national and local actions into a Europe-wide innovative collaboration.

3.1.2 ELSA structure and architecture

The high-level view of an ELSA structure would show a Europe-wide grouping of public and private partners able to drive and steer a large-scale action. They would ensure a transparent and effective governance of the initiative while representing the societal and commercial aims of the public and private stakeholders. The governing body would also define the organisation and procedures for an ELSA and its activities, such as financial and organisational aspects, as well as the workplan for constituent activities. It would also organise any selection procedures for choosing specific ELSA activities, locations and members.

Underneath this umbrella would be a group of ELSA innovation and deployment sites, where specific measures would be implemented, according to a mix of European-level and local ITS measures representing both the top-down and bottom-up approaches.

Locally, each ELSA component would be built on and would re-use any existing or imminent ITS or other needed infrastructure. This might include a test-bed from a current project as well as a local research community or – even closer to deployment – a programme to start up innovation amongst academic and industrial research centres, and starting up or bringing in innovative entrepreneurial companies. The ELSA concept will create a convergence of efforts towards the acceleration of innovation and deployment in transport-ICT.

The ELSA concept comprises the following elements (see Figure 1):

- Governance and partnering
- Financing framework
- Action areas
- Network of Innovation Incubators with test-beds.

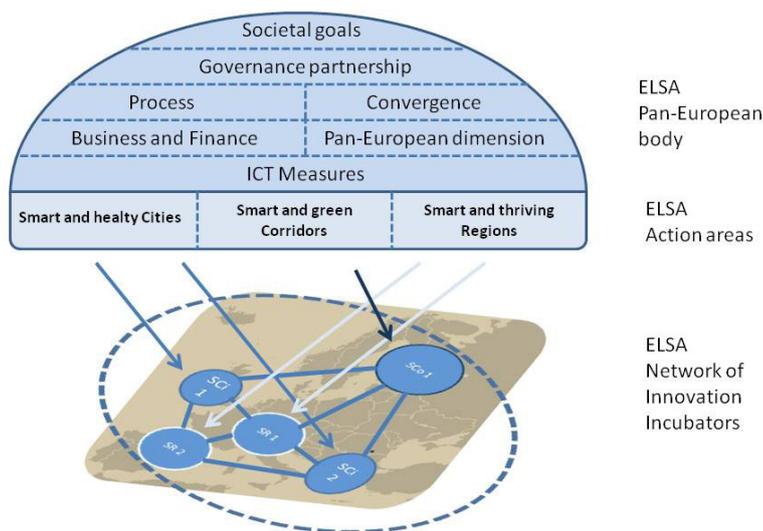


Figure 1: General structure of the ELSA concept

to transform test-beds into Innovation Incubators. This includes selection, implementation support, the link to the other Innovation Incubators and progress monitoring. The convergence process will be established and monitored by the governing body. It will ensure that the Innovation Incubators inside ELSA are working towards the identified goal, that they follow the appropriate demand-based approach, and that their implementation is interoperable and does not create new market barriers.

The governing body will work out the available finance mix for Innovation Incubators. It will create a network of private investors that can be contacted by the Innovation Incubators. It will also ensure a convergence of existing public resources towards the ELSA instrument and the Innovation Incubators. In practice, it means that responsible authorities use the ELSA instrument in their work programmes and earmark specific budget lines to it.

The governance body will also identify potential ICT measures or approaches that can be implemented or developed further during ELSA implementation. This should be an open process, with inputs coming from research and technology as much as from new regulations or new needs.

ELSA Financing Framework

Available EU funding instruments e.g. structural funds, regional development funds and RTD programme funding should be integrated effectively with other funding resources, also including possibilities for private funding. National, regional and local funding is also required and should be an essential element in the ELSA funding framework. Market based instruments such as taxation will be taken into account when finalising the framework. Specific calls, both national and EU wide, should address the ELSA concept utilisation as a means to catalyse ICT deployment in the transport sector. Financing framework should support the vision and policy on ICT deployment. Funding schemes should support the rapid deployment and speeding up of innovation process.

ELSA Action areas: Smart and Healthy Cities, Smart and Green Corridors and Smart and Thriving Regions

Specific ELSA's action areas would be defined according to the current societal goals, policies and demand led requirements of its principal stakeholders. As an example, SATIE has defined Smart and Healthy Cities, Smart and Green Corridors and Smart and Thriving Regions as possible main action areas for transport improvements leading to a smart European transport network. They all have different types of characteristics and needs and may also involve different relevant stakeholder groups.

These three strategic action areas would help solve the stated societal and transport problems during the ELSA implementation phase, and create new business opportunities. By concentrating an ELSA on Smart and Healthy Cities, Smart and Green Corridors and Smart and Thriving Regions, the time-to-the-market can be shortened and deployment of ITS can be strongly accelerated Europe-wide. A new model of innovation management is supporting actions, taking care of both the demand led requirements and opening of business cases. Potential types of business models, partnerships, finance mixes and appropriate ICT measures are developed and supported by the innovation management functions.

ELSA Governance and partnering

On a strategic level, a public private partnership should be in charge of the European-level governance. The governance is responsible for the identification of the high-level societal challenges and transferring them to achievable transport challenges, which will be at the core of the actions carried out. The governance model should be simple and flexible and involve all major stakeholders from public and private sectors.

The governing body (including e.g. representatives from the European Commission, Member States, business sector, financiers, research and other relevant organisations) will be responsible for defining the applied process and required conditions needed

Action Area: “Smart and Green Corridors”

Cities or economic regions can only thrive when they are connected by smart and green corridors. The following example addresses a cross-border corridor (Helsinki-St Petersburg). The main challenges for this corridor are safety and security with regard to vehicles and goods (theft, smuggling activities), efficiency and trade. The deployment area of transport ICT could be developing a smart information infrastructure for exchanging information to facilitate efficient security and customs processes and in the end a more efficient use of the corridors. Relevant stakeholders are the infrastructure and service providers, authorities (customs), shippers and carriers, etc. ELSA actions drive convergence into smart and green corridors: transport management information, in-vehicle information and services (such as safe parking, guidance) that can be used by traffic managers and customs in effective (cross-border) corridor ‘operations’.

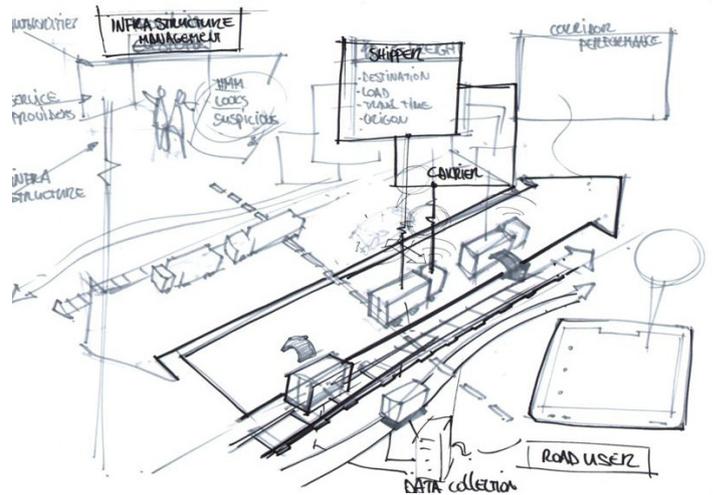


Figure 3: Impression of Smart and Green Corridor
Source: SATIE WP5 ELSA implementation scenarios

Action area: “Smart and Thriving Regions”

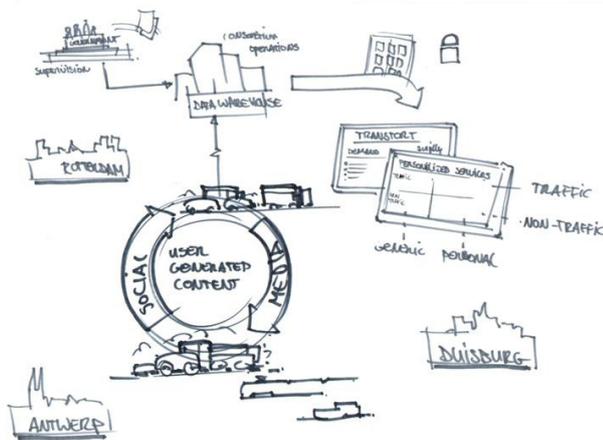


Figure 4: Impression of Smart and Thriving Region
Source: SATIE WP5 ELSA implementation scenarios

The action area ‘Smart and Thriving Regions’ addresses a network of cities, economic centres and connecting corridors. ELSA actions are directed at a major change in management of flows of freight and persons (bringing together demand and supply) in for example the triangle Antwerpen-Rotterdam-Duisburg. This concept takes the action areas of Smart and Healthy Cities and Smart and Green Corridors to the next level.

Traffic management authorities on local, regional, national and even supra-national level would need to collaborate. This network of involved actors should be enlarged with private actors with a direct interest in the services to be delivered and transport organisations that offer transport facilities (freight as well as private and public transport). Non-governmental organisations (NGO) and civilian organisations are part of the collaboration as well (for instance NGOs related to traffic safety). Given the complexity of the final situation a strict governance structure would be needed.

3.1.4 Innovation management and Innovation Incubators

There are a number of research project test sites and test-beds associated with large or small ITS implementations in Europe today. However, they are often working independently with some potential overlapping and without clear business orientation. SATIE is exploring the issue of ITS test-beds within the Innovation Incubator concept. Incubators are programmes designed to accelerate the successful development of entrepreneurial companies through an array of business support resources and services, developed and orchestrated by incubator management and offered both in the incubator and through its network of contacts. Incubators vary in the way they deliver their services, in their organisational structure, and in the types of clients they serve.

The structure of existing pan-European networks supporting innovation incubators could help to organise an ELSA around business oriented organisational models of action. For example, the European Business & Innovation Centre Network (EBN) is now a leading non-governmental pan-European network bringing together more than two hundred Business & Innovation Centres (BICs), together with similar organisations such as incubators, innovation and entrepreneurship centres across Europe. Another example is the European Space Incubators Network (ESINET), which is an experimental thematic platform for the transfer of knowledge and technologies in the field of space industry. These examples show similarities with the idea of Test Bed Innovation Incubators (TBII) targeted by SATIE. These are generally located close to technology centres, with test-bed facilities; they are looking at business development in cooperation with small and big companies as well; they receive public funding at the local and regional levels. However, adaptation to the domain of transport ICT is needed.

The notion of Test Bed Innovation Incubators goes beyond the technical aspects to focus also on evaluation from “experimental areas” of first commercialisation. From a general standpoint, Innovation Incubators play a critical role in business development. They bring together the skills and expertise necessary to help sustain and grow an enterprise; provide facilities to rapidly test out new ideas in practice, with quick assessments; allow fast learning across a community of innovators; and establish clear pathways for scaling up the most promising models. Moreover, Innovation incubators provide investors and large companies with better opportunities for innovations in which to invest. Innovations are reviewed and supervised by experts, often venture capitalists, to ensure their quality and the sustainability of their business. However, in order to ensure the success of incubators, a network, clear operations model, and set of services and tools that are based on both the objectives and the stakeholders, must be defined.

The visions supporting an ELSA would contribute to establishing a network of multiple TBII locations that can support continued research, testing, and demonstration of connected services, standards, applications, and innovative products. Test environments would also serve as precursors or foundations for state and local/city/regional deployments. The TBII network would be supported by a set of evaluators and private investors, who could steer business development of ITS products and services, along economic rules of efficiency and profitability, but also along the lines of societal goals for transportation needs supported at European, regional and local policy levels.

Organising a network of ITS Test Beds around Innovation Incubators does not mean that each TBII would be fully dedicated to ELSA objectives, but an ELSA would capitalise on these existing structures. The network of TBII would act as a “virtual engine” for ITS innovation and deployment supported by interaction and emulation among local partners. An ELSA would support an organisational framework following a structure similar to the EBN, which is organised towards innovation and incubators linked within an active network, under a business vision orientation.

3.2 ELSA elements

3.2.1 Governance and partnership

An ELSA governance structure would include European, national and local level stakeholders and organisations in balanced and flexible cooperation. On a European level, innovative, harmonised and pan-European solutions are brought to the market. On a national level, pan-European types of action would be adapted to local needs. Governance structure integrates European and national, funding, relevant stakeholders and innovation competences into a synergic process creating a win-win situation and accelerating ITS up-take for all market segments.

ELSA governance on the European level would be established based on the practical lessons learnt from the first experiences of the Pilot European Innovation Partnership on Active and Healthy Ageing (AHA), the Future Internet PPP and other recent or on-going initiatives. The governance structure should be simple and flexible, representative and balanced. Partnership building should be inclusive and open. It should also promote synergies that can elevate innovations from a local to a European level. It is crucial to start building the necessary partnerships already in the ELSA preparation stage (during the SATIE project). Synergies and clear relationships with other related European initiatives should be clarified from the start. Existing public and private financial and other resources for research and innovation should be used in a smart way. Partnering has to bring together European and national level players in Public-Public Partnerships (P2Ps) and Public-Private partnerships (PPPs) and direct and facilitate them towards deployment of Transport ICT.

Governance on a European level should also steer the innovation and deployment in a structured and planned way. This can be done through formulation of research calls, through dialogue with national funding agencies and by informing the research community of the policy goals. The ELSA concept requires new and innovative thinking of partnerships to speed up innovation and to take innovations from a local to a European level. For instance, bringing private investors on board, working together with the local public authorities, the innovators and the TBII can generate fast solutions for market entry and the necessary leverage required to bring innovations into a pan-European perspective.

3.2.2 Financing and business models

ELSA will require coordination and synergy of funding available from various sources. These funding sources should contain local, national and regional level sources, as well as the potential to utilise loans (from EIB, etc.), private investments and PPP models. More precisely, through each local TBII partnership, ELSA will bring together the funding available from different sources, to match the business model in question. In addition to funding available at local or national levels, the European dimension of ELSA will allow creating and facilitating complementary access to European funding, such as EU grants or loans from European banks.

As for the EU financing instruments concerned, particular attention will be paid to the European Regional Development Fund (ERDF), Research and Innovation financing under Horizon 2020, and financing for ITS under the Connecting Europe Facility, although ELSA is naturally open to other sources of funding as well. In this respect, it is relevant to emphasize that ELSA in the field of ICT for transport fits under the ERDF mechanisms for regional development. Since the ERDF financial instrument addresses the EU's economic, social and territorial cohesion, the impact of transportation improvement on the revitalisation of local economies constitutes a most relevant issue. However, the technologies of the "intelligent transportation" domain are rarely considered through their impact on innovation and job creation, as well as product-oriented development and the competitiveness of this European industry as a whole.

Having identified the relevant financing instruments, an ELSA would set up a Coordinated Funding Framework enabling easy access to funding within the different financial regulations that apply. An ELSA would use its large-scale European dimension in order to create synergies, exploit economies of scale and avoid the drawbacks of fragmentation. ELSA will tackle the uncoordinated financing policies for transport ICT in different EU regions (yet fully respecting their diversity) and it will contribute to the definition of common interests and the promotion of shared solutions through different financing instruments, thus securing that the (limited) financing available is directed to the best business cases addressing the most pertinent mobility challenges.

As the goal of large-scale deployment of transport-ICT solutions is pursued, the establishment of appropriate business models is also a key element of an ELSA. The main issue in this respect is to design business cases, in the sense that public subsidies – whether regional, national or local financing – should not be a prerequisite for continued deployment, but merely a catalyst for bringing the innovation to the market in a

coordinated way. In other words, the model to be developed within an ELSA would focus on attracting business and offering clear and viable perspectives under real market conditions, securing appropriate return on investment in due time and manage the risks of investments. An ELSA would thus pursue ambitious but always realistic deployment scenarios, while taking into account relevant quality and cost considerations, as well as their contribution to the EU's competitiveness.

3.2.3 Innovation sequence and management

The purpose of a transport-ICT ELSA is to bring new ICT solutions faster to the market. This means that the sequence of research, development, testing, demonstration, pilots, test markets, procurement and market penetration should be managed more as a continuous flow of activities. Market penetration may also require additional efforts directed to faster diffusion.

To manage this sequence more as a continuous flow, the following elements are needed:

- long-term programming
- a stable partnership
- a business plan for the entire horizon of the partnership
- financial commitment.

Programming: links between the various stages should be planned in advance and secured during the process, of course subject to positive outcomes in each stage.

Partnership: In every stage of the innovation sequence new actors need to be involved: research institutes (fundamental research and applied research), development departments of larger companies or SME's, in house or external test facilities, authorities and user organisations, marketing departments of larger companies, buyers, production facilities and suppliers and investment agencies (public and private). A long-term interaction between these different actors creates a faster throughput in the process.

Business plan: Investments in R&D should have a perspective in the next phases and it should also be clear which actors will invest and where the revenue will come from, and how this will be distributed.

Financial commitment: Long-term commitment from authorities and companies is needed to create a stable business environment in which every contributor is willing to invest its own part in terms of manpower, ideas and financial resources.

3.2.4 Monitoring the progress

An ELSA would operate 6-8 years with pre-defined (e.g. 2 year) phases (see Figure 2). Each phase would have clear goals and key performance indicators (KPI) would be set for each ELSA action. ELSA actions would be systematically evaluated after each phase with KPI's towards pre-set goals. The evaluations after each phase would assess e.g. the level of cooperation between stakeholders, started business and deployment activities and 'deployment potential', level of innovation, etc.

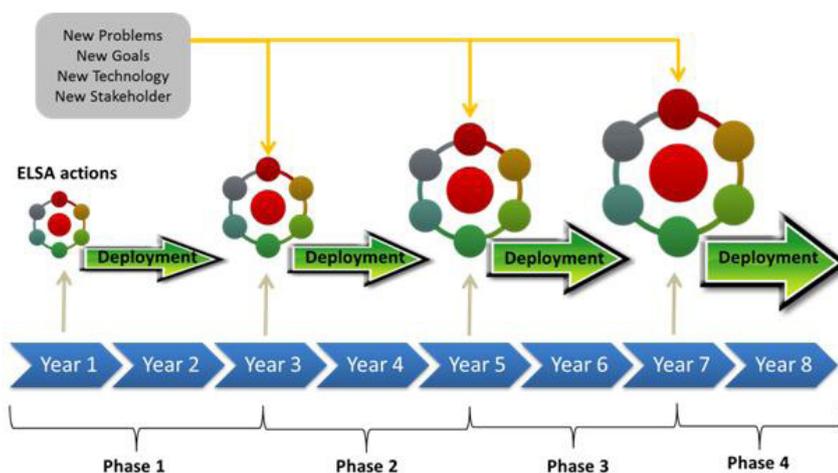


Figure 5: ELSA phases

The level of the goals in the different phases of ELSA would increase during the running of ELSA. For example cooperation between various stakeholders will be a learning process. In the first phase, ELSA cooperation and partnerships would be established in the local level. Pan-European linking and information sharing with established procedures can be set as a goal in the second phase. New problems, goals, technologies and stakeholders would be introduced throughout an ELSA's existence. This makes ELSA flexible for needed changes and ELSA would evolve during the years.

3.2.5 Pan-European dimension

One of the main strategic pillars and challenging factors of an ELSA is the focus on the 'pan-European dimension'. This approach facilitates perspectives and potential - both research as market wise – on both a European and a local level. Strategic programming of R&D activities for the different action areas enables a more effective allocation of budgets and investments, creating synergy and scale of testing. The network of TBIs enables mutually beneficial interchange of testing, development and learning between the different stakeholders. The efficient organisation of learning processes on a European scale is a prerequisite to rapidly advancing development to a mature level suitable for successful deployment of the targeted innovations.

The holistic perspective on the barriers identified previously – e.g. organisational/institutional, legislative, business models, etc. – would lead to harmonisation of the European market. Examples of benefits include: standardisation of procedures, protocols and data, as well as harmonisation of stakeholder roles, procurement, funding schemes, and business models.

This holistic approach maximises chances for innovations being accepted by the users and adopted in society.

3.2.6 Area action plans

Possible candidate ELSA action areas have been defined as: “Smart and Healthy Cities”, “Smart and Green Corridors”, and “Smart and Thriving Regions”. The implementation of an ELSA would require a detailed action plan for each of these areas taking into account the goals of these actions in a sequenced way and producing finally systems and services capable for reaching the goals, shortening the time-to-market and opening new business opportunities.

Area action plans should be able to integrate and utilise available instruments, commit major stakeholders, manage innovation potential and integrate national and local levels into synergic and efficient collaboration. These plans should include a clear vision and roadmap on a European level that can then be adapted on national and local levels according to special needs and fostering commitment. Area action plans should include goals and related indicators of success, which can be used in monitoring of progress and assessment of impacts during the sequenced ELSA implementation.

All three ELSA action areas must create relevant stakeholder commitment and operate successfully on a European, national, regional and local level. The involvement of stakeholder groups has to be flexible because organisation structures, roles, operation models and principles may be different in national and local levels and in different member states.

3.2.7 Communication and dissemination

An ELSA would also develop communication structures and instruments in such a way that a true community of transport innovation incubators is created, ensuring that knowledge and best practices are shared in a structured way between all the stakeholders that are part of the innovation chain.

The knowledge accumulated within an ELSA will of course be communicated continuously within and between innovation incubators. In addition, however, also relevant initiatives and their state of play, intermediate and final results as well as follow-up actions will be shared with and between all other stakeholders having an interest in these developments, including in particular the industry, authorities, professional organisations, etc. Without prejudice to each incubator's own communication and dissemination strategy and tools, such dissemination within an ELSA would have a clear European dimension, so as to foster the scaling-up of consecutive actions, the initiation of further follow-up initiatives and an increasing spread of transport-ICT innovation throughout Europe.

To speed up the deployment of ICT for transport, it is moreover crucial to create demand and raise consumer awareness. This requires a joint effort by the industry and the wider innovation community, including public and research communities. Once again, the pan-European dimension of the objectives pursued requires raising consumer awareness in a concerted way through cooperation at European level.

Communication, dissemination and awareness-raising within an ELSA would consequently take the form of a dynamic interaction process where all the main stakeholders would be able to express their views in order to establish the much-needed bottom-up and top-down approaches to provide essential links between policy, industry, users and real-life transport-ICT scenarios.

4 Implementation

A European Large Scale Action (ELSA) will need a number of actions to be set up. The target would be to have a first Transport ICT ELSA up and running as of 1 January 2014, coinciding with the implementation of the Horizon 2020 programme. This means that roughly from January 2013 preparatory actions should already be started to set up the structure and all preconditions as described in the previous chapters.

For instance (a not-exclusive list and not in priority order):

- A temporary governing body should be set up, charged with executing the necessary steps of bringing a Transport ICT ELSA to life.
- A decision should be taken on the scope of the ELSA (action areas), the scale (how many TBII's) and on the selection of TBII's to participate.
- A business plan together with an estimate of the funding needs should be set up, on the basis of the inventory of interested parties, one of the results of the SATIE project.
- The various forms of European funding should be earmarked, to be formalised in a later stage, when all requirements are fulfilled.
- Commitment of the various local, regional and national initiatives that should participate in the ELSA should be secured.
- Develop a programme plan following the strategy (demand side led), including a business plan.
- Establish a network of TBII's, prepared for implementing the ELSA actions, including programme to establish the required facilities for enabling learning processes, innovation management, leading to large scale deployment.
- Communication and dissemination activities to all participants should be started to familiarize all future involved stakeholders with the concept of the Transport ICT ELSA.
- Public communication about the initiative should be organised on European and national levels.
- Deployment should be planned for each type of action area identified within the ELSA framework.

5 Invitation to take part in the next steps

This document has presented a description of the preliminary ELSA concept, as developed by the SATIE project consortium.

This brief description will be further detailed, and more importantly, checked against the views of stakeholders outside the SATIE consortium, then to be elaborated on and improved. The final outcome of the validated concept definition will be published in an ELSA Handbook during 2014.

Does this document reflect your organisation's needs and thoughts about how a European large-scale action could trigger the wide deployment of innovative Transport-ICT products and services in Europe? Or do you feel there is room for improvement? Whatever your views, you can already share them with us, by contacting us directly or through our website www.SATIE.eu

The ELSA concept is especially targeting potential transport-ICT investors and innovators: if you are one of these, send us your thoughts and express your interest to participate actively in a future large-scale action.

Contacts

Website: www.SATIE.eu

Project coordinator: Paul Kompfner, ERTICO – ITS Europe p.kompfner@mail.ertico.com

Project chairman: Wil Botman, ANWB, w.botman@anwb.nl

This document is the work of the SATIE work package 3 team. The following partners contributed to this document:

- VTT – Technical Research Centre of Finland
- ERTICO - ITS Europe
- ANWB – The Royal Dutch Touring Club
- EUCAR – European Council for Automotive R&D
- IFSTTAR – Institut Français des Sciences et Technologies des Transports, de l'Aménagement et des Réseaux
- PTV – Planung Transport Verkehr AG
- Trafikverket – Swedish Transport Administration
- TNO – Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek
- ASECAP – Association Européenne des Concessionnaires d'Autoroutes et d'Ouvrages à Péage

About SATIE

The SATIE support action will prepare the way for the successful launch of a European Large Scale Action ("ELSA") to accelerate the deployment of ICT applications for sustainable, safe and efficient mobility and transport, based on an iterative consultation of public and private stakeholders.

SATIE is a support action co-funded by the European Commission – DG Information Society and Media – under the European Union's Seventh Framework Programme for RTD.