Resource Pack

Training workshop on
Intelligent Transport Systems

NL Agency

Bologna, Italy
Wednesday 14 and Thursday 15 December 2011

Status: final

VANGUARD

Introduction

Telematics can be used for improving traffic conditions through better traffic management & traveller information. Innovative telematics systems can help to coordinate traffic flow for all users, benefitting public transport with faster travel times and cyclists and walkers by making roads safer. Such systems allow better collection, coordination and use of traffic data to manage traffic. Besides, tools to evaluate, visualise and warehouse this information can help solve bottlenecks and unsafe situations. Telematics systems can also support traffic operations through prioritisation to sustainable modes, and also support parking information and management.

On 14 and 15 December 2011, CIVITAS VANGUARD together with CIVITAS MIMOSA organises a training session on Intelligent Transport Systems (ITS). CIVITAS Plus cities are fully engaged in innovative telematics for urban transport. The CIVITAS demonstrator cities are deploying different ITS services, such as network management tools, fleet management systems, mobile traveller information systems and e-ticketing systems. All systems are in place because they help the cities' urban policy objectives regarding the environment, liveability, good governance, etc.

This is the seventh CIVITAS training, as similar trainings have taken place on topics as 'Stakeholder consultation and citizen engagement' (2009) and 'Company Travel Planning' (2010). Like its predecessors, this training will include a blend of theory, practical tools and exercises designed to provide urban transport professionals with new ideas and solutions that you can apply to individual initiatives. The aim of these trainings is to support CIVITAS Plus cities and other cities interested in sustainable transport solutions.

About this resource pack

This training on Intelligent Transport Systems equips the participants with a thorough understanding of the potential of ITS to bring policy delivery forward. It will address three stages of the policy implementation cycle: identification of objectives and measures, implementation, and evaluation and monitoring aspects. We will look into possible challenges encountered in these stages and share experiences in different European cities. During the training, participants will examine local challenges from other participants and contribute to group discussion and interactive exercise sessions.

The aim of this training is to share best-practices and to provide participants with the necessary theory and real-life examples that will address knowledge gaps and enhance relevant skills.

This resource pack offers you several (hyperlinks to) background articles on ITS, structured according to the training programme: (1) General overview of sustainable transport policies, (2) ITS: From objective to measure and implementation and (3) Monitoring and evaluation. Additional to the training activities, we hope these articles and tools may help you in addressing Intelligent Transport Systems (ITS) as a smart approach and in implementing it in your own practice.

Content

Sustainable transport policies – general overview

European Commission

Roadmap to a Single European Transport Area – White Paper published by the European Commission (2011).
Downloadable at http://ec.europa.eu/transport/strategies/2011_white_paper_en.htm

A number of related documents are at
http://ec.europa.eu/transport/strategies/2001_white_paper_en.htm

ITS Action Plan and Directive published European Commission (2010). Downloadable from
http://ec.europa.eu/transport/its/road/action_plan/action_plan_en.htm

UK – Transport Policy

Towards a Sustainable Transport System - Supporting Economic Growth in a Low Carbon World published DfT (2007). Downloadable at www.official-documents.gov.uk/document/cm72/7226/7226.pdf

Delivering a Sustainable Transport System: published DfT (2008). Downloadable at
http://www.dft.gov.uk/pgr/regional/ltp/guidance/localtransportsplans/policies/sustainabletransport

Eddington Review of Transport published Treasury & DfT (2006). Downloadable from
http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/about/strategy/transportstrategy/eddingtonstudy/

Transport White Paper ''Creating Growth, Cutting Carbon'' Cm 7996 published DfT (2011). Downloadable from http://www2.dft.gov.uk/pgr/regional/sustainabletransport

Stern Report on the Economics of Climate Change published Treasury (2006). Downloadable from: http://webarchive.nationalarchives.gov.uk/+/http:/www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm

Transport Policy in 2011 – a new direction? published Parliamentary Library (2011). Downloadable from: http://www.parliament.uk/briefing-papers/RP11-22

Summary briefing on the Eddington Review published Parliamentary Library (2010). Downloadable from http://www.parliament.uk/briefing-papers/SN04208

"Electric vehicles: charged with potential'' published Royal Academy of Engineering (2010). Downloadable from: http://www.raeng.org.uk/news/publications/list/reports/Electric_Vehicles.pdf

Foresight Study ''Intelligent Infrastructure''
http://www.bis.gov.uk/foresight/our-work/projects/published-projects/intelligent-infrastructure-systems and http://www.bis.gov.uk/foresight/our-work/projects/published-projects/intelligent-infrastructure-systems/reports-and-publications/project-outputs

Intelligent Transport Systems Biannual Reviews; Local Authority Guide to ITS Deployment, Business Cases and Funding

- Can we really do more at less cost with the UK Road Network?
- Intelligent thinking about ITS
- The ITS Professional's Guide to the European Union

All downloadable from http://www.its-uk.org.uk/publications

Intelligent Transport Systems: POSTNote 322 published Parliamentary Office of Science and Technology (2009).
Downloadable from http://www.parliament.uk/documents/post/postpn322.pdf

Sweden
"The road to ITS" Published ITS–Sweden (2009)
Downloadable from http://www.its-sweden.se/utbildning__15

Further Reading List
- J.C. Miles and K. Chen (2004), 'The Intelligent Transport Systems Handbook' (2nd edition). Published World Road Association – PIARC. ISBN 2-84060-174-5
- A. Pickford and P. Blythe (2006), 'Road User Charging'. Published Artech House, ISBN 978-1-58053-858-9
- B. Williams (2008), 'Intelligent Transport Systems Standards'. Published Artech House, ISBN 978-1-59693-438-2

Paper

"Lessons learned: Success route for your mobility project"
Rick Lindeman, NL Agency (2010)

Ten years ago, the Dutch Ministry of Transport, Public Works and Water Management introduced subsidies for mobility projects. Over the past few years, the grants have been awarded through the Mobility Management programme. NL Agency, previously SenterNovem, administered the subsidies. Since then, things have come a long way and a great deal of information has been gathered from the projects that have been submitted. The Mobility Management programme has now come to an end and we need to hold on to the knowledge we have gained. This document sets out 10 lessons gleaned from practical experience. It covers aspects you need to consider when implementing your mobility project. And the do's and don'ts to bear in mind for a successful mobility project.

Lesson 1: Combine and extend
The bike share system (or OV-fiets) is really nothing more than a hundred-year-old form of transport redesigned for today's needs. But, in conjunction with an easy to use hire plan, and bikes available for a reasonable price on the right location, the OV-fiets has suddenly become an essential innovatory aspect of our after-transport services. And the mobility package Mobility Mixx is really nothing more than another way of offering travel information and public transport tickets. But it still opens up a world of sustainable travel for business travellers.

The best innovations of the last ten years were often not about innovative travel modalities but a smart way of pairing up or putting existing transportation modes to different uses. Innovations with the best chance of success involve a new organisation or different combination or use of transportation methods. In this way, the 'Lange Land Hospital' in Zoetermeer combines making a doctor's appointment online with transport arrangements. Patients who make an appointment on the internet can also organise transport to the hospital right away. Thus preventing a crowded parking area or arriving late for the appointment. The hospital is easier to get to and there's less likelihood of delayed appointments.

Lesson 2: Forget supply – what's the demand?
Many people with hire cars want to take the train now and then, but can't because they have a lease car. Employers often feel it is too complicated and too expensive to offer other forms of transport as well. Mobility Mixx saw a gap in the market, and jumped in by acting as "service provider" on behalf of the employer. It has become a successful innovation because it meets a clear need.

Travellers want to get from A to B in comfort, and on time. At what point do travellers come into contact with your innovation? And what, at that particular point, are their needs? If this need doesn't dovetail with your idea, reconsider the project. Carpooling never got off the ground because many innovators weren't entirely clear about what people considered disadvantages: fear of social dangers, unwillingness to make detours (a frequent occurrence in the Netherlands) and the fact that many people far prefer driving alone.

Lesson 3: Look at the total range of activities
The company Besite created Tripticket, a website where users can book tickets for events, and the transport there and back, in one go. The traveller is thus encouraged to think about transportation beforehand, and make arrangements sooner. The combination of ticket, information and transport is making Besite a great success.

You might have devised a brilliant system, but it doesn't end there. Your project or idea is just one small part of a larger whole. And more is needed to communicate your idea to the traveller. Take travel information systems, for instance. Information has to be gathered, processed and disseminated. And all these processes involve different parties. Good partnerships and the effective realisation of all those activities add to the value of your project and give you a competitive edge. Look at the example of Tripticket cited above. And the reverse is also true. Without good transportation there and back your innovative public transport project won't be much of a success. Look at all the activities needed to make your project work well. Where is your project in all this? What makes it so unique? What other factors is your project dependent on? How can you enhance your project's value through good partnerships? Make a sound strengths and weaknesses analysis. And avoid any nasty surprises later.

Lesson 4: The public transport world offers concessions
Many companies have ideas for great public transport services. At NL Agency there have been 'flying buses' and numerous projects mixing individual and collective transport. It wasn't common knowledge that the public transport sector offers concessions.

The Passenger Transport Act 2000 (*Wet Personenvervoer 2000*) is in force in the Netherlands. Transport authorities offer a transport company a concession to provide public transport in their area, based on a set of criteria. A new service must meet those specifications. Apart from the question of whether some projects are technically feasible, and whether they have a target group, a new public transport idea must be analysed to see if it fits into the concession system.

If you have a new idea for public transport you need to be sure that it complies with the published specifications and discuss it with the transportation authority (at provincial or city level) at an early stage.

Lesson 5: Concessions come to an end
Hermes developed "Infotin", a bus stop information system, which was successfully carried out in Limburg. It was well received in Almere, Eindhoven and Leeuwarden too. However, other regions worked to slightly different requirements and these "Infotins" didn't get off the ground. When a different transport company began in Limburg, the "Infotin" disappeared from this region, too.

In the Netherlands, regional concessions for public transport are tendered every four to five years. A newly developed mobility project must be in line with a concession for public transport or target group transport, within the set statutory frameworks. And this is often the seat of the problem. Innovations frequently get left behind if concessions pass from one transport body to another. A new tender can, for example, result in a different transport company and different priorities. Transporters are not quick to invest in ideas if the results are only visible once the current concession has ended. After all, they're not sure they'll reap the benefits of it. What's more, a project that succeeds in one region probably doesn't fit easily, if at all, into a transport concession elsewhere in the country.

Fortunately, concessions are taking a number of mobility innovations into account more often. Nevertheless it is crucial to adhere to (existing) standards. This will prevent your innovative mobility project from over reliance on the duration of concessions.

Lesson 6: Be aware of existing agreements and how the money flows
Millennium Transport International developed a flexible bus system with the residents of medium-sized cities like Weert and Hoogeveen. The project failed. The bus collective bargaining agreement didn't fit the bus drivers' work rotas. And the existing counting method was unable to

give an accurate idea of the number of extra passengers this flexible city bus could transport, in addition to the current city bus. A promising initiative thus went to waste.

Your public transport system may work beautifully but you're in trouble if you don't know in advance whether your system fits into existing structures (not only the collective bargaining agreement but the agreements made between the province and transport company). So make sure that your mobility project is in line with current agreements and that your project can survive without a subsidy. Making a business case of this nature often calls for more creativity than you might expect. But there are lots of options. An employer might, for instance, be very flexible about mileage and can decide how to allocate it. The Trappers project put this to great use and devised a unique bike incentive and rewards system to promote cycling to and from work. And more can be done in other areas. People often don´t like to pay just for travel information. But if you can integrate this information into an events transportation package, this "free information" is affordable. Which is exactly what Tripticket did.

Lesson 7: Double your planning
A bike shelter like the Velominck was designed as early as 2001. The first did not open until 2005 because of the sheer number of permits that needed to be applied for. A process that also turned out to be more complicated than expected.

Many innovators have a corporate background and are used to developing an idea and putting it rapidly into operation. But making a project operational often takes a lot of time and could require permits. This is why your planning should factor in a longer implementation time. This will ensure its smooth introduction. In our experience, 90% of the plannings are too optimistic. So make sure yours is realistic.

Lesson 8: Know your target group
Design bikes are cool. And often pretty expensive. Raptobike was founded by a guy who is passionate about recumbent cycling. He realised that the price and long delivery time were putting people off buying recumbent bikes. So he developed a successful, far cheaper cycle that focuses on the essentials elements, comfort, and an attractive price. And is deliverable within a week.

This example shows that you need to know your target group and that the parties involved in the decision to take the project further, know what to expect. This is clear from the numerous studies of the People movers project, earlier this century. Everyone was in favour until it was time to pay. The project was scrapped. So what is your market? Do you have a thorough knowledge of the group interested in using your bike shelter or information system? Can you get that across clearly to potential investors?

In short, you need to know who will be taking your project further once it has been developed.

Lesson 9: Timing is everything!
Thirty years after the white bike scheme, the bike share system (or OV-fiets) and various other bike sharing projects sprang up.

Make sure the timing is right for your project. Know your market and your target group. Look at technological developments, too. Ideas that didn't work in the past can be a great success later on. Look at the public bike system.

An idea may be perfect but if the time or the market aren't ready, it's destined for failure. So respond to market demand and make use of new technological advances like the GPS location finder for travel information services.

Lesson 10: Get more support than just the director!
The municipality of Haarlem and companies at the business park Waarderpolder wanted to make the area more accessible. Everything seemed in place but the collective transport option offered by Zero Friction Mobility was underused. Employees simply didn't use it.

Every mobility project fails if there's not social or political interest. It doesn't matter whether it's a government or corporate idea. If a director has no interest in company transport, his employees may think very differently about it. If the plan doesn't have their support, it will fail. And even if a municipal travel department is passionate about a mobility project it doesn't mean it has political and social backing. Is the department indulging in hobbyism or does it really have the wherewithal to see something through? So be clear on any changes in behaviour that may be required, and why. Simply offering a cost-effective plan isn't enough. You need a raft of incentives and disincentives to really make change work.

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ITS: From objective to measure and implementation

CIVITAS – Transport Telematics as building block for sustainable mobility
The CIVITAS Initiative helps cities to test and develop an integrated set of measures for sustainable urban mobility. CIVITAS cities take an integrated planning approach that addresses all modes and forms of transport in cities. They aim to demonstrate that it is possible to ensure a high level of mobility for all citizens, offer a high quality of urban space and protect the environment through sustainable mobility. It is this integrative approach based on innovation, collaboration, research and results-orientation that sets CIVITAS apart.
Within CIVITAS, eight thematic categories of measures have been identified as the basic building blocks of an integrated strategy for sustainable mobility. These building blocks put in place a planning framework, guarantee political involvement and establish partnerships. Each city chooses a set of mobility solutions from these building blocks according to their local priorities. Transport Telematics is one of these building blocks.

Modern transport telematics systems offer opportunities to make urban transport faster, more efficient and to support travellers. Communication technology can help to better coordinate traffic flows with the help of satellite-based applications, global positioning systems, wireless data transmission, automated traffic counting devices, and high-resolution cameras. These new technologies allow transport management for example to give priority to public transport, improve parking management and better enforce road rules. They can also provide passengers with real-time information and mobile guidance.

http://www.civitas-initiative.org/index.php?id=24

Policy Advice Notes – Information Technology Services for traffic control and visualisation. Innovative tools for optimising traffic management (2010)
http://www.civitas-initiative.eu/docs1/CIVITAS_II_Policy_Advice_Notes_12_Traffic_Visualisation_Control.pdf

NICHES+ Innovative Concepts
Within four thematic areas identified as particularly important to face the challenges of urban transport, 12 Innovative Concepts are defined, of which three are related to ITS

Traffic management centres:
• finance models for traffic management centres
• mobile travel information services for the public
• using environmental pollution data in traffic management

http://www.niches-transport.org/index.php?id=97

CONDUITS – Coordination Of Network Descriptors for Urban Intelligent Transport Systems

Intelligent Transportation Systems (ITS) are increasingly being deployed in urban areas as part of the response to the transport issues they face. The services offered range from traffic control through public transport information to travel demand management.

However, as each urban area tends to be autonomous and act in response to its own political pressures, it is very difficult to build a picture across Europe and beyond of how ITS is being used to provide solutions, the scale of deployment and the comparative effectiveness of the implemented solutions. It is important to have this wide picture because it can inform where future investment is needed in research, training and deployment. This information can show where the market is effective, where barriers need to be removed and where the effectiveness of investment can be improved.

CONDUITS is a two-year project with strong city involvement which will develop a number of tools to assist local authorities in making investment decisions on ITS. The project's underline objectives will be achieved through the coordination of research and development activities, so as to gather information on the programmes of cities and research teams, to improve communication, and to define the mutual needs and develop better reciprocal knowledge. In addition, the results are expected to benefit a wider range of ITS stakeholders, including the research community and the ITS industry by:

- showing the most promising areas for urban ITS where research efforts should be directed
- achieving an internationally-recognised standard measure for quantifying benefits, enabling better and faster decision making by policy makers
- stimulating more private high-tech investment by lowering the risk and uncertainty associated with intelligent transport systems

http://www.conduits.eu

Perugia

With a Deep Digh a Deep Dig Into Its Past, Perugia Built an Energy-Saving Future
For *National Geographic News*, published January 26, 2011

http://news.nationalgeographic.com/news/energy/2011/01/110126-perugia-italy-energy-minimetro

Cleaner and better transport in cities

CiViTAS
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Cleaner and better transport in cities

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Monitoring and evaluation of ITS

Guidance on Monitoring, Evaluation and Reporting on ITS Tools
This guidance is designed to make the specification and procurement of ITS tools easier.
In order to do this, experiences and results from actual implementations have been presented.
Evaluation of your ITS tools is useful to:

- Justify National & Local Government expenditure on the projects;
- Demonstrate the benefits of ITS tools (financial, socio-economic and environmental/ecological);
- Demonstrate best value;
- Achievement of policy goals; and
- Increase understanding of the impacts of ITS services.

However, if the results and experiences of authorities are not shared, then time and effort will be wasted and best practice will often not be adopted. This guidance provides assistance and a framework on evaluation which, if used, will enable the enhancement of this guidance through feedback received from authorities.
The guidance provided will ensure that results are easily understandable and comparable.
http://www.dft.gov.uk/itstoolkit/feeding-back-results.htm

Current MIT ITS Research Programs
Intelligent Transportation Systems Program. Current Research Project Descriptions
http://web.mit.edu/its/research.html

Thinking Highways
Thinking Highways is a magazine in the advanced transportation management sector.
Access to the *Thinking Highways* Archive, Organised by Type of ITS System.

http://thinkinghighways.com/Archives/By-subject.aspx?id=bb1b88e5-fc2f-4b16-8a8d-093cdba9b496

Business Transformation: Understanding the Customer
http://new-transit.com/the-magazine/issue-024-september-2011/3/

Giving value to the customer – real value!
Pixie Dust & The Mountain of Mediocrity
http://gapingvoid.com/2011/06/07/pixie-dust-the-mountain-of-mediocrity/

Your customer won't take a bullet for you
http://gapingvoid.com/2011/08/14/your-customer-wont-take-a-bullet-for-you/

How can the ITS Community help this customer - my Mum?
http://www.youtube.com/watch?v=fy5pQL-_gWI
http://www.carfreefamily.com/page/2/