ROADIDEA: Road map for radical innovations in European transport services

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ABSTRACT

ROADIDEA is a collaborative project in the Seventh Framework Programme of the European Union, under Theme Information and Communication technologies. Fourteen partners from eight EU countries take part in the project, which started 1st December 2007 and lasts for 2,5 years. Project innovates in a systematic way new service concepts and improvements to existing transport systems and background models, utilising new kinds of data and data fusion. A road map to a more innovative and competitive European transport service sector will be presented.

Keywords: transport information, mobility services, road conditions, innovation

1. OBJECTIVES

ROADIDEA studies the potential of the European transport service sector for innovations, analysing available data sources, revealing existing problems and bottlenecks, and developing better methods and models to be utilised in service platforms. These will be capable of providing new, innovative transport services for various transport user groups.

1.1 The hypothesis

ROADIDEA argues that effective accessibility to all kinds of useful background information combined with advanced data fusion methods and technological information platforms with high level of standardisation are prerequisites for creation of innovative mobility services. These help in developing better information infrastructures as well as public and private services providing Clean, Safe and Efficient mobility for people and goods.

1.2 The main focus

The hypothesis is verified in Northern, Central and South-Eastern parts of Europe. The differences of the existing transport systems and available data sources are analysed as well as the problems caused by local climate and geography. The main focus for research will be road transport with all its user sectors, but co- and multimodality and other forms of transport will be included.

2. THE WORK PLAN

Work is organised into three main layers:

- *The infrastructure layer*, analysing and developing transport infra-structure, in particular sources and collection of data, development of methods such as data filtering and fusion, and weather and road condition models.
- *The innovation layer*, where new innovative transport service ideas are produced in a systematic way by organising two annual Futures Seminars.
- *The exploitation layer*, including piloting and testing of the new innovations in real service platforms, and evaluating their business potential and user acceptance.

2.1 The infrastructure layer

ROADIDEA will create a concrete information infrastructure in a form of a platform for transport services to work with, having all necessary components and ingredients for value formation and service provision. This system concept is studied as a whole and in detail.

To make the new data sources available for service providers there is a need to have access to the basic information and to develop methods to generate new information using all available data. The methods to be developed utilise a system platform making it possible to have access to wide data sources generated using exclusive methods, such as road weather forecasting models and road congestion models.

2.2 The Innovation layer

In two consecutive cycles, the project innovates in a systematic manner new service concepts and improvements to existing systems and background models, utilising new kinds of data and data fusion techniques. Using user- rather than a technology-centred approach, ideas are screened and evaluated by end-users, leaving the best and most potential ones for further study and development. These key innovations are projected to the existing European transport infrastructure and systems, thus revealing the key development targets and bottlenecks. During the following development phases, barriers for innovations and ways to overcome them are identified.

Table 1 on the next page summarises some key innovation areas, challenges and approaches. The ROADIDEA pilot transport services may arise from some of these topics.

2.3 The exploitation layer

Depending on the results of the innovation process, the most potential service ideas will be chosen for the pilot phase and further development. Examples of such transport services are:

- Localised warnings for dangerous road stretches due to adverse weather conditions
- Travel time and route planning
- Public transport planning and passenger information service

Pilot services will be implemented and tested with real users. Business models for such information services are analysed, developed and assessed. Technology is a means to provide safe, clean and efficient mobility services for people and goods. ICT can make all this reality if and when we have acceptance from the market, i.e. the users.

2.4 The Road map

As the final result, during first half of year 2010, ROADIDEA will present as a public document a road map to a more innovative and competitive European transport service sector, to be utilised by all innovative transport service developers, policy and decision makers.

3. YOUR CONTRIBUTION IS NEEDED

During the 2,5 years lifetime of the project, the ROADIDEA Consortium is screening actively all kinds of ideas for new transport services. The ideas may be good or bad, realistic or unrealistic, comprehensible or absurd, ready to implement with present-day technology or too futuristic to even dream of a pilot in the coming decades. As the intention is also to study truly radical innovations, no limits are given.

Radical innovations are those that were laughed at and undermined when first presented, but eventually they changed the world for good. Are you having such an idea in mind? The very easy way and best place to present it is the ROADIDEA website www.roadidea.eu, where also all public documents and contact information of the project are given.

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Table 1. Initial innovation areas, challenges and approaches of ROADIDEA.

Innovation Areas	**Challenges & Approaches**					
	New technologies	**Inter-operability**	**Products and Services**	**Business Challenge**	**Equality Challenge**	**Sustainability Challenge**
Data collection, aggregation and interchange	Are there new technologies to be applied?	Ensuring data acquisition & interconnectivity	Availability, anticipated uses	What new niches might arise?	Observe young and old, handicapped, men and women	No products and services shall add to climate change! Recycling?
Data processing methodologies	Who, where and when; timing	Collaboration of service providers	Role of service providers	What new niches might arise?	Language problems must be considered	Will there be ICT experts in the future to maintain the services?
Safety: Warnings: c to c c to i roadside	Who, where and when; timing	Critical issue – if not existing should be innovated	Are safety issues taken into account sufficiently already? Collaboration with safety organisations	Observe the state-of-the-art, connect technology products in new ways	If visual or audio displays used, observe equality needs, personal position data problematic	Use of visual and audio alarms dependent on electricity – use of renewable energies important
Forecasting weather, traffic, accidents	Do pursue automation!	Important prerequisite; notice personal data security issues in personal position data processing	Different user groups: research, administrations, police, safety organisations	Service providers need free or low-cost data	Driving cultures vary even inside EU	Data and information could be used for efficient use of roads
Logistics	Controlling mobile goods and people	Collaboration of service providers and users	Available technologies might be used differently	New logistics services may arise	Not relevant	It's necessary to streamline actions!
Transport modes and cross-overs	How to improve moves between transport modes in real-time?	Collaboration of service providers is critical	Totally new insights needed here!	Totally new insights needed here!	Take into account different needs of elderly and other groups	Try to support land transport by rail
Legislation issues	Will there be obstacles on the way when applying new technologies?	Is it possible to ensure interopera-bility without new laws?	EU legislation may have the answer, or then again not!	Is it possible to do business within the existing legislative framework?	Take into account different needs of elderly and others	National legislation should be in line with EU legislation already
Immateriali-sation i.e. pursue knowledge-intensive services	Monitor information technology advancements!	Services should interoperate fully automatically	"Products must abhor paper" – i.e. move bits not paper or disposables!	New approaches are desperately needed here	ICT is still new to many immigrants – do they get necessary services?	Recycling is a must! Rather move bits not goods or people!
End-users: person cars & transport	Human and social restrictions should be appreciated	Critical for end-users: user-friendly interfaces	User-friendly interfaces, personal data security critical	Pursue low-cost, eco-efficiency	Special needs of the elderly ever increasingly	Eco-efficiency wanted!
Foresight visions	Emergent technologies will give new unforeseeable tools	Will remain constantly on the drawing board	Emergent and visionary products and services	Globalisation tilts over to CHINDIA? China+India	Multinational immigration will challenge the visual and audio services	Accelerating climate change – warning functions increasingly important

This table will be in SIRWEC 2008 on the ROADIDEA poster. You may give your opinion with heart stickers. Where would you place your most urgent innovation needs?