



Transport system gets ubiquitous?
Technology services and changing transport policies

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Culture as innovation – The search for creative power in societies and economies

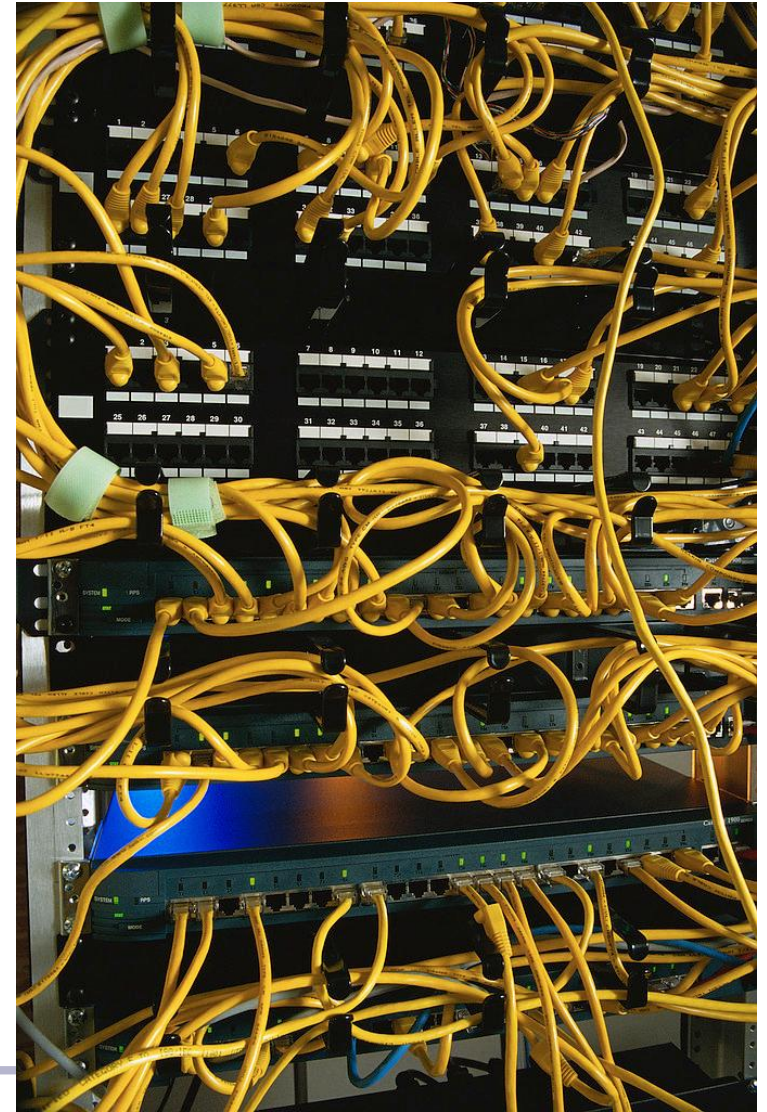
6-8 June 2007, Turku



Background I

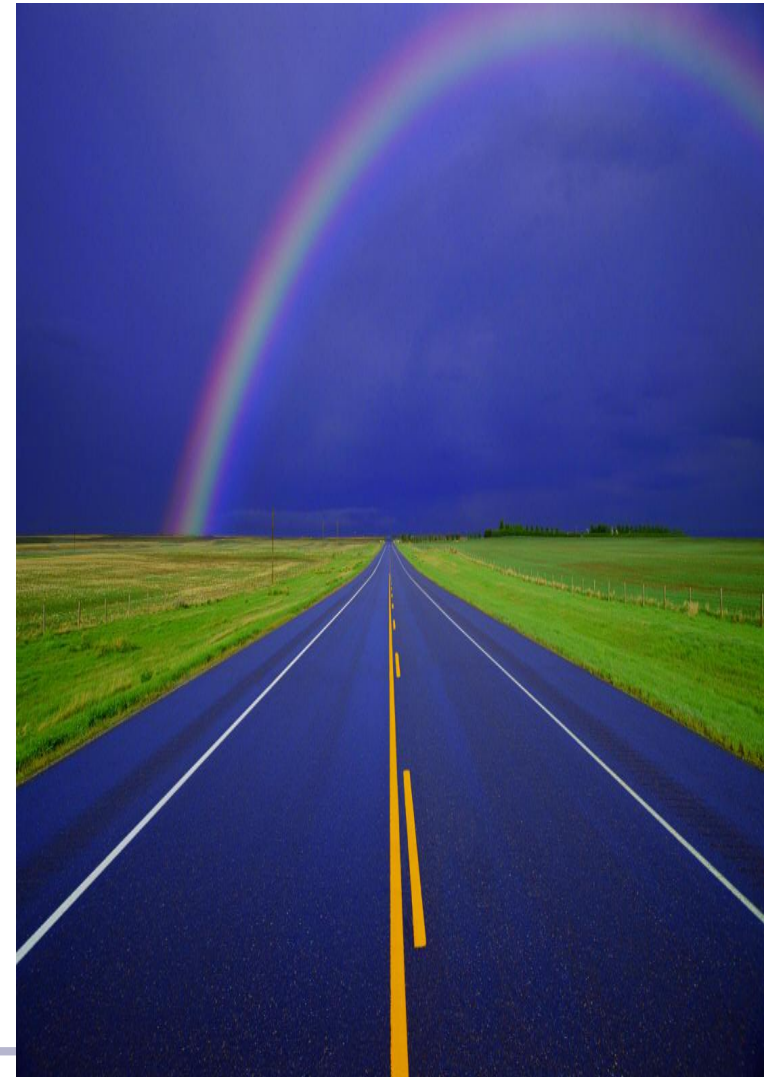
- The ultimate purpose of the transport system is to serve the needs and expectations of the different actors within who in turn shape the system by their own actions
- The system is both socielly constructed and society shaping

“Large technological systems contain messy, complex, problem-solving components. They are both socially constructed and society shaping (Huges 1987)”

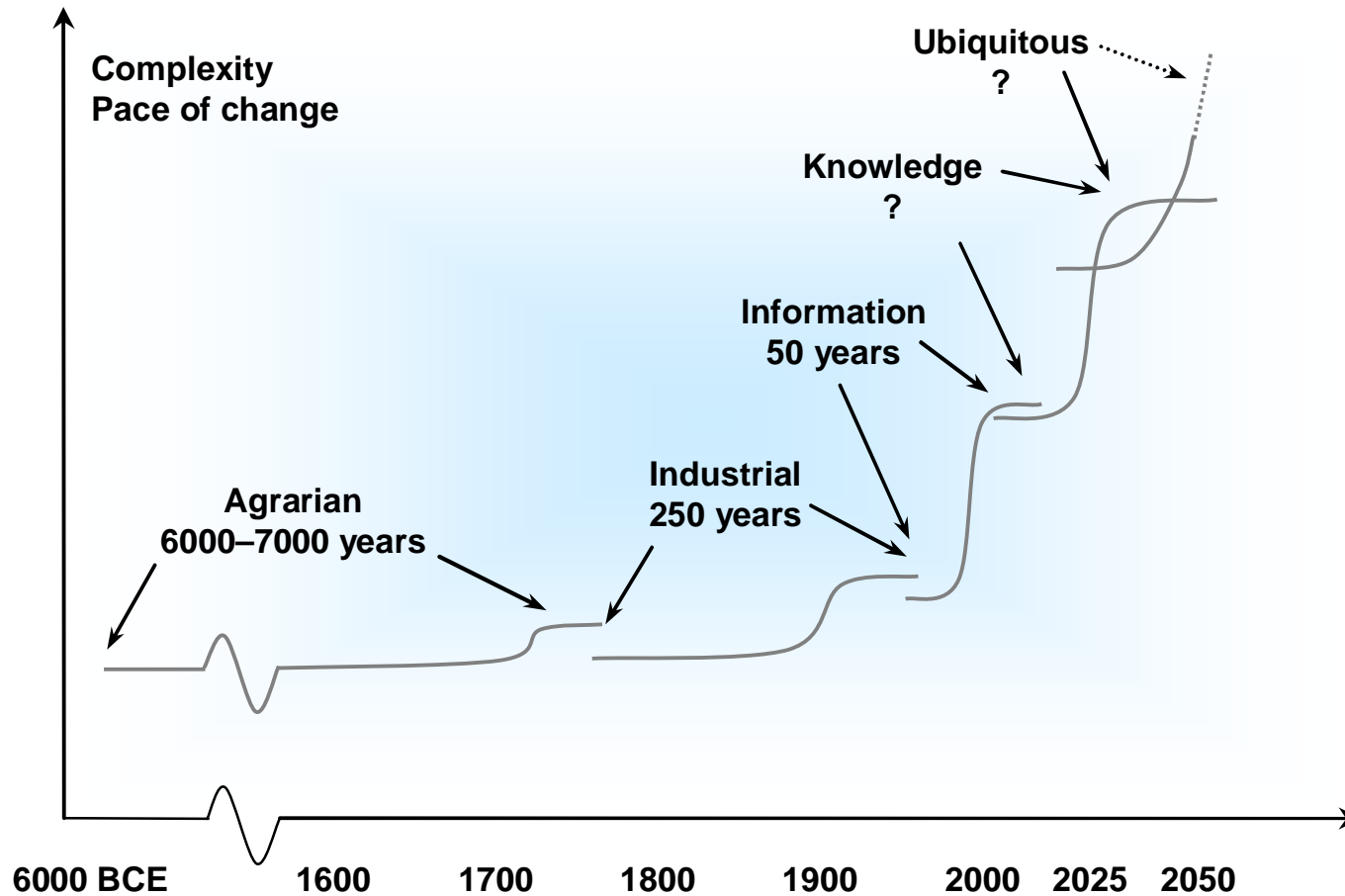


Background II

- Traditionally, transport policy and transport system development has focused largely on transport networks, making the developments very path dependent in nature
- Within the information society, the context for transport policies is about to shift towards development of a complex, technological system, largely depending on ICT technology and applications



Societal framework for the emergence of technologies and services



Societal framework for the emergence of technology services

<i>Societal phase</i>	<i>Socio-technical principles</i>	<i>Logistic/transport principle(s)</i>
Agrarian	Feodal communities; Local agricultural technologies	Utilisation of natural channels
Industrial	Urbanization; Technologies of mass production	Development of basic transport infrastructure
Information (physical infrastructures)	Information economy, regional agglomerations, megacities; Information technology	Combinations of electronic and physical transport
Knowledge (economic sphere)	Global information economy, regional agglomerations, megacities; Information technology as enabling tool and infrastructure in itself	ICT-based management of transport and logistic services
Ubiquitous (realtime and transparent information/knowledge)	Global system (grid), regional polarization; Ubiquitous technologies	<i>Ubiquitous, transparent and tailored technology services</i>

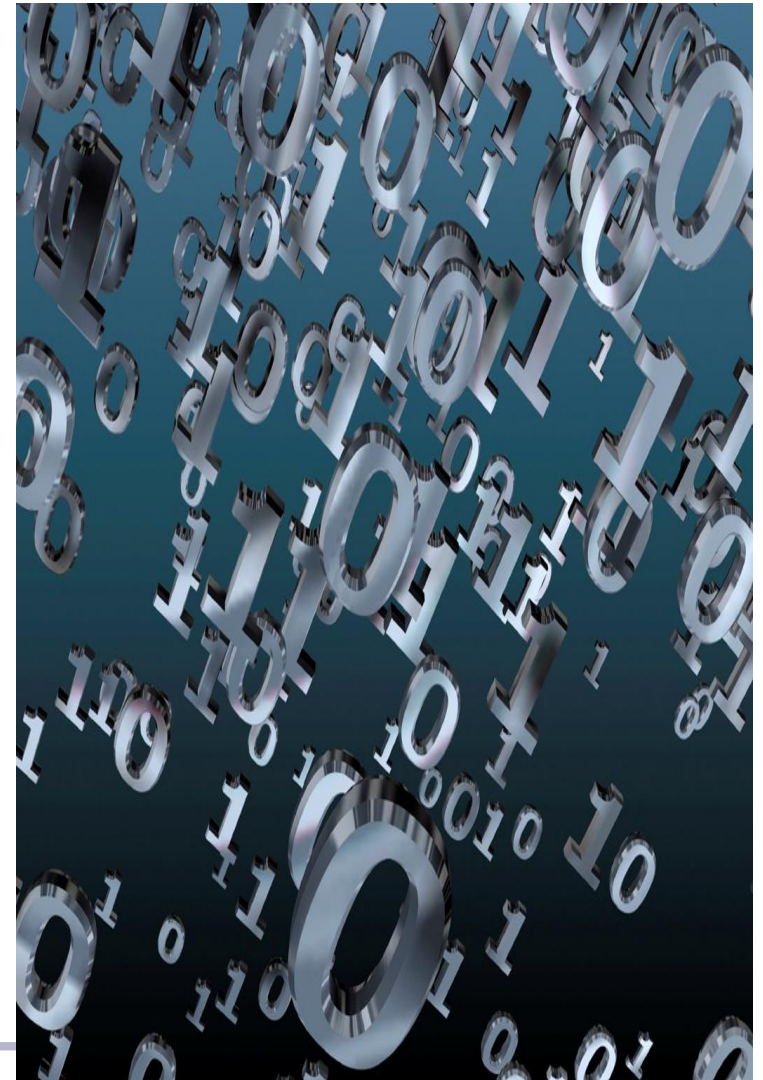
Open questions

- Remembering the path dependent developments of the transport system in the history, what are the challenges we need to face in designing contemporary transport policies on a technological frontier that is moving very quickly?
- What kind of methods could be used to anticipate the transport system future developments and widen the development perspectives?



Some challenges relating to the fast pace of technological development in transport

- The traditionally slow pace and path dependent nature of transport policy design
- The limited understanding of the socio-technical and systemic nature of the transport system as the basis for technology development
- Technological transport innovations giving benefit only if they are integrated in services or transport concepts



The concept of: "transport system technology service"

- A flexible and tailored combination of technologies and services which takes into consideration the travel or transportation preferences, needs and expectations of the different transport system end users and other actors
- An important tool in the new context for understanding the dynamics between the transport system and the different actors within



The concept of: "transport system technology service"

- The emergence brings new challenges to decision makers, businesses, and other societal actors
- The roles of public and private parties in the transport system will intermingle in different ways, new business models and operational practices will arise



Foresight study on: Research directions for future transport service assessments I

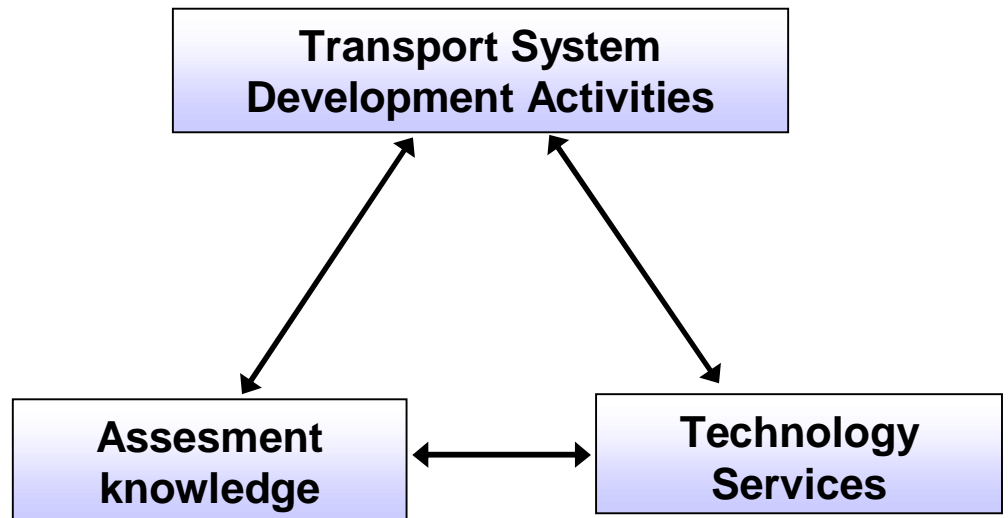
The study was based on a following vision:

Transport system (in Finland) and its technology services are developed so that development decisions are based on the best possible information and knowledge about the impacts the development measures may cause to the effectiveness and functionality of the system, the activities of different transport system users as well as to the environment

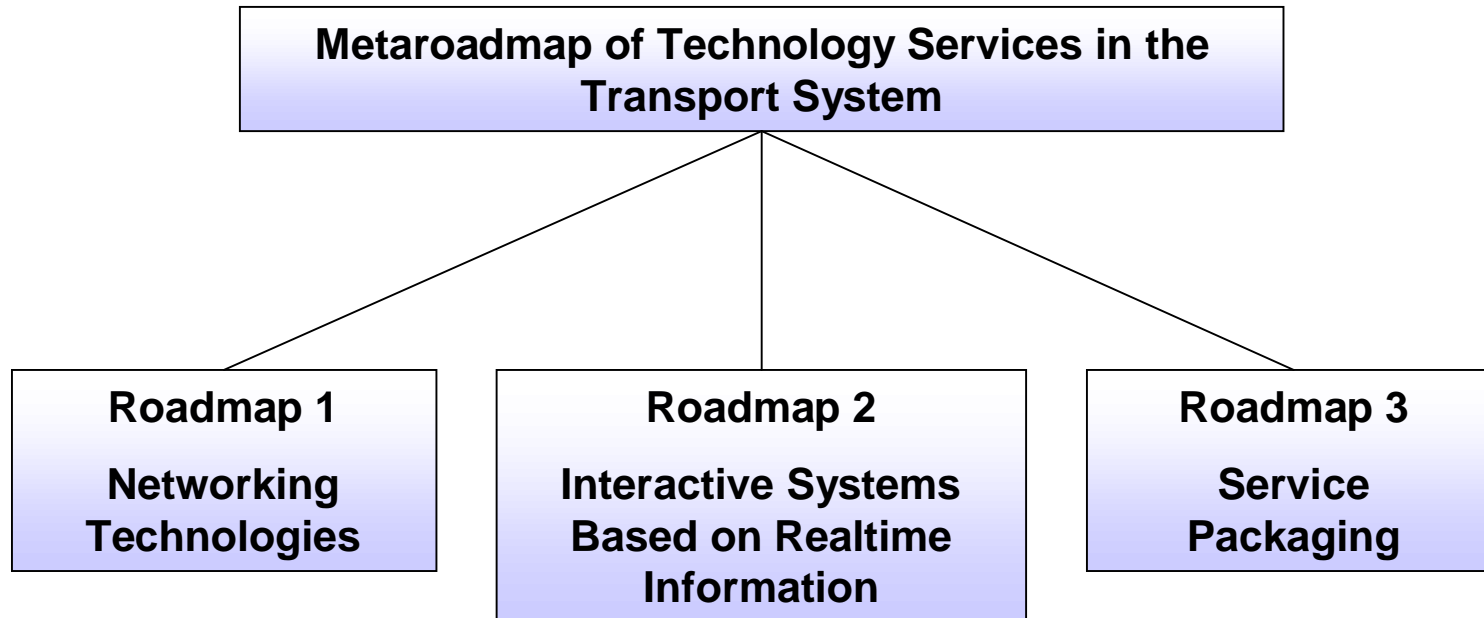


Foresight study on: Research directions for future transport service assessments II

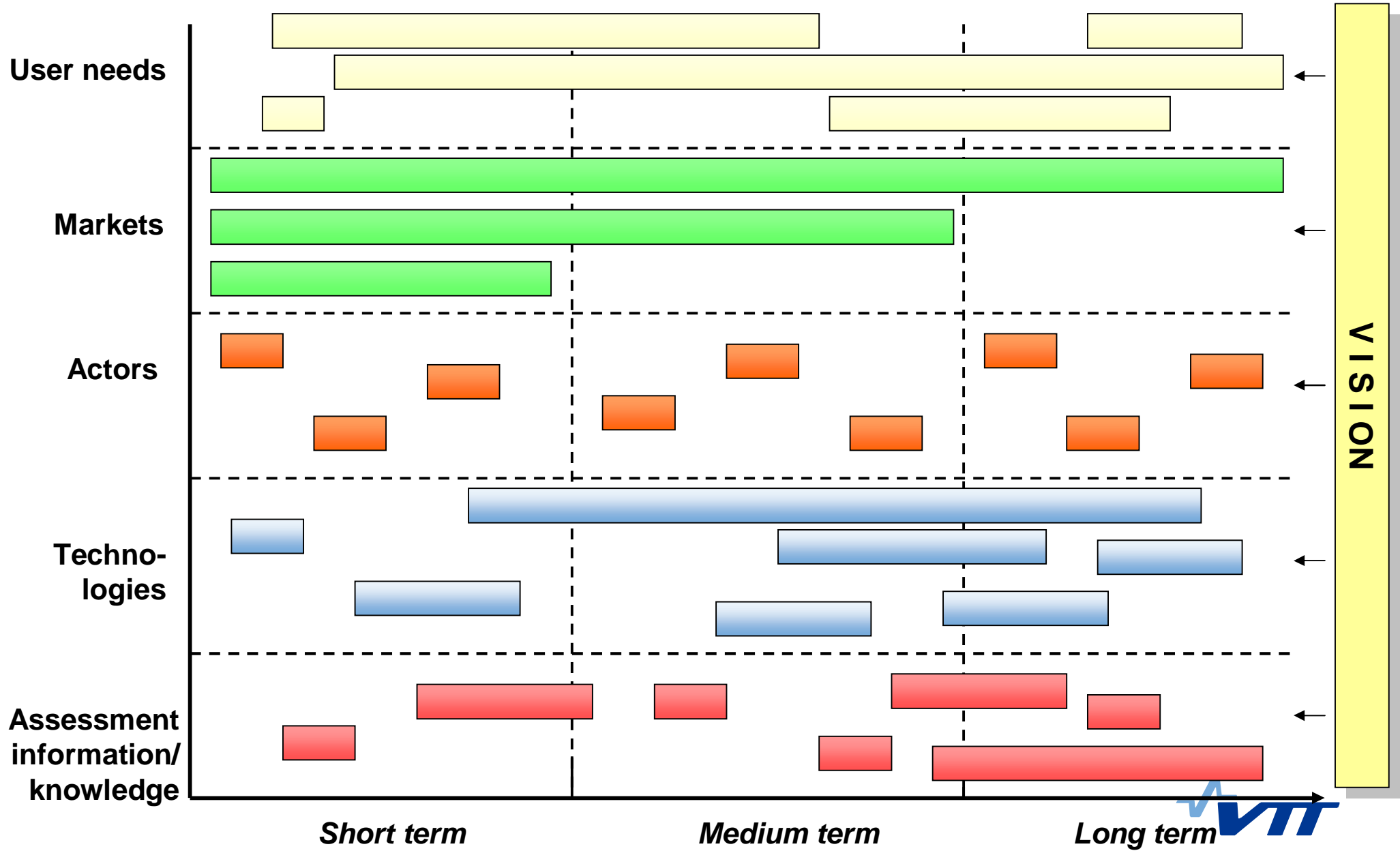
- The timeframe: up to 2020
- The study produced visionary roadmaps of the potential transport system technology services and assessment knowledge needed in their development



Structure of the roadmaps in the study



Generic roadmap

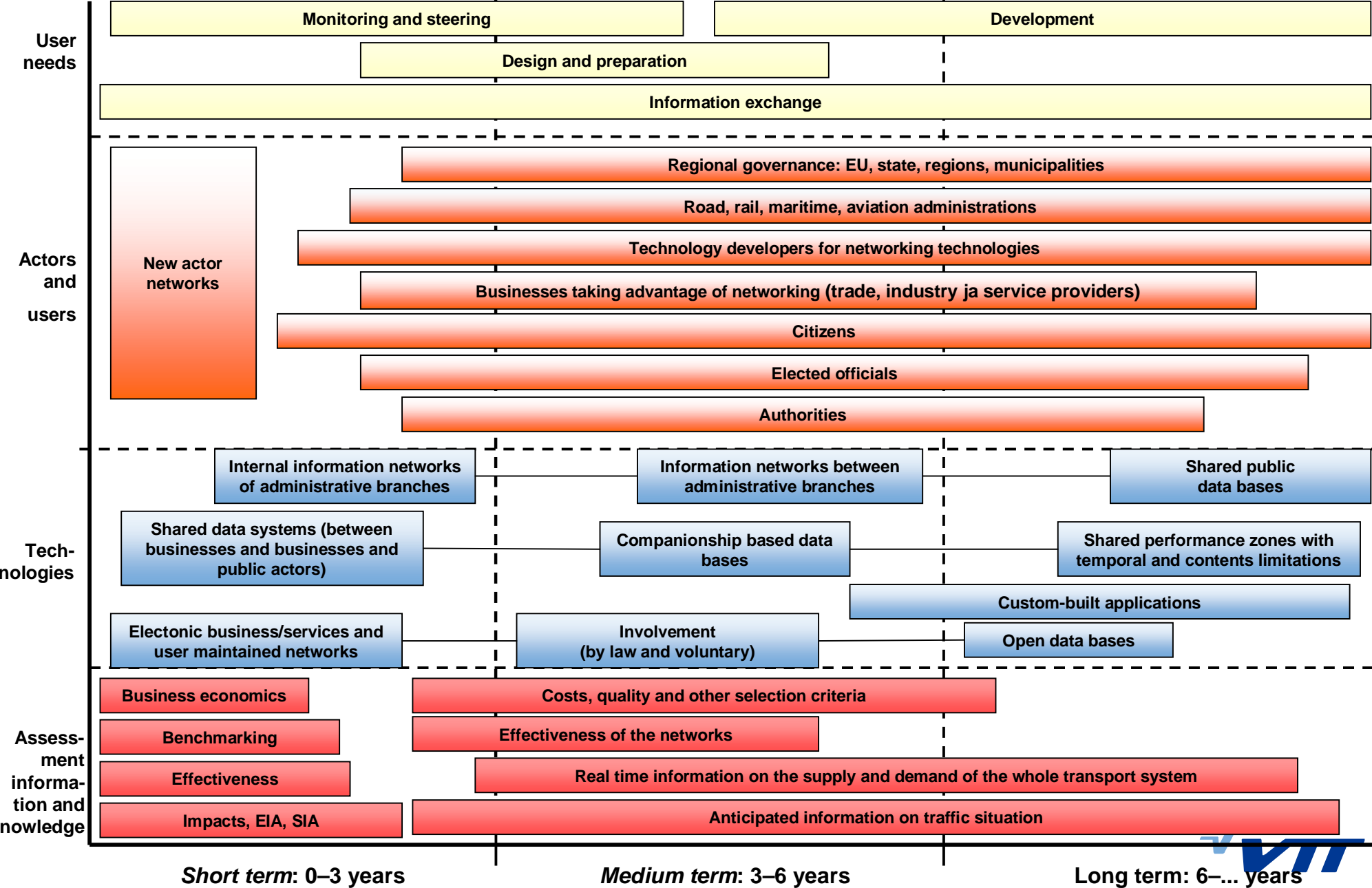


Roadmap 1: Networking technologies

Presents tools and forms of co-operation needed to bring the assessment knowledge accessible to the different actors in all stages of the different innovation processes within the transport system development.



Roadmap: Networking technologies

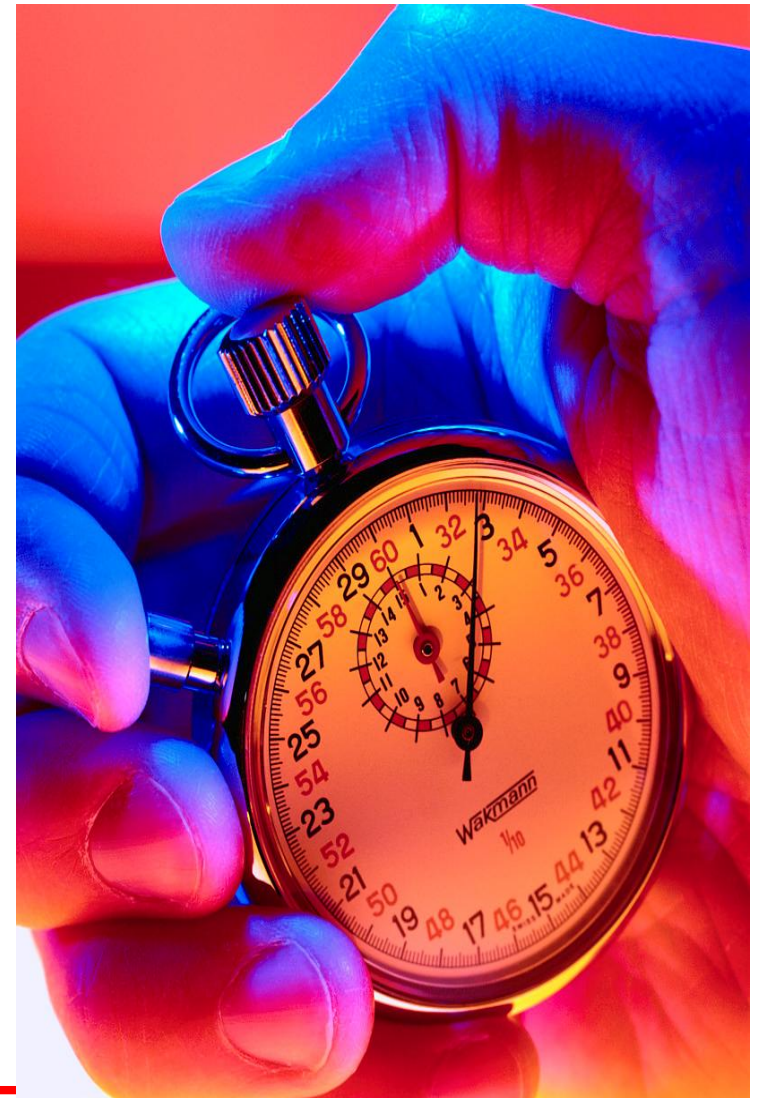


VISIO : Usability and integration of assessment knowledge

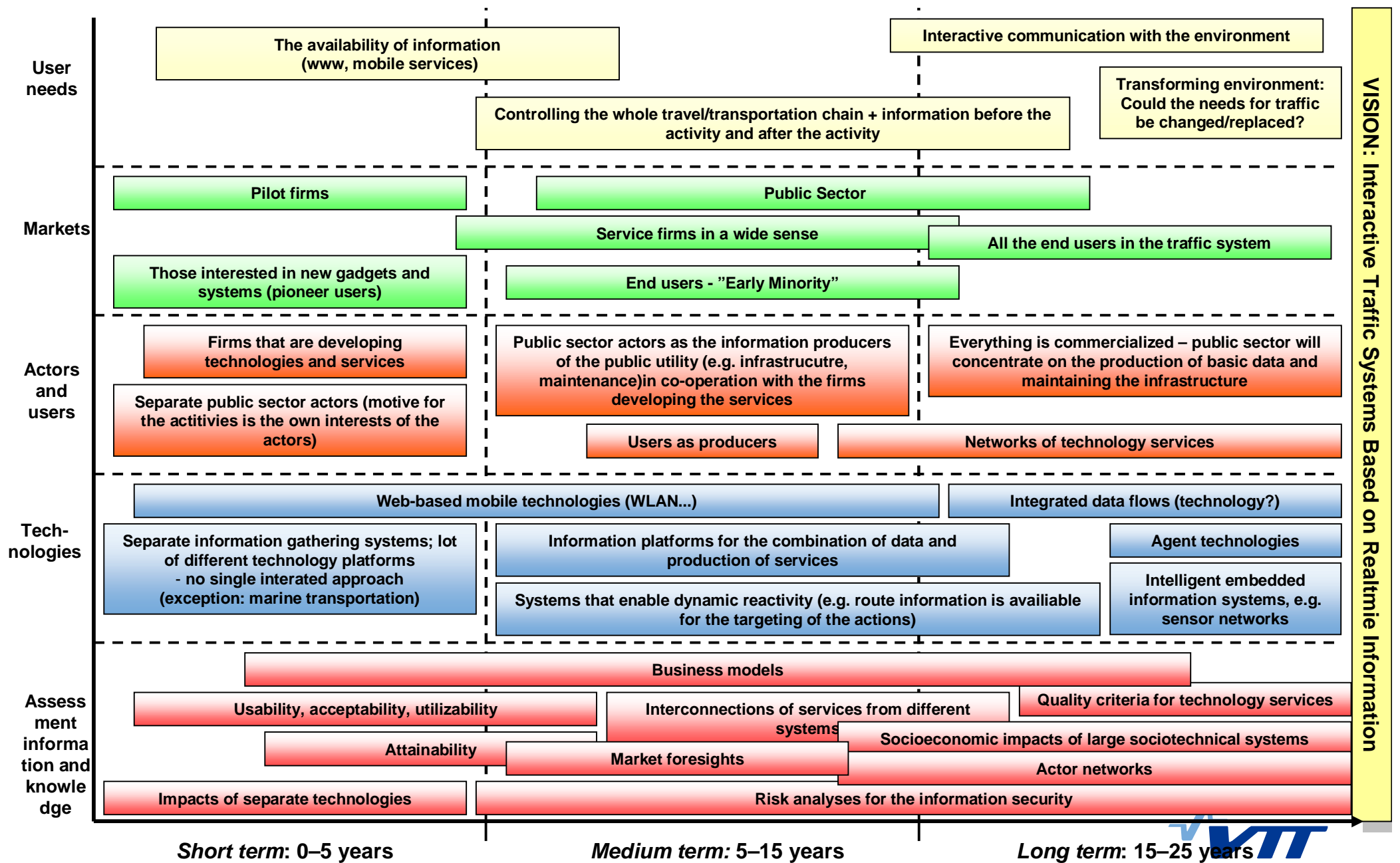


Roadmap 2: Real time information based interactive systems

Presents technological complexes, by which transport system actors have a constant access (through vehicles or mobile devices) to the real time information about the traveling/transport possibilities the system can offer



Road map: Interactive Systems Based on Real time Information

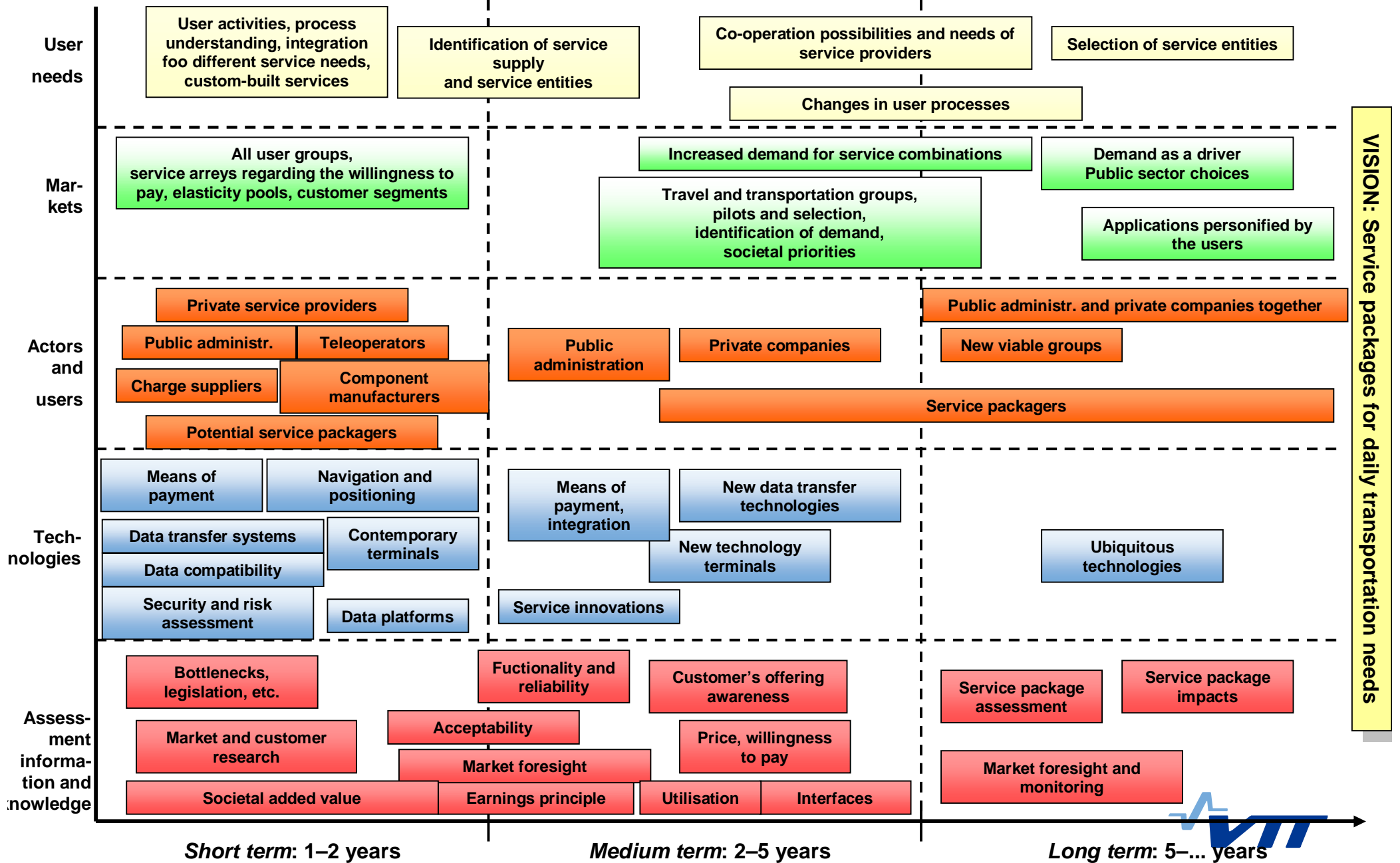


Roadmap 3: Service packaging

Helps the transport system users to create a selection of individual technology services to assist in travelling or transportation but also in other sectors of life in which transport is included as a part of the overall service.



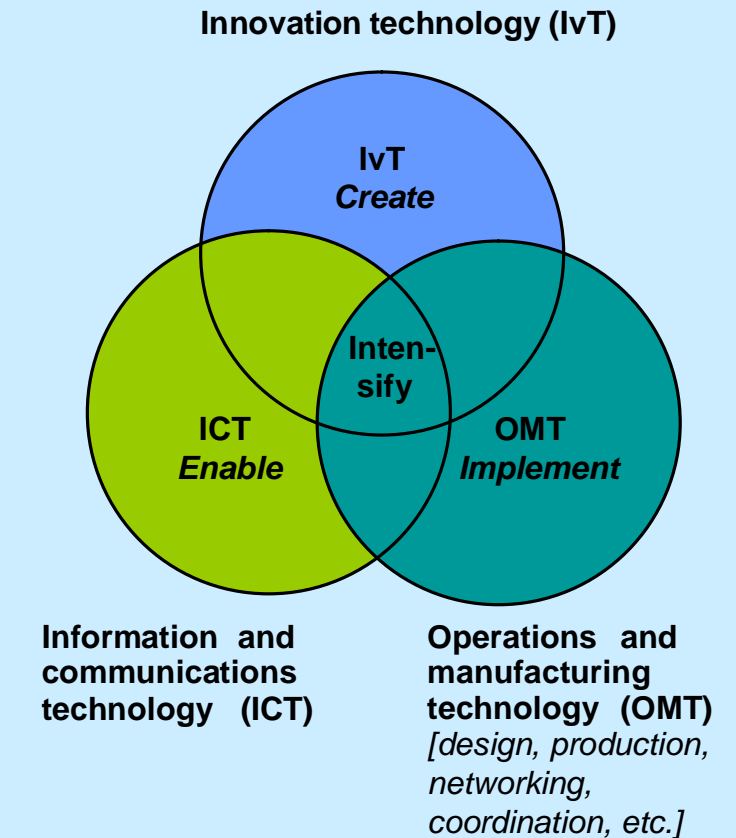
Roadmap: Service packaging



Conclusions I

Roadmapping method was successful in identifying the assessment methods and knowledge (= creative innovation technologies) needed to develop successful and accepted technology services for transport

Dodgson, M., Gann, D. and Salter, A. (2005):
THINK, PLAY, DO Technology, innovation, and organization



Conclusions II

Each of the roadmaps presents a perspective which is equally important in developing creative and acceptable technology services:

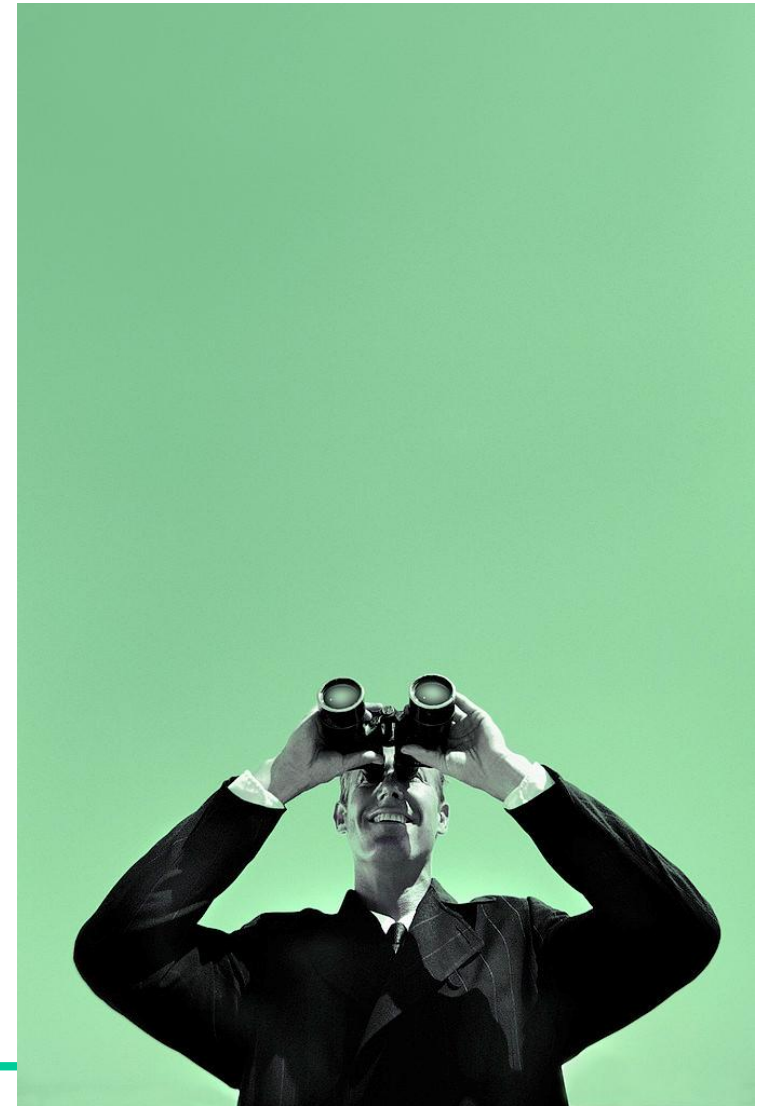
- Networking technologies will create settings for the service development
- Real time information based interactive systems will offer the information, produced by new technologies to the end-users in a suitable form
- Service packaging will help in implementing necessary, user friendly technology services



Conclusions III

The roadmaps may foster the creativeness within the traditional transport system by:

- Shedding light to the use of social constructions of the transport system as the knowledge base for technological development
- Connecting different actors to bring technology and policy developments closer together and to gain mutual benefits
- Integrating transport technologies into services concepts
- Highlighting the assessment knowledge needed to develop accepted services



Thank you for listening!

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