

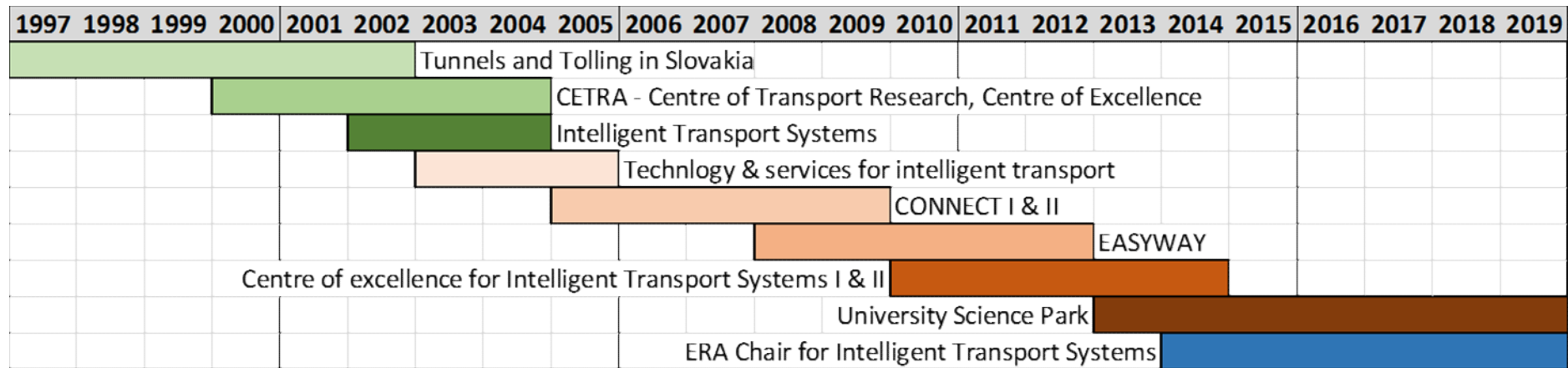


University of Žilina

- **1953 established as College of Railway Transport** by separation from the Czech Technical University in Prague
- **1959** name changed to **College of Transport**
- **1960** relocation to Žilina
- **1980 University of Transport and Communications**
- **1996 University of Žilina**



Transport Activities in EU projects



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Important EU Projects

- ITRANSNET (2002-2005) <http://www.intransnet.org>
- CETRA (2000-2004)
- SurfTran (2004-2006)
- EURNEX (2004-2008) <http://www.eurnex.net>
- EURO-TRANS_Days (2006-2008)
- USTIR (2008-2010)
- Star-net Transport (2008-2010)



ERAdiate



The ERAdiate Project



Enhancing Research and innovation dimension of the University of Zilina in intelligent transport systems





Project Highlights

- 11 ERA Chairs granted out of 111 applications
- Project volume > 2.5 million € (5 years)
- Contribution to
 - Excellent research
 - Enhanced competitiveness
 - Growth and jobs in line with regional innovation strategies



Tasks of ERA Chair

- Scientific work & publications
- Development of international contacts and cooperation
- Workshop & conference organization
- Outreach to global & regional partners
- Support in ITS deployment
- Cooperation projects with Industry
- Advice to decision makers / Consultancy
- Transfer of best practices
(e.g. Electronic Tolling, Smart Cities, ...)



Research Focus

- Cooperative and complex systems
- SMART solutions
 - Smart & Liveable Cities
 - Access
 - Pricing
- Decarbonisation of mobility / eMobility
- Business models for ITS and ICT
- Inclusive mobility
- Societal effects of ITS deployment



Applied Research

- Decision support (political / commercial)
- Key Performance Indicators & SLAs
- Big Data / Open Data
- Interoperability
- System Architecture
- Roles & responsibilities
- Usability / HMI / distraction
- Data protection and privacy
- Liability issues



Global Trends

Energy Consumption & Climate Change

Mobility = Freedom

Urbanization

- 1900: 13% in cities = 220 million inhabitants
- 1950: 30%
- 2007: 50%
- 2030: 60% in cities = 5 billion inhabitants
- 2050: 70%

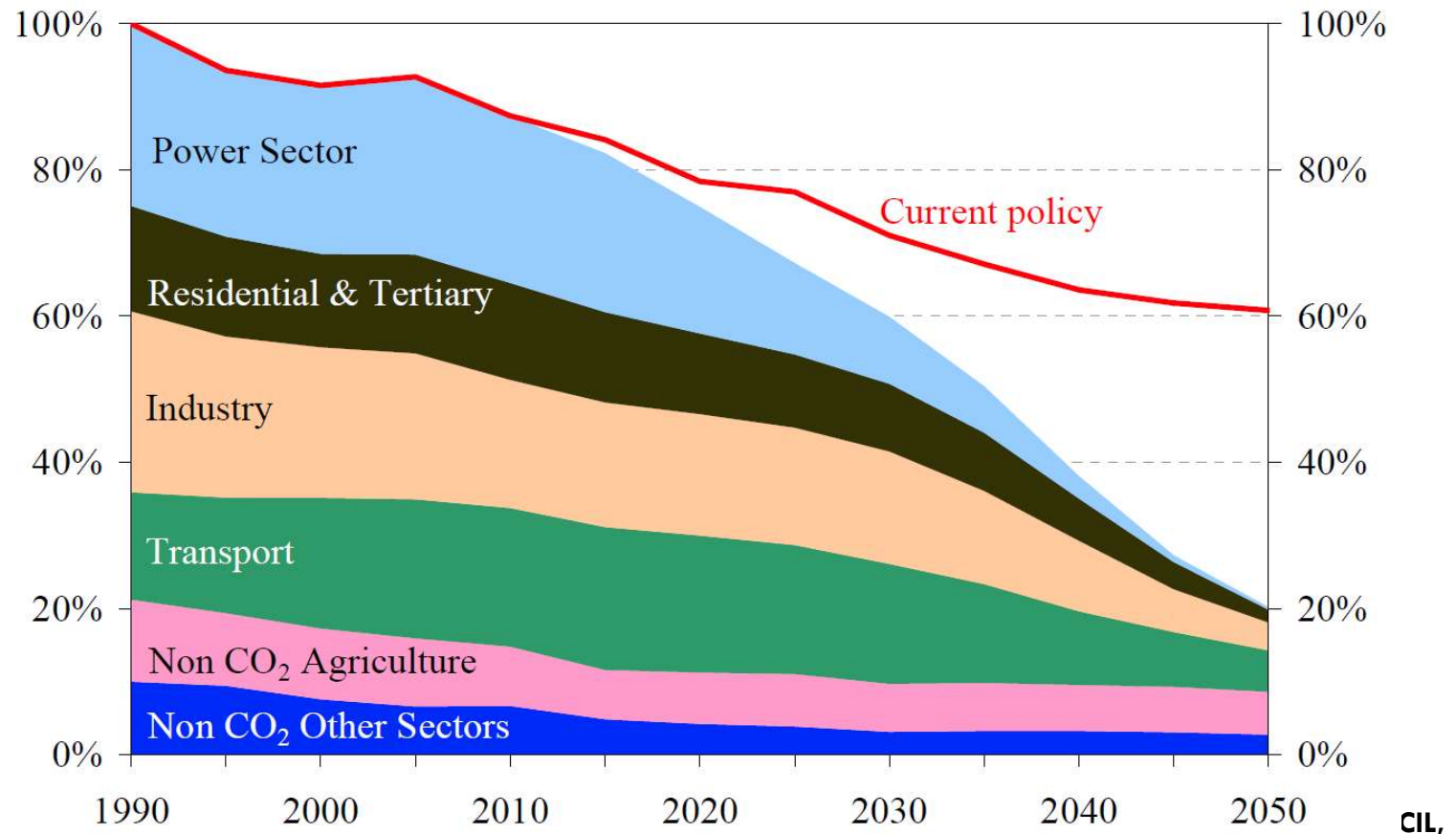
Megacities vs. Rural Areas

- 63 cities > 3 million inhabitants



EU – Energy Roadmap 2050

Figure 1: EU GHG emissions towards an 80% domestic reduction (100% =1990)



CIL,
THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A Roadmap for moving to a competitive low carbon economy in 2050

Brussels, 8.3.2011 - COM(2011) 112 final

[http://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com\(2011\)0112_/com_com\(2011\)0112_en.pdf](http://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com(2011)0112_/com_com(2011)0112_en.pdf)



Challenges for the 21st Century

■ Mobility

- EU: Compromises on the quality of mobility are not an option
- Inclusive mobility for the informed citizen
- Optimized city logistics including last mile transport and removal of waste
- ❖ Sustainable Urban Mobility Plans (SUMPs) consider the functional urban area based on a wider urban and territorial strategy
- ❖ Cleaner and more sustainable transport modes, such as walking, cycling, public transport
- ❖ New patterns for car use and ownership



Challenges for the 21st Century

■ Energy

- Sustainability & energy saving
 - Decarbonisation
 - Avoiding of air pollution
 - Smart meters and awareness
 - Cost saving
-
- ❖ Electrical networks become bidirectional due to distributed renewable power sources
 - ❖ Pollution & climate change are becoming visible
 - ❖ Electrical vehicles contribute to better air quality in cities and have their CO₂-emissions elsewhere (if any)



Challenges for the 21st Century

■ Networks

- Managing information & communication
 - Supplying electrical energy
 - Supplying heat
 - Supplying cooling
 - Removing waste water
- ❖ Price for infrastructure services increases faster than economic growth
 - ❖ Effective management of the infrastructure
 - ❖ Behavioral changes of the informed users



Challenges for the 21st Century

- ICT and applications
 - Creating the connected world
 - Applications available for any purpose
 - Internet of Things
 - Big Data / Open Data
- ❖ Usability has to be improved
- ❖ Value of information is accepted only when aggregated, processed, refined, and validated
- ❖ PROVIDING INFORMATION IS A SOCIETAL TASK OF HIGH IMPACT! It contributes to an inclusive and livable world



Challenges for the 21st Century

■ Smart citizens

- The education of citizens how to use their city may be more effective with gamification replacing teaching in schools
- Improvements in quality of life and convenience are more important than technology for the sake of itself.
- Solutions requiring activity from citizens have to care for usability
- Awareness for environmental effects and cost-saving will be important drivers for applications in smart cities.

❖ **Each City is unique and shall be livable**



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= good decisions =

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Thank you for your attention!

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