



ERAdiate

Enhancing Research and innovAtion dimensions of the University of Žilina in intelligent transport systems

ERAdiate is the first project funded by the European Commission to establish an ERA Chair for Intelligent Transport Systems (ITS).

This lighthouse-project shall contribute to scientific excellence in ITS and support regional innovation strategies fostering economic and social development.



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The ERA Chair Holder

Dr. Karl Ernst Ambrosch has been selected to be the ERA Chair Holder for ITS at the University of Žilina (UNIZA) end of 2014. In 2015 he started to set up a team of internationally known experts.



He is contributing to the international standardisation of Intelligent Transport Systems and he is the convenor of the Austrian standardisation committee for ITS, mirroring CEN TC278 and ISO TC204.

At UNIZA Dr. Ambrosch started regional and international research cooperation. He and his team are contributing to competitive projects with research organisations, SMEs, and industry. In addition they offer their expertise to industrial partners and governmental bodies, being regional, national, or European.

“ERAdiate is developing significant ITS topics with international recognition and creates a recognized footprint”

ERAdiate focuses on societal challenges, political goals, long term strategies, sustainable solutions, technological and societal development to determine future “market demand”.

The relevant fields in research and innovation (R&I) for the ERA Chair are:

1. Co-operative ITS
2. Decarbonisation of Mobility
3. Urban Mobility / Smart City
4. Intermodal ITS

Impacts of ERAdiate:

- stimulating of the research potential in ITS
- transnational co-operation
- participation of UNIZA in European research and development programs
- intensive national and international cooperation with stakeholders
- setting of standards in ITS
- enhanced interaction with regional and national authorities in designing and implementing research and innovation strategies and policies for the SMART specialization
- direct contribution to regional and national development plans
- effective contribution to the regional economic and social development

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decarbonisation of transport as a key issue.

Co-operative ITS

After a decade of technological basic research, fact finding and feasibility studies, C-ITS (co-operative ITS) is picking up speed. Both, the US DoT as well as the European Commission pave the way to co-operated driving or even autonomous driving. Industry is investing into R&D more than ever within this field.

The ERAdiate topics are such as:

- eCall implementation
- Communication
 - Ad hoc networks
 - Efficient communication
 - Security & trust
 - LTE implementation
- Applications (mainly safety related)
- Standardisation – CEN & ETSI
- Localisation
 - Relative positioning
 - Trajectorial analysis
- Local Dynamic Maps (LDM)
 - Static map & dynamic information

Decarbonisation of Mobility

The greenhouse gas mitigation policy sees the decarbonisation of transport as a key issue.

The ERAdiate topics are as follows:

- eMobility
 - Use of EV, infrastructure & procedures
 - Simulation, mathematical modelling
 - Pricing models
- Indicators on GHG
- Modal shift & shared Mobility

Urban Mobility / Smart City

70% of all Europeans live in cities. Urban mobility is already a deciding factor for quality of life and prosperity. Consequentially, ITS is increasingly tackling urban mobility, covering all modes of transportation including active forms of mobility. The traditional mode-centric approach fails in urban mobility while new aspects such as customer care, user needs and door-to-door become key.

The ERAdiate topics to follow are:

- Urban Mobility Indicators
 - GHG
 - Safety
 - Connectivity
 - Inclusion
- Sensor networks & traffic management
- Incident detection & classification
- Urban logistics & last mile delivery

Intermodal ITS

Intermodal mobility is increasingly understood as a service but as the sheer provision of seamless mobility options. This path introduces the user, his needs and behaviour as a complex parameter to tackle; nevertheless, this path is key on the way to sustainable mobility. Scientific work is yet to be carried out in order to create (technology oriented) services that are in a position to change mobility behaviour towards a high quality issue that is consuming less resources.

The ERAdiate topics are:

- Modal shift & shared mobility
- Modelling & Simulation
- Shift Elasticity
- Mobility as a Service (MaaS)
- Big Data
- Sustainable Urban Mobility Plans

Core Topics

Core topics are cross-cutting and have a strong relation to more than one R&I field. They have a common methodology, technology, or scientific basis.

The ERAdiate core topics are:

Mobility Indicators

The particular goal of mobility indicators is to assess the performance of services, such as mobility service operation, or the effects of measures for the sake of quality of life such as road safety enhancement, noise, pollutants or greenhouse gas mitigation. The role is to identify the actual state or the progress related to a past state. Little research has been undertaken so far, the European Commission started calling expertise in order to tackle this recognized key topic.

Sustainable Urban Mobility

The idea of SUMP is a structured approach that regulates all stages from the idea to the implementation in a way that ensures quality, completeness and sustainability. In the meanwhile, tools are available and planners are taking it up into their planning routine. Nevertheless, the guidelines give little help on which priorities to emphasize. This is particularly relevant if a CEEC-style version of the proven Western-European references has to be generated. The experience from numerous SUMP applications have to be translated to the regional CEEC context based on scientific knowledge.

Autonomous Driving

We focus on systematic requirements in this field, like optimisation of communication, influence of the infrastructure, safety aspects, reliability, privacy, expectations and behaviour of citizens, effects of mixed population, interaction of systems, and more.