



Conférence Européenne
des Directeurs des Routes
Conference of European
Directors of Roads

X-ARA

Cross-Asset-Risk-Assessment

Research project funded under the CEDR Transnational Road Research Programme
CEDR Call 2013: Ageing Infrastructure Management - Understanding Risk Factors

CEDR Call 2013: Ageing Infrastructure Management is a Transnational Road Research Programme organised by CEDR (Conference of European Directors of Roads). The funding partners for this programme are Denmark, Germany, Ireland, Netherlands, UK and Slovenia

Details	
Acronym:	X-ARA
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Budget:	EUR379.9k
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Project Summary:

The main objective of the project “X-ARA – Cross-Asset-Risk-Assessment” is the development of a comprehensive risk assessment framework including a set of guidelines and a practical software tool (X-ARA risk tool) for the network level assessment of asset risks and impacts. Our approach will take into account the requirements and needs of different stakeholders, considered in an initial desk study, and we will focus on delivering a working model fit for use by National Road Administrations around Europe. The project builds on earlier European projects, including aspects of the ERA-NET ROAD 2010 Asset Management Programme, as well as drawing on the direct experience of operational asset managing organisations. Our Team comprises a unique blend of experience from research, academia, and private sector experts and asset operators.

The resulting model will take into account high-level external variable factors affecting the different assets in an ageing road infrastructure, such as:

- Climate Change
- Funding/politics
- Macro-economic factors
- Asset performance
- Demand (traffic)
- Social factors

It includes the framework for the necessary input parameters (indicators), the definition of sub-risks and cumulated risks (in form of risk factors) and the procedures to implement the solution on a road infrastructure network. We relate all our research to the ‘real world’ by the use of a Reference Project drawn upon NRA data, but the output methodology and model are generic and adaptable by different NRAs, under the auspices of CEDR, using their own local data and parameters. The assets themselves as well the economic, geographic and social factors differ in each country so it will always be necessary for each country to calibrate the risk model to its own environment, using guidelines which we will provide.

X-ARA will enable an NRA to execute a risk-based assessment and comparison of different maintenance strategies at a network level, and then ‘overlay’ the effects of broad influencing factors to assess ‘what if’ outcomes, in the medium to longer term. To produce a reliable highlevel model, we believe it is necessary to consider a bottom-up approach (using real data) that can be used to measure sub-risks, as well the high-level top-down influences. The XARA risk tool needs to be based on real, available and affordable data, and the software will be independent of any proprietary database or software platform. We consider the risk-specific effects on safety, operation, and traffic, of high- to low- or non-coordinated maintenance activities but exclude new construction programmes (schemes). An NRA will be able to examine a worst case/best case set of scenarios for their own environment and socio/political situation, and consider the implications on funding as well as economic and social outcomes for stakeholders, while meeting the requirements of environmental and other legislation.

X-ARA has the potential to aid an NRA to provide better prognosis of risk against different funding scenarios, and thus will be a powerful tool when juggling ever-reduced budgets against ever-increased demand and uncertainty. It adds real value to existing asset data, is capable of further exploitation across CEDR member countries and gives transnational benefits by providing a common framework for assessing risk which can be configured for each country location.