

MAIN LINE

The objective of MAINLINE is to develop methods and tools contributing to an improved railway system by taking into consideration the whole life of specific infrastructure – tunnels, bridges, track, switches, earthworks and retaining walls



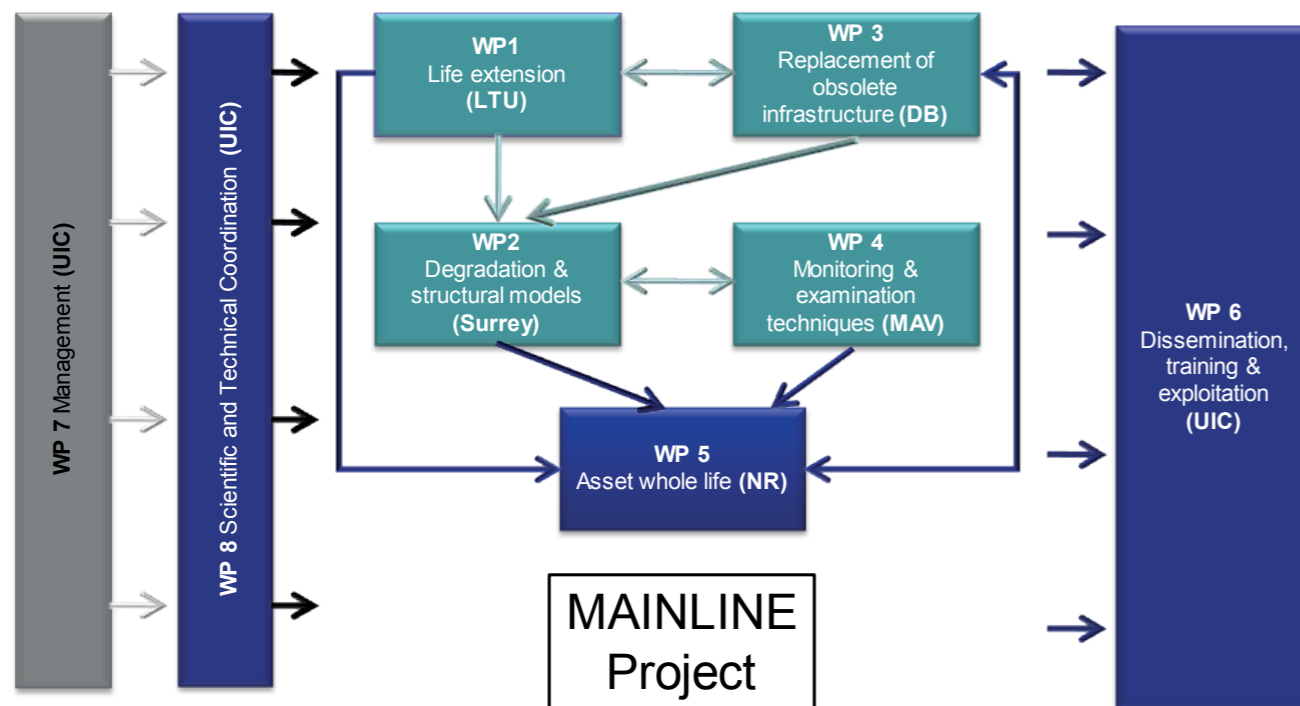
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THE IDEA BEHIND THE MAINLINE PROJECT

MAINLINE WILL:

- » facilitate the utilisation of improved assessment and life extension without increasing risk,
- » improve existing knowledge on damage and deterioration mechanisms in order to reduce significantly their effect on asset performance,
- » identify and implement new cost effective replacement/renewal construction methods and logistics
- » identify and compare new surveying and monitoring technologies
- » develop methods to determine the whole life environmental and economic impact.

The project will also draw on the considerable progress made regarding the maintenance and renewal of both track (INNOTRACK) and bridge assets (Sustainable Bridges) within recently completed European projects, and will also benefit from partners' expertise in other infrastructure networks, such as energy, and relevant industry sectors.



STARTING DATE: 1st October 2011

TERM: 3 Years

PARTNERS: The MAINLINE consortium brings together key partners from both the Sustainable Bridges and INNOTRACK projects, together with new partners with specialist knowledge of the railway assets, degradation mechanisms and environmental impacts.

BUDGET: A total Budget of 4.5 M€ and a funding support of 2.9 M€ from the European Commission 7th Framework Programme.



LIFE EXTENSION OF ELDERLY INFRASTRUCTURE

The main objective is to apply new technologies to extend the life of existing rail infrastructure. The solutions should be both cost effective and minimize the necessary traffic interruption. Costs (direct and indirect) and the effect to the service life/durability will be described.

DEGRADATION AND STRUCTURAL MODELS FOR WHOLE LIFE COST AND LIFE CYCLE ANALYSIS

The idea is to develop improved models for time-varying performance (e.g. serviceability and safety) profiles of selected asset types, including the effect of maintenance and repair/strengthening activities. The models will account for both engineering and environmental impacts, and will link into assessment and examination procedures.

REPLACEMENT OF OBSOLETE INFRASTRUCTURE - NEW CONSTRUCTION METHODS AND LOGISTICS

The main objective is to consider planning and optimization of construction processes in asset maintenance, repair and upgrading, but also in situations where replacement of an existing asset is a viable (or preferable) alternative. This is expected to take into account construction time and logistics, short- and long-term impact on the network, future maintenance issues as well as environmental aspects such as emissions of greenhouse gases from temporary transport services. This part is focusing on Bridges and Switches & Crossings.

MONITORING AND EXAMINATION TECHNIQUES

The main objective is to look at what inputs the degradation models may require and benefit from structural health monitoring systems and detailed examination techniques and how these can be obtained in the most cost-effective and reliable way such that Structural Health Monitoring and the degradation models can form a part of an integrated asset life management system.

WHOLE LIFE ENVIRONMENTAL AND ECONOMIC ASSET MANAGEMENT

The idea is to develop a tool (life Cycle Assessment - LCAT) that works with existing widely used asset management tools to assess whole life environmental and economic impact from track and infrastructure maintenance and renewal activities. This activity brings together the outcomes of all previous work packages into an integrated innovative decision support tool that can be used to serve client needs in order to maximize benefits for the European rail transport network.



PARTNERS

The 19 partners of MAINLINE have been chosen to bring a mix of competencies and experiences into the consortium as well as to ensure a suitable geographical coverage across Europe (11 countries are represented):

INFRASTRUCTURE MANAGERS:

- » The International Union of Railways (UIC), France;
- » Network Rail Infrastructure Limited, United Kingdom;
- » Deutsche Bahn, Germany;
- » MÁV Magyar Államvasutak, Hungary;
- » TCDD, Turkey;
- » TRAFIKVERKET, Sweden

INDUSTRY PARTNERS:

- » COWI, Denmark;
- » TWI, United Kingdom;
- » COMSA, Spain;
- » SKANSKA, Czech Republic;
- » Sinclair Knight Merz (SKM), United Kingdom

UNIVERSITIES:

- » University of Surrey, United Kingdom;
- » University of Minho, Portugal;
- » University of Luleå, Sweden;
- » Polytechnic University of Catalonia, Spain;
- » Graz University of Technology, Austria



SMEs:

- » ARTTIC, France;
- » DAMILL, Sweden

A GOVERNMENTAL ORGANISATION:

- » SETRA, France.

CONTACTS

MAINLINE PROJECT COORDINATOR

Björn Paulsson, Senior Adviser

UIC / TRAFIKVERKET

Phone: +46 70 72 45 620

E-mail: bjorn.paulsson@trafikverket.se

MAINLINE PROJECT OFFICE

ARTTIC

58 A rue du dessous des Berges 75013 Paris

FRANCE

Phone: +33 (0)1 53 94 54 88

E-mail: mainline-team@eurtd.com