



AUTOMAIN

Augmented Usage of Track by Optimisation of Maintenance, Allocation and Inspection of railway Networks



www.automain.eu

A Joint Research Project funded under the Seventh Framework Programme (FP7) of the European Commission



Project Objective, Overview and Motivation

Project Overview and Motivation

Augmented Usage of Track by Optimisation of Maintenance, Allocation and Inspection of railway Networks (Automain) is a jointly funded research project focused on the development of new processes and technologies that will enable infrastructure maintainers to move towards a 24 hour a day, 7 day a week railway. It is a three year project of around 4.5 million Euros which commenced in February 2011.

The philosophy of the project is to **maintain infrastructure only when intervention is needed**, instead of the now common schedule driven maintenance strategies. To achieve a step change, **improvements must be made to railway infrastructure maintenance approaches** through:

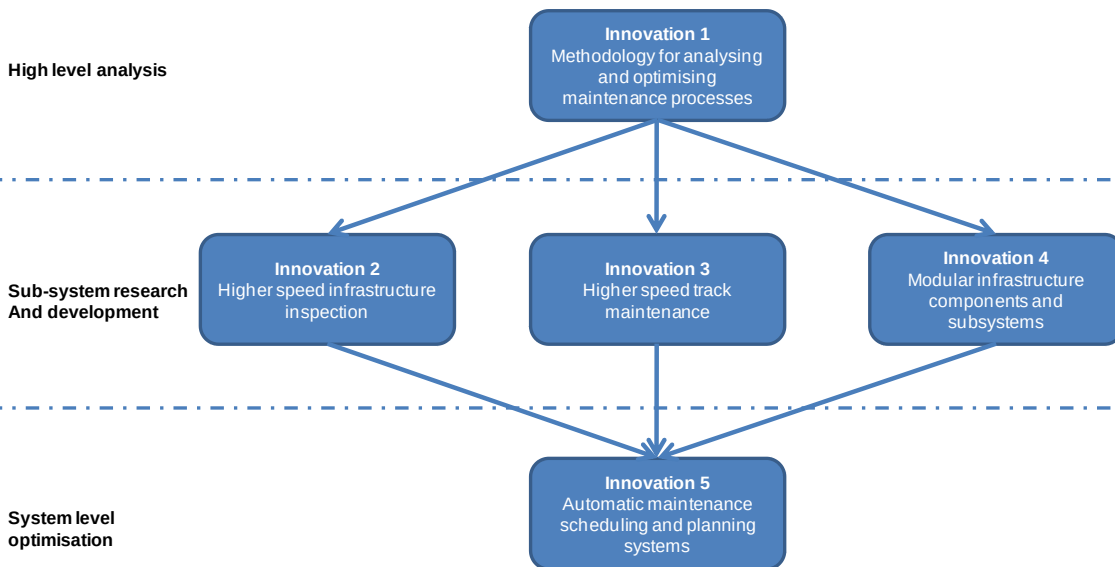
- ⇒ **Increased reliability:** This can be accomplished by means of more effective maintenance, which is achievable by **improving inspection and monitoring capabilities**;
- ⇒ **Increased availability:** This can be accomplished by reducing possession times, which is achievable by **automating and optimising maintenance** planning and scheduling, and also by **speeding up maintenance** activities;
- ⇒ **Increased maintainability:** This can be accomplished by reducing the time taken to install and maintain infrastructure, which is achievable by identifying tasks that lend themselves to **automation** and then developing and introducing appropriate technology;
- ⇒ **Improved worker safety:** This can be accomplished by reducing the need for track workers to carry out tasks on or near the line which is achievable through **automated inspection techniques** and the development of **modular infrastructure** that can be exchanged in shorter time slots.

Project Objective

The **high level aim** of the project is to make the **movement of freight by rail more dependable – i.e. reliable, available, maintainable and safe** - through the generation of additional capacity on the **existing network**. Through the widespread introduction of automation that is designed to improve the Reliability, Availability, Maintainability and Safety (RAMS) of railway infrastructure equipment and systems, it is anticipated that required **possession time (downtime) of the railway could be reduced by as much as 40%**.



Key Innovations & Project Structure



Project Structure

Work Packages (WP):

1. Functional requirements and objective function
2. Analysis and lean maintenance optimization
3. High speed inspection
4. High speed maintenance
5. Automated planning & scheduling
6. Demonstration
7. Dissemination, Exploitation and Training
8. Project Coordination

Each technical work package (WP2 to WP5) is responsible for at least one innovation. WP1 issued to acquire benchmarks and elicit requirements, WP6 is the demonstration work package, while WP7 and WP8 are the dissemination and project management work packages, respectively.

The project will deliver **five key innovations** in the area of railway infrastructure maintenance improvement. Each of the innovations will individually either speed-up and/or help optimise existing maintenance processes, which will in turn reduce the possession time required and create capacity for freight.



Project Partners



Coordinator:

ProRail

Partners:



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