



EUSKOTREN ACHIEVES EXCELLENCE IN WHEELSET MAINTENANCE AND MANAGEMENT THROUGH PIONEERING SOFTWARE DEVELOPED BY NEM SOLUTIONS

“The implementation of integrated wheelset management tools by NEM Solutions has enabled us to reduce wheelset life cycle costs by approximately 10%”. Mikel Beitia, Rolling Stock Manager, Euskotren, Spain.

The ability to accurately and reliably monitor an asset’s health and be able to determine its future condition and remaining operating life is key to optimising wheelset maintenance across rolling stock depots. Through dynamic and informed programming, predictive maintenance tasks of train systems such as wheels, gearboxes and traction packages can be scheduled to coincide with pre-determined periodic maintenance tasks. Thus management tools that can work to achieve this are of interest to vehicle manufacturers, train operators, maintenance firms and organisations alike committed to the reduction of operating and maintenance life cycle costs.

Facing a need to reduce wheelset costs, Euskotren partnered with NEM Solutions to implement an innovative and advanced system for wheelset maintenance, combining both depot-based and track-based hardware as well as online management software tools.

Euskotren operates and maintains a complete railway system that connects principal cities across the Basque Country in Northern Spain, with 30 million passenger journeys a year. A new fleet of 30 four-car trains has been introduced between 2011 and 2014 to strengthen the region’s future commitment to sustainable transport.

With the goal of reducing overall maintenance costs, NEM Solutions has developed innovative technology for the optimisation of the operation and maintenance of complex systems. Their solutions tirelessly and continuously monitor the performance and condition of train fleets and can detect early symptoms of subsystem failure.

Euskotren selected NEM Solutions to automate safety-critical wheel inspections and integrate all data and information from wheelset maintenance activities into a single online application named A.U.R.A. wheel. Through A.U.R.A. wheel, Euskotren is able to improve fleet safety, availability and reliability, at the same time as providing more effective and efficient maintenance.

A.U.R.A. wheel is a patented system, considered to be unique in the integrated management and optimisation of wheel maintenance. It permits wheel life to be extended through an optimised maintenance of wheel inspection, tyre turning and wheel replacement. Maintenance engineers use the system to examine current wheel wear and condition and use the tools’ statistical wear predictions to plan future wheel reprofiling and eventual substitution, in line with maintenance tasks for other assets. The online application provides an accurate, reliable and updated source of fleet information, accessible from anywhere with an Internet connection.

Euskotren currently uses A.U.R.A. wheel to digitally connect five wheel profile measurement devices (two track-based systems and three handheld devices) in addition to three wheel lathes. The transfer of inspection and measurement data no longer depends on the environmental conditions, the subjective reading of manual gauges and a paper trail from the workshop to the engineering office, but on a direct communication between measurement



device and management tool. High confidence in accurate and reliable data allows engineers to take well-informed decisions as well as to extract automated analysis and reporting of fleet condition and degradation characteristics.

In a drive to optimise wheelset maintenance further, Euskotren have partnered again with NEM Solutions for the installation and integration of a wheel flat detection and monitoring system 'Wheel & Rail Doctor'. The equipment is located at Lugaritz, San Sebastián, and adds to the A.U.R.A. wheel's ability to provide real-time information on wheel profiles, wear rates, early wheel flat detection, tolerance warnings. This permits Euskotren to move away from a planned preventive maintenance approach and adopt a strategy of condition-based and predictive maintenance, thereby ensuring tasks are undertaken at an optimum time, reducing costs and improving reliability.

Mikel Beitia, Rolling Stock Manager of Euskotren, believes that *“the use of tools for the integrated management of asset maintenance (A.U.R.A. wheel, Wheel & Rail Doctor, A.U.R.A. trace, A.U.R.A. logs, handheld laser profilers and track-based wheel profilers) gives us the ability to improve our finances through extended wheel life cycles and reduced maintenance costs. In addition, the systems bring together maintenance decisions and management into a single online application for all maintenance locations. Early fault warnings and predictive maintenance based on the outputs of A.U.R.A. provide an improved level of safety.”*

