

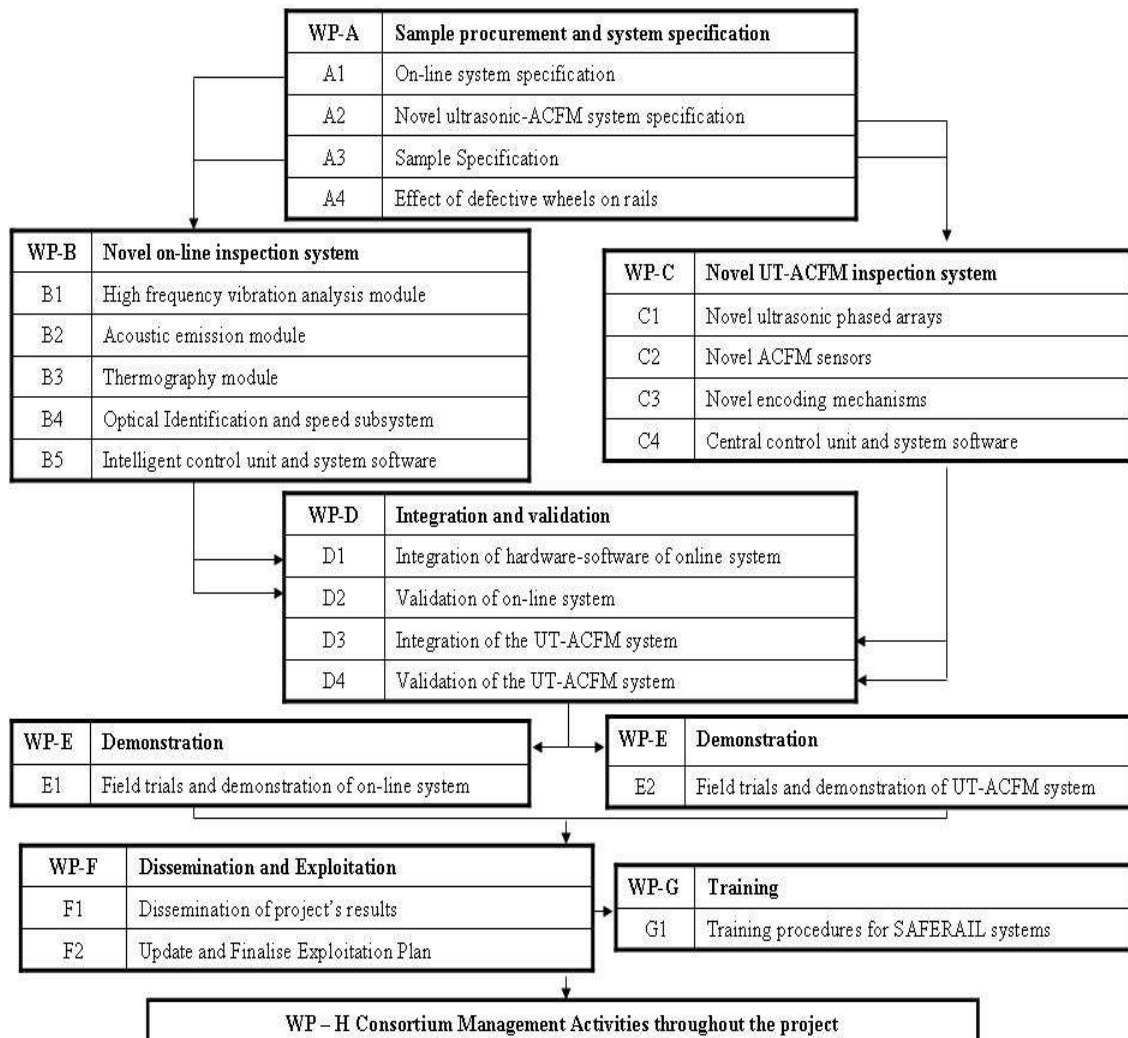
# Development of Novel Inspection Systems for Railway Wheelsets

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The contribution of the rail industry to the economic growth of the EU member states is widely acknowledged. Very recently, the European rail industry has started showing signs of recovery after a long period of steady decline. The technological advances in train design during the last few decades have led to the manufacturing of faster and more comfortable trains making rail transport a more attractive option for passengers in comparison to other means of transportation. The need for the society to employ greener transportation policies is expected to further enhance the role of rail transport in the global economy. Today rail networks across Europe are getting busier with trains travelling at higher speeds, carrying more passengers and heavier axle loads than ever before. The combination of these factors has put considerable pressure on the existing infrastructure, leading to increased demands in inspection and maintenance of rail assets. The expenditure for inspection and maintenance has thus, grown steadily over the last few years without however being followed by a significant improvement of the industry's safety records.

A large proportion of all equipment related accidents in the rail industry is due to failed train wheels and axles. The continuous increase in train operating speeds means that catastrophic failure of a wheel or axle may result in very serious derailments, such as the one that took place in Eschede, Germany in 1998, causing loss of life, injuries, severe disruption in the operation of the network, damage to the tracks, unnecessary costs, and loss of confidence in rail transport by the general public. SAFERAIL seeks to minimise wheelset failures by developing and successfully implementing a novel on-line system for the inspection of wheels and axles of moving trains, and a combined ultrasonic-electromagnetic system for faster and more reliable inspection of the quality of new and old wheelsets during their production and maintenance.



**Flow Diagram for SAFERAIL**