Unknown Asset Usage & Condition

What is the situation?

For successful asset management, access to accurate asset usage and condition information is critical. Unknown asset usage and condition introduces risk of inefficient asset usage, unpredicted breakdowns and ineffective planning of maintenance, overhauls and introduction of new assets.

Detailed usage of the asset is difficult to quantify as it is dependent on several factors, such as operating environment and intensity of work delivered. Most of the Network Rail engineering train fleets do not have technological capability to feedback how onerous or simple a shift was. The current level of usage monitoring for some fleets is recording mileage and worked distance. But if achieved in detail can provide a record of key performance indicator achievements from which long-term plans and contractual frameworks can be developed. It would also provide an indication of the condition of the asset.

Condition of the asset is an important part of the full asset life cycle and provides a tool for proactive action in saving costs and delivering high performance. This is currently achieved through manual inspections within the maintenance plans of the asset. However, there is opportunity to improve the efficiency of condition monitoring through technology developments and process improvements.

Operating an asset without knowing a certain level of usage and condition increases the possibility of safety incidents occurring. This can often occur when trying to meet operational targets where the asset can be utilised close to its limitation without calculated information, risking the chance of in-service breakdown. Hence, to improve the assets safety profile in becomes critical to adopt progressive steps in detailing the knowledge of usage and condition.

Analysis of causes

Specific research needs

- Determination of current techniques to record and predict asset usage.
- Single system for multipurpose condition monitoring.
- Productive use of a single data repository containing; asset specification, usage, condition, maintenance, repairs and failures.
- Understanding current position of asset usage and condition – How much is really known? Can improvements be made and why would they be necessary? When is data too much or not enough?
- Determination of comprise between what can be monitored, what needs to be known and feasibility of what is to be monitored.
- Uniform platform and benchmarks for diverse fleet.
- Adaptability of strategies.

Expected impact & benefits

- Be able to make informed decisions based on analysed and calculated trends.
- More efficient utilization of the assets.
- Better long- and short-term planning of asset investment.
- Improved safety of the asset.