

# Cut the right costs – the maintenance of rolling stock in a post NRC world

Avid online shoppers probably noticed a changing trend from about June 2021. Prior to this we went online and clicked the items we wanted, paid our money and (not many) days later the item arrived on our doorstep. Not so today, where we are increasingly seeing 10, 15 or even more days delay in fulfilment and shipping. It is too simplistic to blame Brexit, Covid, or the blocked Suez Canal even, yet all those elements had cumulative marginal impacts on a very lean and fragile system.



Chat to senior rail maintenance professionals and they share a similar view of the fragility in the system. Whilst performance and efficiency are high on the NRC agenda, and rightly so, in most organisations costs will need to be managed, and although maintenance is exempt the present voluntary severance scheme (VSS), are we primed to make intelligent cost savings in the future? Might we be even sleepwalking into a worse place?

The Covid pandemic has challenged many conventional economic forecasts as underlying social behaviour has shifted. In many organisations this is manifesting with significant numbers of people choosing earlier retirement, even with reduced pension, to have a greater quality of life. This is particularly affecting the 55 to 60 age profile. Skilled rail engineering staff disproportionately fill that age profile. A recent study revealed several companies have over 35% of staff in that age group (the national average being 27%). This could mean that VSS might adversely impact engineering skill level.

Ordinarily this presents an opportunity to fill the ranks with exciting young talent. But, as anyone who has tried recruiting recently will have found, young engineering talent is not in great supply in the UK. At a time when more skilled engineering staff is likely to be needed combined with a high 'flight risk' through VSS – caution might be the watch word.

**Intelligent cost savings will improve value.** In any transport business, maintenance takes a big slice of the cost cake and continually needs to get leaner. Depot managers will be hard pushed to explain where such cuts can be made without impact on service. It is likely that in the first tranche of cost-cutting maintenance will be ring-fenced but, in the future, how can we intelligently reduce costs and yet improve value? An experienced planner once suggested that matching load (work hours required) to capacity (people hours to turn spanners) is everything in vehicle maintenance value.

Well, it might not be everything, but it is a good 80% for sure. Organisations with a pool of 100 maintenance technicians, often deploy up to 10 heads on other duties. Surely taking 10 out will have an impact on Availability? Not so, given the high service focus of rail what typically happens is quality

## Cut the right costs – the maintenance of rolling stock in a post NRC world

of maintenance will be marginalised. Not in a safety way, but activities like cleaning and presentation will be compromised, and other minor corners might be cut. As reliability lags poor quality maintenance by about 12 months (depending on fleet age), taking 10 heads away will have little immediate effect. Confirmation bias then convinces us, we only needed 90, and often are even tempted to take more away.

But what if only 90 heads were required? Measuring productivity is key here, a good figure in an efficient rail maintenance organisation is 60%; values below this indicate it is haemorrhaging hours (cash). Productivity is a key barometer of maintenance performance, measuring it accurately signposts ways to improve value.

**The Plan-led philosophy** is a proactive approach to maintenance that considers efficiency and effectiveness at every juncture. Consider an operating theatre, the surgeon doesn't set out their own tools, walk down to the Xray department for the foils. Everything is presented to them so they can perform at 100% during the operation. When the technician arrives on shift, the work instructions, tools, materials, train, and tasking sheets should be ready to start work immediately. Team Leader workstations out on the shop floor where good supervision (production control) is afforded would help

the depot deliver at the best performance possible.



Although defects cannot be predicted, the plan-led philosophy demands more than just waiting and reacting. Plan-led maintenance forecasts, schedules, prepares and uses technology more effectively to reduce variability and control defects better. Plan-led uses a combination of LEAN and MRP tools, in a proactive philosophy.

**Harnessing technology and making it work for us.** Modern trains are crammed with technology, data is downloaded from them at a rate the Apollo missions could only dream of. Yet much of it is ignored. Using this technology as part of the plan-led philosophy enables the intelligent application of preventative maintenance. Doors are opened and closed many times a day by passengers; why not use telemetry to spot when door actuators are getting 'tired' and schedule a change..... rather than changing routinely.



## Cut the right costs – the maintenance of rolling stock in a post NRC world

In 1974 the USAF undertook a study to consider the impacts of removing preventative maintenance. In the short term they discovered removing maintenance improved reliability. A similar phenomenon was observed by London-serving TOCs during the Olympics. A note of caution, in both cases longer-term issues were noted.

**RR Aero engines** have a big data analyst team considering data streaming from their 55k engines worldwide. Actively applying this data has enabled them to keep engines on wing for 8 years, saving airlines millions in overhaul costs. Rail has (at least) equally as capable systems but they are not being utilised to proactively reduce maintenance. EngPro has estimated that by using technology more effectively and challenging maintenance tasks through MSG-3 techniques, over 60% of 'depot maintenance' could be safely removed. In the 100 people example above, that means you now only need 40 people.



### In summary:

- Maintenance philosophy needs to be proactive (Plan-led)
- Matching load and capacity accurately is a vital success enabler
- Grow data analysis capability to leverage the technology better
- Build production engineering capability to safely remove pointless maintenance and time perishing activity
- Link this all together using a centralised '**fleet guiding mind**' fuelled by strong planning capability

Call or email if you want more information:

[Howard@engpro.co.uk](mailto:Howard@engpro.co.uk)  
07841029276

