

## ERTMS: Human Factors & Drivers' Cab Design Concept Modelling

Fitment of ERTMS equipment into existing vehicle designs gives rise to both technical and Human Factors (HF) related issues. Interfleet's HF team are experienced in the identification, management and resolution of such issues. Working closely with technical experts to ensure that solutions are feasible and cost-effective, we offer analysis and guidance on the following.

### Equipment Placement

We can evaluate different options for ERTMS fitment in new cab designs or placement of ERTMS into existing cabs, based on appropriate standards, operational requirements and consideration of the totality of the driver's tasks and workload. Evaluation of the effect of other operational tasks (e.g. training, guard duties) and maintenance tasks (e.g. examination, replacement) can also be undertaken.

### Human Centred Risk Assessment

A human centred risk assessment early in the design phase will ensure opportunities for human error are identified and suitable mitigation built in from the outset.

### System Design

When changes in cab design are considered, the effect on supporting systems must also be considered. We can capture and explore these interfaces and facilitate their resolution.

### User Trials & Workshops

It is important to ensure that significant changes to cab equipment and practices are fully evaluated from the users' perspective. We can facilitate user trials and workshops to enable this throughout the design process. This can be undertaken using either 3D CAD model images or through the use of physical mock-ups.

Our HF team also has direct access to our full range of rail specialists, including electrical and mechanical specialists and those who have experience of driving trains. This enables us to offer an integrated approach to problem resolution.

