

## Fatigue and Sleepiness Human Factors Assessment



**CLIENT: TRANSDEV**

**YEAR: 2016-2017**

Auckland's passenger rail operator, Transdev, wanted to optimise their rostering and fatigue risk management processes and systems.

As a result, Transdev requested that HFEx conduct a human factors assessment to include the following:

- Conduct relevant literature research
- Access Transdev's fatigue management system to assess whether it is being used appropriately
- Access all relevant SOPs, Rail Operating Manuals and agreements associated with fatigue risk management
- Identify potential human factors issues, if any, driven by systems and processes

Inclusive of this, Transdev were keen to obtain objective measures to see how they compared with self-reports of fatigue.

The following details how HFEx successfully conducted a human factors assessment of a device in an operational environment.

## HFEEx Ltd's approach

HFEEx began their work with the business unit by familiarising themselves with the operational environment, systems and processes. Given that this is a unionised workforce it was important to develop and maintain a good relationship with the union and gain their support for the planned work. HFEEx got to know the people, the implicit knowledge and the challenges drivers face daily.

The next phase consisted of developing and implementing a confidential reporting system to provide TransDev staff with the opportunity to voice their concerns about fatigue in the workplace. This was set up easily and proved to be a productive method of eliciting information.

Trials in the operational environment were then conducted on a sample set of operational staff across the country. Working long and unsociable hours, enabled the HFEEx team to gain access to the right staff at the right time and place. During the assessment, the staff were taken through an on-the-spot questionnaire that is well established in research, and some higher risk staff were taken through a short session utilising portable EEG equipment. The EEG provided objective and detailed information about the degree of drowsiness that each employee was experiencing at specific points in time. This provided considerable insight to help provide validation for the self-report questionnaires the staff had completed previously.

The HFEEx team obtained a range of data including confidential survey, observation, verbal feedback and EEG readings. The team successfully covered ten staff groups over a very short period of time, and provided a range of findings concerning each group.

## Challenges

Working operationally is quite different to working in a laboratory or simulated environment. HFEEx had to work with numerous challenges including availability of participants, rostering, widespread operational challenges and physical work environment. It involved the HFEEx team having to work very long hours and the risk of our staff being fatigued was managed through the inclusion of nearby resting facilities so we did not have to risk driving home whilst fatigued. So, whilst analysing the risk of others, HFEEx also had to consider and manage their own risk to ensure they did their job effectively and safely too.

Working in an operational environment also challenges the scientific robustness of the work at hand as many elements are out of the team's control. Therefore, in this case the team collaborated with academic subject matter experts to maximise the scientific integrity of the work.

## Benefits and outcomes for the client

The client is currently working through the recommendations. HFEEx continue to offer any help or ad hoc advice to the client during this process.