

# Extending the Power of Non-Technical Skills

Dr Steve Fletcher, Occupational Psychologist and Director at the OPC reflects on a potential expansion of Non-Technical Skills to impact other safety-critical jobs and considers their role in the future of rail talent acquisition

**W**e know that Non-Technical Skills (NTS) play a crucial role in ensuring safety and optimal job performance. Although NTS have successfully and effectively been applied in train driver roles for many years, OPC psychologists have extended their use to various safety-critical positions in the rail industry and beyond. In recent years, OPC psychologists have conducted extensive post-incident interviews and assessments (PIA) with NTS short-fall analysis for many other roles outside of train drivers. Some of these safety-critical roles have been signallers, electrical operators, engineering track workers, field engineer managers, depot drivers, and other transport sector drivers e.g., tram and bus drivers.

In the OPC's experience, findings from hundreds of PIAs indicate that safety-incidents are often rooted in NTS shortfalls rather than a technical skills gap. Identifying the key NTS shortfalls that resulted in an

incident allows for a targeted development plan, helping to improve safety performance. Addressing NTS gaps through training and development can also help reduce future safety incidents.

## Shortfall Non-Technical Skills

During a review of PIAs, OPC psychologists identified similar NTS shortfalls across various safety-critical roles and incidents – even though they all differed. Some common and generic NTS shortfalls were observed, with four key NTS shortfall contributors to incidents including:

- Failure to anticipate risk: poor risk anticipation.
- Diligence, in particular regard to checking.
- Prioritising time over quality.
- Remaining vigilant and aware, i.e., being focused on the present.

So, what do some key NTS look like in safety-critical roles?

**‘Proactive planning for risks enhances safety performance while undertaking dynamic risk assessments during a shift ensures ongoing risk awareness.’**

## Risk anticipation and time focus

Positive risk anticipation and effective time focus are strongly associated with safe, effective performance and the prevention of errors or safety incidents. Risk anticipation is a crucial Non-Technical Skill (NTS) for safety-critical personnel. It involves assessing situations for potential risks, identifying the risks, and then implementing mitigating actions. Proactive planning for risks enhances safety performance while undertaking dynamic risk assessments during a shift ensures ongoing risk awareness. A safety-conscious employee will re-evaluate risks dynamically during a shift or job and change work patterns or even call a halt if it's unsafe to carry on. They will always prioritize caution over haste, reducing the likelihood of errors caused by rushing.

## Conscientiousness

The NTS of conscientiousness includes diligence, systematic work, and positive adherence to rules, emphasizing personal responsibility and a thorough step-by-step approach without rushing. Diligence involves attention to detail, ensuring the finer points of a job are not lost. Checking and double-checking are essential in avoiding complacency and assumptions. Regular checks are critical to eliminating







## ‘I know I can have confidence in the performance of my co-workers since we all abide by the same rules and regulations.’

errors and avoiding incidents, and this is closely tied to a positive attitude toward rules. Safety-critical employees need to be comfortable working in a ‘rule-bound’ environment.

### Motivated to follow rules and procedures

Employees who are motivated to follow rules are driven by the need for correct and high-standard job completion. Shared work accountability arises from rule adherence, providing confidence in co-workers' performance. Some drivers have said that the ‘rule book has been written in blood’ – that it’s been created and honed from the learnings of past safety incidents. Rules act as safeguards, preventing chaos and minimizing challenges. Adhering to rules is crucial for personal, team, and infrastructure protection.

Individuals with conscientiousness, checking, and rule adherence NTS are more likely to achieve high job performance

standards and have lower safety incidents. Consistent checks, although sometimes deemed unnecessary by some more experienced employees, are critical for catching errors and preventing incidents.

### Remaining vigilant and aware

Remaining vigilant is vital. A common reason why safety-critical employees have safety incidents is due to an over reliance on past experience and an assumption that nothing bad will happen. Vigilance avoids lapses in diligence and a less thorough checking approach. Safety incidents can also arise when employees operate on autopilot, performing tasks without conscious control or focused attention. Autopilot can often occur when the environment or task being performed is repetitive. A risk of incidents can arise when an employee is in ‘autopilot’ but they’re faced with a change which can then leads to errors.

### A PIA case study highlighting some NTS shortfalls

A trackworker, responding to a call for a points repair, faced challenges from the outset. Lack of office presence during the initial briefing call, confusion about transportation to the job, and unfamiliarity with the location complicated the task. Upon finally reaching the points, a hasty initial check of A points led to a mis-diagnosis of the problem. The trackworker attempted to scotch and clip the points without success.

As the job progressed the employees stress levels rose. Without updating the signaller, the track worker moved to B points. The signaller had to chase the trackworker for an update on location and job progress. They were sceptical of the trackworker’s abilities. Only after fixing the B points and returning to the A points did the employee identify an obstruction in the points, revealing a lack of initial thoroughness and a reliance on assumptions of what repair was required.

The incident highlighted stress and frustration affecting their decision-making. The NTS shortfalls included insufficient checking, poor stress management, and inadequate communication in both quality and frequency adding to the risk of a safety incident. Despite considerable service and experience, the trackworker demonstrated a lack of motivation for personal learning and skill development around points maintenance.

### NTS and talent acquisition

Some questions therefore arise, such as: if NTS are so crucial for safe and effective performance, how could we recruit exceptional safety-critical employees? Or should we prioritize more Non-Technical Skills (NTS) in our recruitment processes? Could we focus on skills, aptitude and potential rather than hard technical skills and experience, especially when applicants who meet all our educational and experience requirements are scarce? Could this shift



## ‘NTS could have more extensive benefits than just reducing human errors and improving overall safety performance.’

uncover untapped talent? Could it offer added value in a very tight recruitment market for essential safety-critical roles as well as help provide a robust internal candidate pipeline for promotions?

Assessing NTS, aptitude, and potential may uncover untapped talent fostering inclusivity and removing academic barriers that could broaden the candidate pool. This approach could be crucial for the rail industry when trying to attract candidates from different sectors, such as firefighters, healthcare workers, factory workers, and the armed forces, all of whom may possess relevant NTS like risk anticipation or vigilance required in our industry. Equally, diverse job experiences can help equip individuals for safety-critical roles, enhancing inclusivity. In the OPC's driver recruitment projects, candidates with some unusual backgrounds like bookmakers, factory workers, teachers or morticians displayed strong potential despite lacking 'relevant' rail experience. This approach could promote diversity across age, ethnicity, gender, physical and mental ability, and life experiences, with candidates all sharing common safety-critical NTS essential for successful training completion and effective job performance within rail. The diversity is vast.

### Effective recruitment tools

OPC Assessment offers a wide range of assessment tools that can help identify the key NTS when recruiting for many safety-critical roles. Some of these include: The Risk and Time Focus Questionnaire (RTQ) that helps profile a candidate's behaviours and attitudes towards risk anticipation, and time focus. The RSJT (Railway situational Judgement Test) evaluates safety judgments, checking, and conscientiousness and was specifically designed for rail roles. The Safe Concentration and Attention Test (SCAAT) is a world leading tool for assessing concentration.

The Rule Acquisition and Aptitude test (RAAT) assesses the ability to understand and reason with basic written rules, regulations and procedures, similar to those in the transport sector. The Visual Search Exercise (VSE) is an innovative test that identifies those individuals who have the ability to focus and respond to numerous things simultaneously whilst remaining situationally aware. Additionally, the Safe Personality Questionnaire



(SAFEPO) assesses for 4 personality factors; Cautiousness, Conscientiousness, Resilience and Rules Focus that are linked to safe behaviours in the rail industry.

From validation work completed by the OPC, there are statistical correlations between those assessment tools like the SCAAT, RAAT or VSE that directly assess for key NTS on the one hand, and safe and effective job performance in safety-critical roles on the other hand.

### What about training?

Effective job performance requires training, especially in the rail industry, known for its rigorous technical skill programs. These programs, with stringent criteria, assessments, and mentoring, demonstrate a significant investment in key roles and strict compliance for some key infrastructure positions. Our rules and procedures are second to none. While technical skills are trainable, possessing inherent NTS is crucial for overall safe and effective performance. If an applicant already has the underlying NTS then training them in the technical aspects of the role could foster safe and effective job performance and safer individuals on the job.

Certain crucial Non-Technical Skills (NTS) significantly contribute to success in training. For example, motivation and conscientiousness are pivotal NTS for individuals to excel in their training. Possessing these skills increases the likelihood of successful completion and performing well. Furthermore, as the earlier case study emphasises, the NTS of motivation for continuous improvement in ongoing training is important, especially as roles evolve or technology advances.

In addition, incorporating key NTS coaching into initial training for safety-critical roles has the potential to enhance overall safety performance. By grounding the principles of NTS such as situational

awareness and decision-making into early training, enables individuals to better recognize and respond to potential hazards, reducing the likelihood of errors and helping to lessen the likelihood of incidents on the job. Integrating NTS into training programs for safety-critical roles significantly contributes to a safer and more productive work environment. The OPC also provides diverse NTS training for managers, mentors, trainers and incident investigators to enhance their understanding of safety-critical NTS performance gaps and to help them uncover the root causes of safety incidents.

Dr Steve Fletcher, Occupational Psychologist and Director at the OPC said: 'At the OPC we believe there are some key NTS that are crucial for safe and effective safety-critical role performance. We've collated evidence that their absence is notable and identifiable as underlying root causes in the case of safety incidents across many different roles and many different incidents. However, we think that NTS can also play a significant role when utilised in talent acquisition. Using them in recruitment could have a significant impact on attracting the best and safest talent, help widen the talent pool where rail industry shortfalls are a challenge, as well as meet some diversity and inclusion opportunities. NTS could have more extensive benefits than just reducing human errors and improving overall safety performance.' RP



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