

# Guideline

# Integration of Human Factors in engineering design



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# 1 Introduction

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This document provides guidance to organisations specifically on how to integrate Human Factor (HF) activities into engineering design.

The benefits of Human Factors Integration (HFI) into the engineering design process are not limited to safety. Integrating HF with the design process will assist in ensuring the asset is efficient and effective, meets its intended performance levels and is able to deliver the expected benefits to users and customers. HFI in safety risk management activities provides an important contribution to the overall safety assurance argument. HFI can also provide evidence of the implementation of controls and mitigations identified during the HF analysis.

In broad terms the aim of HFI is to ensure the human-system interactions pro-actively contribute to optimise system performance and identify and mitigate risk. This approach is in line with the principles of system engineering within which HF is a recognised discipline. It is important HFI is incorporated into the whole asset design process including feasibility, options development, conceptualising and through the entire design process.

This guide will assist organisations to satisfy requirements of the standard AS7470: Human Factors Integration in Engineering Design and will also align with HFI requirements in the Rail Safety National Law and Regulations.

## 1.1 Purpose

The Guide to the Integration of Human Factors in engineering design is a companion document to the standard AS 7470: 2016 Human Factors Integration in engineering design – general requirements. It is intended to provide guidance on meeting the requirements of this standard.

The objective of this document is to ensure that HF considerations form an integral and meaningful part of the specification, design, and development process, rather than being seen as an add-on, a review or as an afterthought following completion of the design and development activity.

## 1.2 Scope

This document provides guidance on Human Factors Integration (HFI) primarily for the following stages of the asset life cycle:

- Feasibility.
- Concept.
- Design.

It may be noted that that many of the concepts and principles described may also be applied to the following stages of the life cycle:

- Fabrication, manufacturing, and construction.
- Installation.
- Integration, test, and commissioning.
- Asset operations and maintenance.
- Decommission and disposal.