Integrating
**Human Factors**
in European Railways

# Incident and accident investigation

EUROPEAN
UNION
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FOR RAILWAYS

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## What is 'Human Factors'?

Human Factors concerns the optimisation of human performance in the workplace for the purpose of safety, well-being and efficiency.

It considers the working environment from a human-centred viewpoint, looking at the whole system and its influence on the way people behave and interact with the railway.

Human Factors (HF) focusses on the 'fit' between the user, equipment and their environments.


The individual is at the centre of the socio-technical system. (Courtesy of RSSB)


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## Why 'Human Factors' are important?

'Human factors' play an increasingly important role in modern complex, safety-critical systems.

Even when some processes are automated – often as a measure to reduce human error – people are an essential part of European railways.

People are at the centre of this technological, social and organizational system and are the key to success or failure.

## How 'Human Factors' can relate to accident investigation?

Although 'human error' is often presumed to be the starting point for an investigation, it is certainly not the end point.

Accident investigators must explore the role of the individual, the context in which they were working, the equipment they were using and the characteristics of the organizations they worked for.

The factors that influence human performance are often the underlying causes to an accident; there is no such thing as a simple human error.

**The European Union Agency for Railways aims to support the activities of accident investigators by creating a thematic website which provides:**

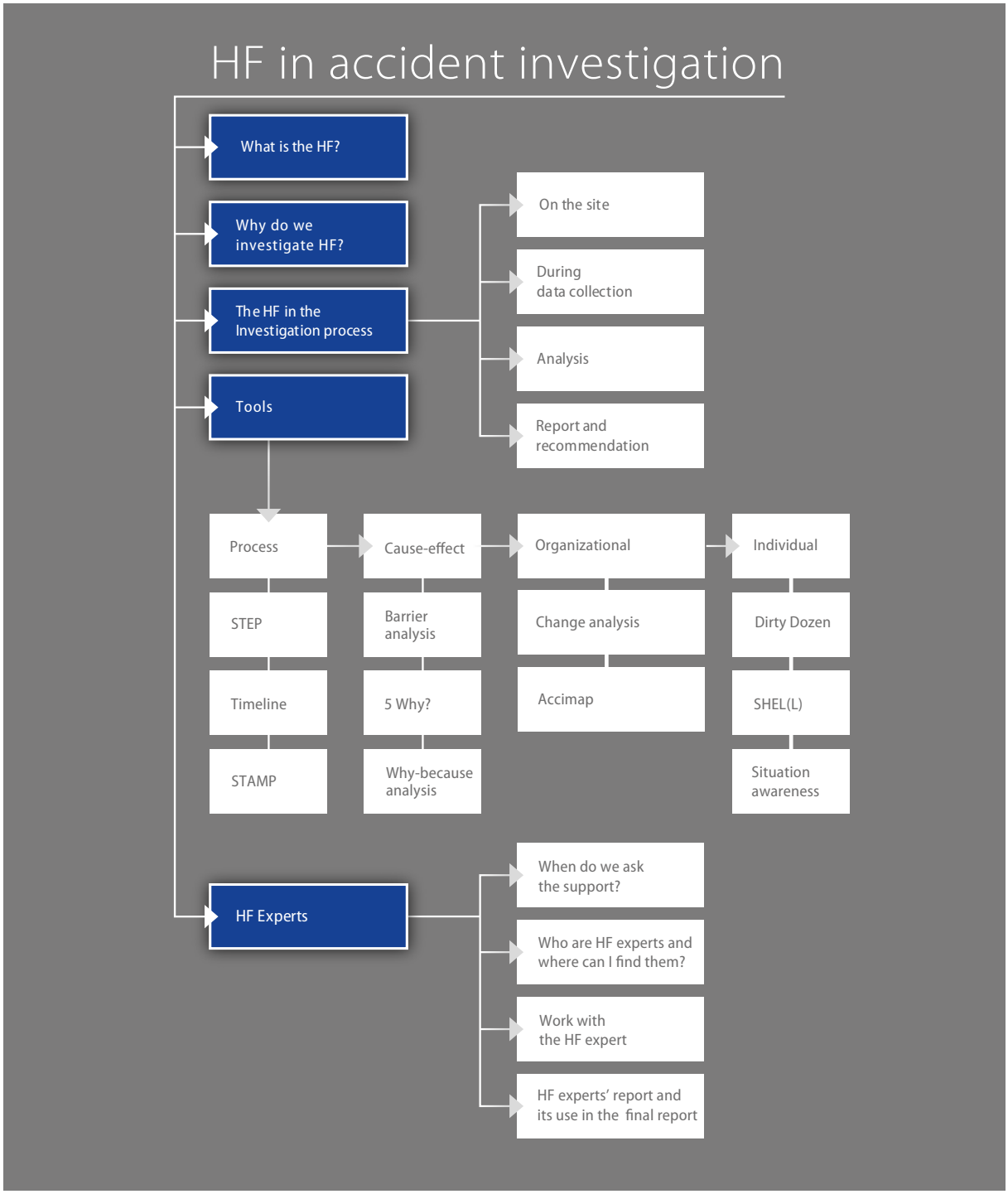
- general information on human factors,
- descriptions of methods and analytical tools used in the different phases of accident investigation,
- advice on joint work with the HF experts,
- bibliographic references for further information, and finally
- case studies.

## How do we bring 'Human Factors' into investigation?

Human factors should be fully integrated into the investigation. The methods and models of human factors analysis integrate with standard causal analysis tools, looking for cause-and-effect relationships in the course of events while considering the influences on each person's behaviour and actions.

*The key is to ensure that the consideration of human factors is an integral part of the investigation from the very beginning – it should not be a separate activity.*

It is difficult to find an accident that does not have any relevance to human factors. Human factors experts should therefore work alongside engineers, operations specialists and other technical disciplines in order that recommendations can be made to improve the whole system.



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Following the entry into force of the technical pillar of the 4th EU Railway Package (Reg. 2016/796), the European Union Agency for Railways replaces and succeeds the European Railway Agency. The change of name requires also a new corporate design. The "Agency" refers as from now to the European Union Agency for Railways. However depending on the context, some parts of this brochure still refer to the former European Railway Agency.

**For more information, please visit:**
- http://www.era.europa.eu/tools/sms/
- http://www.hse.gov.uk/humanfactors/
- http://www.sparkrail.org/Pages/HumanFactors.aspx
- http://www.vbg.de/

**Other leaflets about Integrating Human Factors in European Railways, also in other languages:**
- Safety Management Systems
- Information for workers

Search for 'Human Factors' on www.era.europa.eu

# Making the railway system work better for society.

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