Today's Webinar

An tÚdarás Sláinte agus Sábháilteachta
Health and Safety Authority

Aim: to **introduce Human Factors** and demonstrate its critical role in effective health and safety management

- Design work for people to optimise performance
- Influence error and non-compliances
- Reduce accident risk

Outcome: Enhanced understanding of the role of Human Factors in safety, enabling you to **recognise opportunities for applying Human Factors** to improve safety practices.

INFLUENCE, EDUCATE AND COLLABORATE

BUILD AND SUPPORT COMPLIANCE

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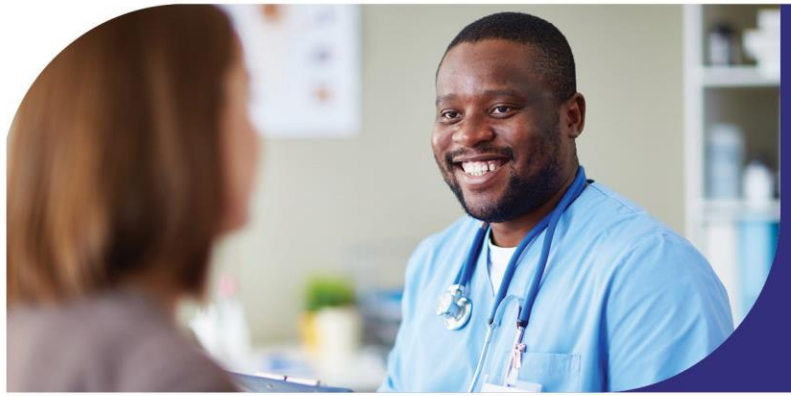
Optimising Performance, Minimising Error: Human Factors in Workplace Safety



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Overview

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- Introduction to Human Factors
- Review errors, non-compliances
- Identify legal duties of the employer relevant to Human Factors
- Human Factors and Risk Assessment
- Provide insight into Human Factors in HSE UK accident investigations
- Q & A

Defining Human Factors

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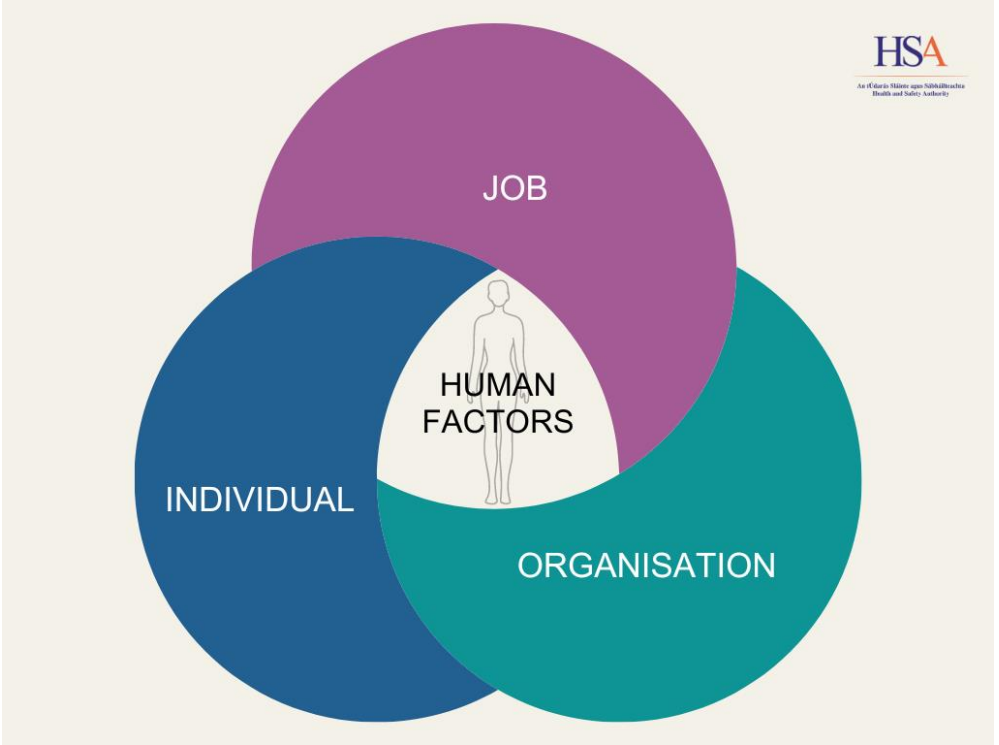
"Human Factors refer to environmental, organisational and job factors, and human and individual characteristics which influence behaviour at work in a way which can affect health and safety."



Adapted from Reducing Error and Influencing Behaviour, 1999 (HSE UK)


fatigue
behaviour
decisions
factors
organisational
design
procedures
reliability
time
human
performance
critical
interaction
wellbeing
attention
mistake
slips
adapt
system
communication
health
pressure
violation
thinking
failure
work
safety
analysis
interface
lapses
memory
individual
engineering
variability
culture
routine
drift
improving
resilience
task
machine
workload
people
error
automation
job

Design work for: people being people

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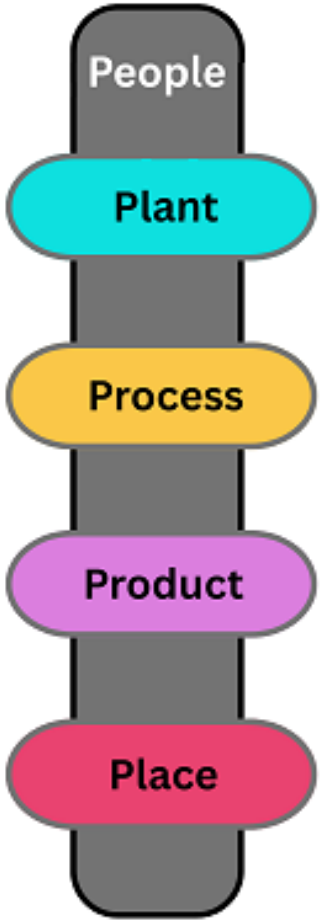
Abilities

Adapt to demands

Interpret procedures

Innovate

Detect and correct



Limitations

Memory

Attention

Decision making and biases

Performance Influencing Factors

Individual Factors

- Competence
- Illness/health
- Fatigue
- Physical strength
- Sensory capability

Job Factors

- Equipment Design
- Workload
- Procedures
- Shift Handover
- Computer Interface

Organisational Factors

- Health and Safety Culture
- Accident Investigation
- Communication
- Competence Management System

Source: BBC NEWS at bbc.co.uk/news

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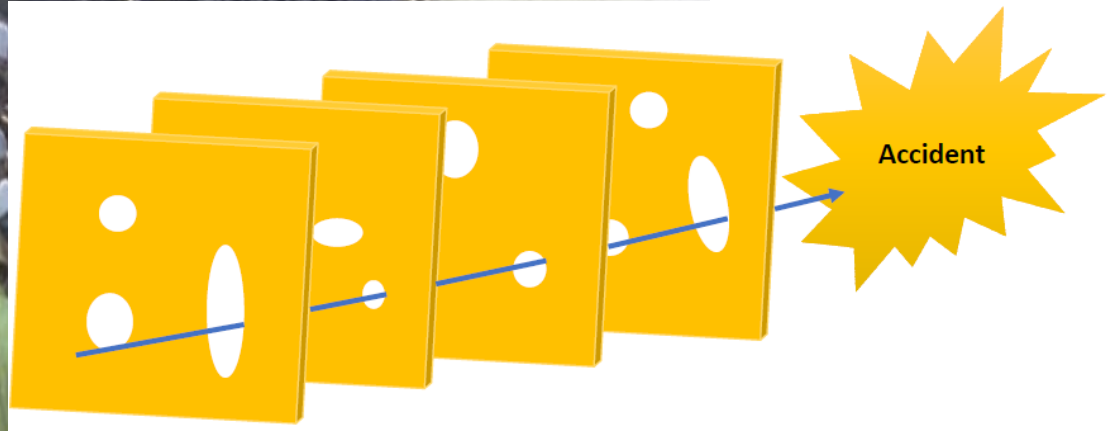

Safety, Health and Welfare at Work Act, 2005

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- **Section 8, 2 (e)**: Providing systems of work that are planned, organised, performed, maintained and revised as appropriate so as to be, so far as is reasonably practicable, safe and without risk to health.

- **Section 19 (1)**: Every employer shall identify the hazards in the place of work under his or her control, assess the risks presented by those hazards and be in possession of a written assessment (to be known and referred to in this Act as a "risk assessment") of the risks to the safety, health and welfare at work of his or her employees.

- The general principles of prevention, Schedule 3 in the Act > **adapting the work to the individual** and **combatting of risk at source.**

Work-as-imagined vs Work-as-done

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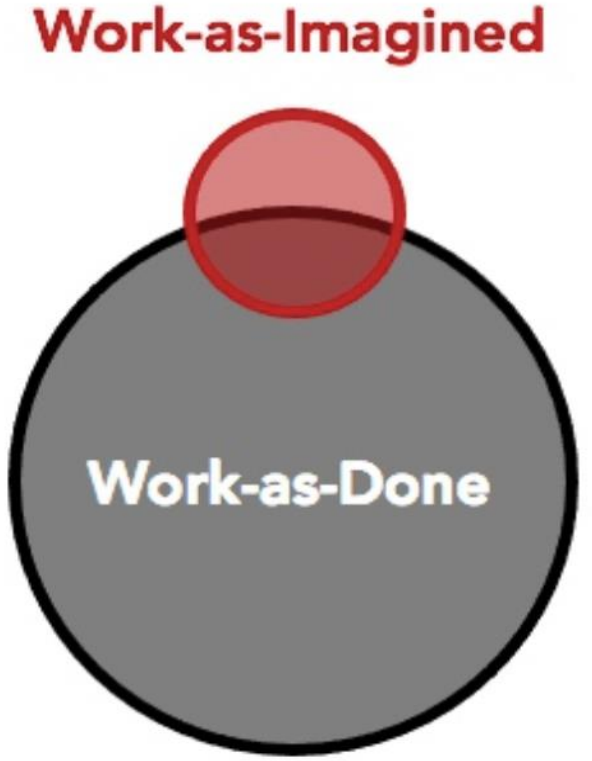
Work as imagined/Assumptions:

- Everyone on site is a competent member of staff
- Everyone on site will follow procedures which are fit for purpose
- Equipment is appropriate and well maintained
- Staff will behave and react in the appropriate way at all times



Errors and Non-Compliances

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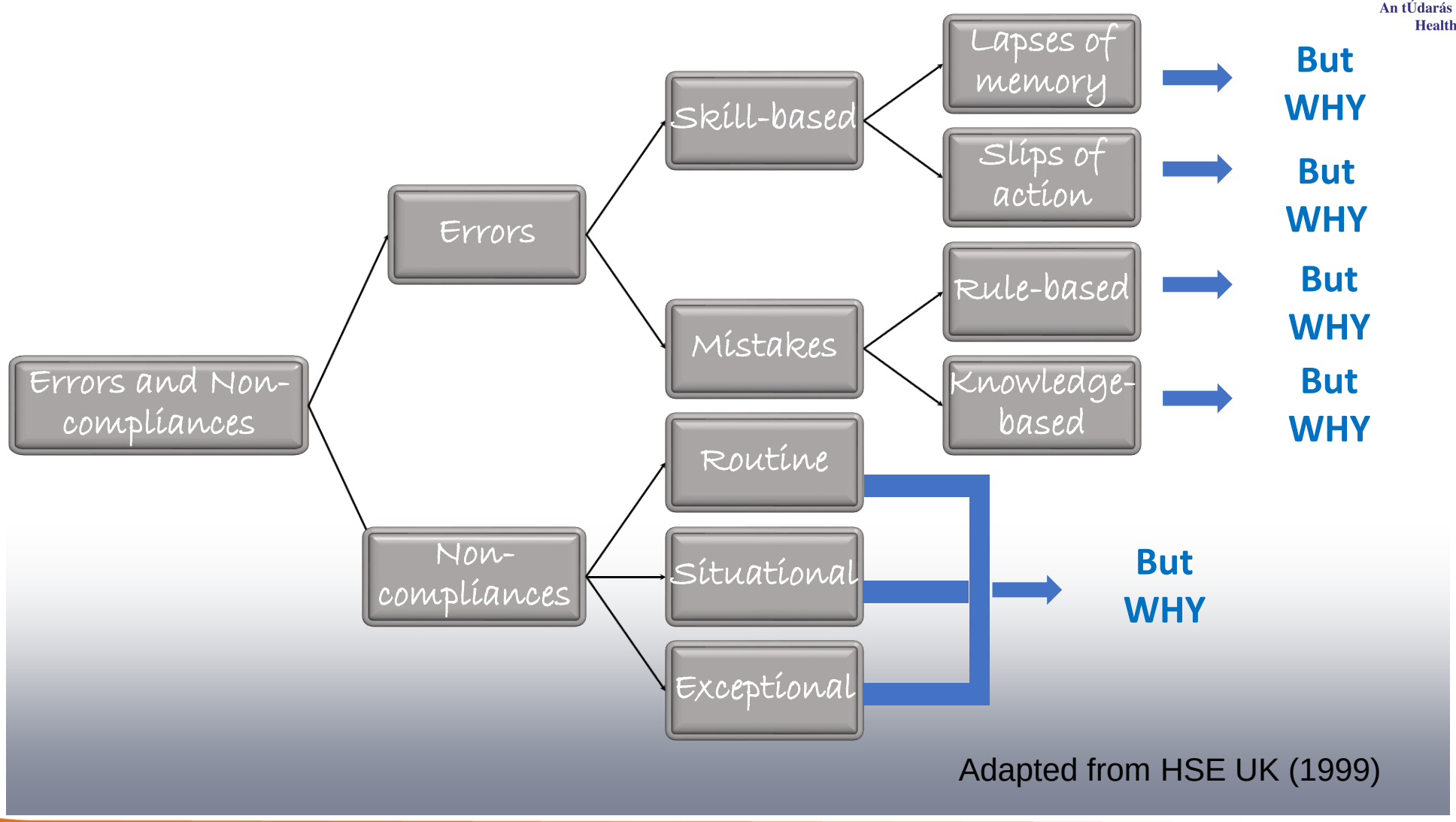

Adapted from HSE UK (1999)

Human Error

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Conscious / deliberated
Knowledge based
Unskilled
Novel
Slow
Demanding
Feedback needed

Automatic
Skill based
Skilled
Routine
Fast
Effortless
Little feedback needed

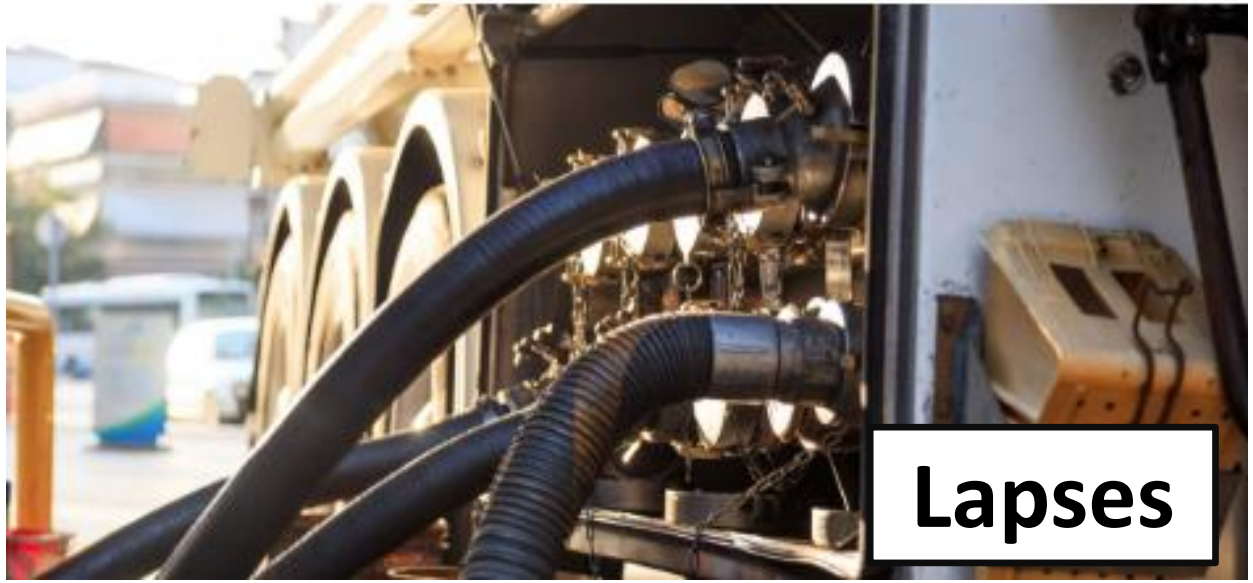
Knowledge-based mistake

Rule-based mistake

Skill-based error

Slip of physical action

Lapse of memory / attention



Human error is here to stay!

Mobile Elevated Work Platforms (MEWPs)

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Photograph 1 - Platform control panel for an articulating boom

Photograph 2 - Platform control panel for another articulating boom

Health and Safety Executive (2013) Mobile Elevated Work Platform (MEWP) incident analysis

Risk Assessment: Focus on ‘work-as-done’

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1. Identify hazards – What are the critical tasks where there is a reliance on people?
2. Evaluate risks – consider what can go wrong:
   - What makes error more likely?
   - What difficulties or mistakes have happened in the past?
   - What makes this step difficult?
   - What do you find frustrating about this step?
   - If you had an apprentice doing this task, what would you tell them to watch out for?
3. Put control measures in place - What actions need to be taken to ensure control measures can be implemented?

Focus on ‘work-as-done’

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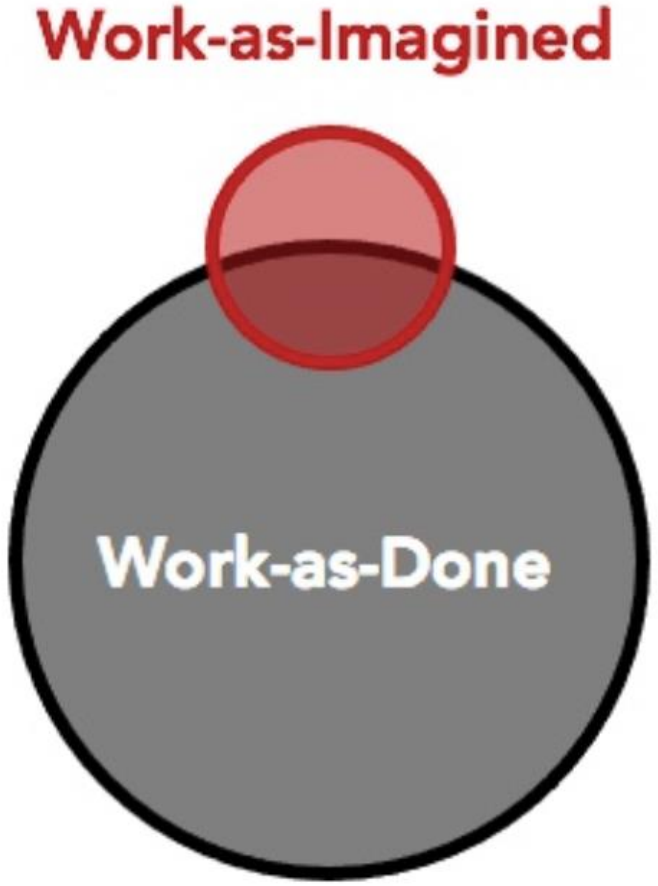
- Observe how a task is done in reality
- Walk/talk through the task
- Understand where the task can go wrong
- Understand what increases or decreases things going wrong



Source: Steven Shorrock | CC BY-NC-ND 4.0 | humanisticsystems.com

Reducing Error and Non-Compliances

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Categories	Types	Control Measures
Skill-based errors	Slips	• human-centred design; checklists and reminders; independent cross-check • removal of distractions and interruptions • sufficient time available to complete task • warnings and alarms to help detect errors
	Lapses	
Mistakes	Rule-based mistake	• plan for all relevant 'what ifs' (procedures for new, abnormal and emergency scenarios) • diagnostic tools and decision-making aids (flowcharts; schematics; job-aids etc.) • competence (knowledge and understanding of system; training in decision-making techniques)
	Knowledge-based mistake	
Non-compliances	Routine	• improve risk perception; promote understanding and raise awareness of 'whys' increase supervision • eliminate reasons to cut corners (poor job design; unnecessary rules; unrealistic workload and targets; unrealistic procedures; adverse environmental factors) • improve safety culture (e.g. active workforce involvement)
	Situational	
	Exceptional	

Adapted from HSE UK

Human Factors: Benefits

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- ✓Reduced operational risk
- ✓Identification and recognition of ‘what works well’ to inform decision making
- ✓Better health outcomes
- ✓Improved communications > positive safety culture
- ✓Provides management with data
- ✓Assurance of compliance with relevant health and safety regulations

Key Messages

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- **Design work for people** > the Human Factors approach to health and safety.
- **Engage with workers** to ensure safe systems of work are informed by how work is actually done and not an imagined version of work > proactively using risk assessment.
- **Understand the contextual factors, individual, job and organisational factors**, which drive behaviour > helps identify opportunities to improve the system.
- **Develop error tolerant systems** to prevent errors leading to workplace accidents. Human error is normal.
- **Risk assess taking account of Human Factors** > Employers have a legal duty to carry out risk assessments and this includes Human Factors.

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hsalearning.ie
HSA Online Courses

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Introduction to Human Factors

Introduction to Human Factors

This short course **Introduction to Human Factors** promotes the importance of designing work for people, and how this enables them to work safely, healthily and effectively. The course is designed for health and safety managers, supervisors, safety officers, safety representatives and policy makers in all sectors of industry with a role in managing health and safety.

Course duration: 20 minutes

Learning outcomes:

At the end of this course you should be able to:

- define Human Factors and outline its benefits,
- outline the individual, job and organisational factors that influence performance,
- understand error and non-compliances and how to influence them,
- identify the legal duties of the employer relevant to Human Factors, and
- explain the relationship between Human Factors and health and safety in the workplace.

Enter course

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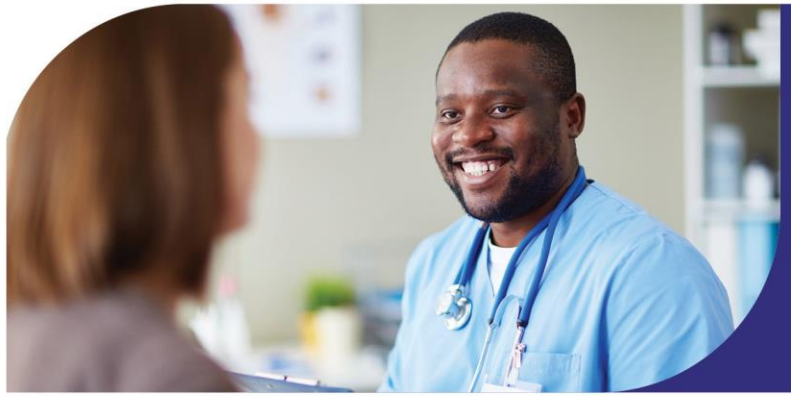
“You cannot change the human condition, but you can change the conditions under which people work.”

Professor of Psychology, James Reason, 1997



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Go raibh maith agaibh

Thank you

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References and Resources

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