
aps
ISHCCO
SAFETY & HEALTH
WELCOME

OPENING REMARKS FROM ISHCCO PRESIDENT

WELCOME FROM MARK SNELLING

APS PRESIDENT


EVANGELITSA TSOULOFTA
ISHCCO

APS & ISHCCO International Conference 2025

Edinburgh, Friday 14 March 2025

Introduction to ISHCCO

International Safety & Health Construction Co-ordinators Organisation

www.ishcco.org
Forum da Vinci, 4-6 Bd. Grande Duchesse Charlotte
L-1330 LUXEMBOURG

ISHCCO

ISHCCO
International **S**afety and **H**ealth **C**onstruction **C**o-ordinators **O**rganisation

Founded in 2002

European Umbrella Association of
Coordinators for Safety and Health Matters

Member Countries – Member Associations

AT: BAUKO, **BE:** VC-CS, **CH:** Lobsiger & P. GmbH,
CY: CYACE, FPA, **DE:** VSDI & VSGK,
DK: IDA, **ES:** ASPRECO, **FR:** OPPBTP, **HR:** CAHSCC (HUK-ZNR), **LU:** ACSSL, **PT:** OET, **UK:** APS

Representing

60.000 SHCC
(Safety and **H**ealth **C**onstruction **C**o-ordinators**)**

ISHCCO - Organisation



- General Assembly (annual)
  - Executive Board Period 2025-2028
    - President Evangelitsa Tsoulofta
      - Secretary Costas Marangos
    - Vice-President Alfredo Soeiro
    - Treasurer Erwin Bruch
    - Officer Signe Mehlson
    - Officer Matej Mihic
  - Committees
    - Internals – Membership, Growth and Retention
    - Professional Standards, Technical Commission, PS TC
    - Public Relations

ISHCCO Purpose

Recent Amendment of the Statutes in 2024

- A nonprofit association of national health and safety Co-ordinators associations in European countries in sense of the European Directive 92/57 or other entities involved in coordination of safety and health on construction sites.

Opening of ISHCCO purpose

- ✓ **Purpose beyond European Directive 92/57**
- ✓ **More members**
- ✓ **Possibility to expand beyond European Boarders**

ISHCCO - Mission

Enhance SHCC's role & Promote SHCC's Professional Qualifications

- Affirm the professional identity
- Recognize and defend the professionalization
- Ensure the professional qualifications
- Safeguard and promote the professional interests
- Assert the status, role and responsibility

Represent SHCC in Europe & Worldwide

- Represent National Members
- Speak with a single voice
- Promote excellence in the education, training and professional development
- Exchange of information and to support a wider dissemination
- Support multilateral collaboration

ISHCCO Vision

Vision

Our vision for ISHCCO is to affirm our members' professional identity and collaborate with occupational safety and health (OSH) and construction professionals and institutions for a safer, healthier and sustainable construction industry and infrastructure.

ISHCCO Priorities

1. Promote the role of ISHCCO and Safety and Health Construction Coordinators in Construction OSH
2. Regulation of Safety and Health Construction Coordinators' Qualifications
3. Enhancing Awareness and Education – Promotion of Prevention Culture
4. Better construction OSH Regulation

ISHCCO Strategies

1. Enhancing existing and Building New Partnerships

2. Enhancing communication with members, partners, and friends

ISHCCO
Strategic Partnerships

- EU-OSHA
- Social partners EFBWW & FIEC

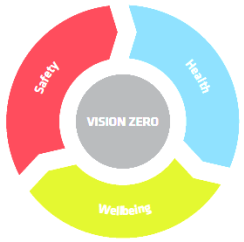
MoU with:

- ECCE
- ISSA-Construction
- ORP
- (AECEF)

ISHCCO

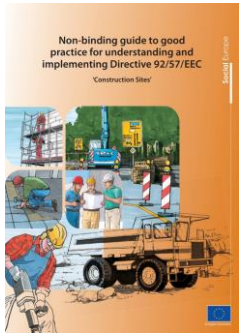
Qualification Framework (IQF)

- Based on European Qualification Framework (EQF)
- Required Knowledge & Skills, Responsibility and autonomy (duties & examples of projects for each level 5, 6, 7 / preparation & execution stages)
- Amendment in 2022 to include Vision Zero Strategy and SDGs (Sustainable Development Goals)



VISION ZERO

- In line with Good Practice of EC Non-binding Guide for Construction Site Directive



ISHCCO Invitation

Invitation to join ISHCCO

We invite all Members, Partners, Sponsors and Friends of ISHCCO to join us and work together to build a safer, healthier and sustainable future for all !

Acknowledgement

Thank you for your attention !

Evangelitsa Tsoulofta

ISHCCO President


aps
association
for project
safety


MARK SNELLING
APS PRESIDENT

Managing competence to ensure life safety in the Built Environment

Preventing a recurrence of the Grenfell Tragedy

Presenter

Mark Snelling MCIOB, FaPS, Cert IOSH
President of the Association for Project Safety
Founder Director of the Building Safety Alliance
Health Safety and Fire Adviser to the Property Institute
Chartered Builder
Certified Member of IOSH
Member of BS8670, PAS 8671, PAS 8763 and BS 8674 Committees
Technical author of the Building Safety Alliance Organisational Capability Standard
Member of Home Office legislation review group

Introduction

On 14 June 2017, a fire broke out at Grenfell Tower, a 24-storey residential tower block in West Kensington, London. Starting on the fourth floor, the fire quickly spread throughout the building and resulted in 72 fatalities.

The Grenfell Tower Enquiry Phase 2 Report was issued in September 2024 and said:

Safety of people in the built environment depends principally on a combination of three primary elements, good design, the choice of suitable materials and sound methods of construction, each of which depends in turn in a large measure on a fourth, the skill, knowledge and experience of those engaged in the construction industry. Unfortunately, as our investigations have shown, at the time of the Grenfell Tower fire there were serious deficiencies in all four of those areas.

Our investigations have shown that levels of competence in the construction industry are generally low.

Grenfell Inquiry Phase 2 Report

The simple truth is that the deaths that occurred were all avoidable and that those who lived in the tower were badly failed over a number of years and in a number of different ways by those who were responsible for ensuring the safety of the building and its occupants. …all contributed to it in one way or another, in most cases through incompetence but in some cases through dishonesty and greed.

Sir Martin Moore Bick (2024) on the publication of the Grenfell Inquiry Phase 2 Report

Grenfell Inquiry Phase 2 Report

Regulations alone (no matter how good) will not guarantee safe buildings, lead to industry transformation or create the needed culture change.

Grenfell Inquiry Phase 2 Report

... if you work in the construction industry and you do not feel the weight of responsibility you have for for keeping people safe you are in the wrong job.

Dr Thouria Istephan, Grenfell Inquiry Panel, Statement on the publication of the Phase 2 Report, 2024

Managing competence to ensure life safety in the Built Environment

Competence before Grenfell

CDM 2015 - Duty to be competent

8.—(1) A designer (including a principal designer) or contractor (including a principal contractor) appointed to work on a project must have:

- the skills, knowledge and experience; and
- if they are an organisation, the organisational capability;

necessary to fulfil the role that they are appointed to undertake, in a manner that secures the health and safety of any person affected by the project.

Organisational capability

Organisational capability means the policies and systems an organisation has in place to set acceptable health and safety standards which comply with the law, and the resources and people to ensure the standards are delivered.

CDM 2015 - Duty to be competent

58 Anyone appointing a designer or contractor to work on a project must take reasonable steps to satisfy themselves that those who will carry out the work have the skills, knowledge, experience, and, where they are an organisation, the organisational capability to carry out the work in a way that secures health and safety.

62 When considering the requirements for designers and other construction professionals, due weight should also be given to membership of an established professional institution or body.

For example, do these bodies have arrangements in place which provide some reassurance that health and safety is part of the route to membership of their profession?

However, questions should also be asked of individuals to ensure that they have sufficient skills, knowledge, and experience to carry out the work involved, and that they keep those capabilities up to date.

Common Assessment Standard

Contents

Section 4: Health and Safety

Does your company have a H&S Policy?

Does your company have arrangements in place to identify significant H&S hazards and produce risk assessments to support safe systems of work?

Does your company have access to competent H&S advice and assistance?

Managing competence to ensure life safety in the Built Environment

Competence after Grenfell

Building Regulation 2010
Competence: general requirement

Any person carrying out any building work or any design work must have—

(a) where the person is an individual, the **skills, knowledge, experience and behaviours** necessary,

(b) where the person is not an individual, the **organisational capability**,

to carry out:

(i) the building work in accordance with all relevant requirements;

(ii) the design work so that the building work to which the design relates, if built, would be in accordance with all relevant requirements.

Organisational Capability

“organisational capability” means appropriate management policies, procedures, systems and resources to ensure individuals under the control of the organisation:

- who are carrying out any building work or any design work comply with **competence: general requirement**;
- individuals under the control of the organisation who are in training to develop the necessary skills, knowledge, experience and behaviours are appropriately supervised.

BS 8670-1:2024
Competence frameworks for Building Safety

People have the right to expect that buildings and their immediate environment are designed, built and maintained safely.

Assuring the competence of all who work in industries within the built environment sector throughout the life cycle of a building is key to achieving this outcome.

This part of BS 8670 sets core building safety criteria for built environment competence frameworks.

It is intended that the core criteria be contextualized within sector-specific frameworks to reflect the appropriate scope and level of competence required for an individual to undertake a defined role, function, activity or task.

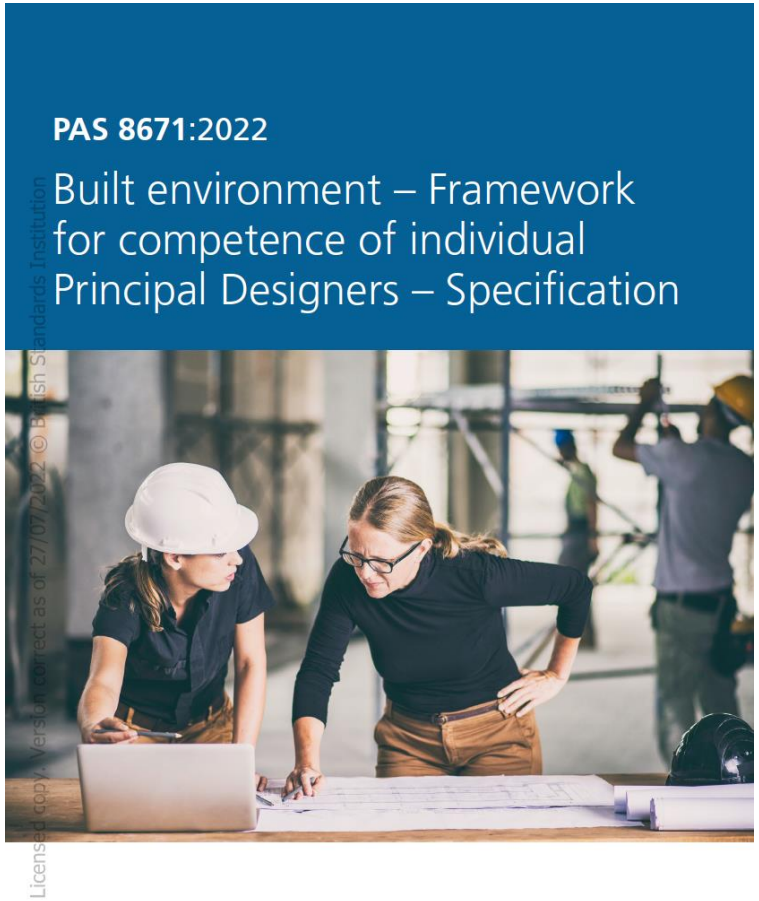
BS 8670-1:2024
Competence frameworks for Building Safety

Table 2 — *Fire safety, structural safety and public safety*

Core competence criteria	Scope
a) Understand and contribute to the development and application of fire strategies, practices and technological systems in buildings.	1) Foundation principles of fire safety, including: i) principles of fire chemistry and physics, including ignition and heat transfer; ii) the influence of structure, construction product selection and building systems on fire safety performance; iii) human behaviour and escape requirements; and iv) methods of fire suppression and how to limit fire growth and fire spread. 2) Fire safety design concepts and strategies that enable safe use and occupancy of a building, including integration of the principles of inclusive design. 3) Prevention, mitigation and control functionalities of fire protection technologies and systems that detect, alert and confine fire growth and effluents; suppress ignition and fire; ventilate and secure escape or reduce fire spread; and reduce risks involved in firefighting and rescue.

Demonstrating Competence (Individuals)

bsi.



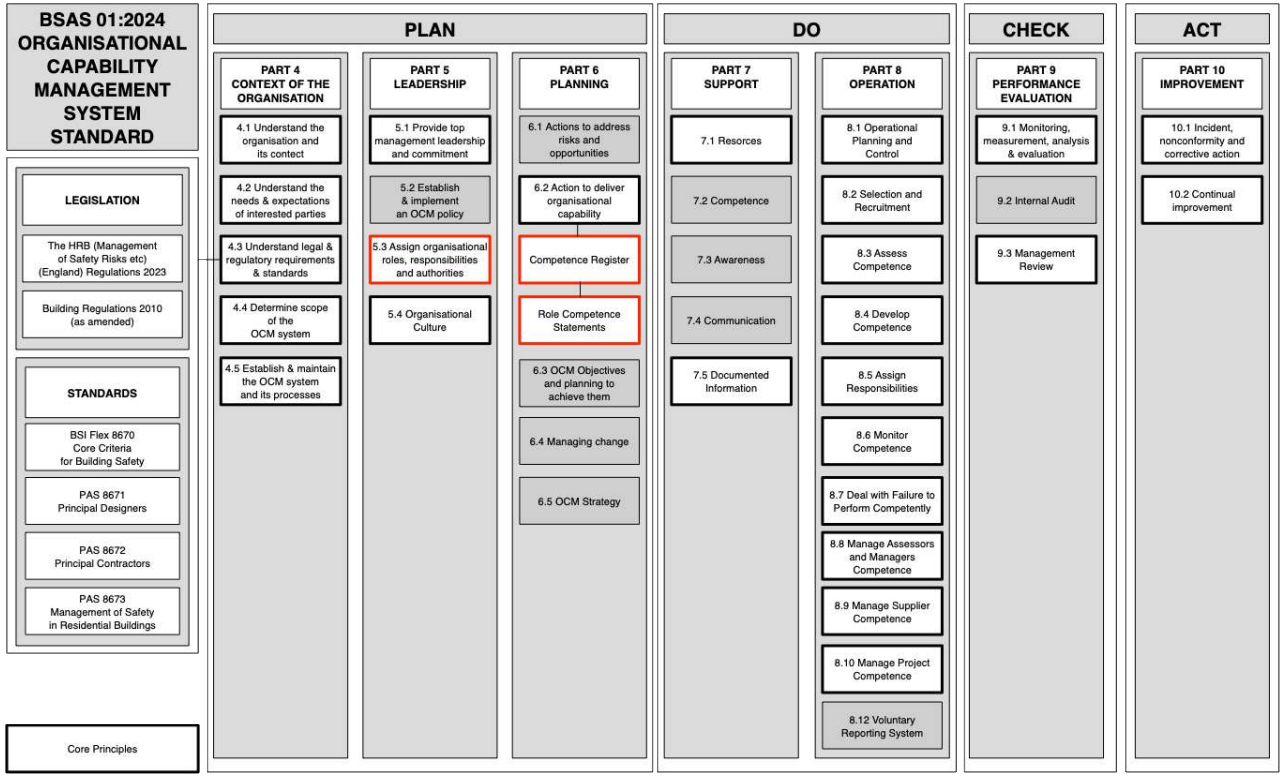
Department for Levelling Up, Housing & Communities

bsi.

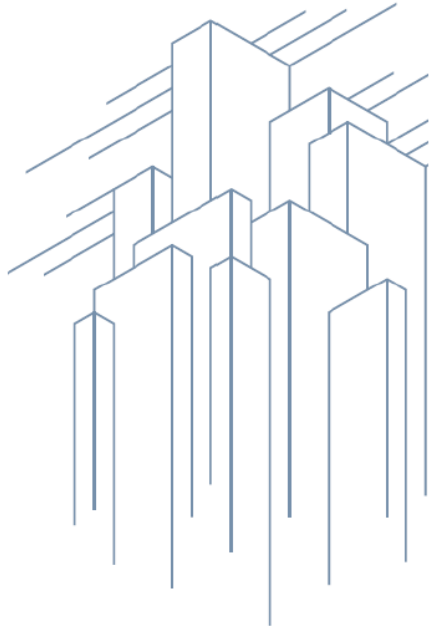
Department for Levelling Up, Housing & Communities

bsi.

Demonstrating Competence (Organizations)



BSAS 01:2024 Organisational Capability Management System Standard – Management of Competence



Common Assessment Standard

Section 7 Building Safety

Does your company have arrangements in place to manage and record evidence of competency (Skills, Knowledge, Experience and Behaviours) for your workforce and key subcontractor roles?

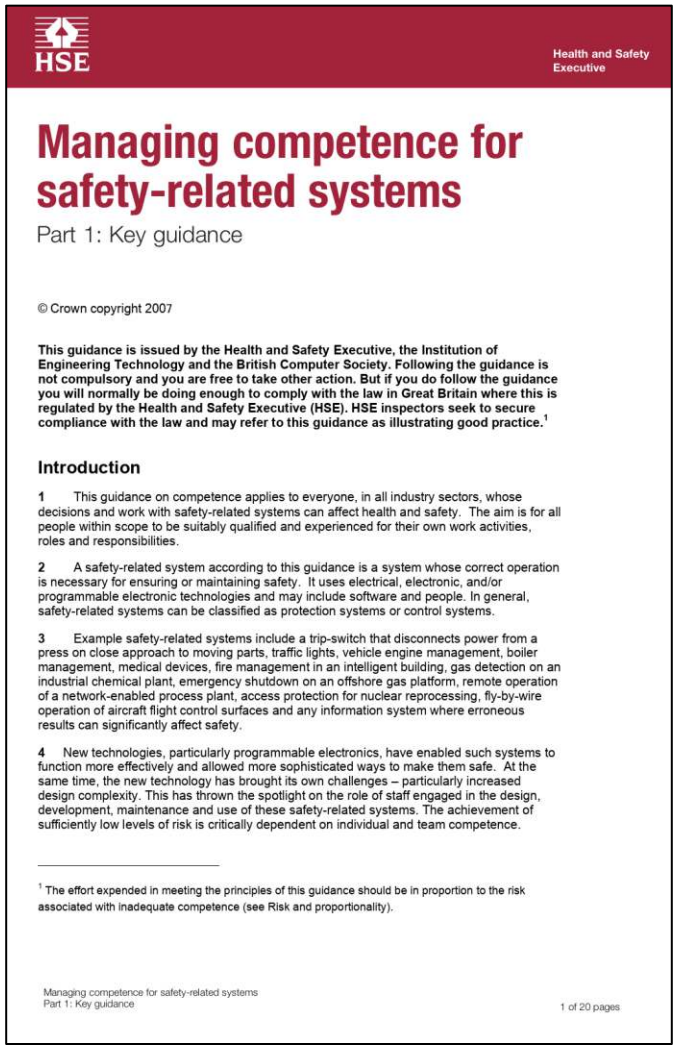
Please provide supporting evidence

- A process for identifying competence requirements for the entire workforce and sub-contractors in accordance with BS 8670
- A Training Needs Analysis (TNA) for the entire workforce
- Evidence of records held including training records, certificates of attendance, CPD programmes, competency management matrixes, copies of CSCS Alliance cards etc.
- Evidence of a training culture including records, certificates of attendance and adequate induction training.
- Dedicated training on your Quality Management Policy or arrangements
- Evidence of an active CPD programme

Managing competence to ensure life safety in the Built Environment

Managing Competence

Competence Management Standards



HSE

Health and Safety Executive

Managing competence for safety-related systems

Part 1: Key guidance

This guidance is issued by the Health and Safety Executive, the Institution of Engineering Technology and the British Computer Society. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law in Great Britain where this is regulated by the Health and Safety Executive (HSE). HSE inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.[1]

Introduction

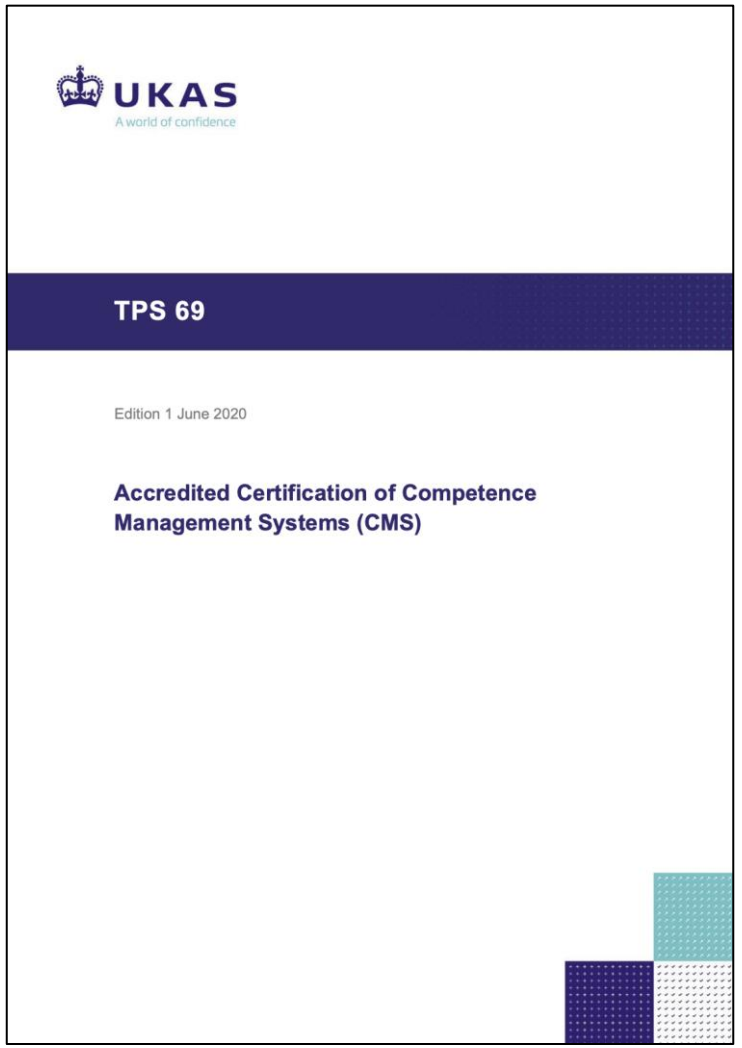
1 This guidance on competence applies to everyone, in all industry sectors, whose decisions and work with safety-related systems can affect health and safety. The aim is for all people within scope to be suitably qualified and experienced for their own work activities, roles and responsibilities.

2 A safety-related system according to this guidance is a system whose correct operation is necessary for ensuring or maintaining safety. It uses electrical, electronic, and/or programmable electronic technologies and may include software and people. In general, safety-related systems can be classified as protection systems or control systems.

3 Example safety-related systems include a trip-switch that disconnects power from a press on close approach to moving parts, traffic lights, vehicle engine management, boiler management, medical devices, fire management in an intelligent building, gas detection on an industrial chemical plant, emergency shutdown on an offshore gas platform, remote operation of a network-enabled process plant, access protection for nuclear reprocessing, fly-by-wire operation of aircraft flight control surfaces and any information system where erroneous results can significantly affect safety.

4 New technologies, particularly programmable electronics, have enabled such systems to function more effectively and allowed more sophisticated ways to make them safe. At the same time, the new technology has brought its own challenges – particularly increased design complexity. This has thrown the spotlight on the role of staff engaged in the design, development, maintenance and use of these safety-related systems. The achievement of sufficiently low levels of risk is critically dependent on individual and team competence.

[1] The effort expended in meeting the principles of this guidance should be in proportion to the risk associated with inadequate competence (see Risk and proportionality).



UKAS

A world of confidence

TPS 69

Edition 1 June 2020

Accredited Certification of Competence Management Systems (CMS)

Health and Safety Executive - 15 Principles

HEALTH AND SAFETY EXECUTIVE Managing competence for safety-related systems - The Principles		
PHASE 1 PLAN	PRINCIPLE 1	Define purpose and scope according to risk
PHASE 2 DESIGN	PRINCIPLE 2	Establish competence criteria
	PRINCIPLE 3	Decide processes and methods
PHASE 3 OPERATE	PRINCIPLE 4	Select and recruit staff
	PRINCIPLE 5	Assess Competence
	PRINCIPLE 6	Develop Competence
	PRINCIPLE 7	Assign Responsibilities
	PRINCIPLE 8	Monitor Competence
	PRINCIPLE 9	Deal with failure to perform competently
	PRINCIPLE 10	Manage assessors' and managers' competence
	PRINCIPLE 11	Manage supplier competence
	PRINCIPLE 12	Manage information
	PRINCIPLE 13	Manage change
PHASE 2 REVIEW	PRINCIPLE 14	Audit
	PRINCIPLE 15	Review

BS 8670-1: 2024 Competence Frameworks for Building Safety
PAS 8671:2022 Framework for competence of Individual Principal Designers
PAS 8672:2022 Framework for competence of Individual Principal Contractors
PAS 8673:2022 Competence requirements for the management of safety in residential buildings
CIOB Framework for the competence of Site Supervisors
PAS 8674:2025 Competence requirements for the Individual Fire Risk Assessors

HEALTH AND SAFETY EXECUTIVE
Managing competence for safety-related systems - The Principles

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UKAS will expect that the 15 recognised principles be addressed in any CMS. These principles are well documented and have been acknowledged by bodies such as UK HSE for managing safety related competences

UKAS
Accredited Certification of Competence Management Systems [CMS]

PHASE 1 ESTABLISH REQUIREMENTS	PRINCIPLE 1	Identify activities and assess risks
	PRINCIPLE 2	Select standards
PHASE 2 DESIGN THE CMS	PRINCIPLE 3	Develop procedures and methods
	PRINCIPLE 4	Decide how to meet standards
	PRINCIPLE 5	Establish training, development & assessment requirements
	PRINCIPLE 6	Maintain managers competence
PHASE 3 IMPLEMENT THE CMS	PRINCIPLE 7	Select and Recruit staff
	PRINCIPLE 8	Train, develop and assess employees
	PRINCIPLE 9	Control activities undertaken
PHASE 4 MAINTAIN AND DEVELOP COMPETENCE	PRINCIPLE 10	Monitor and reassess staff performance
	PRINCIPLE 11	Update the competence of individuals
	PRINCIPLE 12	Manage sub-standard performance
	PRINCIPLE 13	Keep records
PHASE 5 VERIFY, AUDIT AND REVIEW CMS	PRINCIPLE 14	Verify and audit CMS
	PRINCIPLE 15	Review and feedback

The CMS and scheme requirements collectively should contain requirements consistent with the ISO high level structure for management systems.

1 Scope
2 Normative references
3 Terms and definitions
4 Context of the organisation
5 Leadership
6 Planning
7 Support
8 Operation
9 Performance evaluation
10 Improvement

OFFICE OF RAIL AND ROAD
Developing and maintaining staff competence

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PORT SKILLS & SAFETY
Competency Management System [CMS]

PHASE 1 ESTABLISH REQUIREMENTS	PRINCIPLE 1	Identify activities and assess risks
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BUILT ENVIRONMENT
Competency Management System [CMS]

PHASE 1 ESTABLISH REQUIREMENTS	PRINCIPLE 1	Identify activities and assess risks
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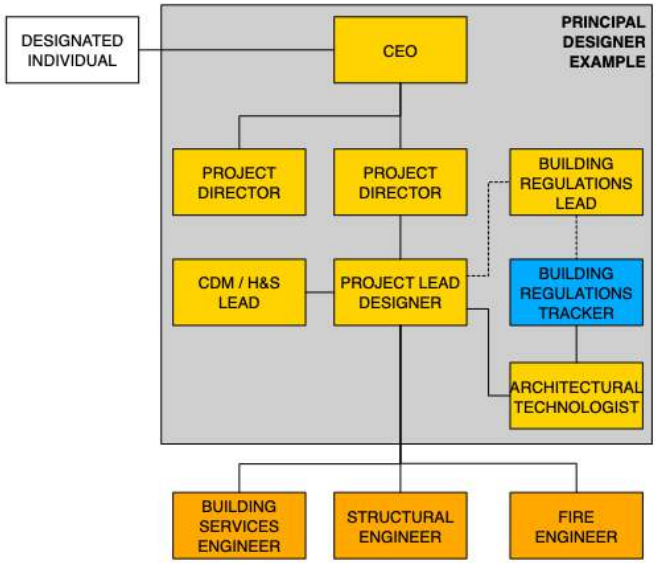
HSE Competence model

1. **Each role has its own set of competence criteria, derived from the work activities that make up the role.**
2. An individual's role is specified in terms of the work activities that they must be able to undertake. The associated competence criteria specify the knowledge, skills, experience and behaviour that is necessary for the individual to be considered competent for the role.
3. To determine if an individual is competent to carry out their role, they are assessed against the predetermined competence criteria.
4. The person is deemed competent for the role if their evidence demonstrates that the competence criteria for the role have been met.
5. If the assessment discovers minor shortfalls in competence, it may be possible for the individual to perform a very similar role with the addition of well-defined precautionary measures such as increased supervision.



HSE Competence Management Principles

Principle 1: Define purpose and scope according to risk

Objective: To specify all work activities to be included in the CMS, based on the risk associated with those activities.

Principle 2: Establish competence criteria

Objective: To select or develop a suite of competence criteria that covers all activities within the scope of the CMS and gives sufficient confidence that all staff that meet particular criteria are competent to perform the related work activity.

Principle 3: Decide processes and methods

Objective: To establish efficient and consistently repeatable processes, procedures and methods that implement the requirements of the principles.

HSE Competence Management Principles

Principle 4: Select and recruit staff

Objective: To select internally, and recruit externally, staff that have an appropriate and demonstrable competence profile.

Principle 5: Assess competence

Objective: To determine the extent to which staff currently meet the established competence criteria.

Principle 6: Develop competence

Objective: To extend and maintain the competence of staff so that they are able to meet relevant competence criteria.

HSE Competence Management Principles

Principle 7: Assign responsibilities

Objective: To ensure that staff and suppliers undertake only work for which they have been assessed as competent.

Principle 8: Monitor competence

Objective: To monitor whether or not staff assessed as competent are continuing to perform competently and to initiate corrective action where appropriate.

Principle 9: Deal with failure to perform competently

Objective: To respond to failures to perform competently so that the impact on safety is minimised, including initiating actions to restore the competence of individuals.

HSE Competence Management Principles

Principle 10: Manage assessors' and managers' competence

Objective: To ensure that senior managers, managers of the CMS and assessors are competent to support and fulfil the requirements of the CMS.

Principle 11: Manage supplier competence

Objective: To ensure that all relevant work activities of suppliers are always performed by competent staff.

Principle 12: Manage information

Objective: To maintain accurate information from the operation of the CMS, in sufficient detail to enable efficient operation and to demonstrate that its requirements are being met.

HSE Competence Management Principles

Principle 13: Manage change

Objective: To monitor changes in the internal operation of the organisation and its external environment, to determine implications for individuals, teams and the CMS and to initiate changes as appropriate.

Principle 14: Audit

Objective: To audit the CMS with sufficient frequency to give confidence that it is meeting its objectives and operating as intended, and to initiate improvement action where appropriate.

Principle 15: Review

Objective: To review identified changes and the combined evidence on the operation of the CMS generated from dealing with competence failures and from audits, and to initiate improvements to the CMS as appropriate.

HEALTH AND SAFETY EXECUTIVE
Managing competence for safety-related systems - The Principles

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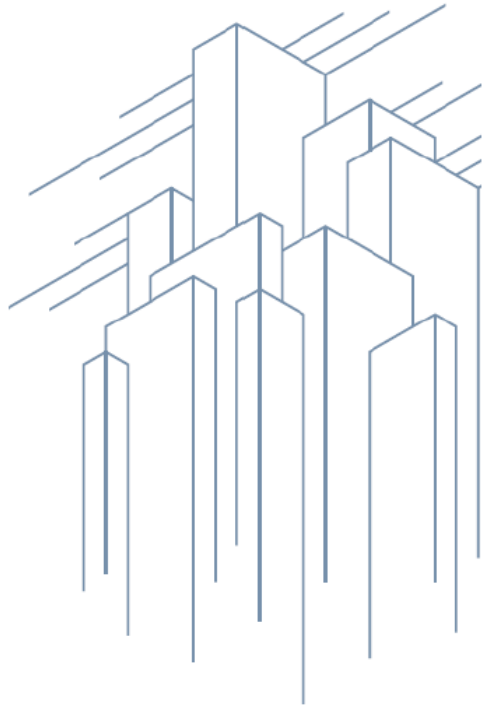
Competence Criteria
BS 8670-1: 2024 Competence Frameworks for Building Safety
PAS 8671:2022 Framework for competence of Individual Principal Designers
PAS 8672:2022 Framework for competence of Individual Principal Contractors
PAS 8673:2022 Competence requirements for the management of safety in residential buildings
CIOB Framework for the competence of Site Supervisors
PAS 8674:2025 Competence requirements for the Individual Fire Risk Assessors

ROLE COMPETENCE STATEMENT

ROLE (LEVEL)	Lead designer		Competence standard		PAS 8671 Framework for competence of Principal Designers		
NAME (RATING)	Mohamed Aswan						
REVIEWER	Mike Smith		ROLE		Designated Individual		
REF	REQUIRED COMPETENCE		APPLI	LEVEL	RATING	EVIDENCE	Narrative	Location of evidence
The dutyholder shall be able to demonstrate competence to work on design work other than for HRBs by applying the competences at the minimum thresholds (including the specific minimum thresholds) set out in 4.2 to 4.5 concurrently. The dutyholder shall be able to:								
4.2	demonstrate behaviour in accordance with legal duties and the "behavioural competences" set out in BSI Flex 8670.		YES				Lorem ipsum dolor sit amet, consectetur adipiscing elit.	C://M-SMITH C://M-SMITH
4.3	apply the legislative and regulatory framework related to how designers and design work meet legal requirements.		YES	3	3	SKILLS [✓] KNOWLEDGE [✓] EXPERIENCE [✓]	Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	C://M-SMITH C://M-SMITH C://M-SMITH
4.4	apply general principles of management to plan design work compliance, and to manage, monitor, and coordinate designers and design work in relation to compliance during the design phase.		NO	4	3	SKILLS [✓] KNOWLEDGE [X] EXPERIENCE [✓]	Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	
4.5 a)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise designers' evidence of design work compliance.		YES	4	3	SKILLS [✓] KNOWLEDGE [✓] EXPERIENCE [X]	Ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit.	C://M-SMITH C://M-SMITH
4.5 b)	understand general principles of building design, general principles of construction, etc. sufficient to manage the process for designers to achieve consensus that coordinated design work complies with relevant requirements.		YES	4	3	SKILLS [✓] KNOWLEDGE [✓] EXPERIENCE [X]	Ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit.	C://M-SMITH C://M-SMITH
4.5 c)	understand general principles of building design, general principles of construction, etc. sufficient to appraise Principal Contractors' comments affecting design work compliance.		YES	4	4	SKILLS [✓] KNOWLEDGE [✓] EXPERIENCE [✓]	In voluptate velit esse cilum dolore eu fugiat nulla pariatur.	C://M-SMITH C://M-SMITH C://M-SMITH

BUILDING SAFETY ALLIANCE

BSAS 01:2024 Organisational Capability Management System Standard – Management of Competence



Managing Competence

A proposed standard

HEALTH AND SAFETY EXECUTIVE Managing competence for safety-related systems - The Principles		
PHASE 1 PLAN	PRINCIPLE 1	Define purpose and scope according to risk
PHASE 2 DESIGN	PRINCIPLE 2	Establish competence criteria
	PRINCIPLE 3	Decide processes and methods
PHASE 3 OPERATE	PRINCIPLE 4	Select and recruit staff
	PRINCIPLE 5	Assess Competence
	PRINCIPLE 6	Develop Competence
	PRINCIPLE 7	Assign Responsibilities
	PRINCIPLE 8	Monitor Competence
	PRINCIPLE 9	Deal with failure to perform competently
	PRINCIPLE 10	Manage assessors' and managers' competence
	PRINCIPLE 11	Manage supplier competence
	PRINCIPLE 12	Manage information
	PRINCIPLE 13	Manage change
PHASE 4 REVIEW	PRINCIPLE 14	Audit
	PRINCIPLE 15	Review

UKAS will expect that the 15 recognised principles be addressed in any CMS. These principles are well documented and have been acknowledged by bodies such as UK HSE for managing safety related competences

UKAS TPS 69 Accredited Certification of Competence Management Systems [CMS]		
PHASE 1 ESTABLISH REQUIREMENTS	PRINCIPLE 1	Identify activities and assess risks
	PRINCIPLE 2	Select standards
PHASE 2 DESIGN THE CMS	PRINCIPLE 3	Develop procedures and methods
	PRINCIPLE 4	Decide how to meet standards
	PRINCIPLE 5	Establish training, development & assessment requirements
	PRINCIPLE 6	Maintain managers competence
PHASE 3 IMPLEMENT THE CMS	PRINCIPLE 7	Select and Recruit staff
	PRINCIPLE 8	Train, develop and assess employees
	PRINCIPLE 9	Control activities undertaken
PHASE 4 MAINTAIN AND DEVELOP COMPETENCE	PRINCIPLE 10	Monitor and reassess staff performance
	PRINCIPLE 11	Update the competence of individuals
	PRINCIPLE 12	Manage sub-standard performance
	PRINCIPLE 13	Keep records
PHASE 5 VERIFY, AUDIT AND REVIEW CMS	PRINCIPLE 14	Verify and audit CMS
	PRINCIPLE 15	Review and feedback

BSAS 01:2024 ORGANISATIONAL CAPABILITY MANAGEMENT SYSTEM STANDARD

LEGISLATION

- The HRB (Management of Safety Risks etc) (England) Regulations 2023
- Building Regulations 2010 (as amended)

STANDARDS

- BSI Flex 8670 Core Criteria for Building Safety
- PAS 8671 Principal Designers
- PAS 8672 Principal Contractors
- PAS 8673 Management of Safety in Residential Buildings

PLAN

PART 4 CONTEXT OF THE ORGANISATION

- 4.1 Understand the organisation and its contect
- 4.2 Understand the needs & expectations of interested parties
- 4.3 Understand legal & regulatory requirements & standards
- 4.4 Determine scope of the OCM system
- 4.5 Establish & maintain the OCM system and its processes

PART 5 LEADERSHIP

- 5.1 Provide top management leadership and commitment
- 5.2 Establish & implement an OCM policy
- 5.3 Assign organisational roles, responsibilities and authorities
- 5.4 Organisational Culture

PART 6 PLANNING

- 6.1 Actions to address risks and opportunities
- 6.2 Action to deliver organisational capability
- Competence Register
- Role Competence Statements
- 6.3 OCM Objectives and planning to achieve them
- 6.4 Managing change
- 6.5 OCM Strategy

DO

PART 7 SUPPORT

- 7.1 Resorces
- 7.2 Competence
- 7.3 Awareness
- 7.4 Communication
- 7.5 Documented Information

PART 8 OPERATION

- 8.1 Operational Planning and Control
- 8.2 Selection and Recruitment
- 8.3 Assess Competence
- 8.4 Develop Competence
- 8.5 Assign Responsibilities
- 8.6 Monitor Competence
- 8.7 Deal with Failure to Perform Competently
- 8.8 Manage Assessors and Managers Competence
- 8.9 Manage Supplier Competence
- 8.10 Manage Project Competence
- 8.12 Voluntary Reporting System

CHECK

PART 9 PERFORMANCE EVALUATION

- 9.1 Monitoring, measurement, analysis & evaluation
- 9.2 Internal Audit
- 9.3 Management Review

ACT

PART 10 IMPROVEMENT

- 10.1 Incident, nonconformity and corrective action
- 10.2 Continual improvement

The CMS and scheme requirements collectively should contain requirements consistent with the ISO high level structure for management systems.

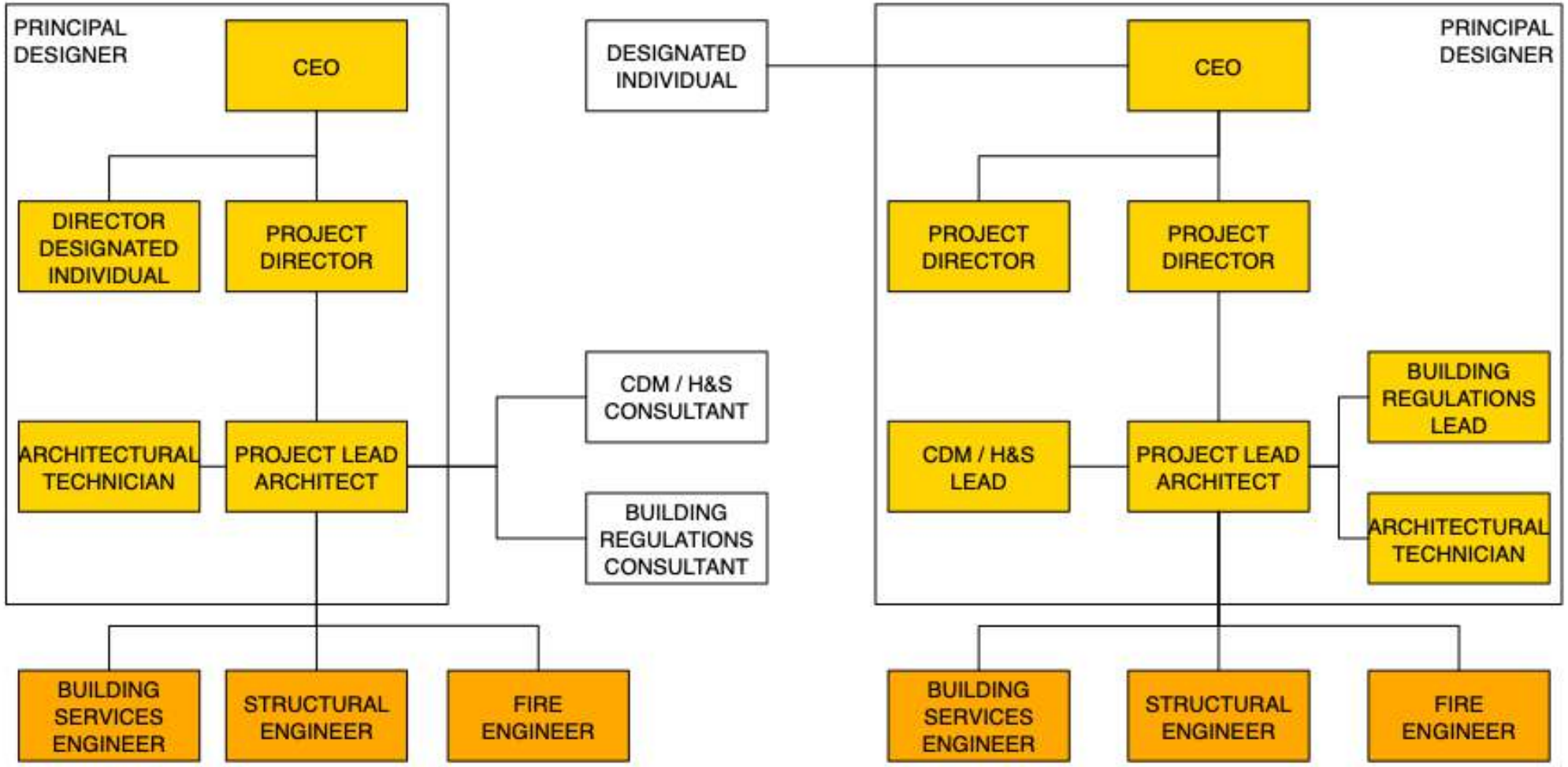
1 Scope
2 Normative references
3 Terms and definitions
4 Context of the organisation
5 Leadership
6 Planning
7 Support
8 Operation
9 Performance evaluation
10 Improvement

Organisational Capability Standard

Organisational capability: (the management of competence) means having the appropriate management policies, procedures, systems and resources to ensure:

- the organisation has the collective skills, knowledge, experience and behaviours [SKEB] that are required to deliver their identified objectives and contractual obligations;
- individuals under the control of the organisation:
  - who are carrying out work on behalf of the organisation, have the necessary SKEB to deliver their role in accordance with all statutory requirements;
  - who are in training to develop the necessary competence, are appropriately supervised by individuals with SKEB that is appropriate to their supervisory role;
- organisations engaged by the company have the necessary organisational capability; and
- an appropriate standard of organisational culture.

Establishing the organisational structure



BS7000-4: 2024 Design Management Systems

1 Scope

This part of BS 7000 gives guidance for all types of construction projects on:

a) the design and construction processes of the built environment; and

b) the management of design activities throughout the design and construction period.

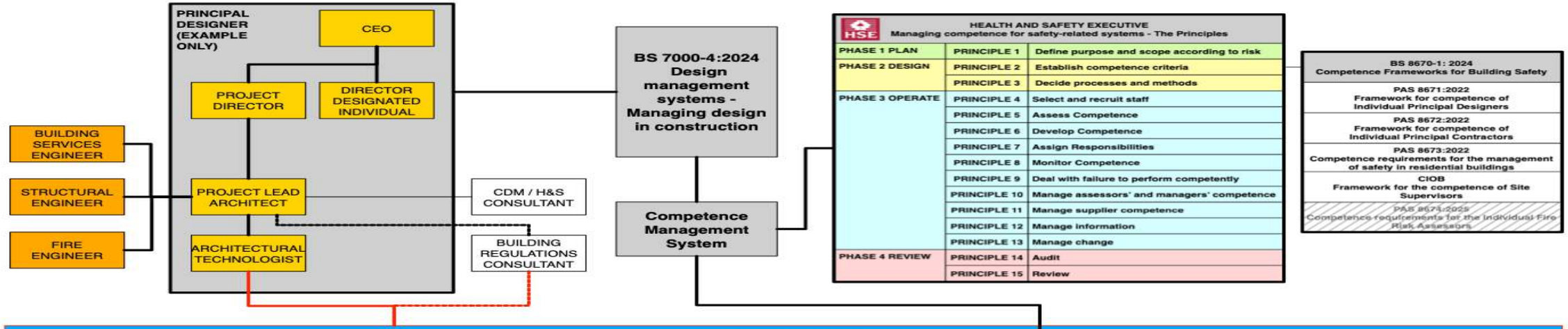
It is intended for those who work in and with the construction industry, particularly those managing the design process. Where general management principles are given, they may be adapted to suit any size of organization or construction project.

4.2.3 Competence

The competence of the individuals and organizations working on a project is critical to the success of any outcome. Due to growing legislation and evolving design and construction technologies, it has become increasingly important to focus on competence frameworks and assessments. One such framework, set out in BSI Flex 8670, builds on the definition of competence set out in the Construction (Design Management) (CDM) Regulations 2015 [1] and provides an approach to measuring competence that takes into account skills, knowledge, experience and behaviours as shown in Figure 4.

5.2 Design management plan (DMP)

Once assigned to a project the principal supplier should mobilize resources, including the design management lead, to compile the DMP so that the delivery team can collaborate effectively.



BUILDING REGULATIONS TRACKER

Schedule 1 Section	Schedule 1 Sub-section	Functional requirement	Applicable	Method of compliance	Suggested evidence	Anticipated delivery	Owner	Designer	Evidence of competence	Evidence of compliance	Status	Assessor commentary	Specialist responses
PART A Structure	PART A1 (1) Loading	The building shall be constructed so that the combined dead, imposed and wind loads are sustained and transmitted by it to the ground— (a) safely; and (b) without causing such deflection or deformation of any part of the building, or such movement of the ground, as will impair the stability of any part of another building.	YES	Approved Document A BS EN 1990:2002+a1: 2005 Eurocode - Basis of structural design	Suggested evidence required from designers	e.g. Stage 3	e.g. design consultants name	e.g. sub-consultants name	Links to competence assessment and evidence of competence. Required for organisations, design checkers (particularly for safety critical elements) and individual designers	Evidence of design compliance with specified functional requirements that aligns with agreed method of compliance including narrative (where necessary) and links to drawings etc.	Outstanding	Informative commentary to provide record of design advice given, agreements, and interim status.	Responses from specialist assessors commissioned to peer review / assess design compliance
PART A Structure	PART A1 (2) Loading												
PART A Structure	PART A2 Ground Movement												
PART A Structure	PART A3 Dispr. Collapse												
PART B Fire	PART B1 (1) Means of warning and escape	The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times.	YES	Health Technical Memorandum 05-02: Firecode									

Joining the dots

Competence Matrix

COMPETENCE MATRIX **Company:** Acme Architects Ltd **Region:** Southern **Project:** Seaview Flats			Director	Designated individual	Lead designer	Building regulations adviser	Architectural technician	CDM Adviser
REF	**REQUIRED COMPETENCE**	Numbers of people in role required	1	1	1	1	1	1
		Numbers of people in role available	1	1	1	0	1	0
PAS 8671 Principal Designer - 4.3 Legislative and regulatory framework for compliance								
4.3.1 Minimum competence Principal Designers shall be able to apply the legislative and regulatory framework related to how designers and design work meet legal requirements. **4.3.2 Specific competencies** Principal Designers shall be able to:								
a)	apply understanding of the duties and behaviours required of Principal Designers							
b)	apply understanding of the purpose, structure and scope of the legislative and regulatory framework to appraising and challenging evidence of design work compliance							
c) i)	understand how to find and apply information in the legislative and regulatory framework governing how design work, including HRB design work, if built, is expected to comply with relevant requirements							
c) ii)	understand how to find and apply information in the legislative and regulatory framework governing how Principal Designers and other dutyholders are expected to perform their duties, follow prescribed procedures, and comply with legislation, including when working on HRB design work							

Competence Matrix

COMPETENCE MATRIX **Company:** Acme Architects Ltd **Region:** Southern **Project:** Seaview Flats			Director	Designated individual	Lead designer	Building regulations adviser	Architectural technician	CDM Adviser
REF	**REQUIRED COMPETENCE**	Numbers of people in role required	1	1	1	1	1	1
		Numbers of people in role available	1	1	1	0	1	0
The dutyholder shall be able to demonstrate competence to work on design work other than for HRBs by applying the competences at the minimum thresholds (including the specific minimum thresholds) set out in 4.2 to 4.5 concurrently. The dutyholder shall be able to:								
4.2	demonstrate behaviour in accordance with legal duties and the "behavioural competences" set out in BSI Flex 8670.		✓	✓	✓	✓	✓	✓
4.3	apply the legislative and regulatory framework related to how designers and design work meet legal requirements.							
4.4	apply general principles of management to plan design work compliance, and to manage, monitor, and coordinate designers and design work in relation to compliance during the design phase.							
4.5 a)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise designers' evidence of design work compliance.							
4.5 b)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to manage the process for designers to achieve consensus that coordinated design work complies with relevant requirements.							
4.5 c)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise Principal Contractors' comments affecting design work compliance.							

Competence levels (example)

Level	NQF Levels	Summary of skills, knowledge and experience
1. Basic	Levels 0-2	You are expected to have some knowledge of the specified activity and its terminology and concepts. You will have some experience of doing the activity. You will be able to carry out straightforward relevant tasks to the required standard under supervision
2. Capable	Levels 3 and 4	You will have the knowledge and experience to carry out standard relevant tasks confidently and consistently without supervision. You may even supervise others. You are likely to need to seek advice before carrying out more complex or non-standard tasks.
3. Accomplished	Levels 5 and 6	You will have the knowledge and experience to carry out complex, specialist or non-standard tasks confidently and consistently. You will be aware of
4. Authoritative	Levels 7 and 8	You will be widely recognised as an authority, both by others in your organisation and by external peers, for the knowledge and experience you

Competence Matrix

COMPETENCE MATRIX **Company:** Acme Architects Ltd **Region:** Southern **Project:** Seaview Flats			Director	Designated individual	Lead designer	Building regulations adviser	Architectural technician	CDM Adviser
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4.2	demonstrate behaviour in accordance with legal duties and the "behavioural competences" set out in BSI Flex 8670.		✓	✓	✓	✓	✓	✓
4.3	apply the legislative and regulatory framework related to how designers and design work meet legal requirements.		2	4	4	3	3	2
4.4	apply general principles of management to plan design work compliance, and to manage, monitor, and coordinate designers and design work in relation to compliance during the design phase.		3	4	4	2	2	2
4.5 a)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise designers' evidence of design work compliance.		3	4	4	2	2	2
4.5 b)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to manage the process for designers to achieve consensus that coordinated design work complies with relevant requirements.		2	3	4	4	2	2
4.5 c)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise Principal Contractors' comments affecting design work compliance.		2	3	4	4	2	2

Role Competence Statement

ROLE COMPETENCE STATEMENT								
ROLE (LEVEL)	Lead designer			Competence standard		PAS 8671 Framework for competence of Principal Designers		
NAME (RATING)								
REVIEWER	Mike Smith			ROLE		Designated Individual		
REF	REQUIRED COMPETENCE			APPLI.	LEVEL	RATING	EVIDENCE	Narrative	Location of evidence
The dutyholder shall be able to demonstrate competence to work on design work other than for HRBs by applying the competences at the minimum thresholds (including the specific minimum thresholds) set out in 4.2 to 4.5 concurrently. The dutyholder shall be able to:									
4.2	demonstrate behaviour in accordance with legal duties and the "behavioural competences" set out in BSI Flex 8670.			YES					
4.3	apply the legislative and regulatory framework related to how designers and design work meet legal requirements.			YES	3		SKILLS [ ] KNOWLEDGE [ ] EXPERIENCE [ ]		
4.4	apply general principles of management to plan design work compliance, and to manage, monitor, and coordinate designers and design work in relation to compliance during the design phase.			YES	4		SKILLS [ ] KNOWLEDGE [ ] EXPERIENCE [ ]		
4.5 a)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise designers' evidence of design work compliance.			YES	4		SKILLS [ ] KNOWLEDGE [ ] EXPERIENCE [ ]		
4.5 b)	understand general principles of building design, general principles of construction, etc. sufficient to manage the process for designers to achieve consensus that coordinated design work complies with relevant requirements.			YES	4		SKILLS [ ] KNOWLEDGE [ ] EXPERIENCE [ ]		
4.5 c)	understand general principles of building design, general principles of construction,etc. sufficient to appraise Principal Contractors' comments affecting design work compliance.			YES	4		SKILLS [ ] KNOWLEDGE [ ] EXPERIENCE [ ]		

Role Competence Statement

ROLE COMPETENCE STATEMENT								
ROLE (LEVEL)	Lead designer	Competence standard			PAS 8671 Framework for competence of Principal Designers			
NAME (RATING)	Mohamed Aswan							
REVIEWER	Mike Smith	ROLE			Designated Individual			
REF	REQUIRED COMPETENCE	APPLI.	LEVEL	RATING	EVIDENCE	Narrative	Location of evidence	
The dutyholder shall be able to demonstrate competence to work on design work other than for HRBs by applying the competences at the minimum thresholds (including the specific minimum thresholds) set out in 4.2 to 4.5 concurrently. The dutyholder shall be able to:								
4.2	demonstrate behaviour in accordance with legal duties and the "behavioural competences" set out in BSI Flex 8670.	YES				Lorem ipsum dolor sit amet, consectetur adipiscing elit.	C://M-SMITH	
								C://M-SMITH
4.3	apply the legislative and regulatory framework related to how designers and design work meet legal requirements.	YES	3		SKILLS [✓]	Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	C://M-SMITH	
					KNOWLEDGE [✓]		C://M-SMITH	
					EXPERIENCE [✓]		C://M-SMITH	
4.4	apply general principles of management to plan design work compliance, and to manage, monitor, and coordinate designers and design work in relation to compliance during the design phase.	YES	4		SKILLS [✓]	Ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit.		
					KNOWLEDGE [X]			
					EXPERIENCE [✓]			
4.5 a)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise designers' evidence of design work compliance.	YES	4		SKILLS [✓]	Ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit.	C://M-SMITH	
					KNOWLEDGE [✓]		C://M-SMITH	
					EXPERIENCE [X]			
4.5 b)	understand general principles of building design, general principles of construction, etc. sufficient to manage the process for designers to achieve consensus that coordinated design work complies with relevant requirements.	YES	4		SKILLS [✓]	In voluptate velit esse cillum dolore eu fugiat nulla pariatur.	C://M-SMITH	
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4.5 c)	understand general principles of building design, general principles of construction,etc. sufficient to appraise Principal Contractors' comments affecting design work compliance.	YES	4		SKILLS [✓]	In voluptate velit esse cillum dolore eu fugiat nulla pariatur.	C://M-SMITH	
					KNOWLEDGE [✓]		C://M-SMITH	
					EXPERIENCE [✓]		C://M-SMITH	

Role Competence Statement

ROLE COMPETENCE STATEMENT							
ROLE (LEVEL)	Lead designer	**Competence standard**			PAS 8671 Framework for competence of Principal Designers		
NAME (RATING)	Mohamed Aswan						
REVIEWER	Mike Smith	**ROLE**			Designated Individual		
REF	**REQUIRED COMPETENCE**	**APPLI.**	**LEVEL**	**RATING**	**EVIDENCE**	**Narrative**	**Location of evidence**
The dutyholder shall be able to demonstrate competence to work on design work other than for HRBs by applying the competences at the minimum thresholds (including the specific minimum thresholds) set out in 4.2 to 4.5 concurrently. The dutyholder shall be able to:							
4.2	demonstrate behaviour in accordance with legal duties and the "behavioural competences" set out in BSI Flex 8670.	YES				Lorem ipsum dolor sit amet, consectetur adipiscing elit.	C://M-SMITH C://M-SMITH
4.3	apply the legislative and regulatory framework related to how designers and design work meet legal requirements.	YES	3	3	SKILLS [✓] KNOWLEDGE [✓] EXPERIENCE [✓]	Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	C://M-SMITH C://M-SMITH C://M-SMITH
4.4	apply general principles of management to plan design work compliance, and to manage, monitor, and coordinate designers and design work in relation to compliance during the design phase.	NO	4	3	SKILLS [✓] KNOWLEDGE [✗] EXPERIENCE [✓]	Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	
4.5 a)	understand general principles of building design, general principles of construction, and the "core criteria for building safety" set out in BSI Flex 8670 sufficient to appraise designers' evidence of design work compliance.	YES	4	3	SKILLS [✓] KNOWLEDGE [✓] EXPERIENCE [✗]	Ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit.	C://M-SMITH C://M-SMITH
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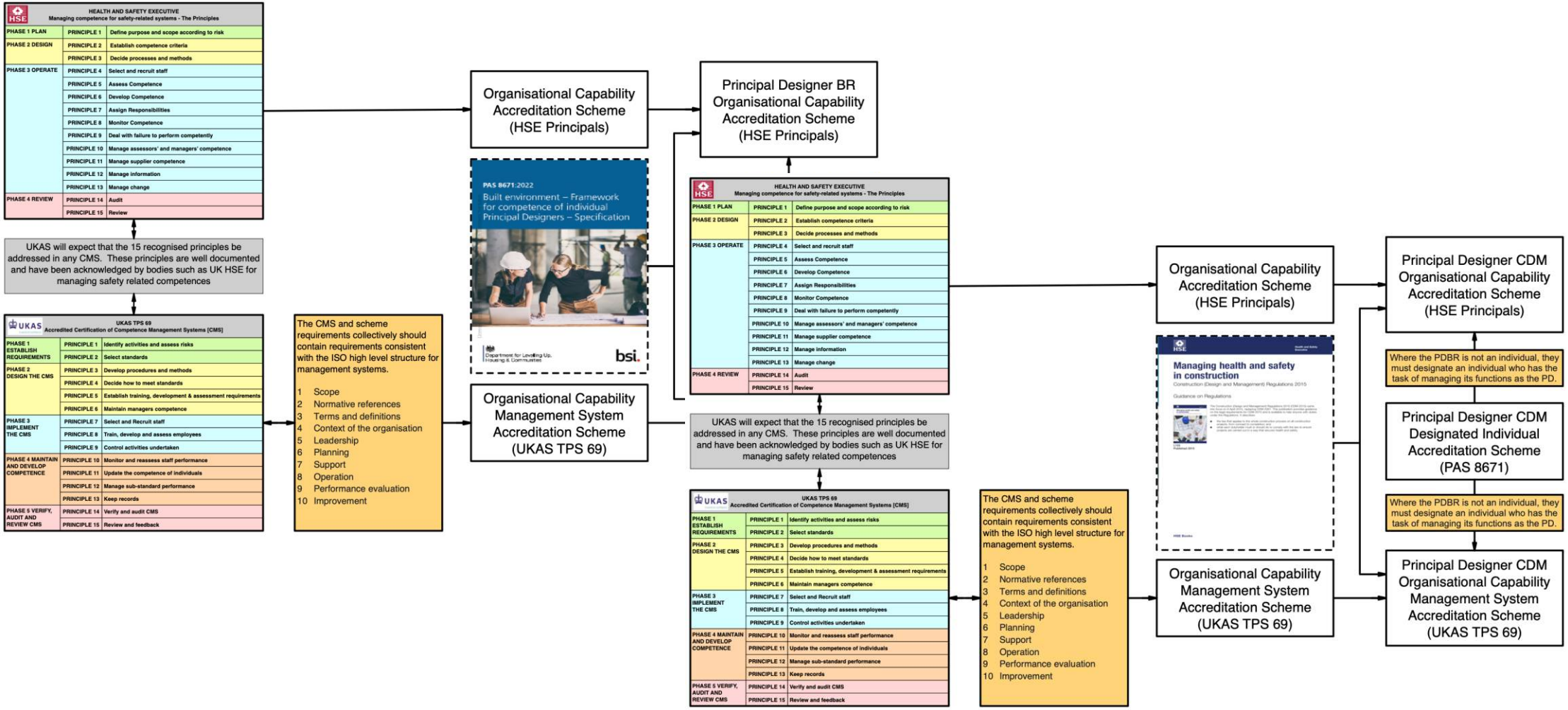
4.5 c)	understand general principles of building design, general principles of construction,etc. sufficient to appraise Principal Contractors' comments affecting design work compliance.	YES	4	4	SKILLS [✓] KNOWLEDGE [✓] EXPERIENCE [✓]	In voluptate velit esse cillum dolore eu fugiat nulla pariatur.	C://M-SMITH C://M-SMITH C://M-SMITH

The Future?



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OHLA BOHDANOVA
ISSA-C SECRETARY GENERAL

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Section on Prevention in the Construction Industry

Building Bridges: Collaborative pathways between ISHCCO and ISSA-Construction to tackle Global Challenges

Dr. Olha Bohdanova
ISSA-Construction
BG BAU
Prevention Forum Plus

March 2025

Pixabay @wenzlerdesign

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Section on Prevention in the Construction Industry

International Section of the ISSA on Prevention in the Construction Industry

- **Foundation:** 1968
- **Objective:** Prevention of occupational accidents and illnesses in the construction industry
- **Tasks:** • technical meetings, • studies, • expert discussions, • project management, • Vision Zero strategy
- **Members:** 23 Member organizations from 17 countries

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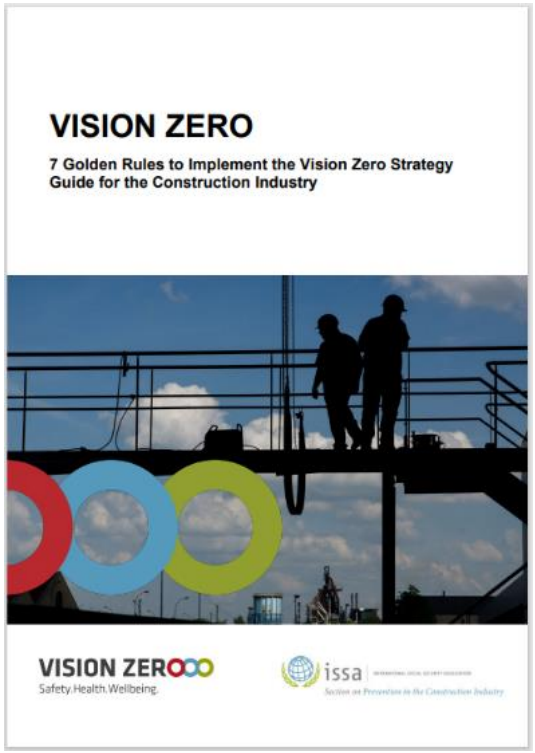
Section on Prevention in the Construction Industry

Publications

„Vision Zero 7 Golden Rules“ – Guide for the construction industry



[Vision Zero Guide for the Construction Industry.pdf]

ISSA Construction Vision Zero video clip (with subtitles in various languages)

VISION ZERO

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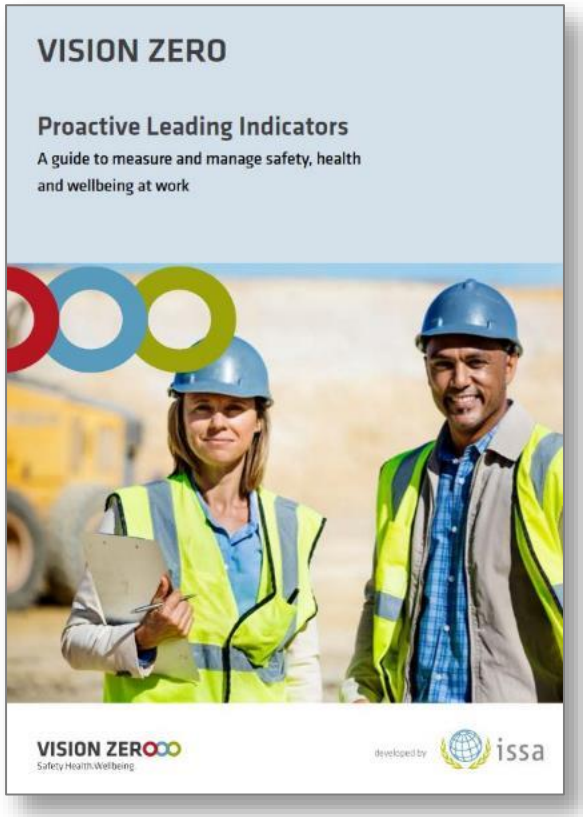
Section on Prevention in the Construction Industry

[Videos | International Social Security Association (ISSA)]

Vision Zero Publications supported by ISSA Construction

Guide: „Vision Zero Proactive Leading Indicators“



http://visionzero.global/sites/default/files/2020-09/4-VZ_Indicators2020.pdf

Guide: „Vision Zero 7 Golden Rules for Small Businesses“

http://visionzero.global/sites/default/files/2020-10/DE-VZ-Guide%20for%20small%20enterprises.pdf

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ISHCCO SAFETY & HEALTH

ISHCCO and ISSA-Construction

Joint projects

Conferences

Cooperation

Projects

Integration

Cross-media communication

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Section on Prevention in the Construction Industry

Global Challenges

MANAGEMENT OF:

Emergency situations

Migration

Knowledge

Response to global Challenges

Solutions for the early integration and accident prevention of migrant labour

Effective international training and sharing experience in construction safety

Safe construction under extreme conditions

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Section on Prevention in the Construction Industry

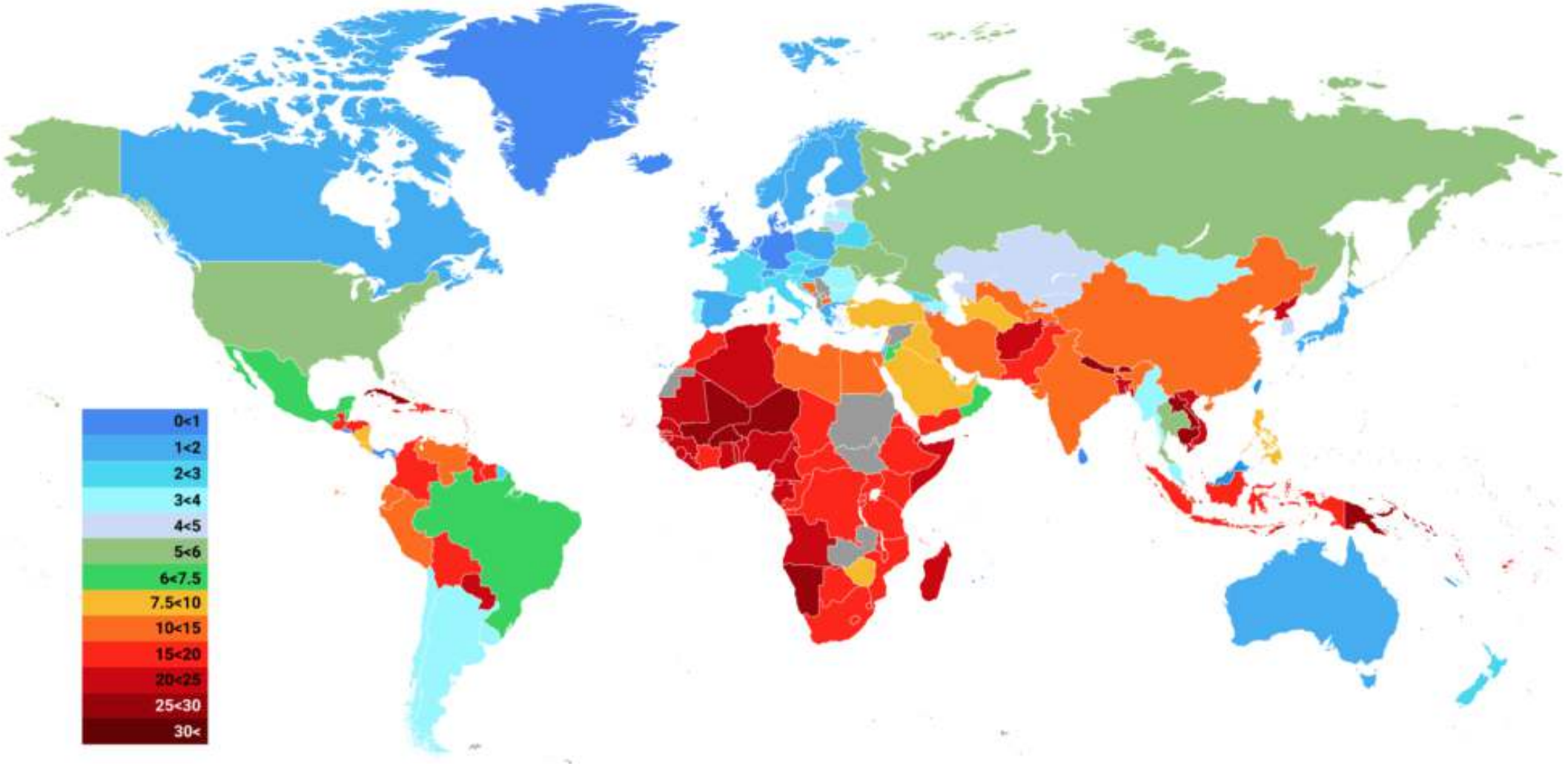
Managing labour migrants

- **Integration and accident prevention of migrant labour**
-
-

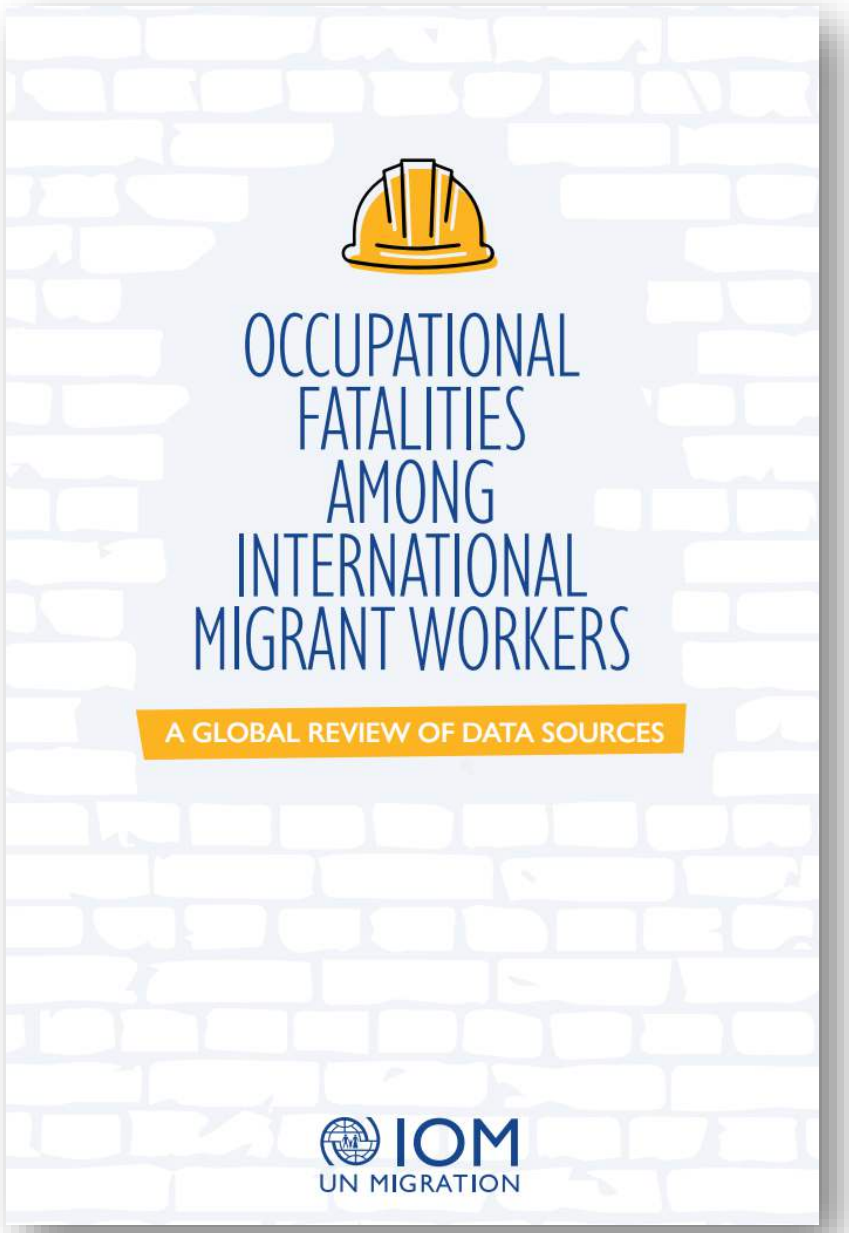
Pixabay @geralt

Health and Safety

What is the rate of fatal accidents and work for 100.000 workers worldwide?



[The World's Most Dangerous Countries for Workers | Arinite]

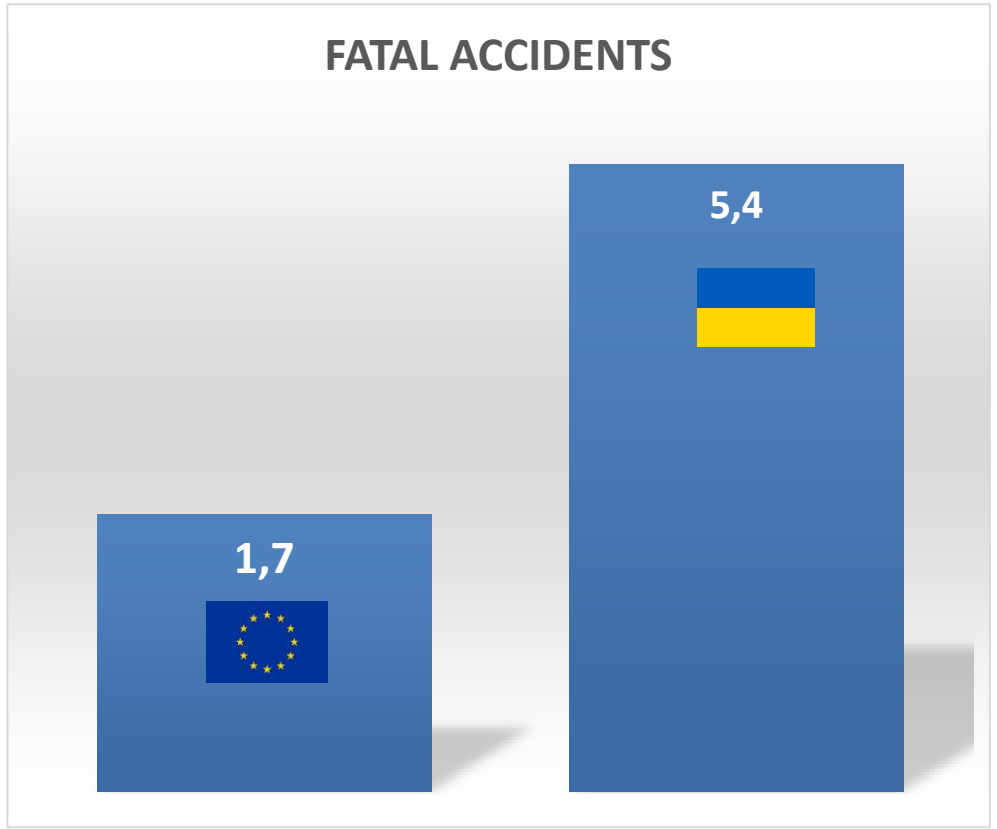


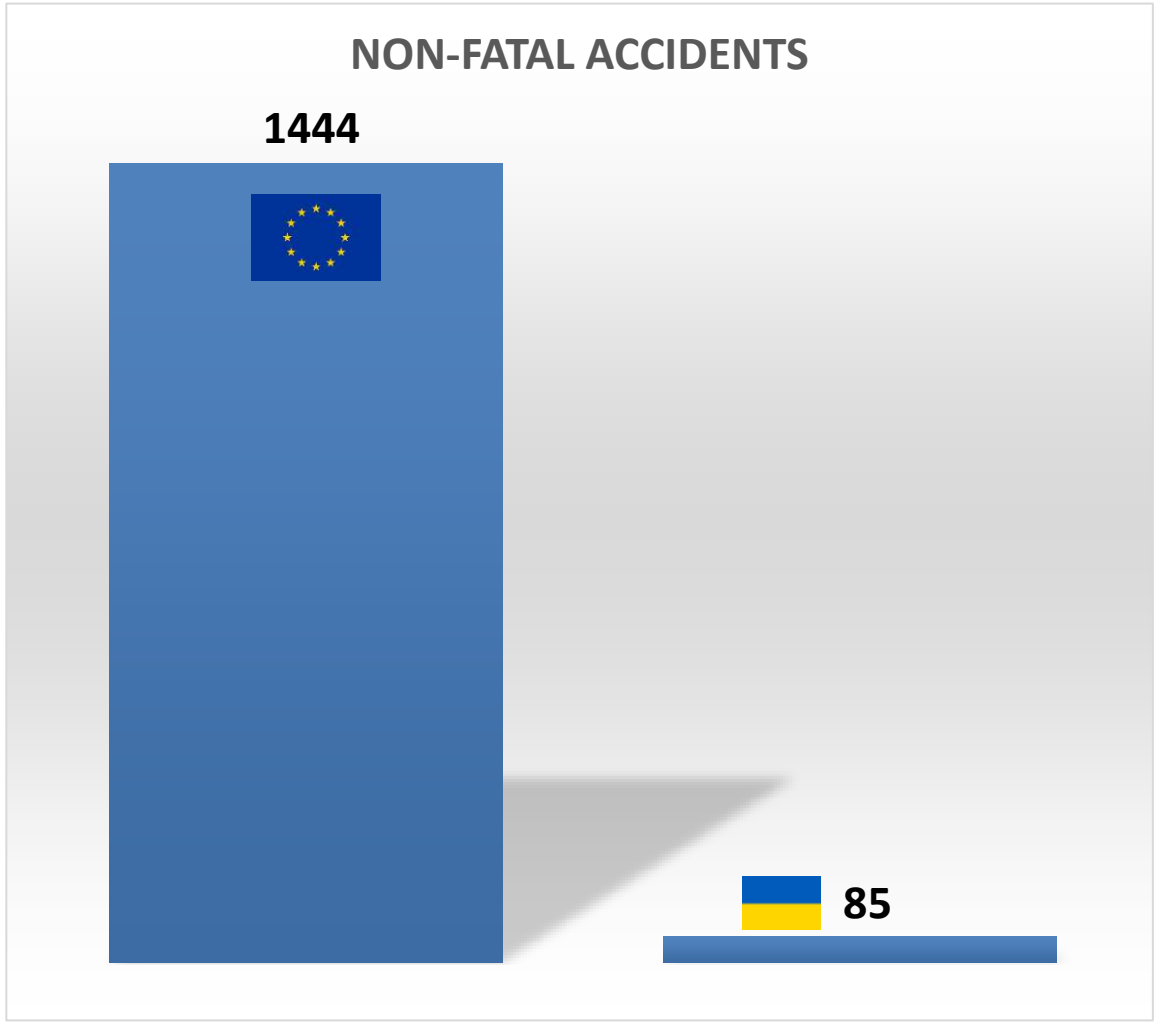
PROPOSALS:

1. **Harmonization of the data to international standards and within countries**
2. **Accurate data on the cause of death**
3. **Improve knowledge and availability of data on fatal occupational diseases among migrants**
4. **Innovative methods and sources to identify hidden migrant groups**

https://publications.iom.int/system/files/pdf/Occupational-Fatalities.pdf

Example: Comparison of accidents at work for Ukraine and EU per 100 000 employees, 2020





https://ilostat.ilo.org/topics/safety-and-health-at-work/
https://ec.europa.eu/eurostat/statistics-explained/

How to make the 3-way communication possible?

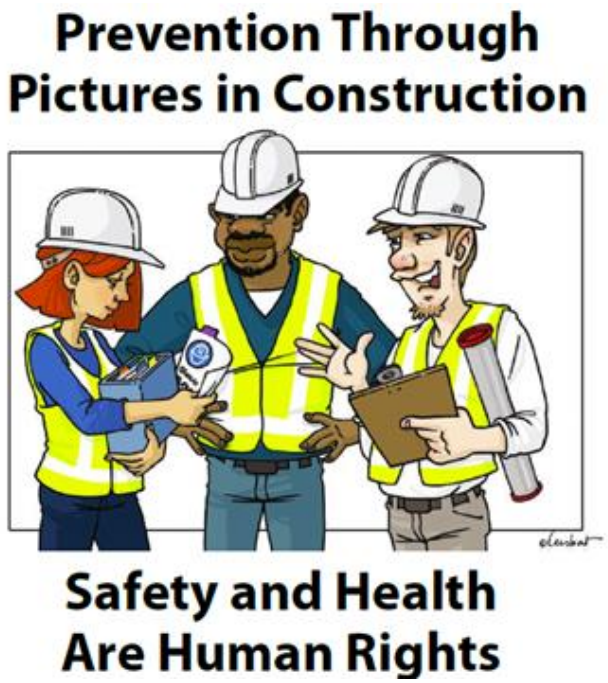
https://www.cpwr.com/research/training-and-awareness-programs-from-research/foundations-for-safety-leadership/

Mental Health Disorders among Labour Migrants

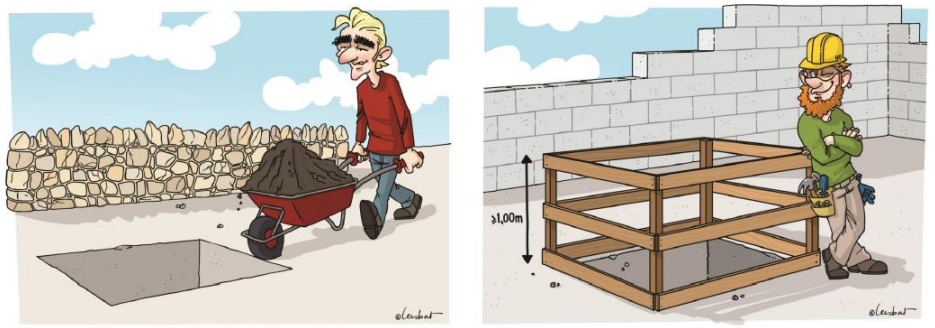
Male construction workers face 75% higher suicide rate than general population (USA, 2022)

https://www.cdc.gov/mmwr/volumes/72/wr/mm7250a2.htm

Prevention through pictures



(Examples)



https://ww1.issa.int/sites/default/files/documents/prevention/wcms_383797-3-160736.pdf

Training “HERE and NOW”

Inhalt: 1x1 im Arbeitsschutz: Lernportal der BG BAU

Lernen und Gesundheit: Krieg in der Ukraine (dguv-lug.de)

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Section on Prevention in the Construction Industry

Management of safety in extreme conditions

-
- **Safe construction under extreme conditions**
-

Pixbay @jwvein

The impact of war on safety development

- **Encouraging the growth of life-saving technologies**

The Brodie steel combat helmet patented in London in 1915 by inventor J.L. Brodie

The first miner's helmet, was made by the E.D. Bullard Company of San Francisco, California, after the World War I, in 1919

https://www.smithsonianmag.com/innovation/history-hard-hat-180974238/
https://en.wikipedia.org/wiki/Brodie_helmet

Most of the protection improvements relate to different types of disasters

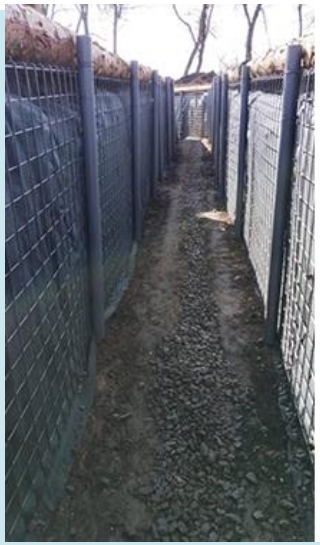
Changes in design of shelters ...

- mobile,
- modular,
- convenient,
- quickly erected

Different types of protective barriers should be considered for further industrial designs

- Gabions
- Protective walls
- Stone screens
- Anti-drone nets
- Tranches





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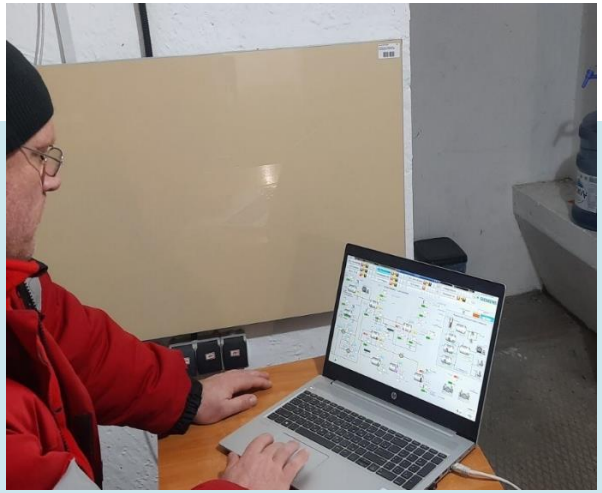
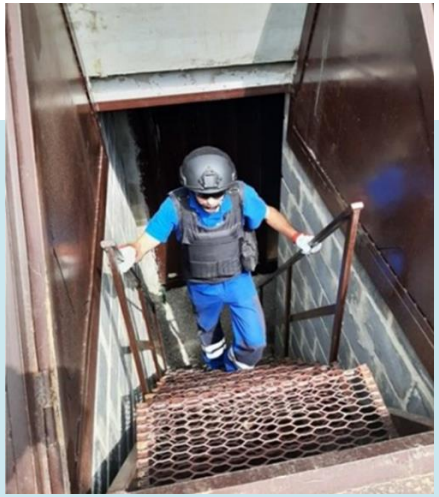
Section on Prevention in the Construction Industry

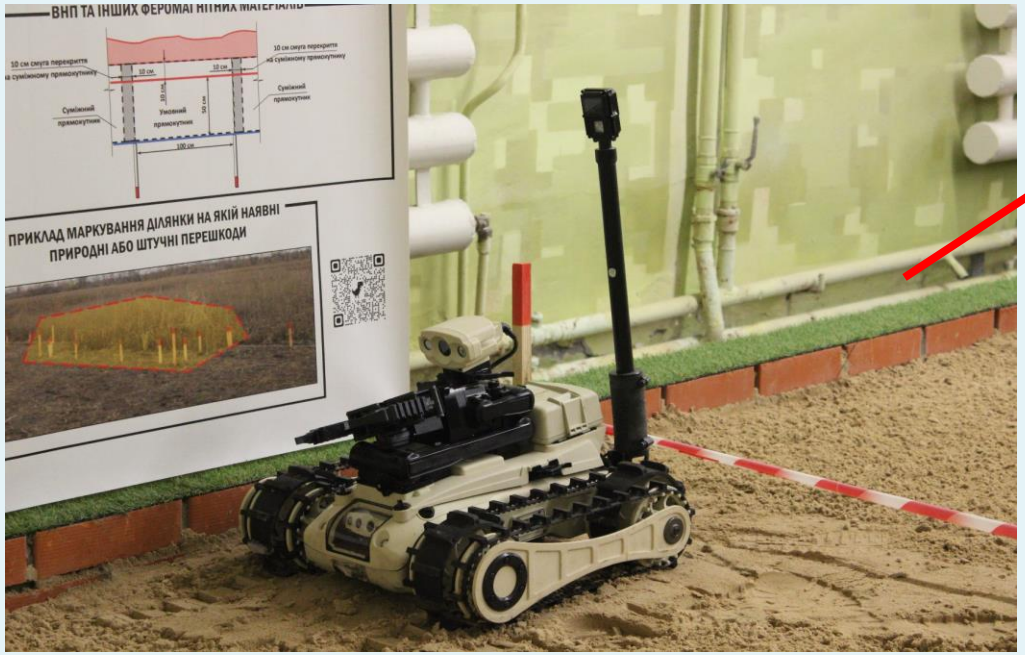
Changes in individual protection

- Remote work from shelters
- Armored Protective Equipment
- Individual first aid kits
- PPE for disabled persons





Remote work is key Demining



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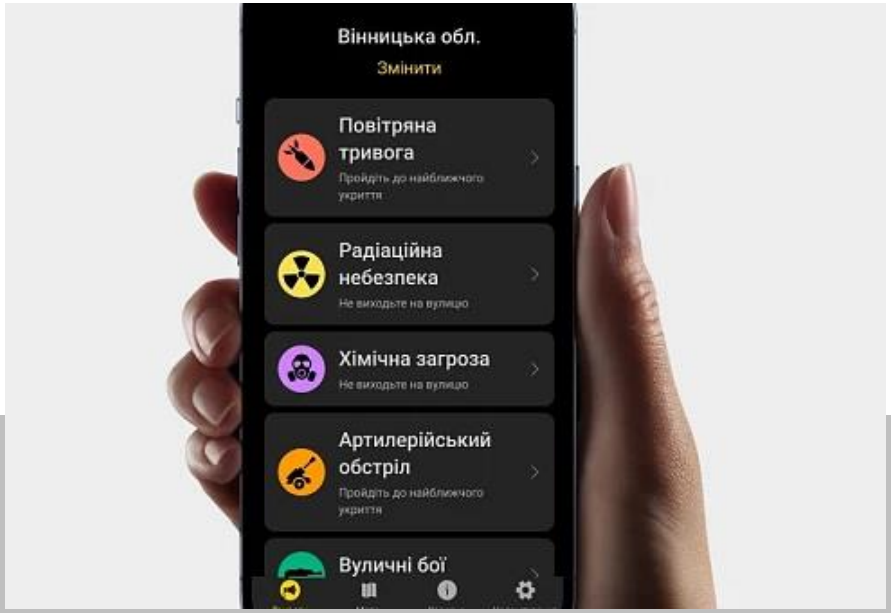
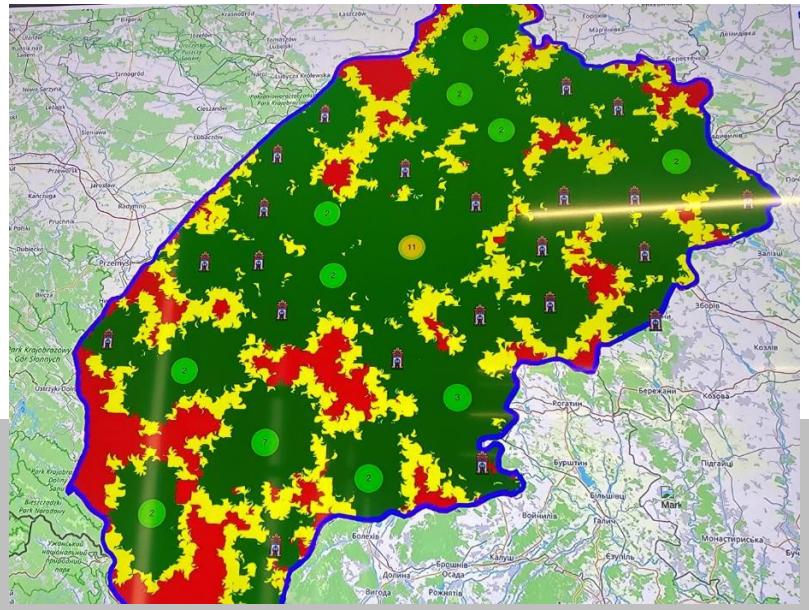
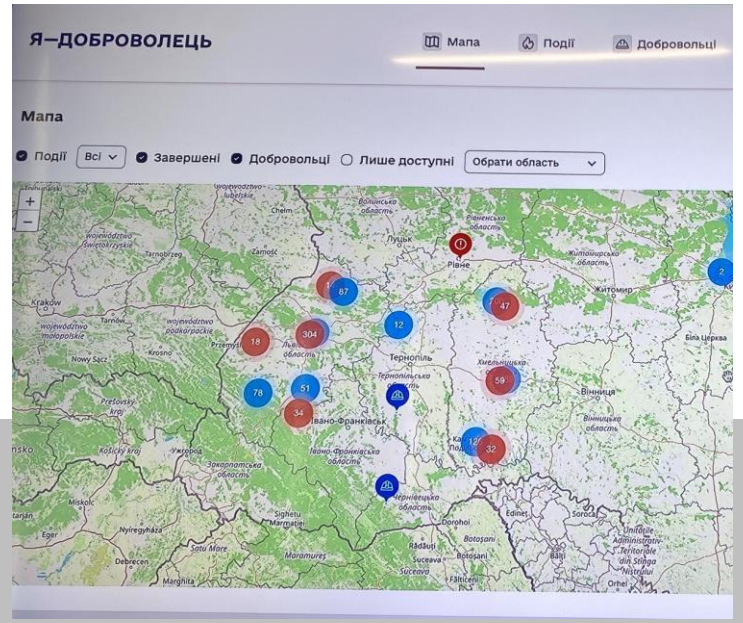
Section on Prevention in the Construction Industry

Rapid communication

- E-air raid alarm
- E-emergency response mapping
- E- volunrteering

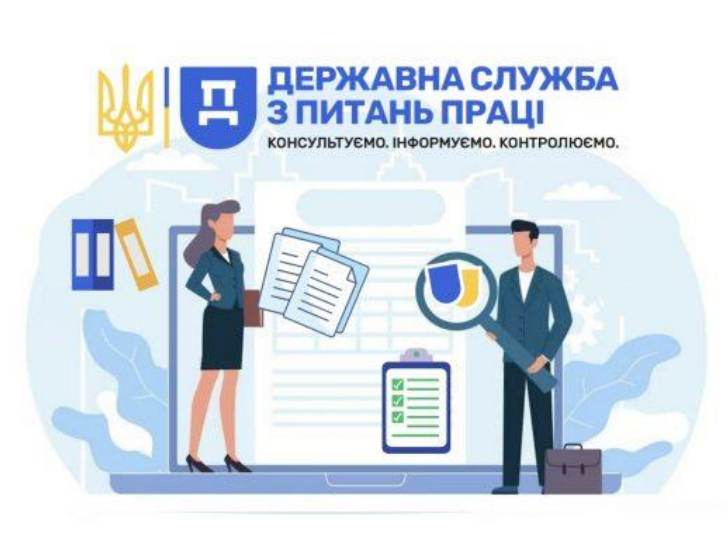






E- services

- E-labour consultancy (Interactive inspector)
- E-sick leave certificate
- E-employment record



@ask_sls_bot

https://portal.pfu.gov.ua/sidebar/Templates/ReceptionDocument

https://play.google.com/store/apps/details?id=com.wildpluto.ualert&hl=uk&pli=1

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Section on Prevention in the Construction Industry

Management of Knowledge

-
-
- **Effective international training and sharing experience**

Rebuilding under extreme conditions – sharing of practice

https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@europe/@ro-geneva/@sro-budapest/documents/genericdocument/wcms_856143.pdf

issa | EXCELLENCE IN SOCIAL SECURITY

International Course for Safety Coordinators on construction sites in in demand

Pixabay @phooto

The first conference of asbestos is planned in Ukraine for autumn 2025

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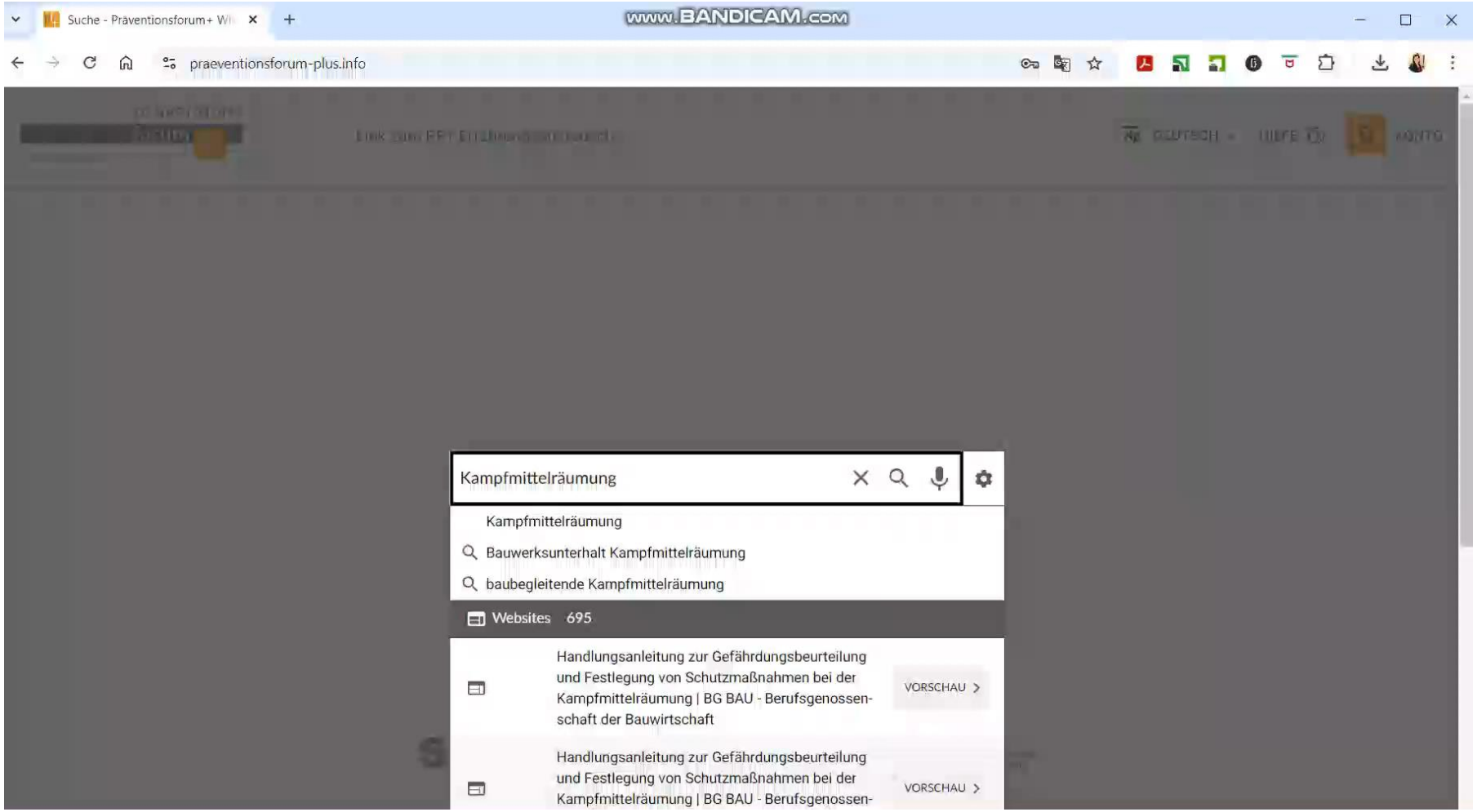
Section on Prevention in the Construction Industry

Relevant resources for response to challenges

www.pfplus.info Prevention Forum Plus

Knowledge Plattform for Safety and Health at Work

- quality proved
- multinational
- selected
- sectored
- free of charge
- advertising-free



https://www.praeventionsforum-plus.info/

Response to challenges - Programs for young people

VISION ZERO

Students go through:

- Lectures
- Practical lessons
- Consultations
- Completing projects
- Demonstrating results
- Celebrating outcomes

Metinvest Technical University, Ukraine, 31 students, 16 projects in 2023-24. Lviv University of Life safety, 2025

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Section on Prevention in the Construction Industry

7 Golden Rules for Emergencies

1. Take leadership
   Prioritise saving lives above all else
2. Identify hazards
   Establish Robust Risk Detection
3. Define targets
   Adapt Objectives to Dynamic Conditions
4. Ensure a system
   Promote Agile and Non-Bureaucratic Operations
5. Take measures
   Enhance Technological and Operational Resilience
6. Improve qualifications
   Deliver Comprehensive Safety Education, incl. mental health
7. Invest in people
   Foster an Adaptive and Knowledge-Sharing Culture

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Section on Prevention in the Construction Industry

ISHCCO SAFETY & HEALTH

Collaborative pathways between ISHCCO and ISSA-Construction to tackle Global Challenges

- Integration and accident prevention of migrant labour
- Safe construction under extreme conditions
- Effective international training and sharing experience

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Section on Prevention in the Construction Industry

Current Projects

- Good Practice Database
- Strengthening Relations with Africa
- Smart Technologies in the Construction Industry
- Good Practice Asbestos/Silica
- Accidents with ladders in the construction industry

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Section on Prevention in the Construction Industry

Nearest conferences 2025

20 to 22 May 2025	International Forum Prevention	Vienna, Austria
16 to 19 July 2025	Expo: Global Initiative for Safety, Health and Wellbeing	Osaka, Japan
29 to 31 August 2025	International Vision Zero Africa Conference	Kampala, Uganda

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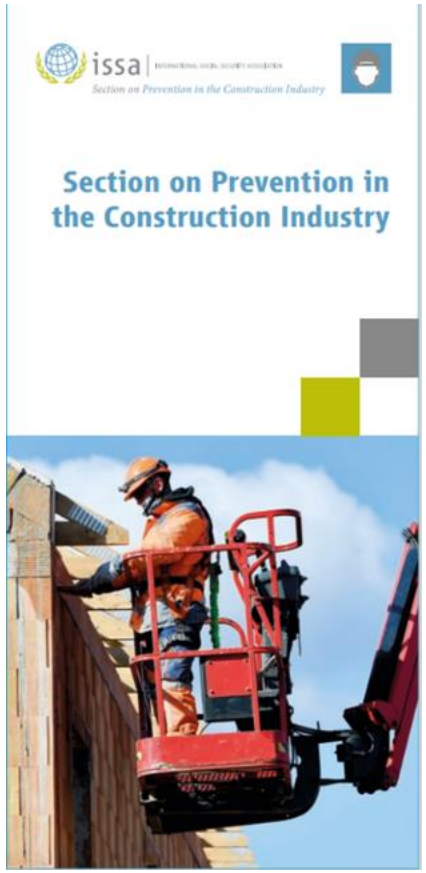
Section on Prevention in the Construction Industry

Towards a safe construction



https://www.issa.int/sites/default/files/documents/2024-10/Flyer%20ISSA%20Construction.pdf

Thank you for your attention!


PLATONAS STYLIANOU
ECCE PRESIDENT

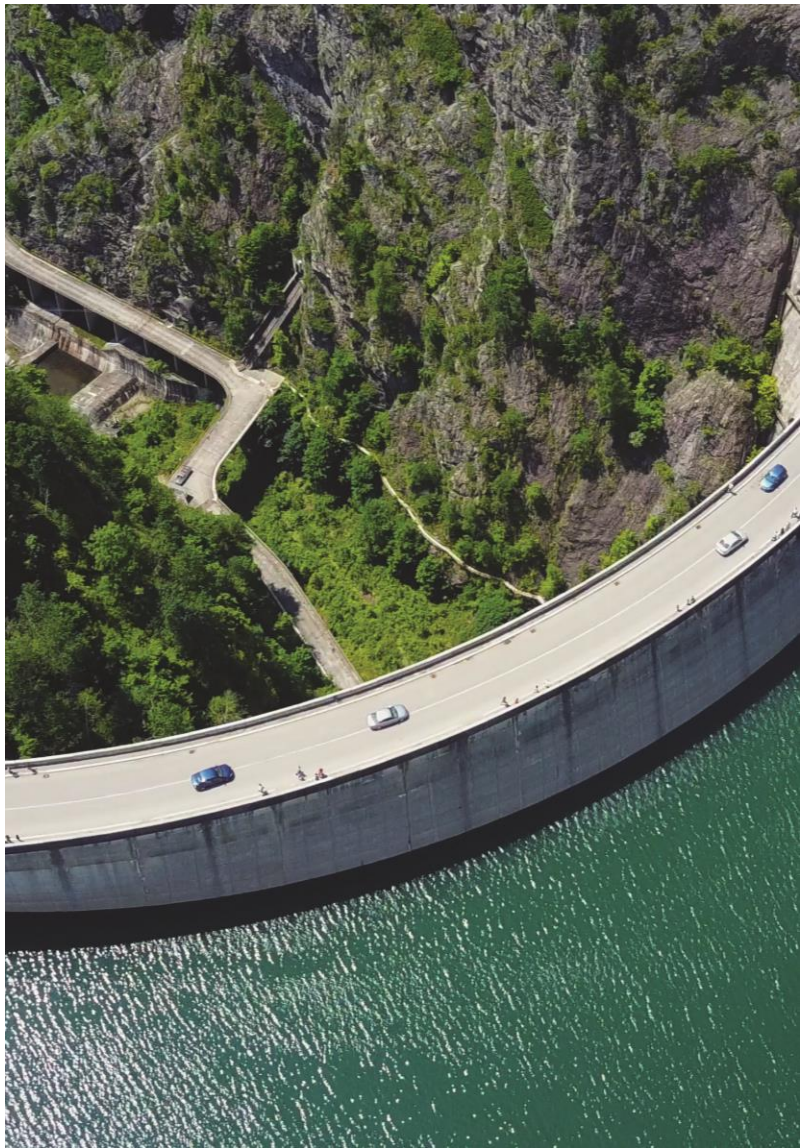
ECCE EUROPEAN COUNCIL OF CIVIL ENGINEERS 40 YEARS

Building a resilient future

Climate-proof design of infrastructure for generations to come

Platonas Stylianou
Chartered Civil Engineer
ECCE President

EDI 03 2025



Building a resilient future

The European Council of Civil Engineers (ECCE) since its establishment in 1985, promotes the cooperation of European civil engineers as being of significant value not only to engineers but also for European society.

ECCE supports and enables European civil engineers to advance a more sustainable and resilient built environment and to protect the natural environment. It does this by working with its national member organizations from 24 countries and partner organizations at the European level, to promote the highest technical and ethical standards for engineers, to positively influence the development of the profession and the construction industry, and to be a force for good in European society.

In 2021 and in 2023 the United Nations' Intergovernmental Panel on Climate Change released very important reports warning that climate change "is widespread, rapid, and intensifying." Prepared by 234 scientists from 66 countries, the IPCC report declared that human-induced climate change "is already affecting many weather and climate extremes in every region across the globe in the atmosphere, in the oceans, ice floes, and on land."

U.N. Secretary-General António Guterres described the report as "a code red for humanity," adding that the "alarm bells are deafening, and the evidence is irrefutable."

The world's climate is changing — and those changes are bringing significant impacts that will affect the way infrastructure is designed and constructed. The effects of climate change may be globally magnified especially in coastal cities, which could face increasing heat and heavy precipitation. Extreme sea level events that previously occurred once in 100 years could happen much more often by the end of this century. **The civil engineering profession has a significant role to play in helping the world adapt to these new conditions.**

Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming.

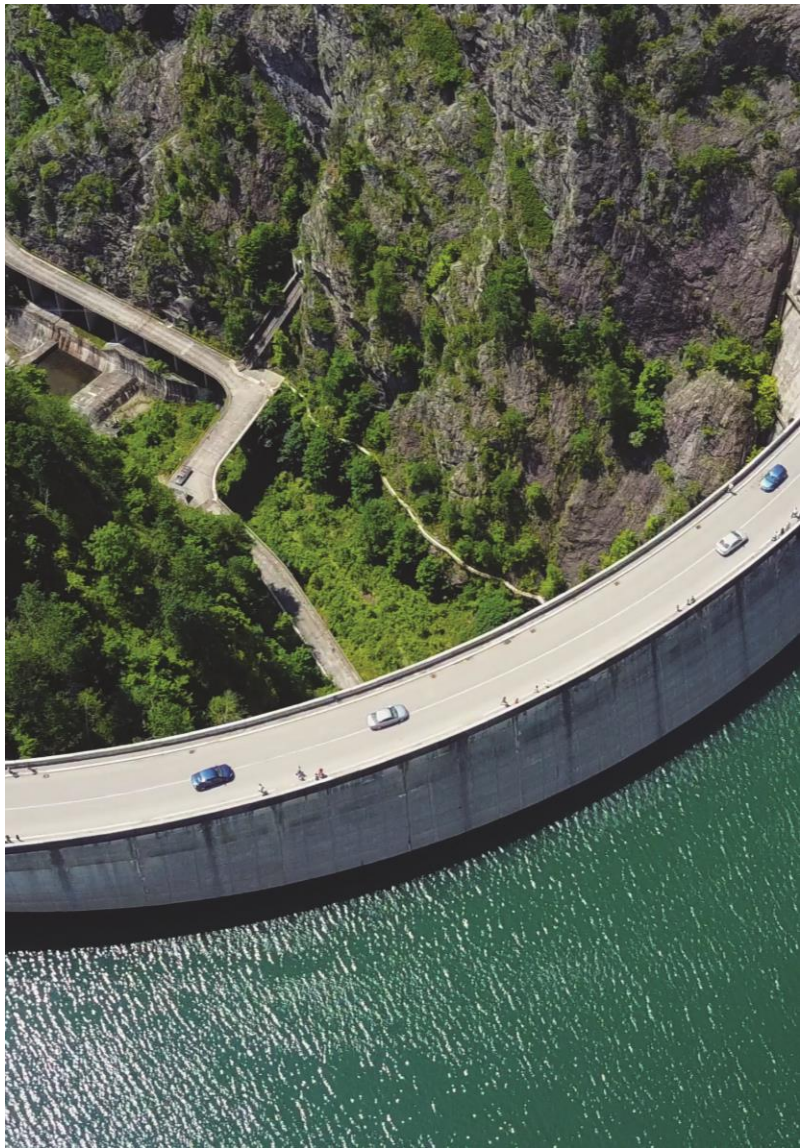
Global greenhouse gas emissions have continued to increase, with unequal historical and ongoing contributions arising from unsustainable energy use, land use and land-use change, lifestyles and patterns of consumption and production across regions, between and within countries, and among individuals.

The increasing frequency and severity of extreme weather events **underscore the need for climate-resilient infrastructure.**

Civil engineers **must move beyond traditional design parameters and anticipate the impacts of a changing climate, ensuring that infrastructure can withstand** unprecedented conditions and protect communities from the devastating effects of climate change.

So, Civil Engineers must: adapt, improve, and

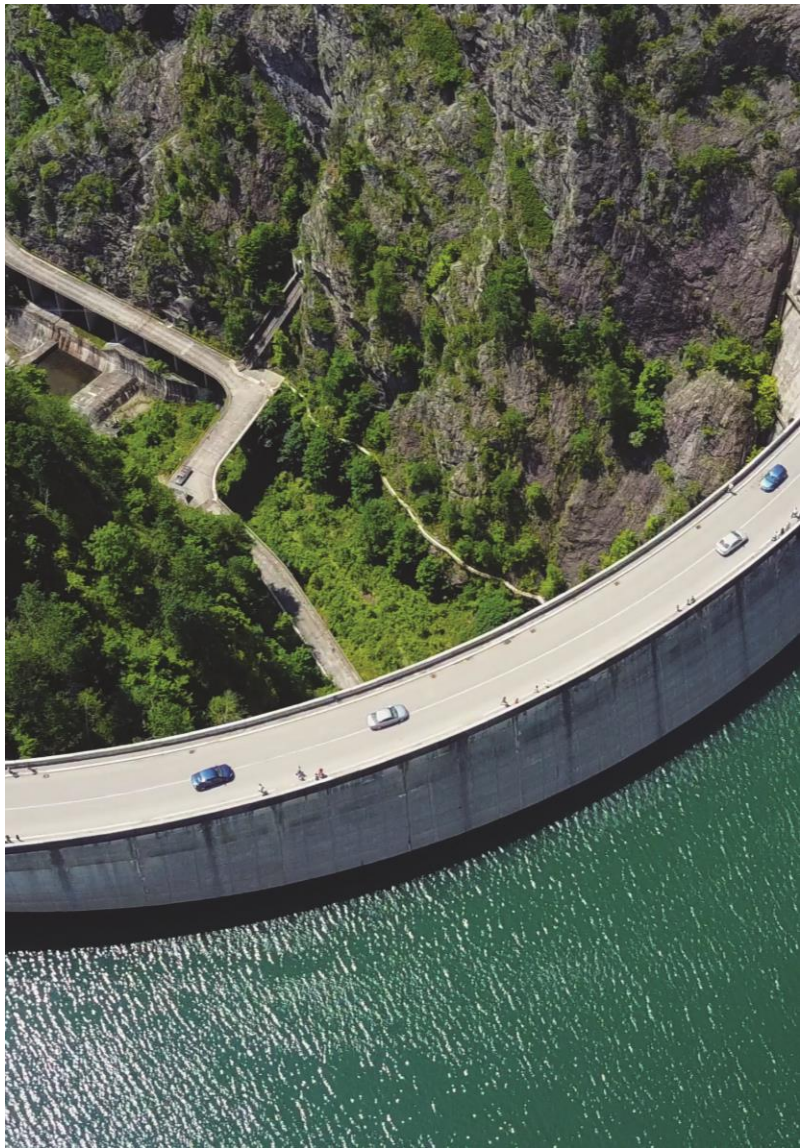
- **Design for Adaptability and Flexibility**
- **Prioritise Nature-Based Solutions for Resilience**
- **Promote of Climate Resilient Infrastructure**



UN climate summit

The climate crisis necessitates urgent and decisive action from all sectors, including civil engineering. The critical priorities and actions required to ensure sustainable and resilient infrastructure development in the face of a changing environment, may be summarised as:

- **Emission Reductions**
- **Protection of Vulnerable Populations**
- **Transitioning from Fossil Fuels**
- **Enhancing Climate Resilience**
- **Securing Financial Resources**
- **Civil Engineering's Role**

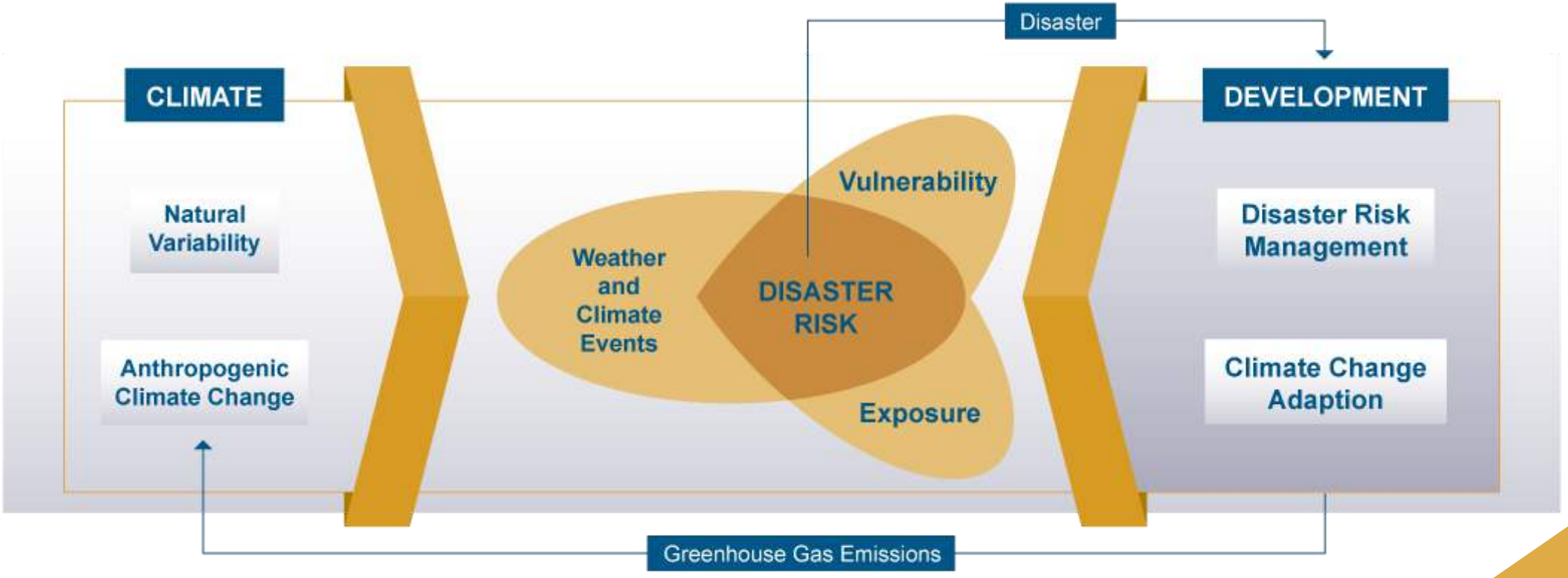


For ensuring this, the EU has aimed to achieve a range of milestones and agreements including:

- ➔ reducing greenhouse gas emissions by 43% by 2030.
- ➔ establishing new funding to assist developing countries that are particularly affected by climate change.
- ➔ encouraging major emitters to set new emission reduction targets.
- ➔ proposing new rules to boost international carbon markets.

As the European Council of Civil Engineers, we recognize the critical role civil engineers play in shaping resilient, sustainable, and equitable infrastructure. Guided by our Strategic Plan, we are committed to principles that support these objectives. This manifesto reflects the ECCE Strategic Plan 2023–2030, which empowers European civil engineers to advance a sustainable built environment while safeguarding the natural world.

Climate Change: New Dimensions in Disaster Risk, Exposure, Vulnerability and Resilience



The figure schematically illustrates the key concepts related to disaster risk management and climate change adaptation, along with their interaction with sustainable development.
Figure referenced from: Climate Change: New Dimensions in Disaster Risk, Exposure, Vulnerability and Resilience document.

Executive summary

This manifesto underscores the urgent need for the civil engineering profession to transition from climate pledges to concrete actions.

It emphasizes the pivotal role of civil engineers in shaping a sustainable and resilient future by incorporating climate considerations into every facet of infrastructure design, construction, and operation. This aligns with the ECCE Strategic Plan 2023-2030, which focuses on enabling European civil engineers to advance a more sustainable built environment and protect the natural environment.

Manifesto key themes

Key areas of action for ECCE members highlighted in this manifesto include:

ENHANCING CLIMATE RESILIENCE IN INFRASTRUCTURE DESIGN, CONSTRUCTION, MAINTENANCE AND OPERATION

CHAMPIONING SUSTAINABLE FINANCING & INVESTMENT

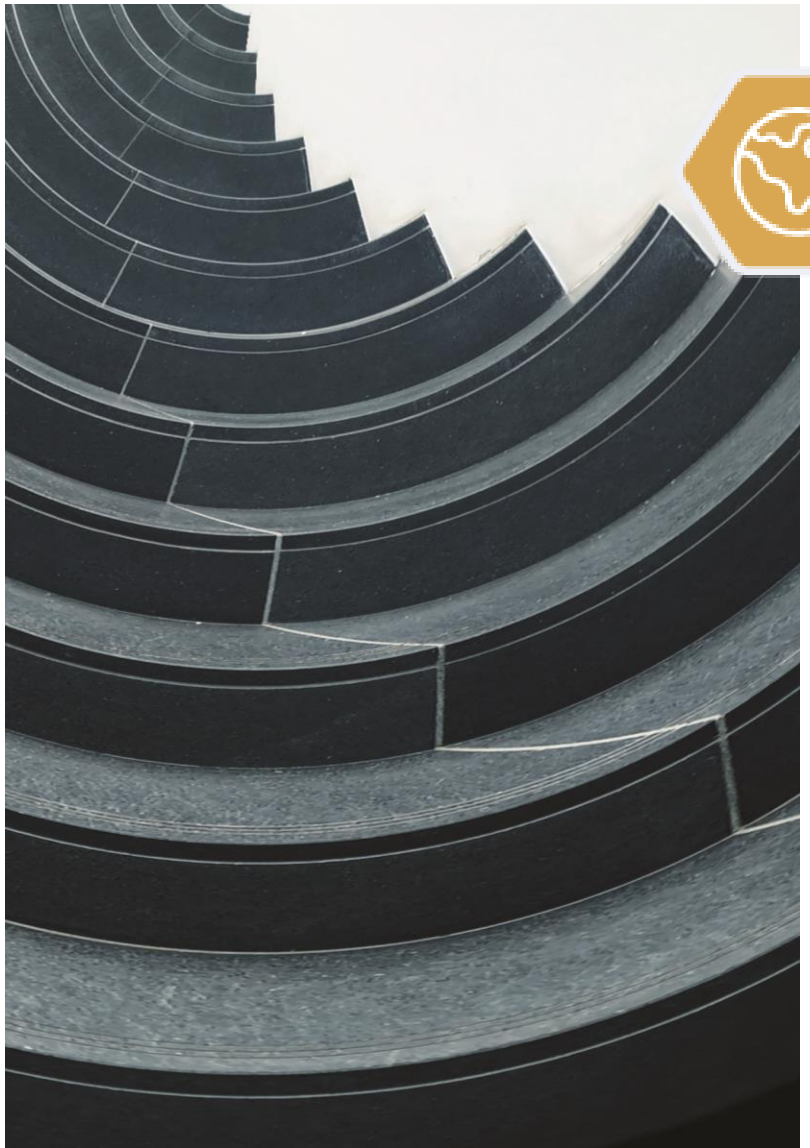
STRENGTHENING CARBON ACCOUNTING & TRANSPARENCY

FOSTERING COLLABORATION & KNOWLEDGE EXCHANGE

PROMOTING SOCIAL EQUITY & COMMUNITY ENGAGEMENT

EDUCATION & CAPACITY BUILDING

CHANGING THE CODES



Enhancing Climate Resilience in Infrastructure Design

Forward-Looking Design:
Integrate climate projections into infrastructure planning.

Updated Standards:
Adapt building codes for future climate challenges (sea level rise, extreme weather).

Adaptability & Flexibility:
Design infrastructure that can evolve with changing conditions.

Nature-Based Solutions:
Use green roofs, permeable pavements, and urban forests for resilience and co-benefits.

Enhancing Climate Resilience in Infrastructure Design

Continuous Adaptation Process for Resilient Infrastructure

Current Infrastructure Design

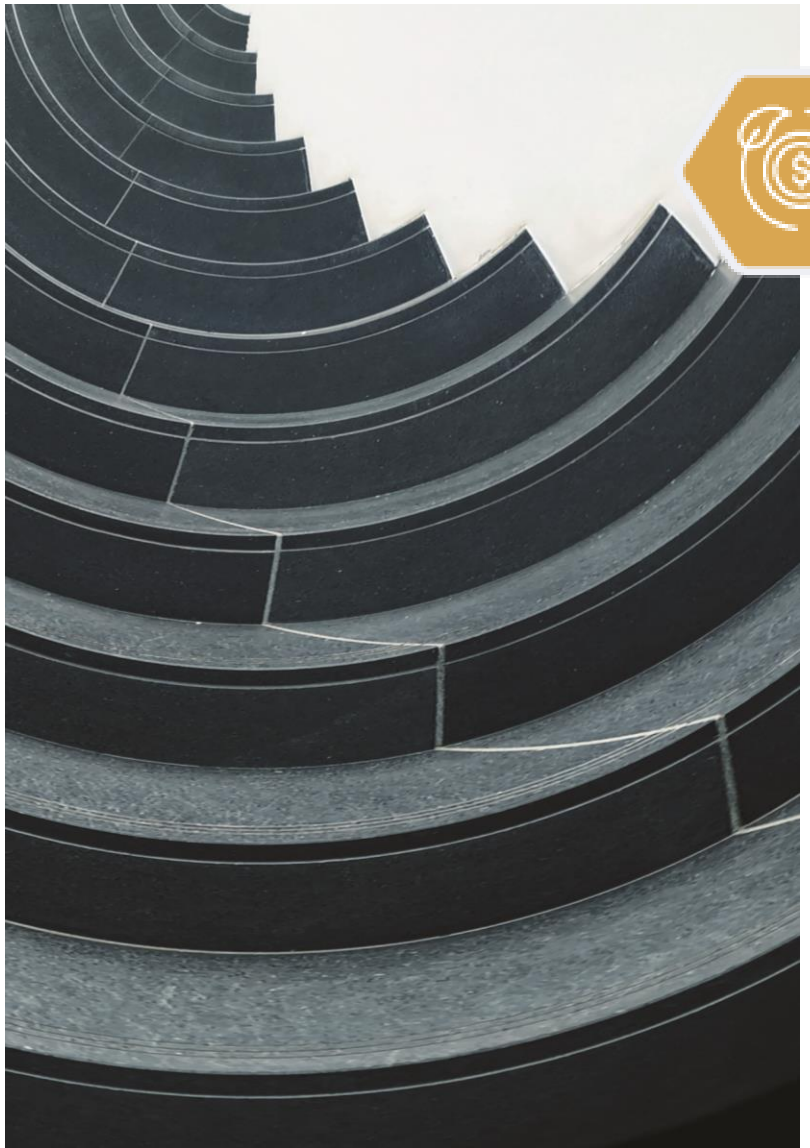
"Infrastructure based on past climate data, often lacking flexibility to cope with emerging climate impacts like heat, flooding, and sea-level rise."

Design Adaptation for Immediate Future

"Infrastructure designed to adapt to near-term climate changes, with flexible, modular systems and upgrades for increased resilience."

Future-Proof Infrastructure (Long-Term Design Flexibility)

"Advanced, flexible infrastructure designed to evolve with future climate changes, using smart systems and nature-based solutions for long-term resilience."



Championing Sustainable Financing and Investment

Securing Investment:
Advocate for funding climate-resilient infrastructure.

Engaging Investors:
Communicate environmental and social returns of sustainable projects.

Innovative Financing:
Utilize public-private partnerships and green bonds to mobilize capital.

Policy Support:
Push for frameworks that incentivize sustainable infrastructure investments.

Championing Sustainable Financing and Investment

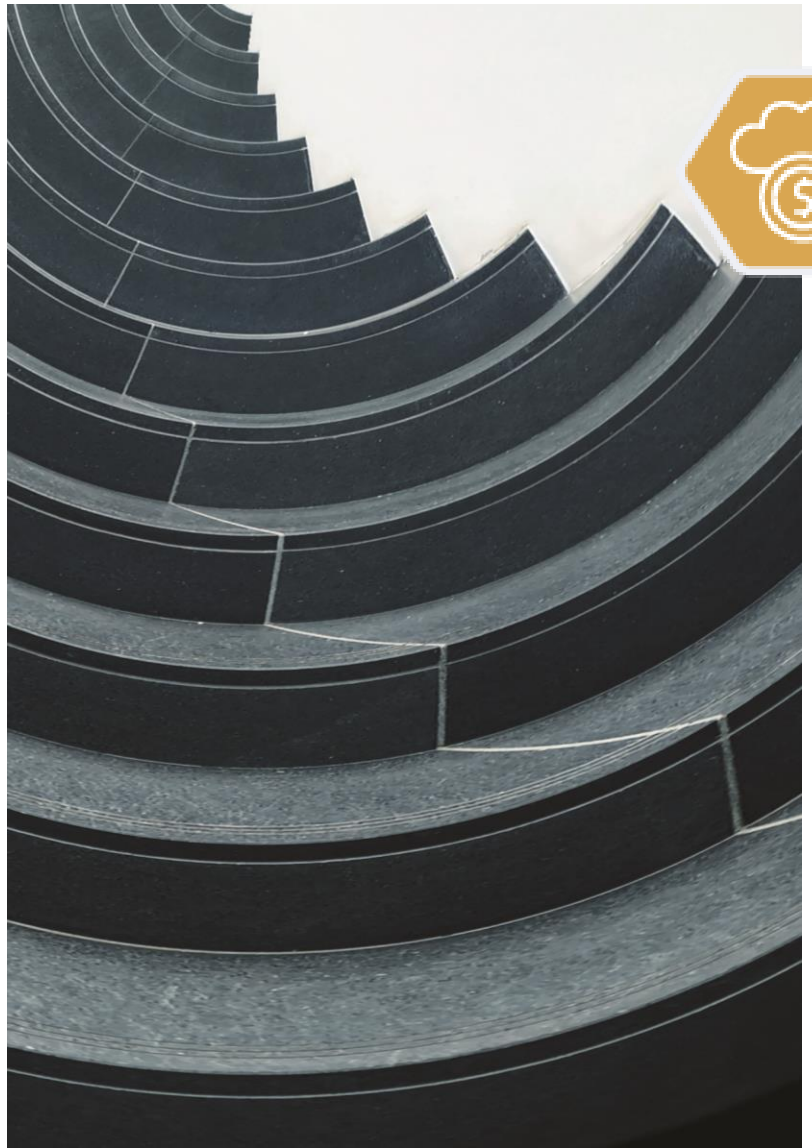
Investor Engagement Pathway

Communicating Returns

Securing Investment

Innovative Financing

Policy Support



Strengthening Carbon Accounting and Transparency

Rigorous Carbon Accounting:
Track emissions for accountability and progress.

Whole-Life Carbon Assessment:
Evaluate carbon footprint from material extraction to decommissioning.

Standardized Reporting:
Enhance transparency and comparability across projects.

Data-Driven Decisions:
Use carbon data to guide materials, construction, and operations.

Strengthening Carbon Accounting and Transparency

Carbon Accounting Flowchart

Whole-Life Carbon Assessment

Evaluate carbon emissions at every stage, from material sourcing to decommissioning.

Standardized Reporting

Use reporting frameworks to standardize carbon data, ensuring transparency and enabling comparison across sectors and projects.

Carbon Data in Decision-Making

Integrate carbon data to guide material choices, construction methods, and operational strategies.

Fostering Collaboration and Knowledge Exchange

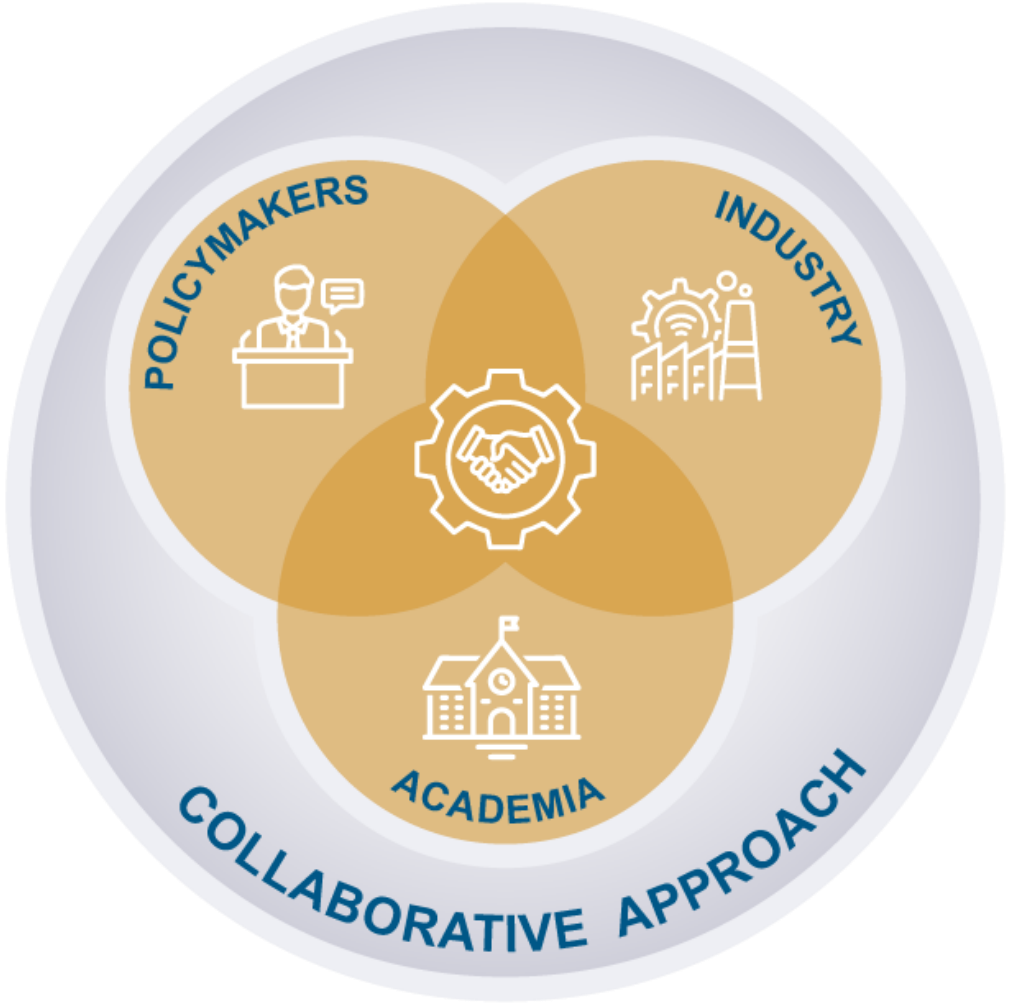
Engage globally:
Connect with international networks to share knowledge on sustainable infrastructure.

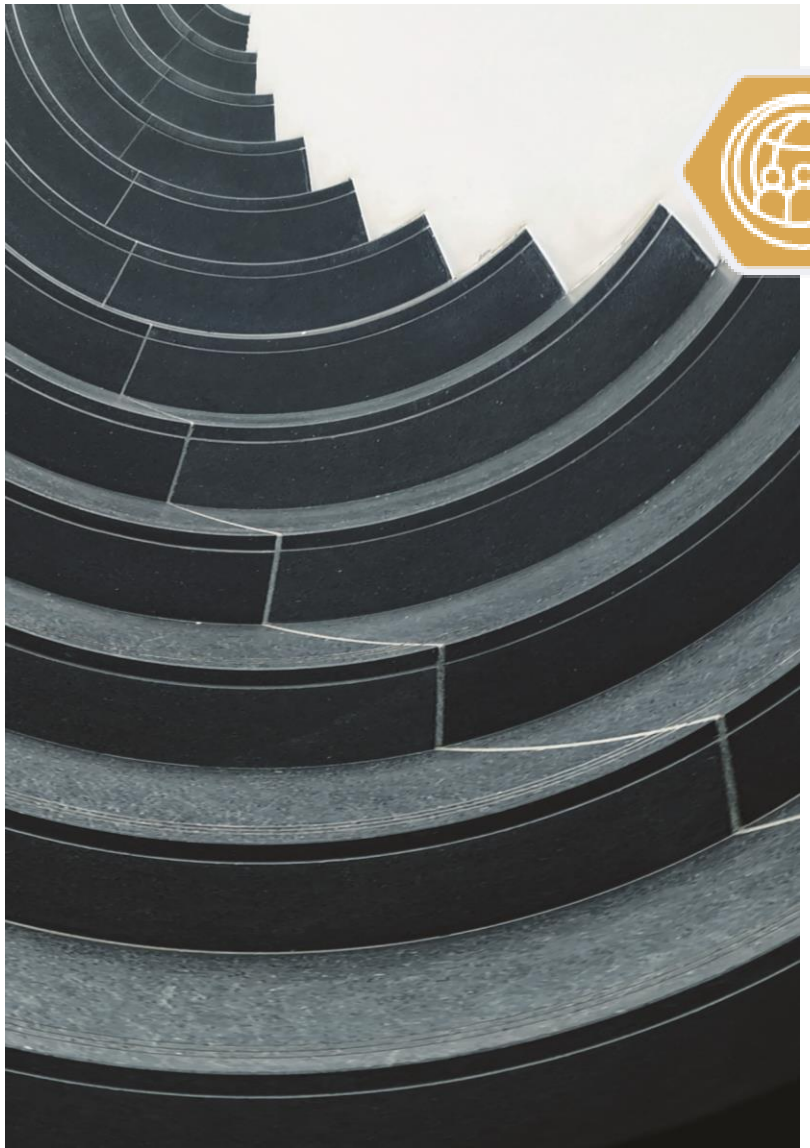
Capacity building:
Train engineers to promote climate-resilient practices.

Open-source collaboration:
Share data and resources to drive innovation in sustainable infrastructure.

Collaborative transition:
Policymakers, industry, and academia must work together—setting targets, adopting sustainable materials, and advancing research.

Fostering Collaboration and Knowledge Exchange





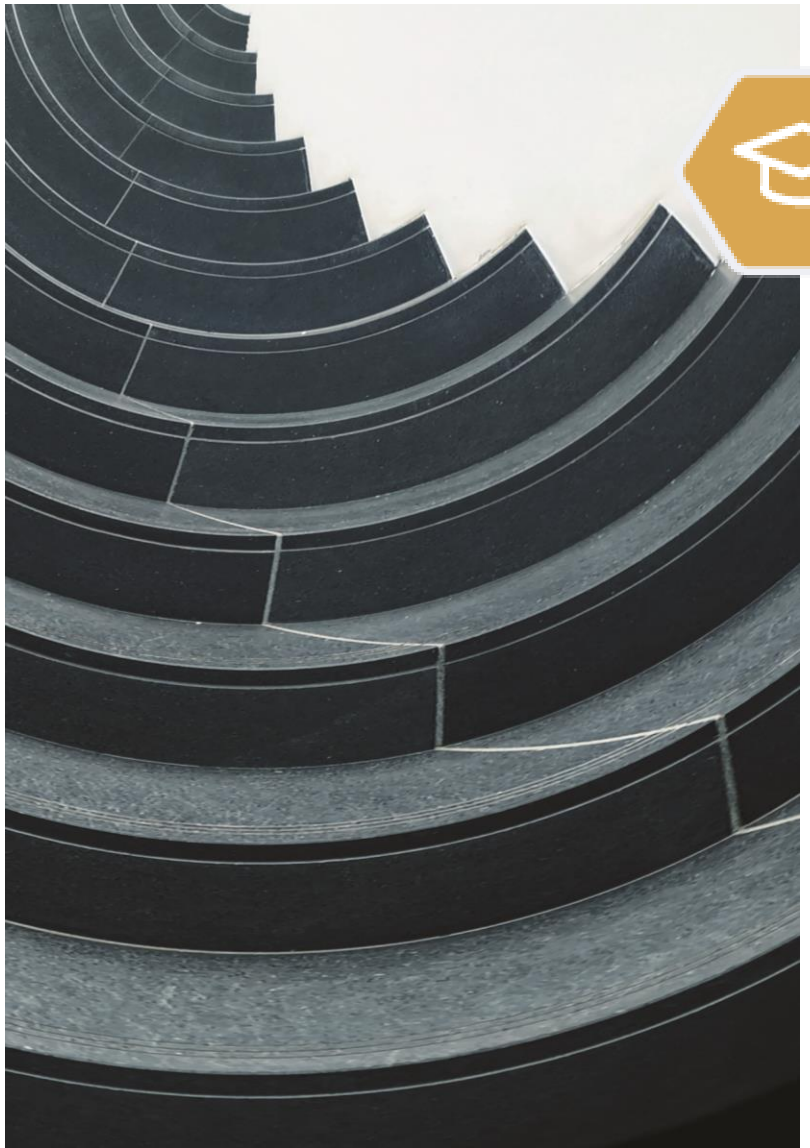
Promoting Social Equity and Community Engagement

Socially Equitable Infrastructure:
Prioritize the needs of vulnerable communities.

Inclusive Engineering:
Amplify community voices in planning and implementation.

Well-Being Focused Design:
Ensure infrastructure benefits all, especially climate-vulnerable populations.

Promoting Social Equity and Community Engagement



Education and Capacity Building

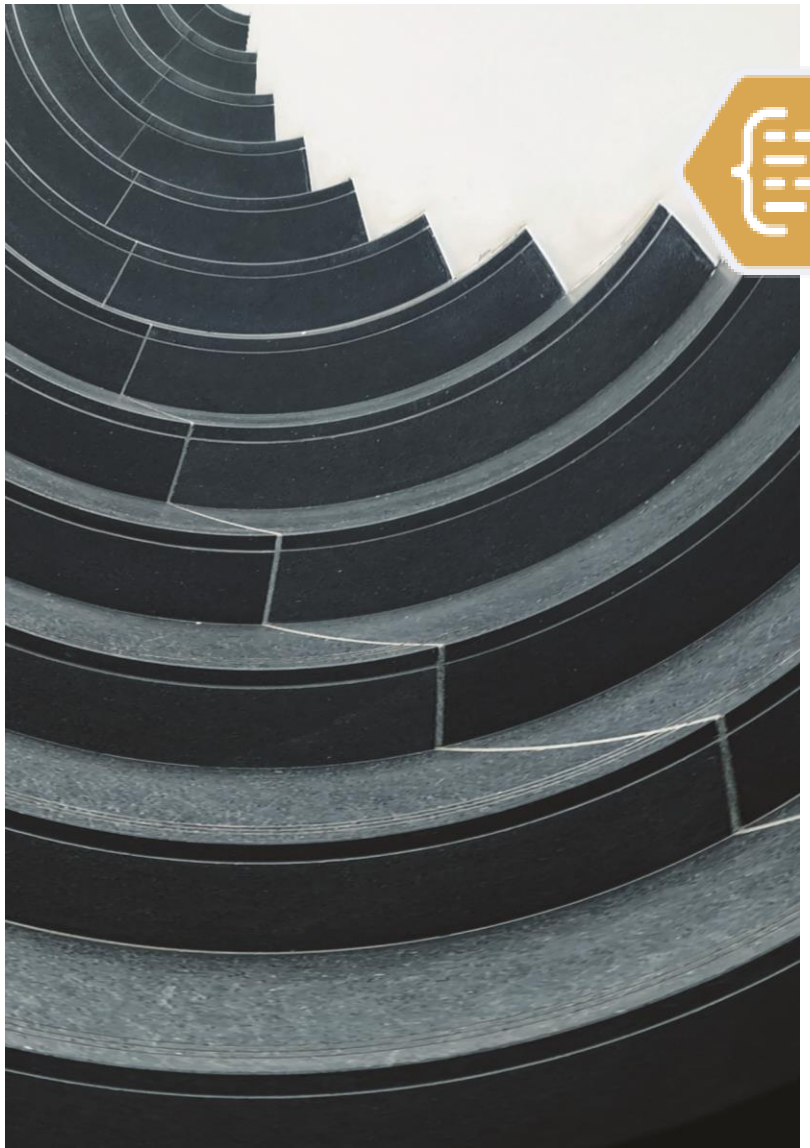
Skilled Workforce for Sustainability:
Equip engineers for climate-resilient infrastructure.

Training & Resources:
Provide knowledge platforms for sustainable design and construction.

Sustainability in Education:
Integrate climate principles into engineering curricula.

Beyond Technical Skills:
Address social and ethical responsibilities for equitable infrastructure.

Education and Capacity Building



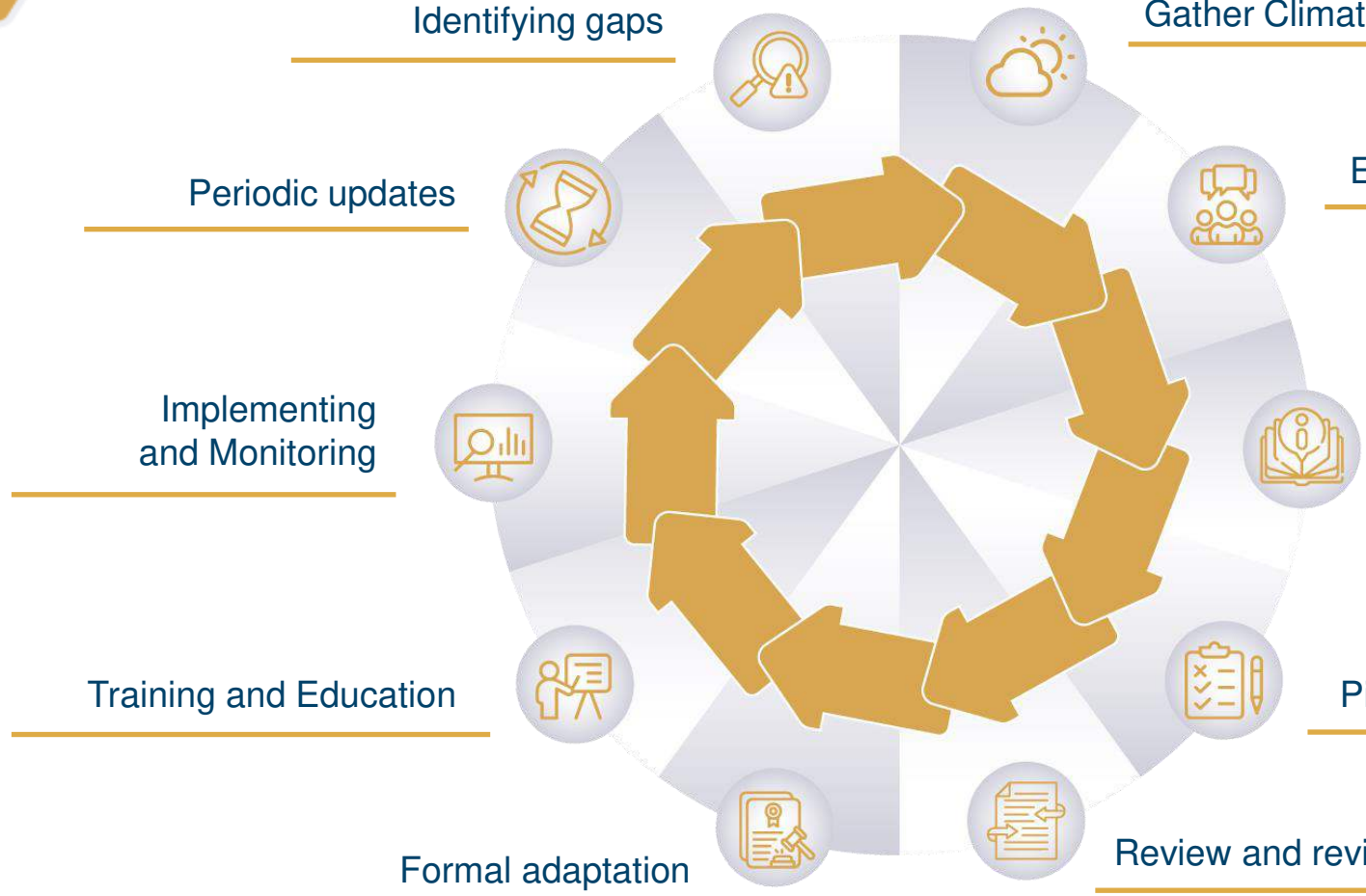
Changing the Codes

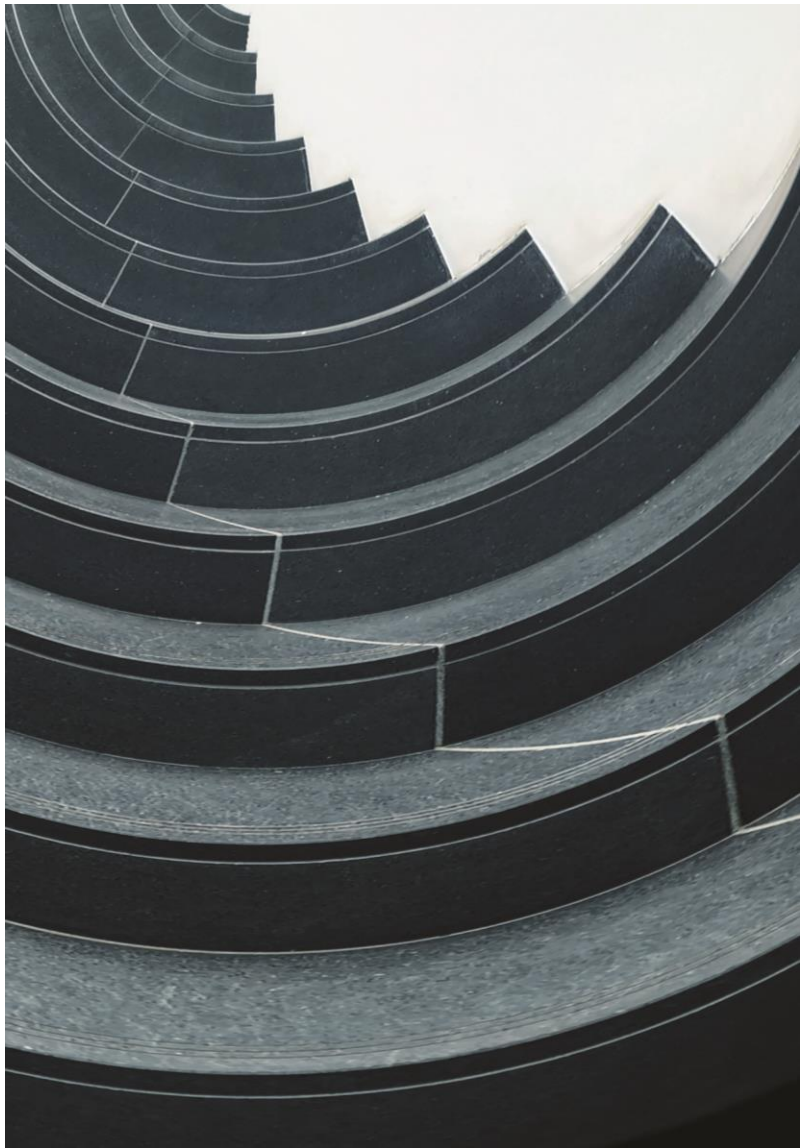
Updating Standards:
Adapt codes to address climate change impacts.

Climate Projections & Resilience:
Integrate future climate risks into regulations.

Dedicated Guidelines:
Develop standards for climate-resilient infrastructure.

Changing the Codes

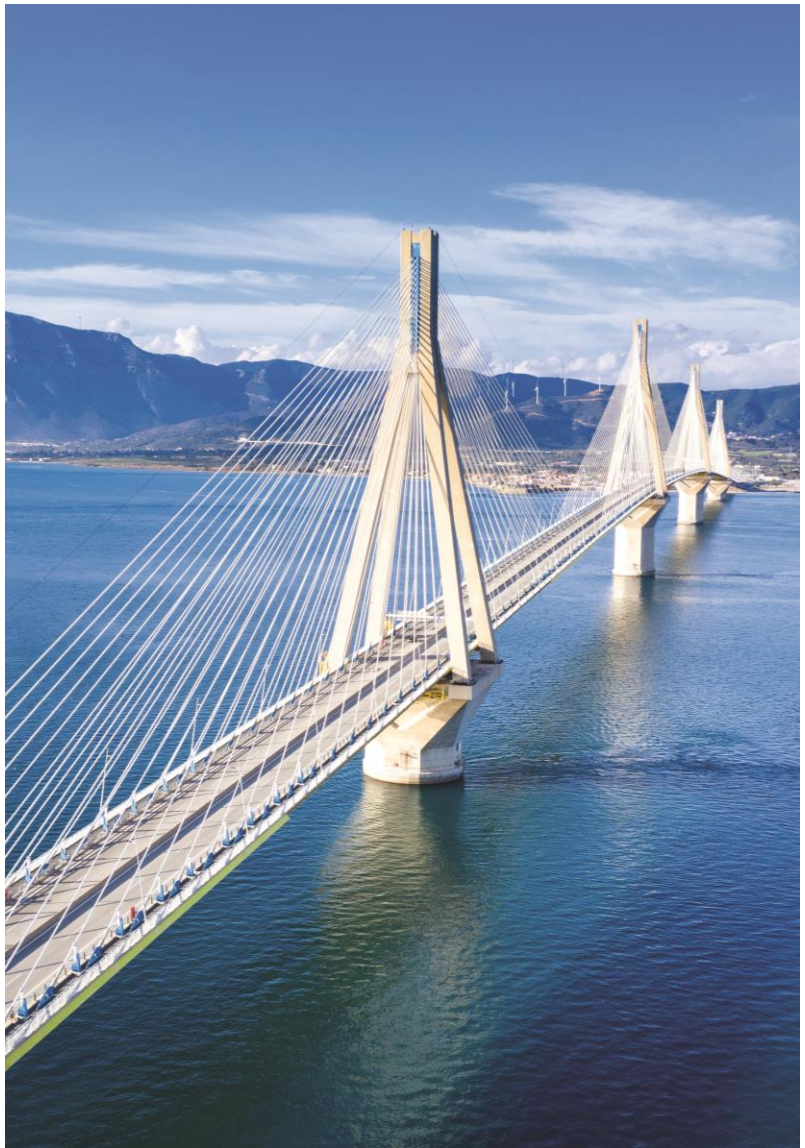




By embracing these principles and actively working towards their implementation, ECCE and its members can play a leading role in shaping a more sustainable and resilient future for Europe and beyond.

By taking the lead in decarbonizing infrastructure and promoting climate adaptation, ECCE members will not only contribute to Europe's sustainability but also set an example for the global engineering community, encouraging wider adoption of these crucial principles.

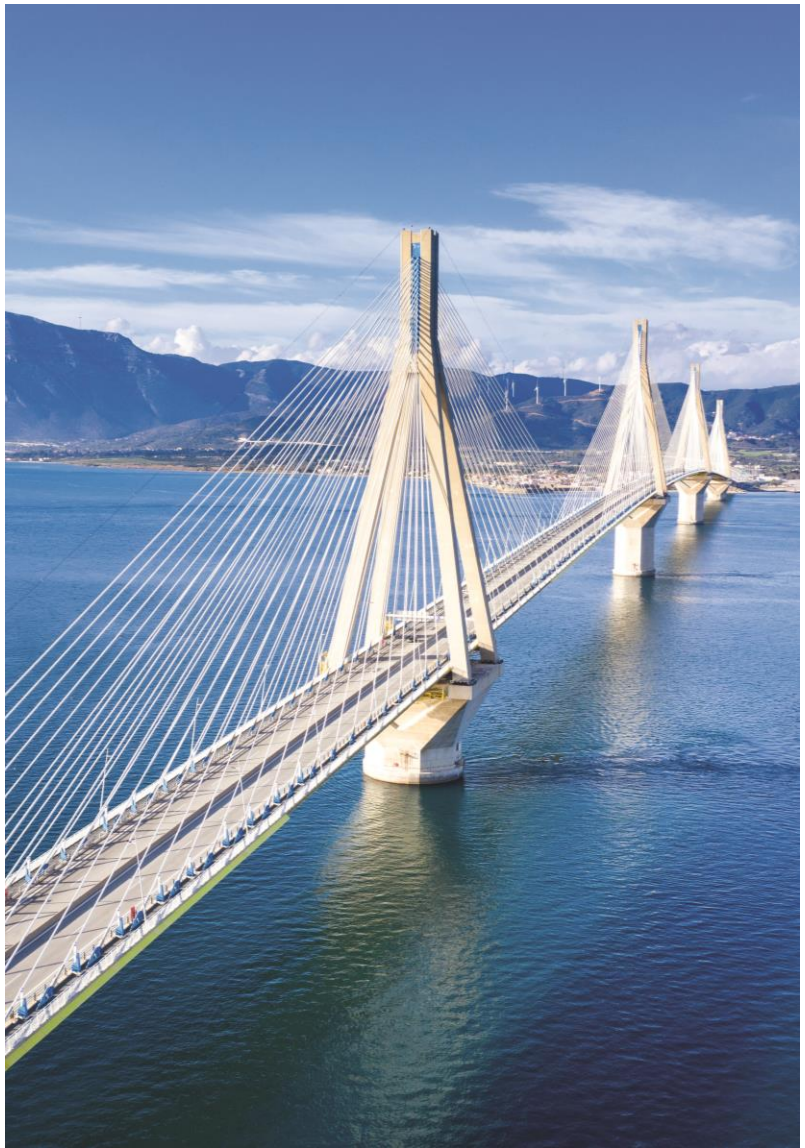
Conclusions



The global response to climate change is at a critical turning point, offering civil engineers an opportunity to lead in creating sustainable and resilient infrastructure. Despite the challenges, the potential for meaningful environmental impact is immense. Through innovation, collaboration, and a commitment to sustainability, **ECCE members can develop infrastructure that balances human needs with planetary health**.

Clear priorities for sustainable development provide a pathway forward, aligning with ECCE's strategic focus on leadership in infrastructure that harmonizes societal needs with ecological responsibility. The road ahead is demanding, but the chance for transformative progress is extraordinary. Through innovation, collaboration, and dedication to sustainability, **ECCE members can shape infrastructure that balances human needs with planetary health**.

ECCE's strategic priorities emphasize leadership in sustainable infrastructure that harmonizes societal demands with ecological stewardship. The journey ahead is demanding, but the opportunity for transformative progress is unparalleled.



ECCE therefore reaffirms its commitment to a sustainable and equitable future, recognizing that the civil engineering profession is pivotal in achieving global climate goals. Together, we will build infrastructure that is not only robust and efficient but also environmentally and socially responsible.

ECCE calls upon all member organizations, individual engineers, and stakeholders to embrace this shared vision and to **collaborate** in transforming these **principles** into **actionable** outcomes.

So, as ECCE we declare that all Engineers must innovate, be pioneers and create new designs, and improve existing techniques, for a better, safer, greener, more sustainable and more resilient Europe, in safeguarding a better future for all.

ECCE urges all member organizations, individual engineers, and stakeholders to embrace this shared vision and work together to turn these principles into tangible actions.

As ECCE, we affirm that engineers must be innovators, pioneers, and creators of new designs while also enhancing existing techniques. Their mission is to build a better, safer, greener, more sustainable, and more resilient Europe, ensuring a brighter future for all.


Building
a resilient future
Climate-proof design of infrastructure
for generations to come
THANK YOU
for your attention


RICHARD SEERS
DOKA

The Formwork Experts.

Innovations in Temporary Works

Presenter: Richard Seers, Technical Director, Doka UK Ltd.
14/03/25

Make the invisible visible

DokaXact Load

DokaXact Pressure

Monitoring anchor load & fresh concrete pressure

DokaXact Load | DokaXact Pressure

DokaXact sensors

Load or Pressure

DokaXact app

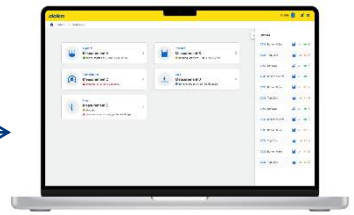
mobile app

DokaXact cloud

cloud server

DokaXact web portal

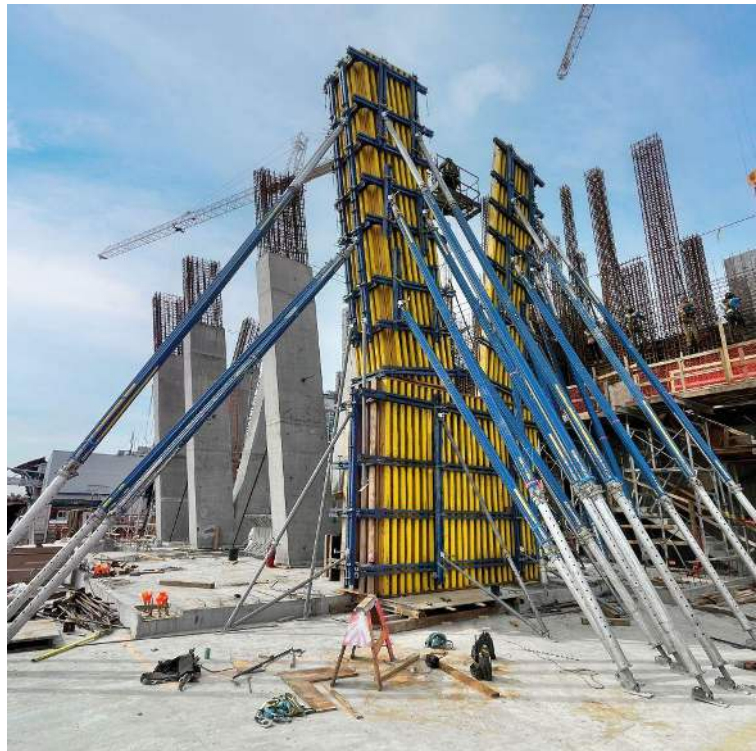
software suite for web



Fields of application

DokaXact Load | DokaXact Pressure

- Tall walls and columns
- Tall single-sided walls
- Tunnel projects
- Projects with critical anchor loads
- More certainty when utilising **SCC**
  or **low-carbon concrete**



Sensors to monitor anchor load and concrete pressure

DokaXact Load | DokaXact Pressure

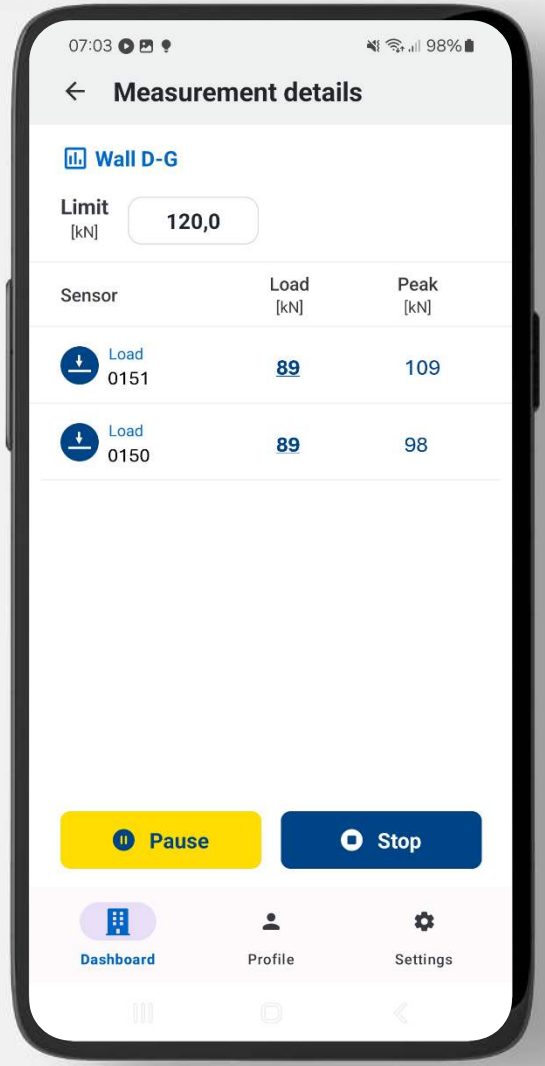
DokaXact Load sensor

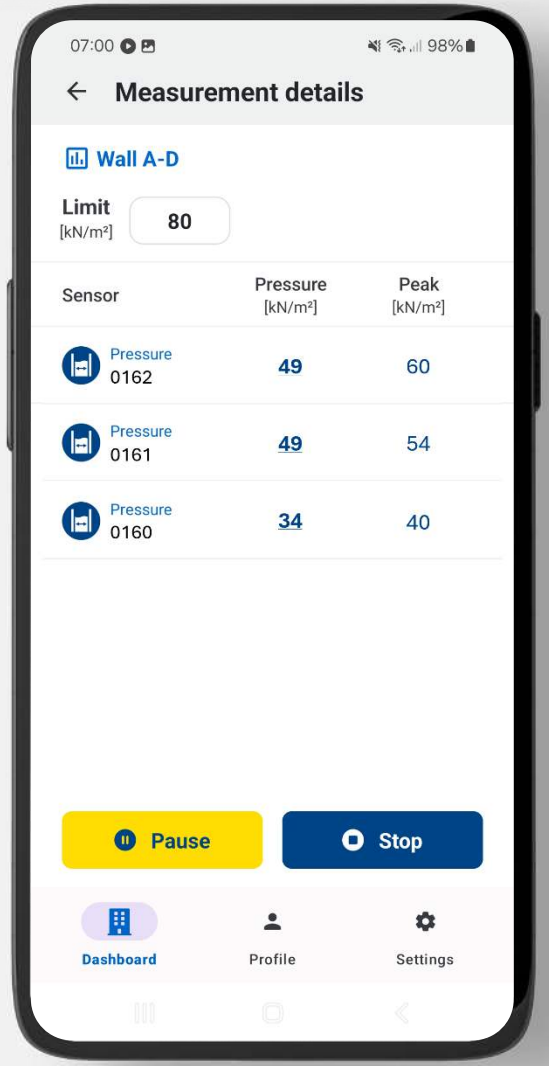
DokaXact Pressure sensor

Mobile app

DokaXact software

DokaXact Load

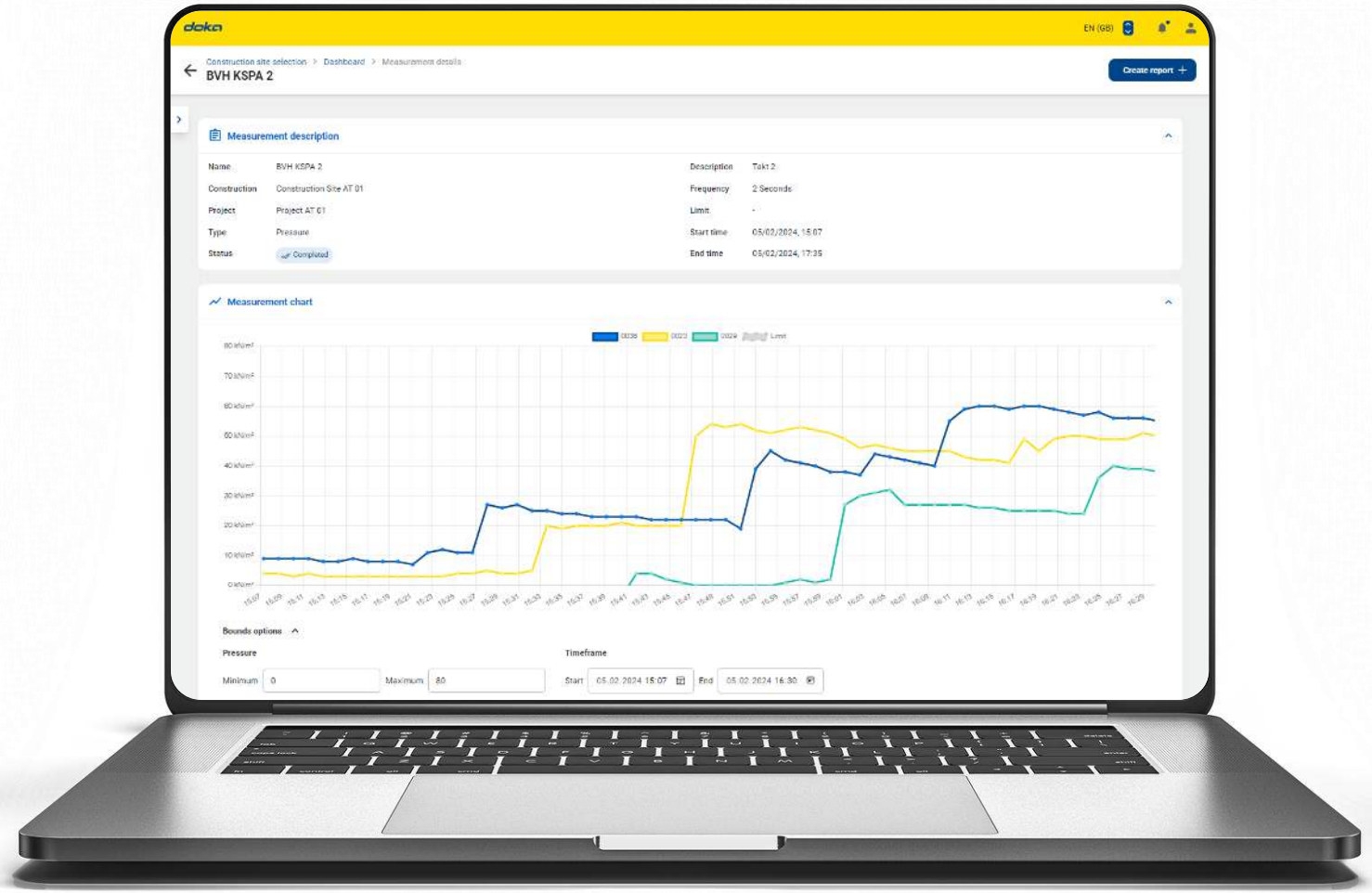




DokaXact Pressure

Web portal

DokaXact software



Features on a glance

- ✓ Convenient 24/7 access to all your projects
- ✓ Manage user access online
- ✓ Graphical visualisation of all measurement data
- ✓ Create reports with ease

DokaXact allows safe pouring

Reservoir Zott, Mertingen | Germany

Technical details

- Casting height = 11,74 m
- Design pressure = 80 kN/m²

The challenge

- Different compaction methods in use
- Concrete mix with retarding admixture

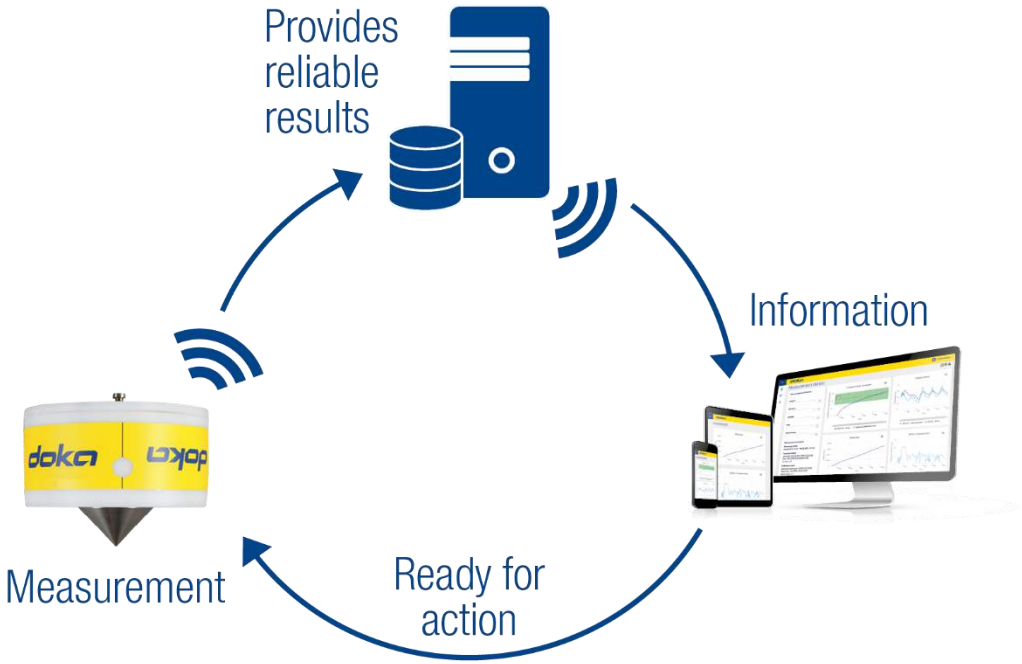
Increase safety

Our customers‘ achievement with DokaXact

- Speed of placing = 1,00 m/h

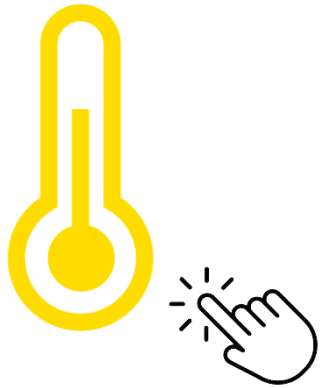
Monitoring of concrete temperature & strength

Concremote

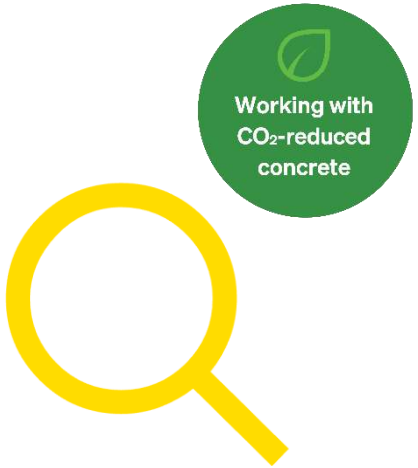


Fields of application

Concremote



Temperature monitoring
in mass concrete



Monitoring of early-age
compressive strength

Fair-faced concrete
projects

Versatile hardware line-up

Hardware

Slab

Reusable device in one handy unit for all horizontal parts.

The slab sensor combines the sensing element and wireless transmitting unit in one device.

Wall

Reusable cable sensor and wall sensing element for walls.

The wall sensing element can be incorporated in any formwork and the cable sensor transmits the data wirelessly to the cloud.

Mass concrete

Monitoring of temperature & strength inside the structure.

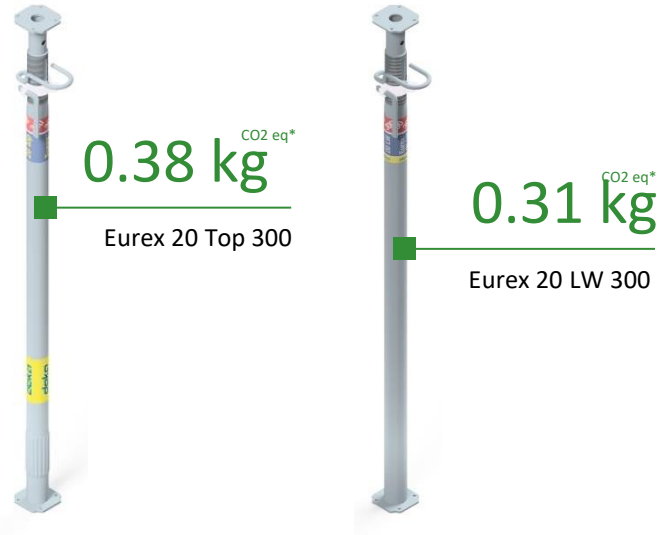
The multi-sensor cable accurately measures the temperature inside the concrete and the cable sensor transmits the data wirelessly to the cloud.

Transparency on greenhouse gas emissions with the Product Carbon Footprint

What is the PCF?

PCF provides a comprehensive **greenhouse gas (GHG) footprint across life phases of a product**.

The unit of the indicator is kg or t of **CO_2eq.**



* kg CO_2 eq. of life cycle phases A1, A2 and A3 / month of use

Why care about the PCF?

- This data can be used to calculate **Scope 3** (primary data).All European and Californian companies will be obligated to do this in the near future.
- **Better ratings** at supplier assessments & scorings, as well as advantages at tender requests.
- Take **more sustainable decisions** and reduce your Scope 3 emissions evidence-based.

7000 products

Specific order or period of time

For rental and sold products

Transparency on greenhouse gas emissions with the Product Carbon Footprint

Comparing products for sustainable decisions

Meeting sustainability requirements
The construction industry is responsible for nearly 40% of global emissions. Decarbonizing this sector is crucial. That's why public tenders are increasingly demanding transparency, requiring contractors to disclose the CO_2e footprint of construction sites and products. At Doka, we support you in your mission to successfully meet new sustainability requirements.

Making evidence-based decisions
As a Doka customer, you can compare the carbon footprints of our products to make informed and eco-friendly decisions. By doing so, you can improve your company's CO_2e footprint.

Calculate Scope 3 emissions more easily
The Corporate Sustainability Reporting Directive (CSRD), passed by the EU Parliament in 2022, will require most companies to calculate their greenhouse gas emissions on a broad basis. This includes both direct and indirect emissions from upstream and downstream supply chains. We help our customers calculate their Scope 3 emissions by providing the necessary data on our products.

"We aim to make a positive impact on the environment by supporting our customers in achieving their own sustainability goals."

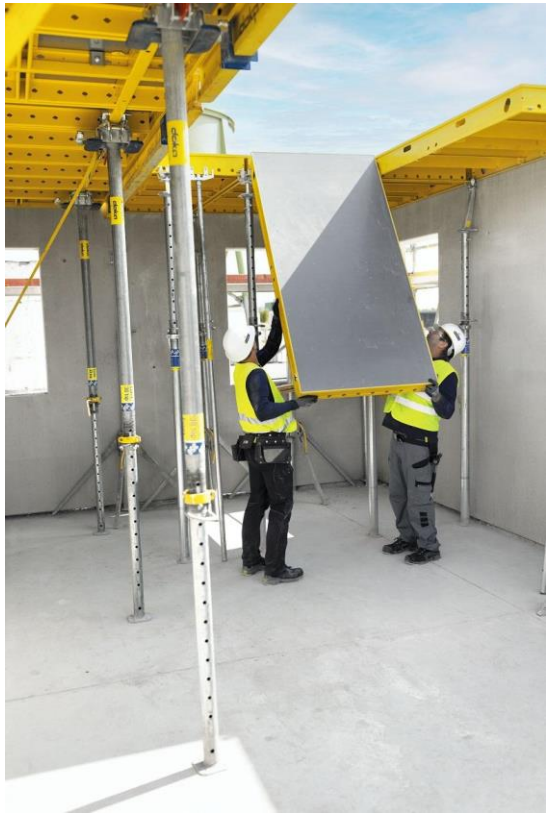
Julia Weber
Head of Sustainability Doka

PCF Industry Standard

GSV Industry Standard on PCF calculation – Doka as one of the main contributer

The **Güteschutzverband Betonschalungen Europa e.V (GSV)**), a European association of manufacturers, suppliers and users of formwork and scaffolding systems, set up a working group with the aim of developing a standard for the transparent quantification of a GSV Product Carbon Footprint (GSV-PCF-Standard) for the formwork and scaffolding sector. The agreement on minimum standards, which has now been published after less than a year, is the result of intensive cooperation. With this step, **Doka and its market partners are not only setting a new standard in the industry, but are also helping to establish the transparency on GHG emissions as a standard in the value chain.**

"We are delighted to have been able to contribute our many years of experience and our calculation methodology to the GSV joint working group. This industry-wide agreement between leading manufacturers brings us a big step closer to being able to better compare product carbon footprints, and thus to create a level playing field within the formwork and scaffolding industry," adds **Julia Weber**, Head of Sustainability at Doka. **All PCF data for Doka formwork already complies with the GSV-PCF standard.**



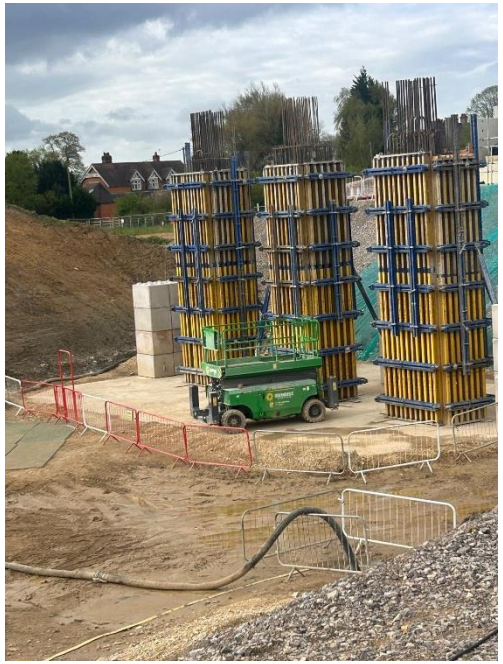
Doka has calculated the PCF for more than 7,000 formwork and scaffolding products.

Off Site Pre-assembly

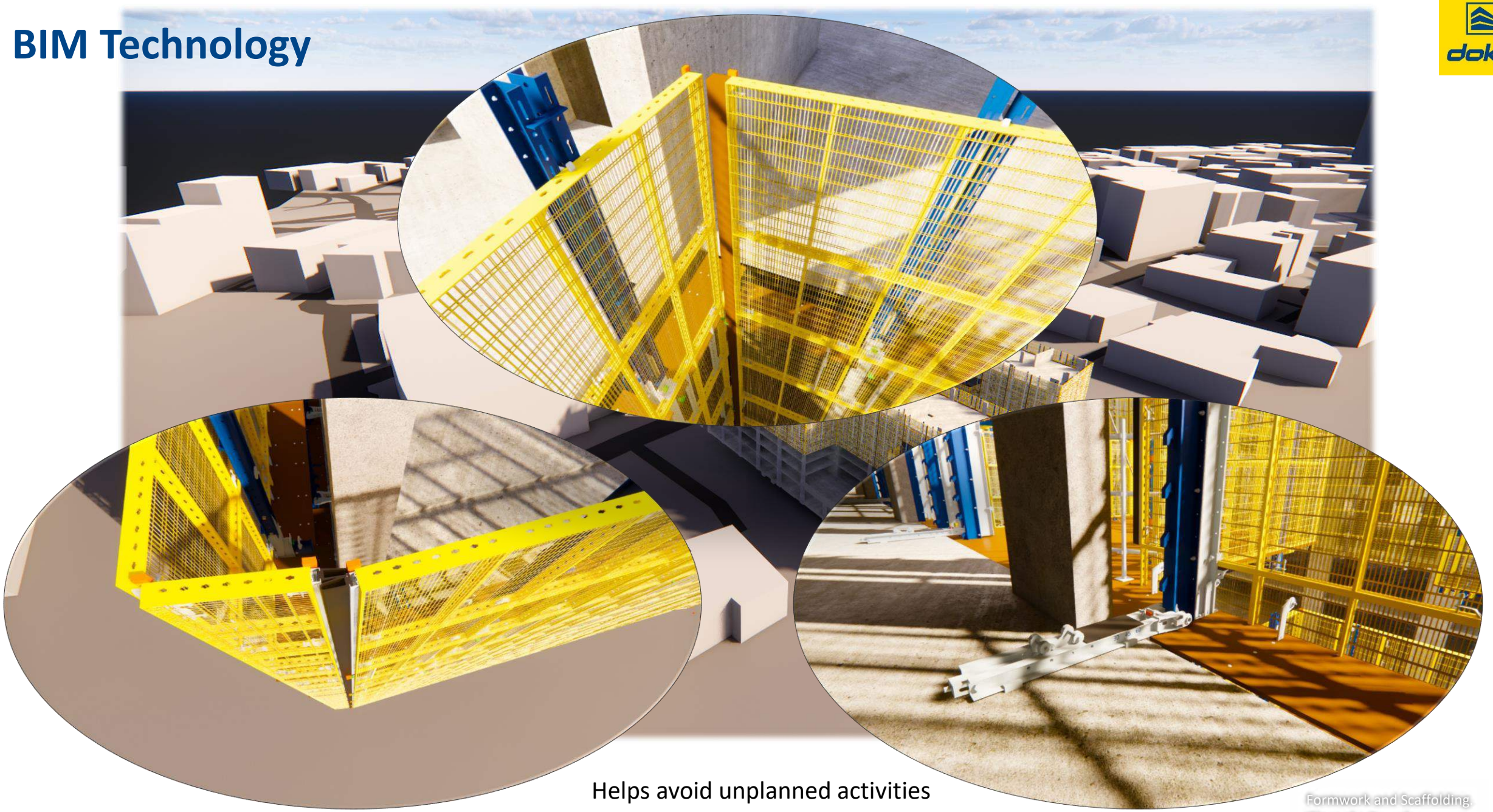
- Assembly by experienced carpenters in warehouse-controlled environment
- Guaranteed quality & specification
- Can lead to reduced working at height
- Less manual handling on site

Off Site Pre-assembly

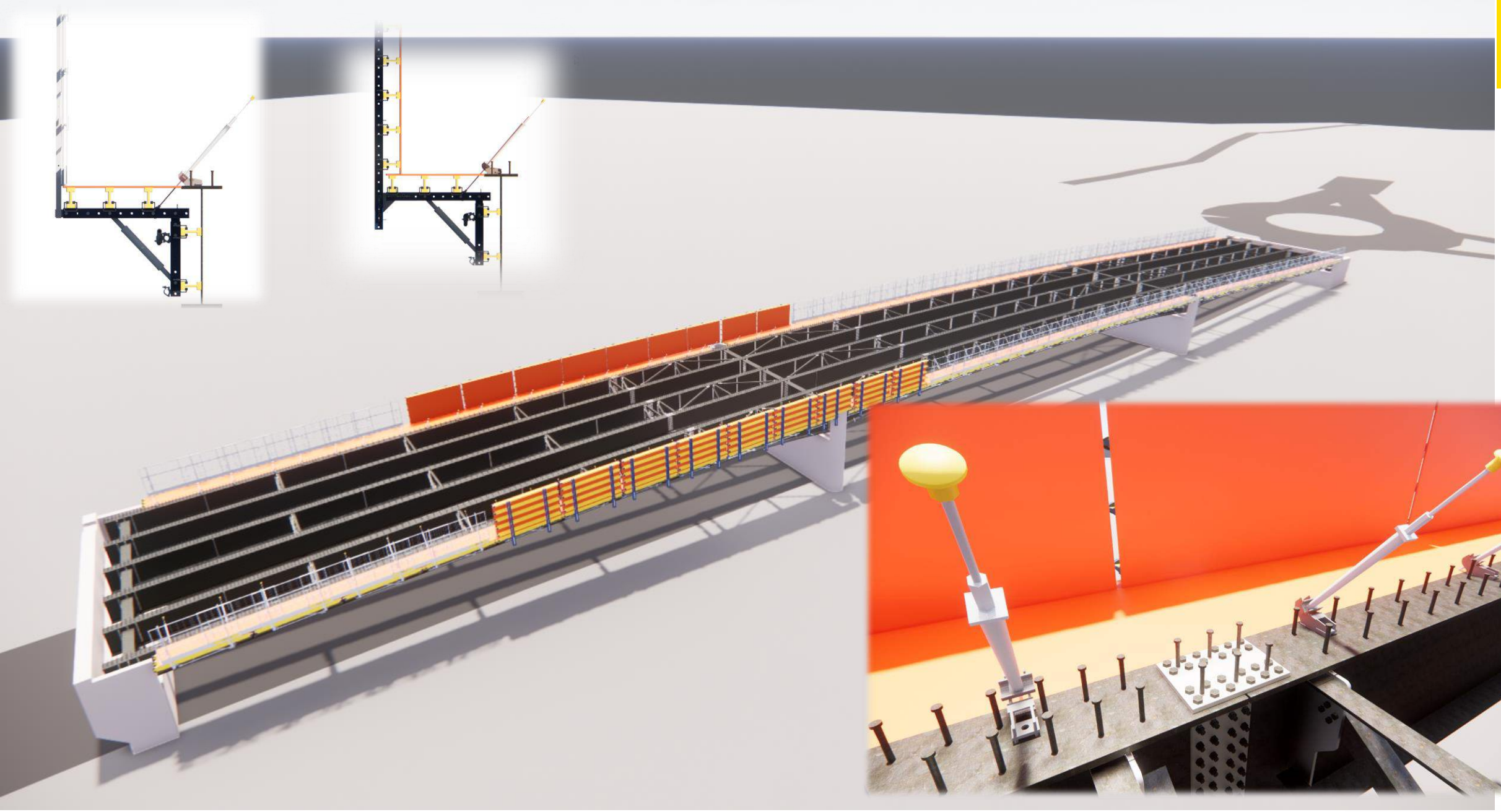
- Less tasks for site team
- Free up cranage & space on site
- Reduced reliance on workforce skills



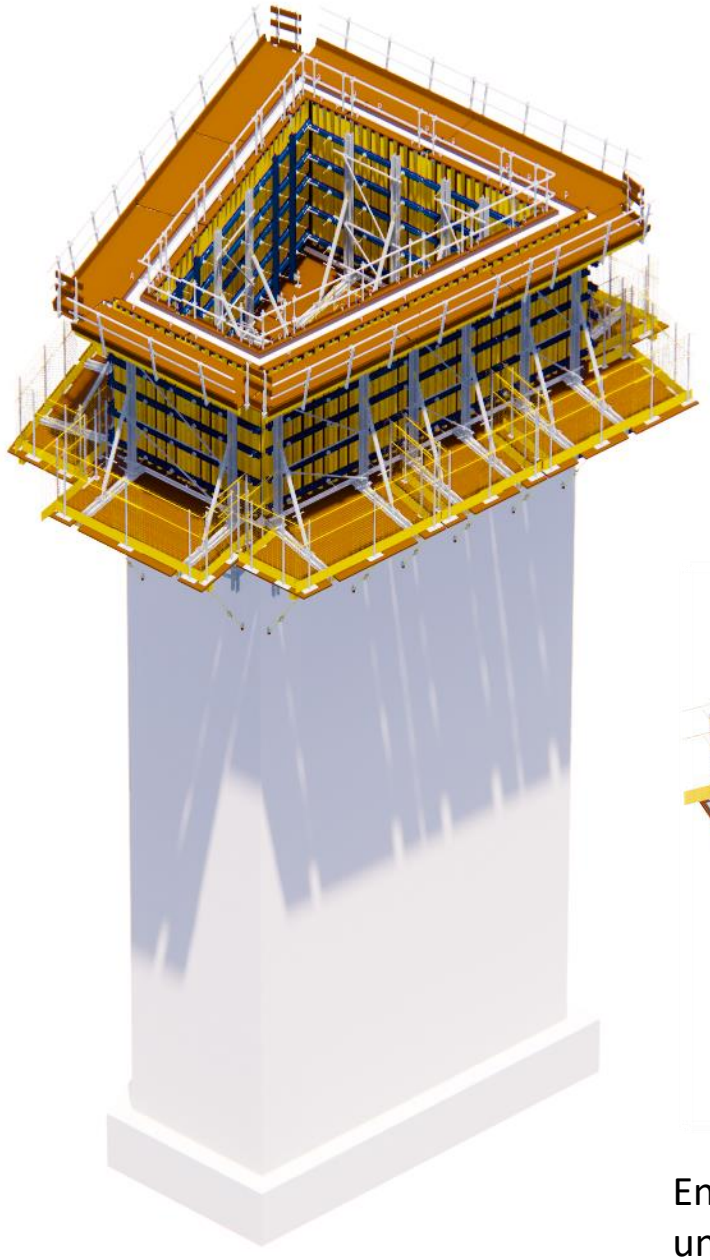
BIM Technology

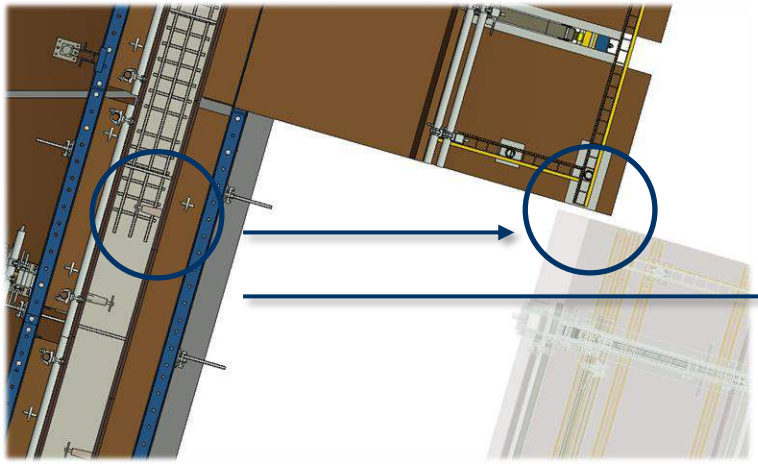


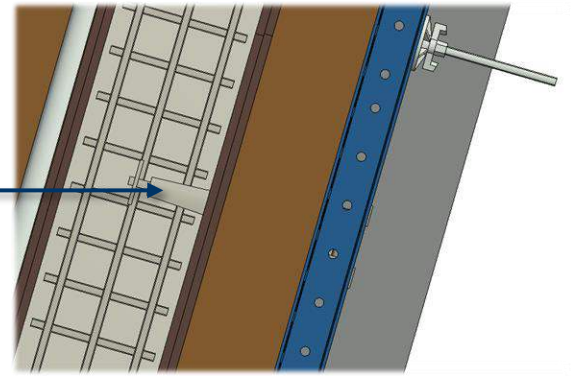
Helps avoid unplanned activities

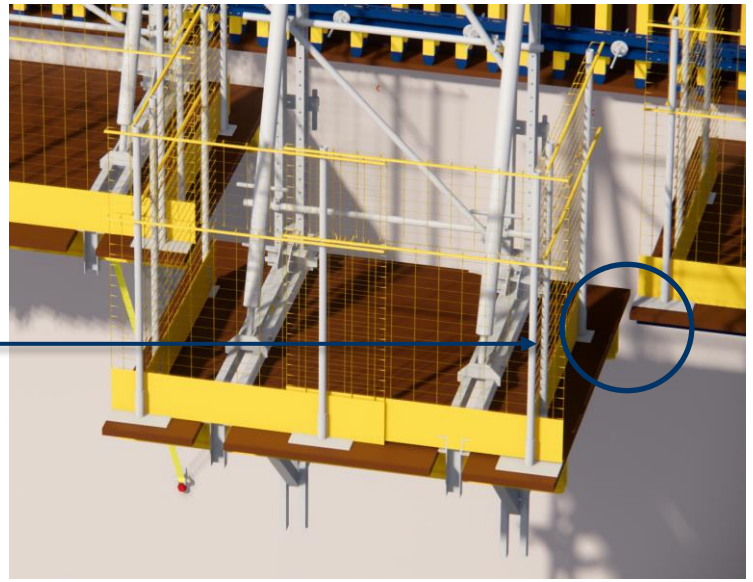


Clash detection & better understanding of solution









Enhanced collaboration, clearer understanding of sequencing

BIM Animation : Understanding the work enviroment


aps
association
for project
safety


COFFEE BREAK
10:55 – 11:15


PETE KINES
NATIONAL RESEARCH CENTRE FOR
THE WORKING ENVIRONMENT DENMARK

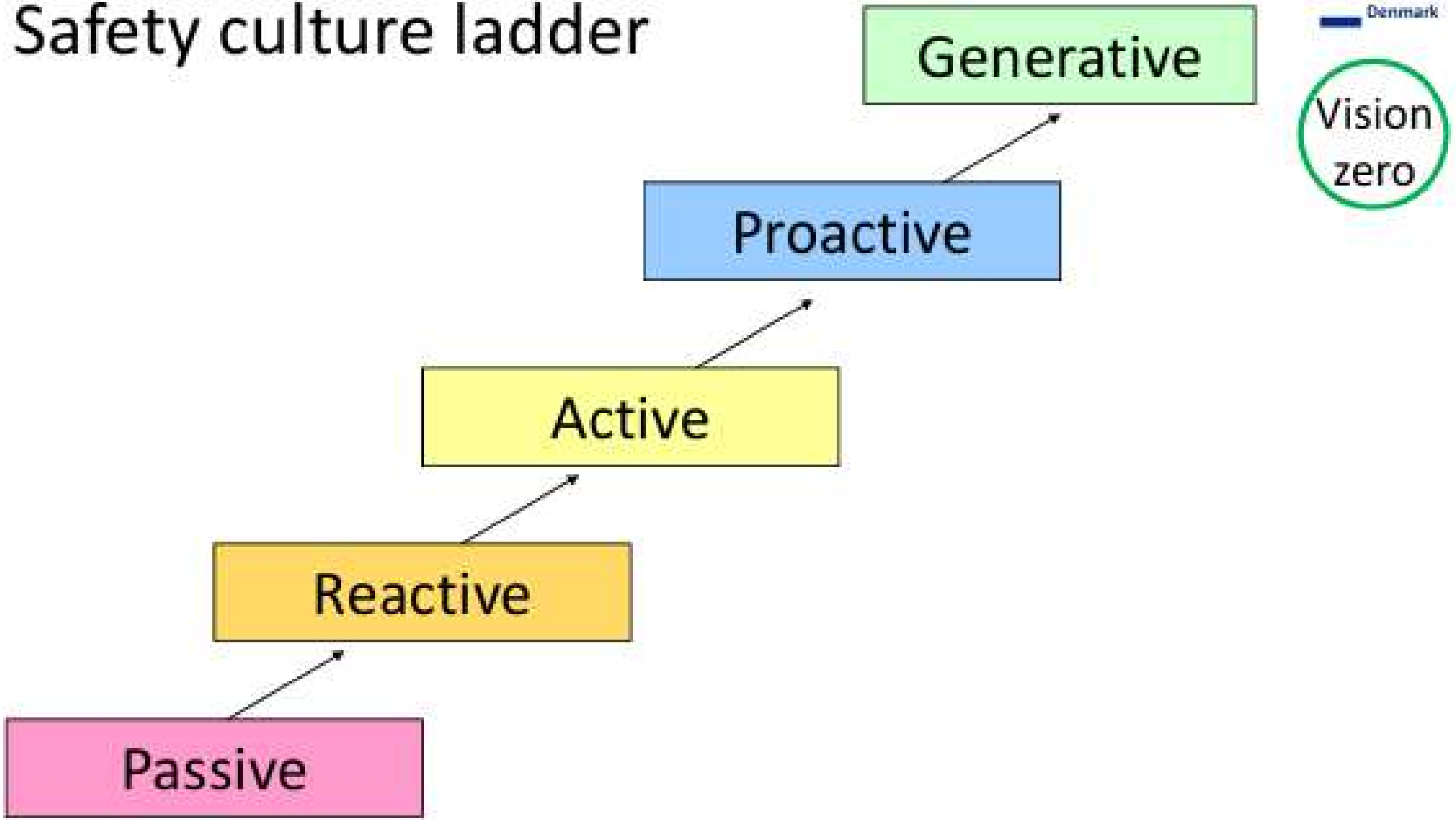
Leading indicators for safety, health and wellbeing at work in construction – global study, 14 indicators

APS & ISHCCO International Congress
14-03-2025

National Research Centre for the Working Environment Denmark

Pete Kines, PhD
Senior researcher
Division of Safety Research
pki@nfa.dk

Safety culture ladder



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Vision zero

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‘Vision Zero’ companies in Europe

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EU study – 'Vision Zero' companies

- 7 EU countries, 27 companies

- Interview, questionnaires and national workshops
- 8819 questionnaire respondents
- 66 % workers, 30 % leaders/managers/supervisors

- 13 manufacturing companies (51 % respondents)
- **7 construction companies (28 %)**
- 7 other companies (21 %)

Zwetsloot, Kines et al., Safety Science, 2017 a & b

Traditional safety approach vs. Vision Zero

National Research Centre for the Working Environment Denmark

Safety **control** strategy	Safety **commitment** strategy
Safety is a **goal**	Safety is a **journey**, a **process**
Preventing accidents	**Creating** safety

Traditional safety approach vs. Vision Zero

National Research Centre for the Working Environment Denmark

Safety **control** strategy	Safety **commitment** strategy
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Preventing accidents	**Creating** safety
Safety programs	Safety an **integrated** part of **business**
Risk **management**	Business **leadership**
Safety management **systems**	Safety **culture** and learning

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Safety owned by **few**	Safety owned by **all**
Safety is a **cost**	Safety is an **investment**
Workers are part of the **problem**	Workers contribute to **solutions**

Traditional safety approach vs. Vision Zero

National Research Centre for the Working Environment Denmark

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Safety is a **cost**	Safety is an **investment**
Workers are part of the **problem**	Workers contribute to **solutions**
Incidents are **failures**	Incidents are **opportunities for learning**
Benchmark on **injuries**	Benchmark on **good-practice** and **leading indicators**

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Vision Zero

- Mutual commitment from owners, leaders and workers
- Policies, planning, procedures and practice
- All (serious) accidents and diseases are **preventable**
- *A **process** – not a goal*

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Vision Zero - Good practice 1

- OSH commitment – a part of **hiring** process for **all** leaders and employees

- Involve **stakeholders**, business partners, subcontractors, suppliers, etc.
- **Relevant** communication strategy at all organisational levels

- **Multi-faceted** and **integrated** OSH initiatives that allow **decentralized** initiatives

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Vision Zero - Good practice 2

- Ensure **relevant**, **qualified** and **structured** introduction, instruction, supervision and follow-up
- Vision Zero companies - **leader-networks** (e.g. Finland 300+ companies, Germany 90+, Netherlands, etc.
- **Action** and **learning** from 'observations' and 'near-miss' incidents
- Reactive and **proactive** measures (KPI)

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Measuring safety and health at work

Traditional goals measured by reduction in:

- Accidents and injuries
- Sickness absence
- Disease
- Insurance and compensation costs
- Early retirement

Leading indicators and actions

- Proactive
- Preventive
- Predictive

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Aim – develop a set of leading indicators

- Request from industries
- Benchmarking and KPIs'
- Supplement to 'lagging' and 'reactive' indicators
- Relevant for all three themes: safety, health and wellbeing
- Relevant for small, medium and large enterprises
- Easy to use (on paper or PC) ☺

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Methods – international collaboration

- Literature **review**
- **Companies** from around the world – small, medium and large, cross-sectoral

- International **sector organizations**: mining, construction, energy, trade and transportation
- Safety and health **educators** and **trainers**
- Safety, health and wellbeing **researchers**

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Inputs from literature and industries

	Safety, health and wellbeing themes	Leading indicators Literature	Industry
1	Leadership commitment	12	6
2	Identify and control hazards and risks	7	10
3	Targets and programmes	14	8
4	Ensure SHW system	10	24
5	Well-designed equipment and workplaces	1	5
6	Qualifications, competences	10	8
7	Investing in people and participation	10	11
	Totals	**64**	**72**

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Evidence from the London Olympics 2012

100 million working hours - low accident rates - no fatalities

Five success factors

- Visible impactful leadership
- **Daily activity briefings**
- Following-up near misses
- Taking action on reports
- Recognition and reward

BRITISH SAFETY COUNCIL

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Leading indicators – work briefings

What do we count? How do we count it?

- ✓ Policy: SHW integrated
- ✓ Education
- ✓ Training
- ✓ Briefings (number, frequency)

- ✓ Follow-up
- ✓ Action
- ✓ Evaluation
- ✓ Learning

Objective

Subjective

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The 14 Proactive Leading Indicators

1.1 Visible leadership commitment

1.2 Competent leadership

2.1 Evaluating risk management

2.2 Learning from unplanned events

3.1 Workplace and job induction

3.2 Evaluating targeted programmes

4.1 **Pre-work briefings**

4.2 Planning and organization of work

5.1 Innovation and change

5.2 Procurement

6.1 Initial training

6.2 Refresher training

7.1 Suggestions for improvement

7.2 Recognition and reward

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14 Fact sheets

←Aims

←Key concepts

←Good practice

←Limitations

←How to measure (3 options)

←Example of graphical results

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Three options for using the indicators

Example indicator 4.1:

Are Safety, Health and Wellbeing an integrated part of discussions in pre-work meetings?

Option 1: YES / NO

Option 2: Frequency estimation - scale of 0 - 4, 'Never' to 'Always'

Option 3: Quantitative measurement – actual frequency or percentage

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Option 1, the YES / NO checklist

	Safety		Health		Wellbeing		Total
	YES	NO	YES	NO	YES	NO	YES
1. Are SHW an integrated part of discussions in pre-work meetings?	√		√		√		3
2. Is the promotion of SHW included in procurement processes?	√		√			√	2
3. Are SHW covered in refresher training?	√			√	√		2
Etc. for all 14 indicators	…	…	…	…	…	…	…
"YES" total	12/14 (86%)		6/14 (43%)		4/14 (29%)		22/42 (52%)

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Option 2, Frequency estimation

To what degree are the following questions met? Use the following ratings: Always or almost always = 4; Frequently = 3; Occasionally = 2; Rarely = 1; Never or very rarely = 0	**Safety**	**Health**	**Wellbeing**	**Total**
1. How often are SHW an integrated part of discussions in pre-work meetings?	2	3	1	6
2. How often is the promotion of SHW included in procurement processes?	3	2	2	7
3. How often are SHW covered in refresher training?	4	3	3	10
Etc. for all 14 indicators	...	...	...	...
Total	46/56 (82%)	32/56 (57%)	34/56 (61%)	112/168 (67%)

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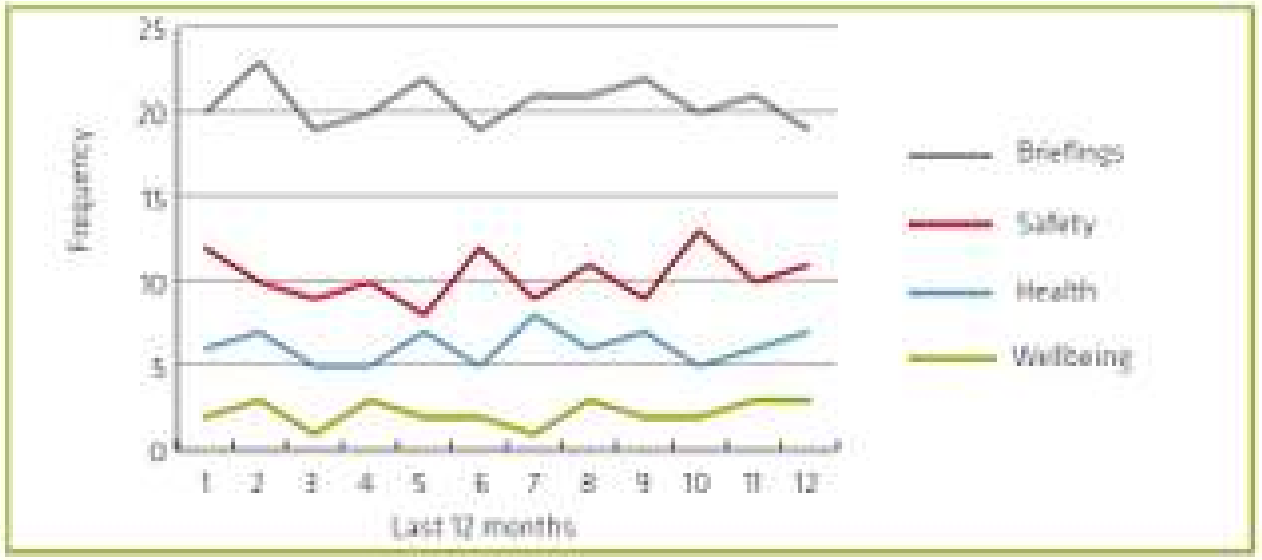
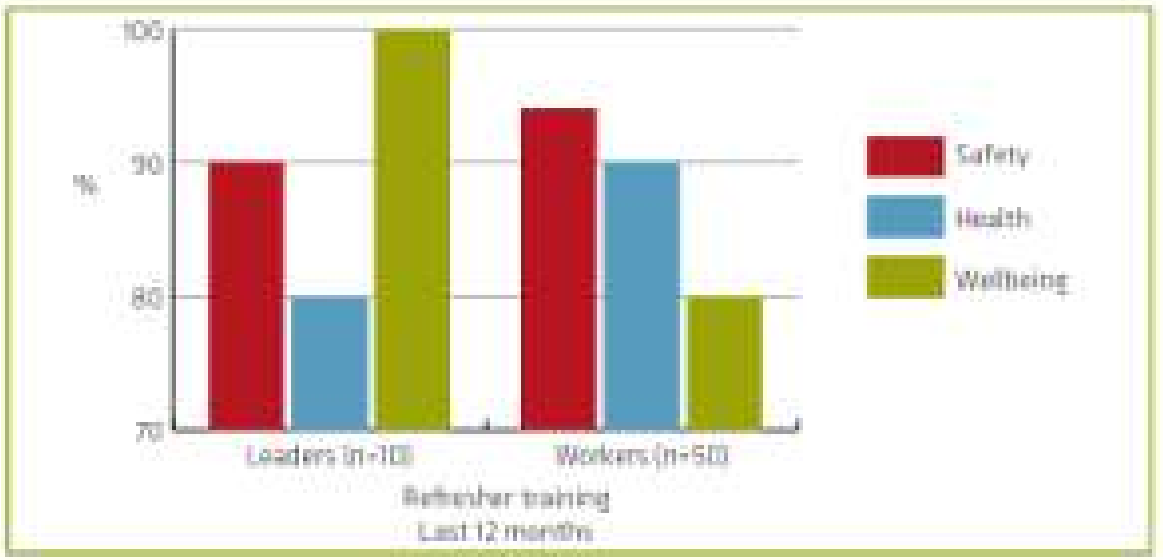
Option 3, Quantitative measurement

Frequency



How often are SHW an integrated part of discussions in pre-work briefings?

Percent



How often are SHW covered in refresher training?

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Working with leading indicators

- Identify your strengths and needs for improvement in SHW
- Discuss priorities with leaders and workers
- Adapt the indicators – make them relevant for your context and resources
- **Get experience with one or two indicators**

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Proactive leading indicators

- Guide with 14 fact sheets
- http://visionzero.global

- Available in:
  - English
  - French
  - German
  - Japanese
  - Russian
  - Spanish
  - Ukrainian
  - Etc.

Scientific publication

- Zwetsloot, Leka, Kines, Jain (2020). Vision Zero: Developing proactive leading indicators for safety, health and wellbeing at work. Safety Science. 130, 104890, 1-10.

- Open access

  (free to download)

Safety Science

Vision zero: Developing proactive leading indicators for safety, health and wellbeing at work

Safety Observer app (version 3.0)

National Research Centre for the Working Environment Denmark

GET IT ON Google Play

Download on the App Store

- Measuring compliance to on-site safety conditions and behaviours
- For use in systematic safety rounds

Safety Observer (version 3.0)
App for systematic safety rounds

National Research Centre for the Working Environment Denmark

GET IT ON Google Play

Download on the App Store

- https://safetyobserver.dk
- https://nfa.dk/safetyobserver (info)

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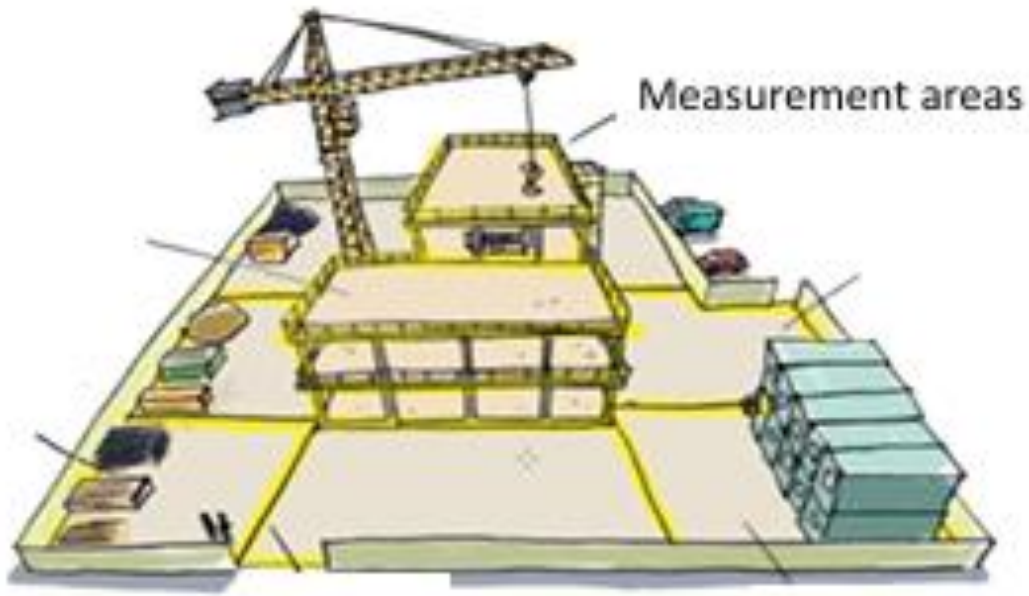
Measuring compliance to on-site safety conditions and behaviours

- Behaviour & ergonomics
- PPE & technical assistive devices
- Signs, labels & warnings.
- Equipment & tools
- Order and tidiness
- Etc.

- **Make your own lists!!**



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Thank you for your attention

Pete Kines
pki@nfa.dk


LUNCH
12:00 – 14:00


ALFREDO SOEIRO
ON BEHALF OF DIGITAL 4 OSH

DIGITAL4OSH
DIGITAL TECHNOLOGIES FOR OCCUPATIONAL SAFETY AND HEALTH IN CONSTRUCTION

DOES DIGITAL HELP TO SAVE LIFES ?

MANUEL TENDER, RICARDO REIS
ALFREDO SOEIRO (PRESENTER)

Let´s talk about it…

DIGITAL4OSH

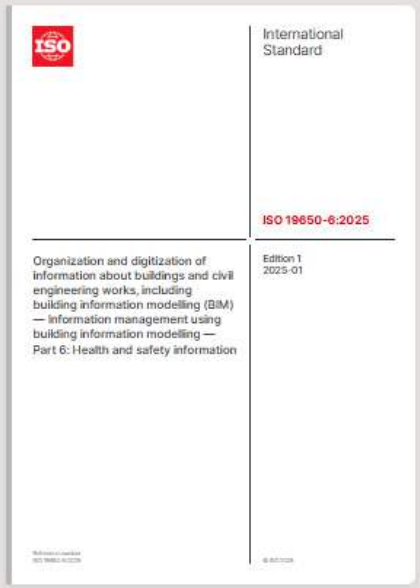
EXECUTIVE TEAM

Paul Fuller	Manuel Tender	Peter Demian	Ricardo Reis	Billy Hare
				

Firmino Silva	Alfredo Soeiro	Vivien Chow	Francisco Reis	João Couto	Helena Gonçalves
					

ADVISORY PANEL

Alistair Gibb	Pedro Arezes	António Godinho	Steven Yeomans	Hernâni Neto
				



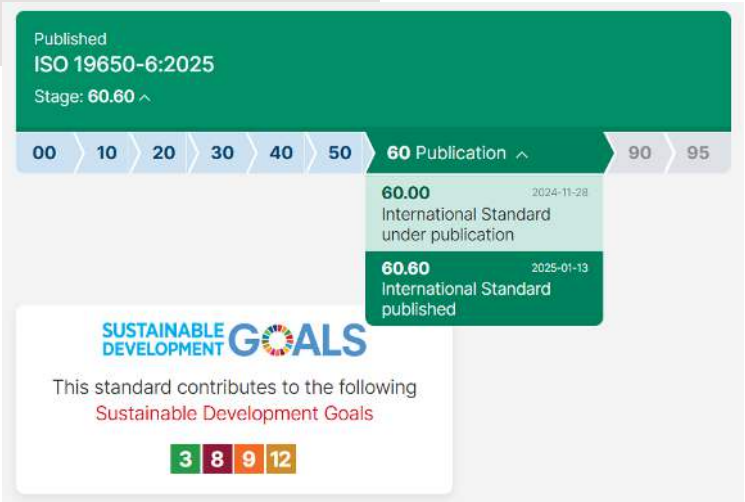
Read sample

ISO 19650-6:2025

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling

Part 6: Health and safety information

Published (Edition 1, 2025)

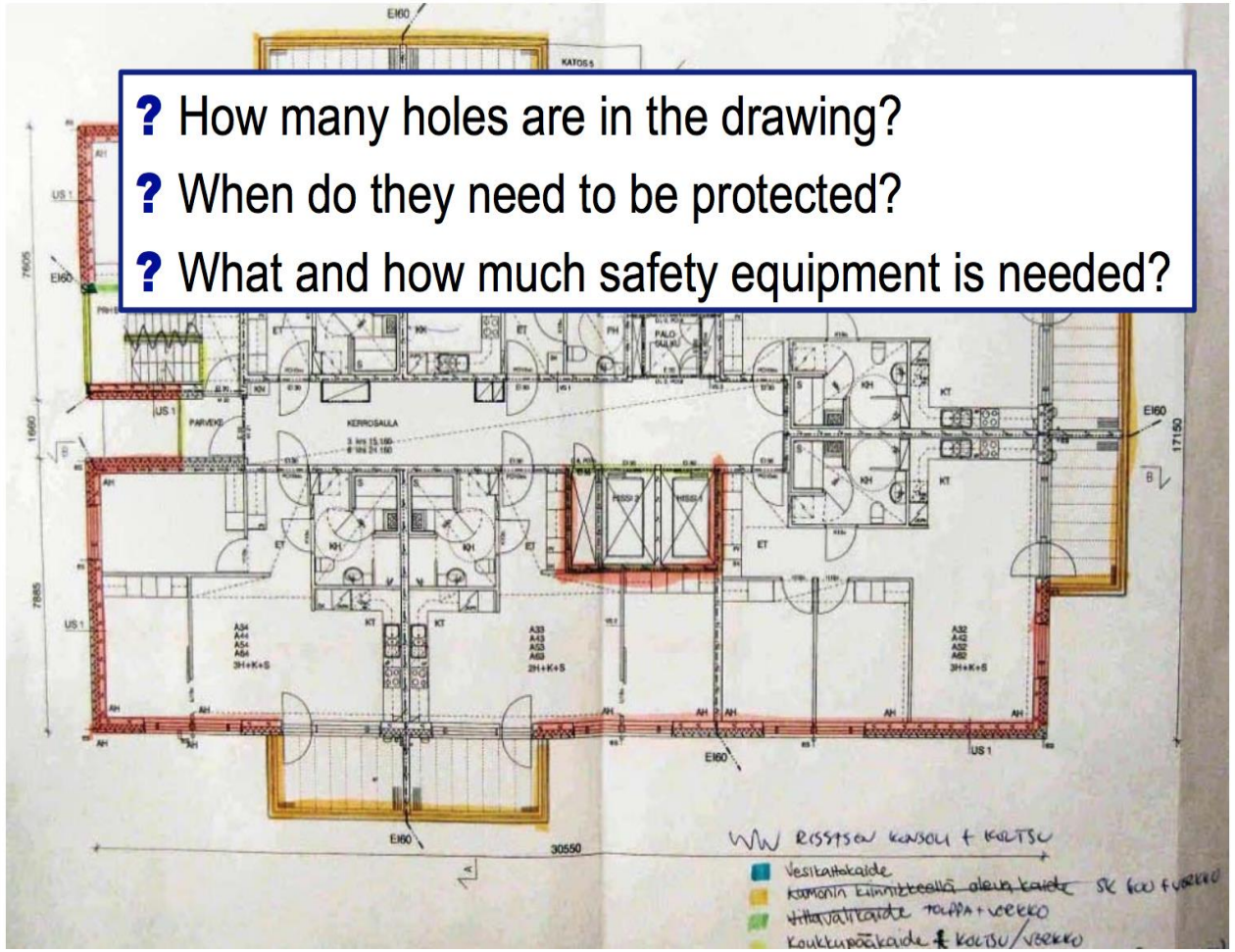


BIMSAFETY

? How many holes are in the drawing?

? When do they need to be protected?

? What and how much safety equipment is needed?



concept

DIGITAL REPRESENTATION OF THE PHYSICAL AND FUNCTIONAL CHARACTERISTICS OF AN INFRASTRUCTURE

Early identification, during the design phase, of risks and hazards associated with different phases of the infrastructure, using BIM tools and methodologies.

New model of **Safety and Health Plan** information:
- Construction Planning / Working Procedures;
- Construction Site Plan;
- Construction Site Emergency Plan;
- Collective Protective Equipment (CPE) Plan;
- Access Control Plan (authorized person);
- …

New model of **Safety and Health File** information :
- Facility Management (FM) / Operation procedures;
- …

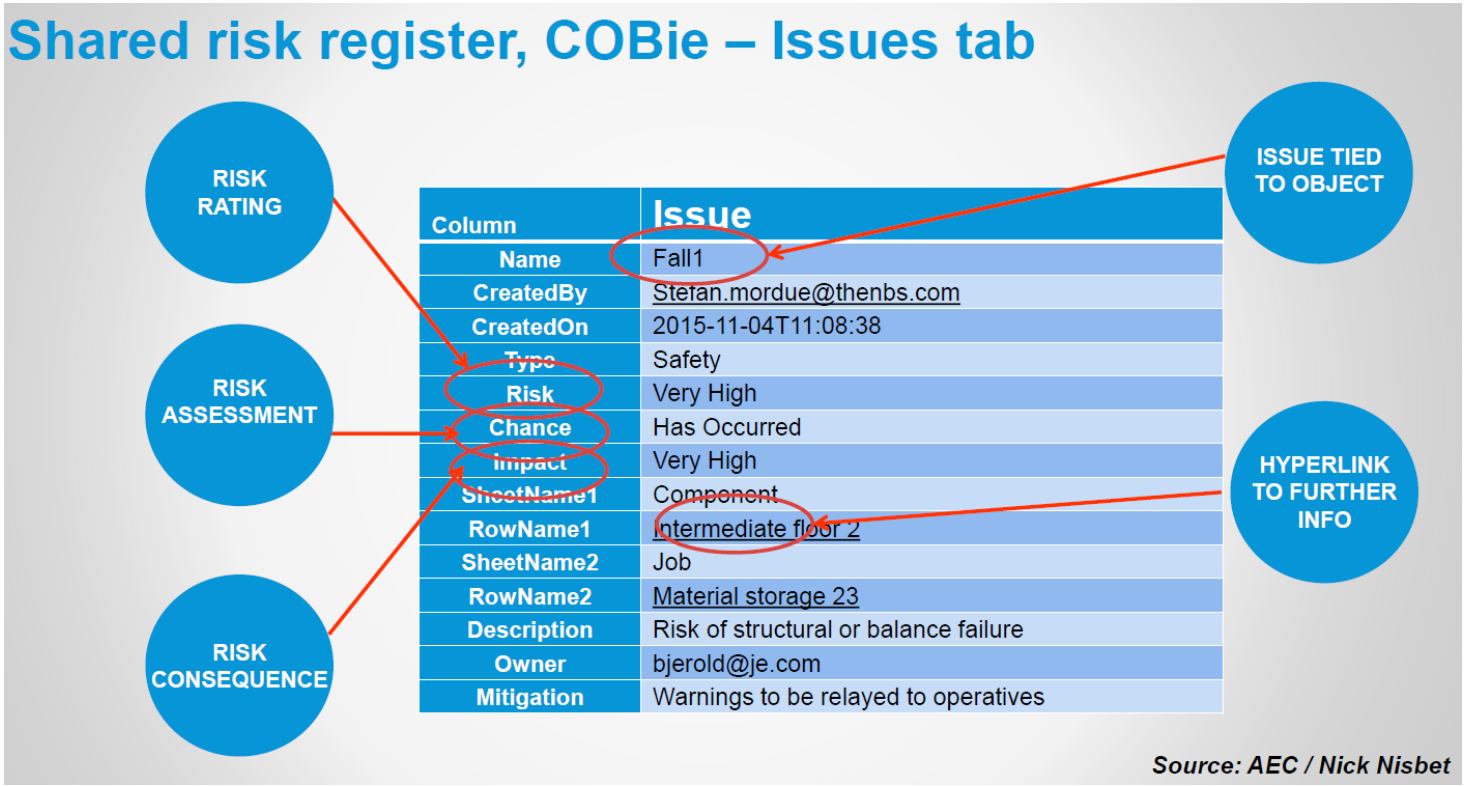
https://www.techture.global/blog/bim-best-practices-to-be-followed

BIM DIMENSIONS

3D
SHAPE

Information in the object

- ❑ OSH information is parametrized
- ❑ Hazard, risk, risk evaluation, preventive measures
- ❑ Links to other information: pdf, dwg, etc



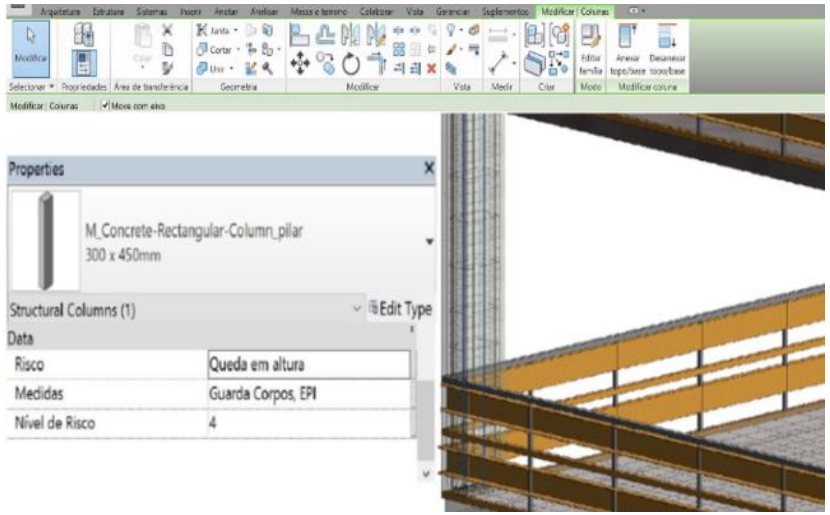
BIM DIMENSIONS

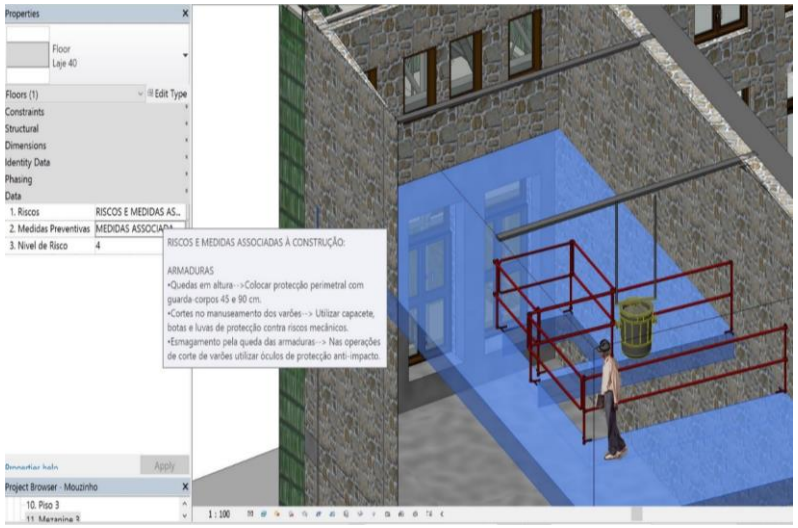
3D SHAPE

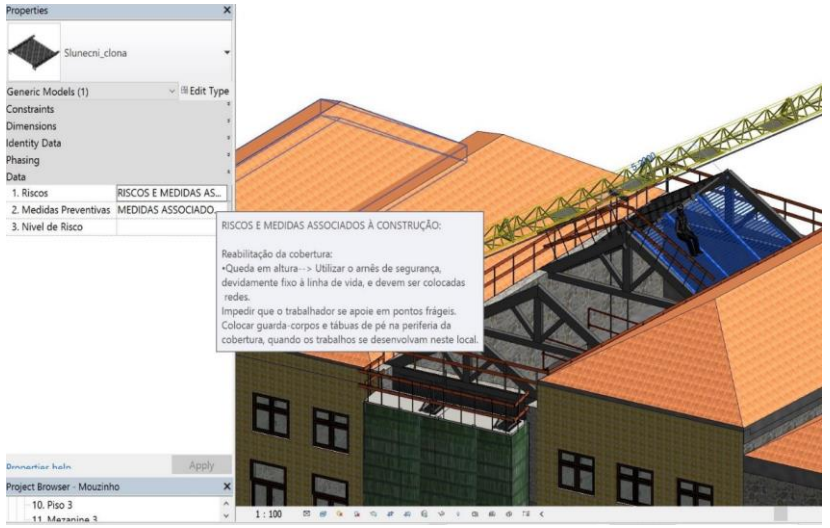
Information in the object

Example:
Construction and rehabilitation work in the historic center of Porto – Portugal

- ❑ Hazard, risk,
- ❑ Risk evaluation
- ❑ Preventive measures







BIM DIMENSIONS

Information in the object

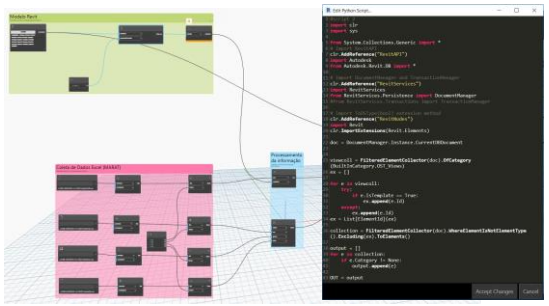
RISK ASSESSMENT OF THE TASK (ACTIVITY) ASSOCIATED TO PRODUCT (OBJECT)

Example: **Building a "Window“ (BIM object/product)**

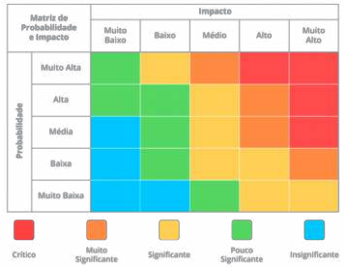
- Alpha information - risks and preventive measures
- Numeric information - scale from trivial risk (1 - green) to intolerable risk (5 - red)

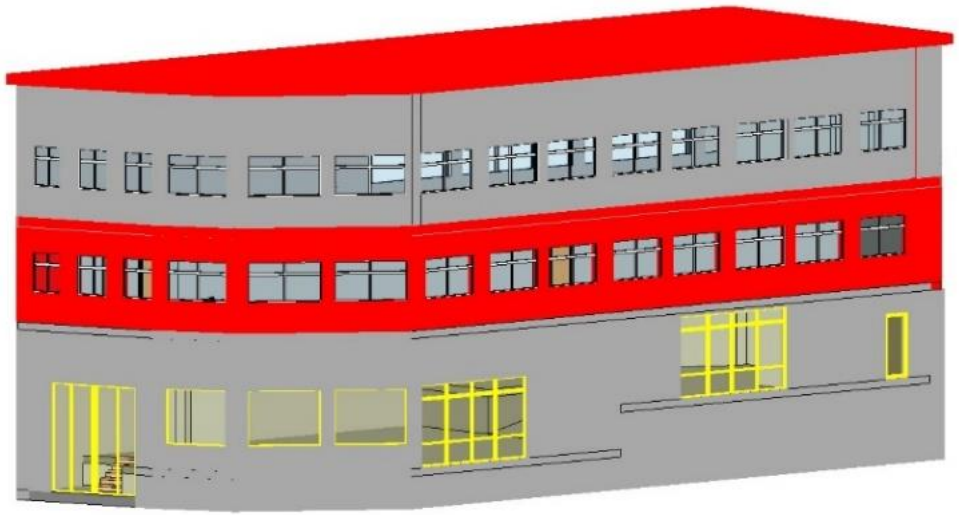
Risk Assessment System (NTP

Excel



python™



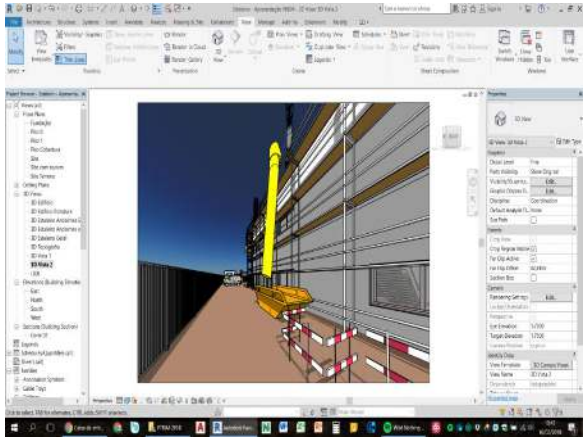


BIM DIMENSION

Construction Site Planning

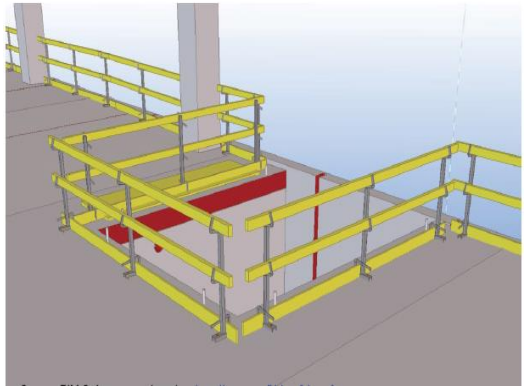
Without BIM:

- Construction site not included in drawing
- Temporary facilities not considered
- Spatial and temporal incompatible tasks



With BIM

- Pre-modelled objects
- Construction site is part of the model
- Space and volume optimization
- Spaces and critical schedules
- Integration of temporary facilities in the model
- Constraints (traffic, neighbourhood)
- Safety perimeters



BIM DIMENSION

Contract Information Management

buildingSMART Portugal

This document is an example of an **EIR (Exchange Information Requirements of the Appointing Party)** for the design phase of a multi-family building in Lisbon, complying with EN ISO 19650-2:2018. This is a concrete example applied to a fictitious situation and is intended as an illustration of good practice in BIM contracting during the design phase. Inherent in its nature, this is a document that will undergo various improvements over time.

3.3.1. Overall assessment

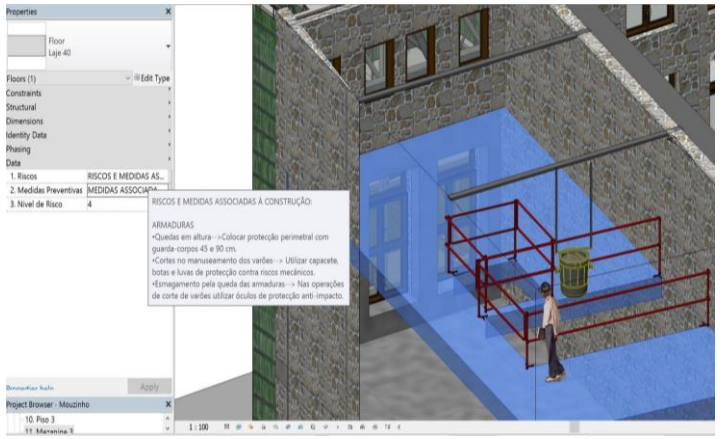
Ref.	EIR	Title	Description
N	EIR13	Preparation of the Safety and Health Plan and Health and Safety File	Delivery of the Safety and Health Plan and prepare the Health and Safety File. Information provided in accordance with the project's standards and information production methods and procedures.

BIM DIMENSION

Task Safety Planning

Without BIM

- Gap between production planning and safety planning
- Manual planning, errors are usual
- Drawings with few detail
- Planning changes are not safety changes

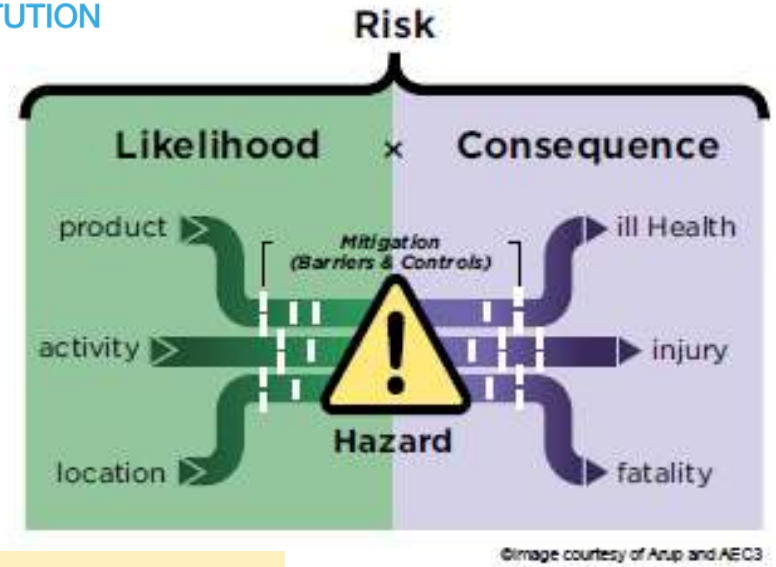


With BIM

- Detailed 3D drawings
- Less errors, more credibility - better planning capacity
- Comparison between planned – actual
- Temporary works can be better detailed
- Clash detection
- Planning changes are automatically safety changes

BIM DIMENSION

Risk Management



©Image courtesy of Arup and AEC3

PAS 1192-6:2018

Specification for collaborative sharing and use of structured Health and Safety information using BIM

BIM DIMENSION

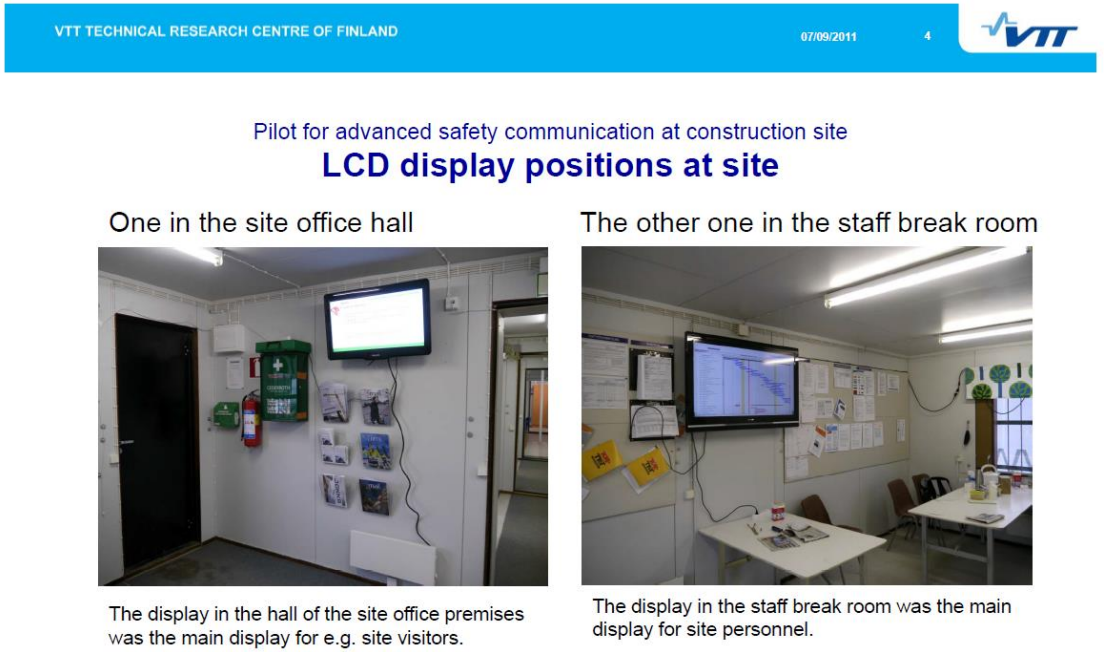
Training

Without BIM:

- Static, passive and no-realistic training
- Language barrier
- Time constraints

With BIM:

- More agile and quick communication
- Information is always available
- No linguistic barrier



Exploitation of BIM-based information displays for construction site safety communication (2011)

VTT Technical Research Centre of Finland & **Finnish Institute of Occupational Health** The target

BIM DIMENSION

6D
SUSTAINABILITY

Collective Protection

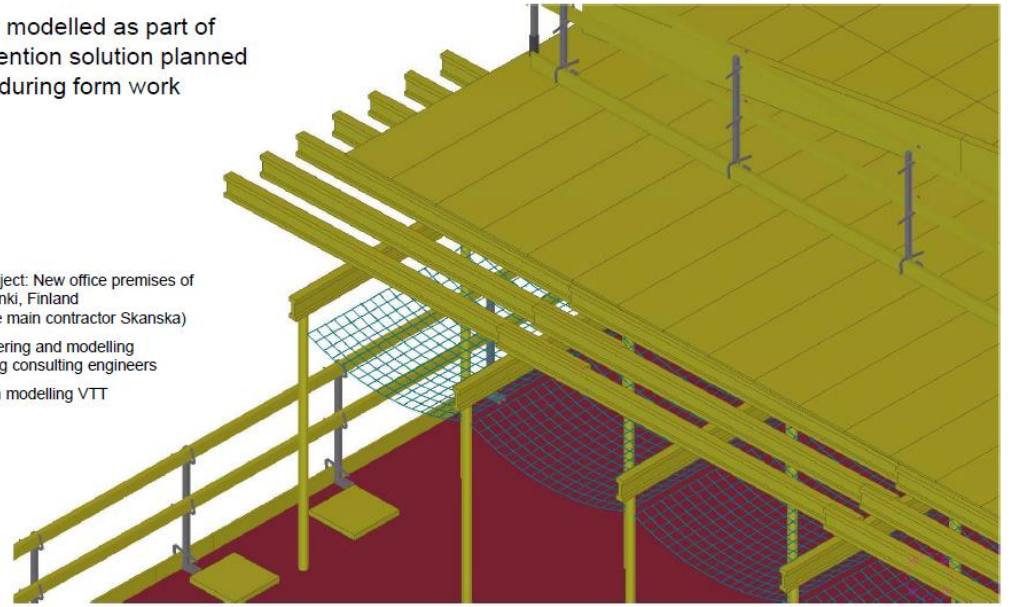
Without BIM:
- Not well readable
- Clash between elements
- Omission of zones

With BIM:
- Better vizualization
- Where and when it is needed
- Clash management

BIM-based falling prevention planning in Pilot 1,

(underground floors: form work and related safety equipment)

Safety nets modelled as part of falling prevention solution planned to be used during form work



Case building project: New office premises of Skanska, in Helsinki, Finland
(the client and the main contractor Skanska)

Structural engineering and modelling
Magnus Malmberg consulting engineers

Falling prevention modelling VTT

BIM-based falling prevention planning

BIM Safety research project, Pilot 1
Kristiina Sulankivi & Markku Kiviniemi
VTT Technical Research Centre of Finland

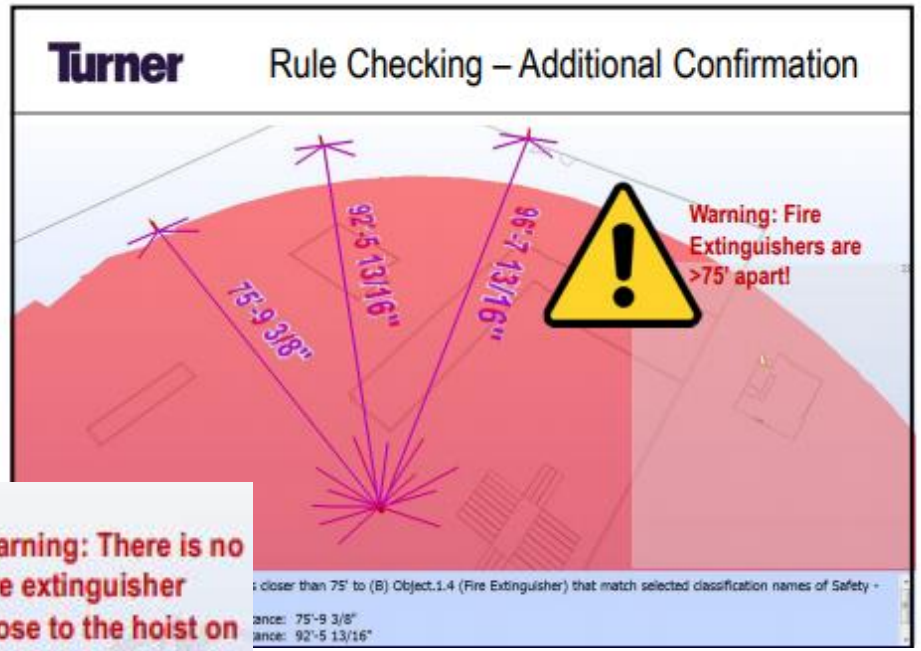
BIM DIMENSION

6D
SUSTAINABILITY

Emergency Planning

Without BIM:
- Unrealistic scenarios
- 2D evacuation routes

With BIM:
- Emergency scenarios
- Automatic evacuation routes
- Rescue procedures
- Fire-fighting equipemnt



DIGITAL4OSH
DIGITAL TECHNOLOGIES FOR OCCUPATIONAL SAFETY AND HEALTH IN CONSTRUCTION

BIM4OSH Observatory

BIM for Occupational Safety and Health
in Architecture, Engineering, Construction and Operation Sector

CURRENT POSITION

❑ Architecture, Engineering, Construction, and Operations (AECO) sector has a high accident rate

❑ Current way of managing OSH needs to be improved

❑ BIM does not yet have the prominence in OSH it has in other specialities

❑ No systemized approach to the collection or of lessons learned or good practices

❑ Lack of statistical-based instruments/databases covering trends and the progress of BIM for OSH implementation in different projects

❑ Safety as BIM "8th dimension"

DIGITAL4OSH

DIGITAL TECHNOLOGIES FOR OCCUPATIONAL SAFETY AND HEALTH IN CONSTRUCTION

Aspects of BIM That Improve Site Safety
(According to Respondents Who Find That BIM Improves Site Safety)

Dodge Data & Analytics, 2017

BIM4OSH Observatory

BIM for Occupational Safety and Health
in Architecture, Engineering, Construction and Operation Sector

DIGITAL4OSH

DIGITAL TECHNOLOGIES FOR OCCUPATIONAL SAFETY AND HEALTH IN CONSTRUCTION

Digital4OSH PARTNERS

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Portugal	University of Aveiro	Fernanda Rodrigues
Portugal	Xispoli Engineering	Ricardo Reis
Portugal	BIMMS Management	Francisco Reis
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Egypt	Arab Acad. Science, Technology & Maritime	Marwa Tahseen
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Kosovo	University of Prishtina	Arta Bascha-Jakupi
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Spain	University of Granada	M. Dolores Martinez Aires
Sweden	Lund University	Radhlinah Aulin
Turkey	Sakarya University	Tuba Tatar


STEVEN NAYLOR
HSE SCIENCE DIVISION

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE

Delivering improvements in Construction project health and safety performance through innovation with data – Lessons learned from HSE's Discovering Safety Research Programme

APS & ISHCCO Joint International Congress 2025

Steven Naylor
HSE Science and Research Centre
Risk and Analysis team

DISCOVERING SAFETY

Presentation plan

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE

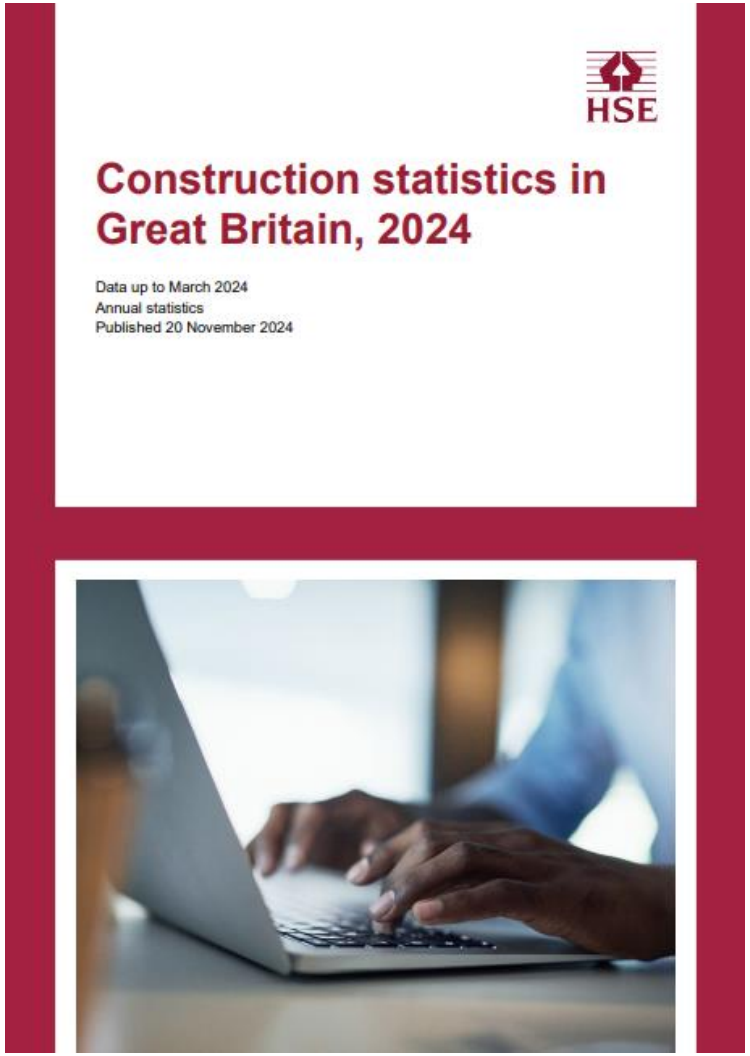
- Overview of the health and safety challenges facing the construction industry
- Introduction to HSE's Discovering Safety International Research Programme as a vehicle for delivering change
- How this is being achieved?
- Deeper dive into some of the specific project work on Discovering Safety and outputs
- Next steps for the Programme and a call to get involved

Current health and safety risk burden in GB, based on latest HSE published construction statistics

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE

In 2023/24, across the construction sector in GB –

- ❑ **78,000** workers suffered from work related ill-health
- ❑ **47,000** workers sustained a non-fatal injuries at work
- ❑ **51** workers sustained a fatal injury at work
- ❑ **£1.4 billion**, estimated annual cost of work-related injury and ill-health to UK society (incl. costs to state, employers and individual costs), 2021/22 estimate, 95% confidence interval, £1,054M – £1,838M



and internationally

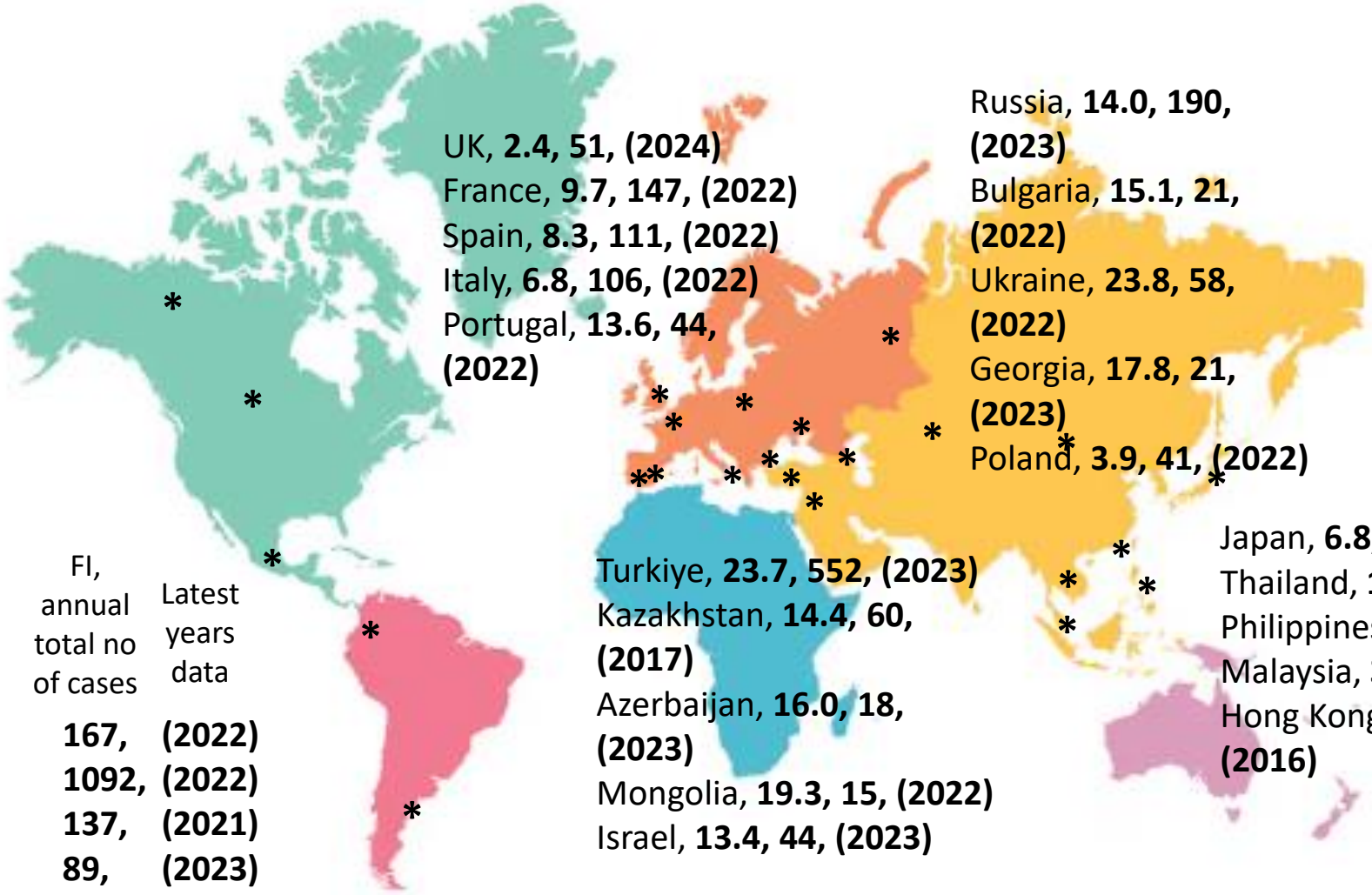
According to latest International Labor Organisation statistics –

- nearly 3 million people died of work-related accidents and diseases (in 2019)
- most of the deaths caused by occupational diseases (89%)
- 11% from work related injuries
- 395 million workers sustained serious non-fatal work injuries

Safety in numbers: what labour inspection data tells us – ILOSTAT; wcms_903140.pdf

Construction fatalities, annual cases & rates per 100 thousand workers (latest ILO published statistics)

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE



UK, **2.4, 51, (2024)**
France, **9.7, 147, (2022)**
Spain, **8.3, 111, (2022)**
Italy, **6.8, 106, (2022)**
Portugal, **13.6, 44, (2022)**

Russia, **14.0, 190, (2023)**
Bulgaria, **15.1, 21, (2022)**
Ukraine, **23.8, 58, (2022)**
Georgia, **17.8, 21, (2023)**
Poland, **3.9, 41, (2022)**

Turkiye, **23.7, 552, (2023)**
Kazakhstan, **14.4, 60, (2017)**
Azerbaijan, **16.0, 18, (2023)**
Mongolia, **19.3, 15, (2022)**
Israel, **13.4, 44, (2023)**

Japan, **6.8, 223, (2023)**
Thailand, **18.2, 119, (2020)**
Philippines, **10.9, 27, 2021)**
Malaysia, **33.7, 244, (2022)**
Hong Kong, **29.7, 32, (2016)**

Country	FIR, per 100 thousand workers	FI, annual total no of cases	Latest years data
Canada,	**10.8,**	**167,**	**(2022)**
United States,	**9.6,**	**1092,**	**(2022)**
Mexico,	**19.5,**	**137,**	**(2021)**
Colombia,	**8.9,**	**89,**	**(2023)**
Argentina,	**12.0,**	**58,**	**(2023)**

HSE's Discovering Safety Research Programme – Key delivery partners

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE

DISCOVERING SAFETY

Delivering health and safety benefits through a data driven global community

Discovering Safety aspires to be a leader in innovative, data driven health and safety with the aim of improving performance through the use of cutting edge data and analytical techniques

- ❑ £10 million international research programme, started in 2018
- ❑ Funded by Lloyd's Register Foundation
- ❑ Delivered in collaboration with a range of research partners
- ❑ Construction industry focussed
- ❑ Work centred around three industry endorsed use case projects

Lloyd's Register Foundation

MANCHESTER 1824
The University of Manchester

wood.

AtkinsRéalis

Okana
Let's shape tomorrow

Safetytech Accelerator

HSE's Discovering Safety Research Programme – Select contributors

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE

DISCOVERING SAFETY

Delivering health and safety benefits through a data driven global community

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EDF ENERGY
Heathrow
SEVERN TRENT
HS2
bam nuttall
Bentley MMB MOTT MACDONALD BENTLEY
AECOM
MULTIPLEX
MURPHY WORLD-CLASS INFRASTRUCTURE
COSTAIN
3D REPO
ASITE™
mind FOUNDRY
FYLD
PLINX
intuety
ORACLE

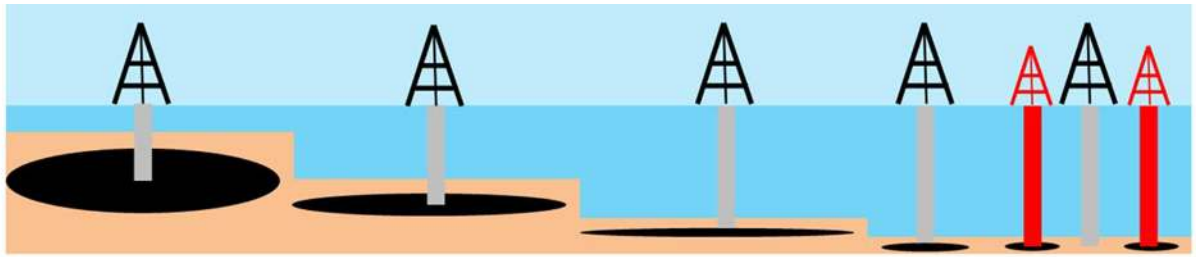
Aims of the programme at a high level

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE

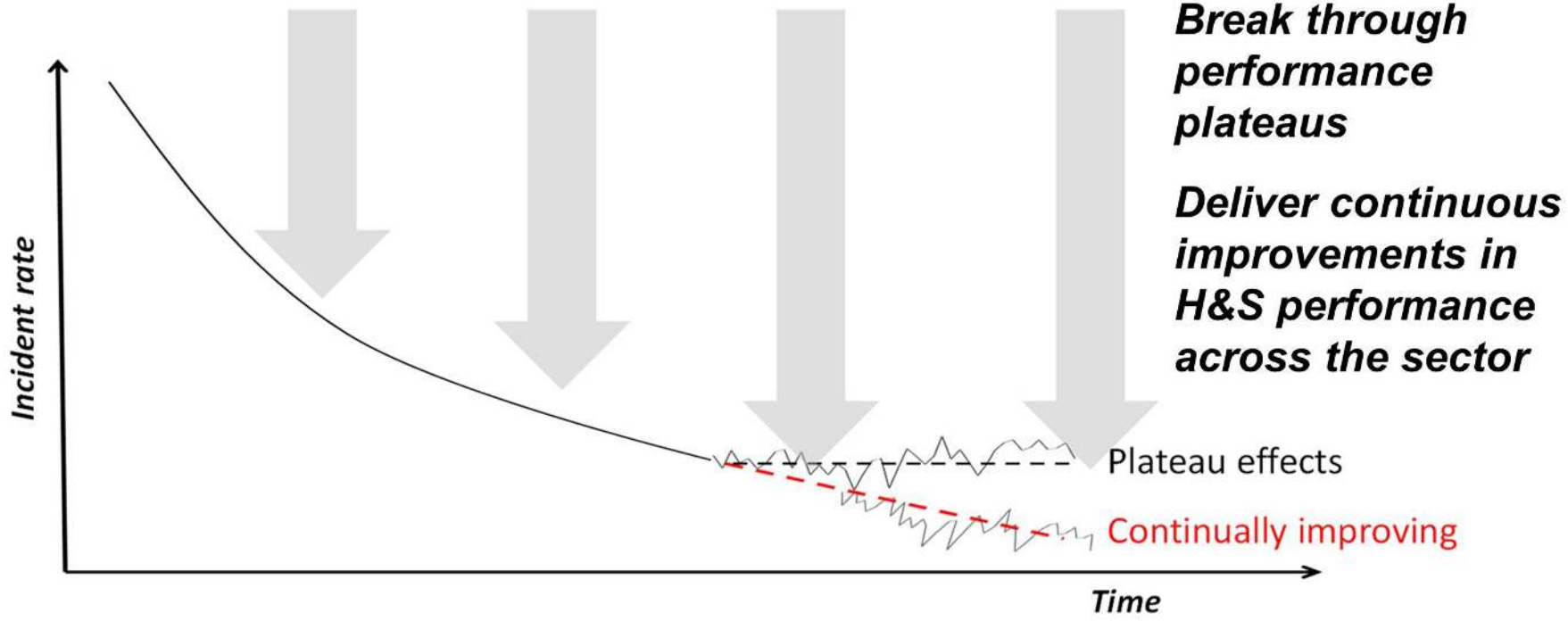
"The more you improve, the harder it gets to improve more"

"Easy wins have been made"

"If you always do what you've always done, you'll always get what you've always got"



Drilling for data driven learning



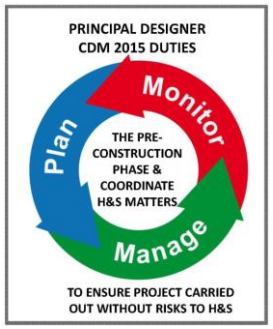
Break through performance plateaus

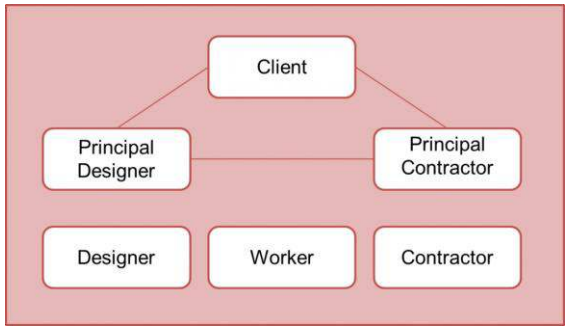
Deliver continuous improvements in H&S performance across the sector

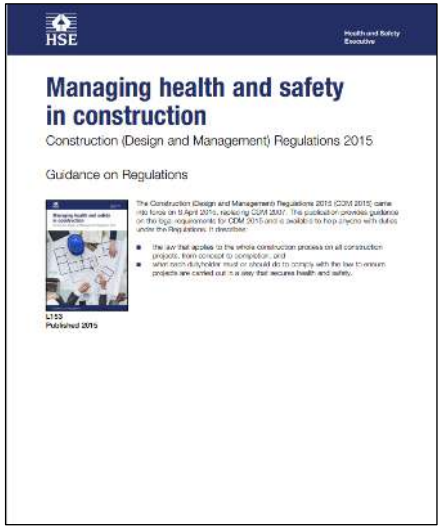
Achieved by ...

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE

- Supporting better, more holistic measurement of project health and safety performance
- leveraging project datasets better and emerging digital technologies
- considering whole project lifecycle (design, planning, construction, and into operation of assets)
- supporting clients, designers and contractors, in meeting regulatory responsibilities, under CDM regulations (in GB)
- support in treating “foreseeable health and safety risks” (prioritising eliminating/reducing risks in design, over controlling/informing about in construction phase)







Measurement of health and safety performance – What projects are good at and less good at?

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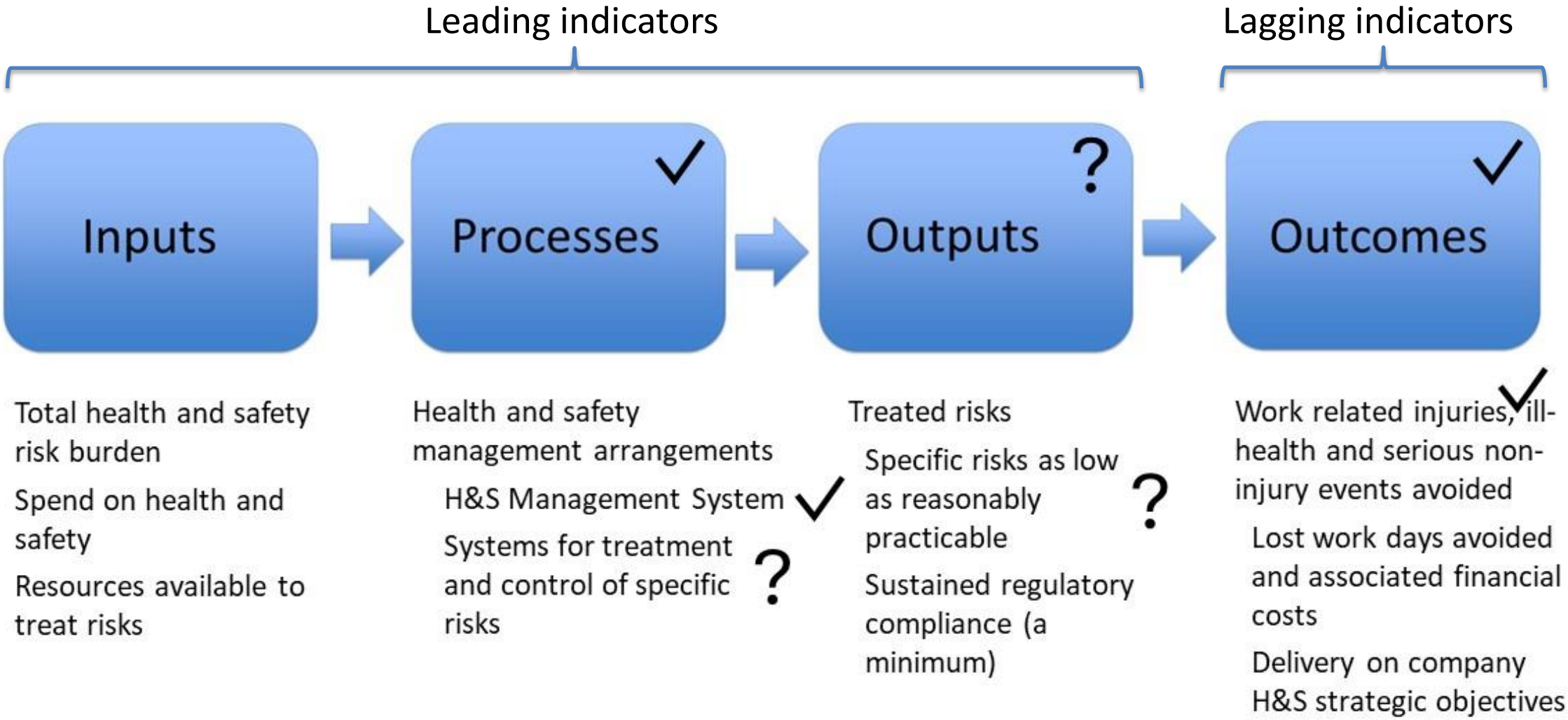

Common indicators routinely tracked by projects

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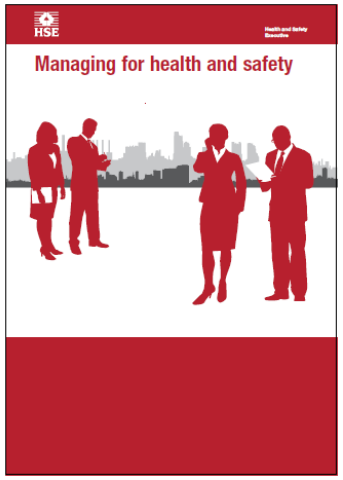
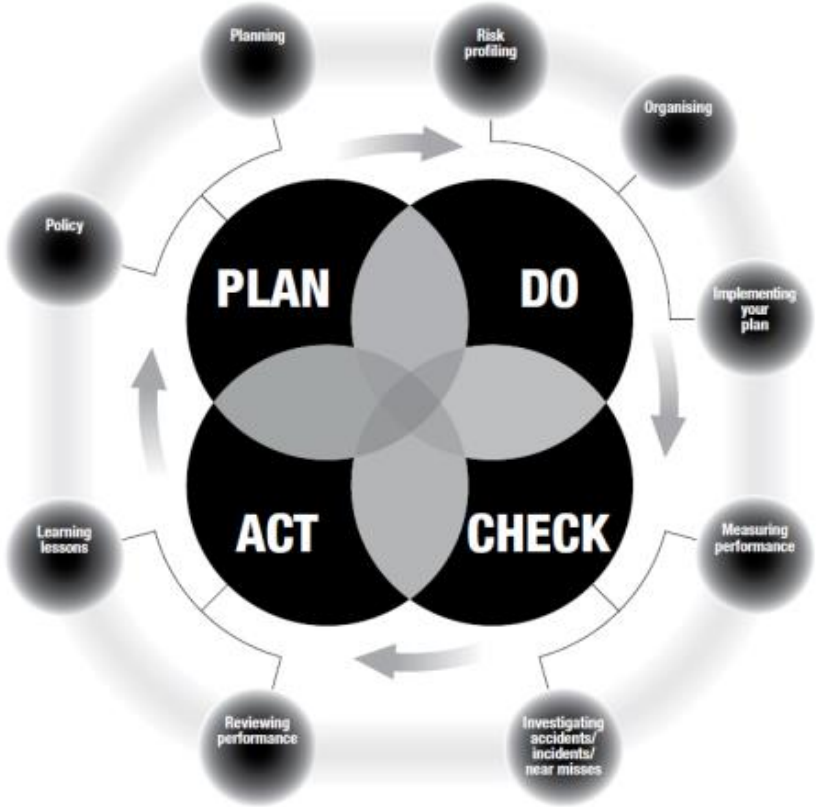
- Lost time injury rates
- Near miss reporting
- Scheduling and carrying out of inspections, audits and investigations
- Corrective action closeout
- Carrying out of senior leadership team site tours
- Carrying out of prejob safety briefings and toolbox talks as scheduled
- Review and sign-off of risk assessments and method statements
- Delivery of health and safety focused training and instruction



HSE guidance HSG65

ISO 45001

- Over focus on “Check” and limited elements of “Do”



Why measuring health and safety performance is difficult, Opportunities to do it better

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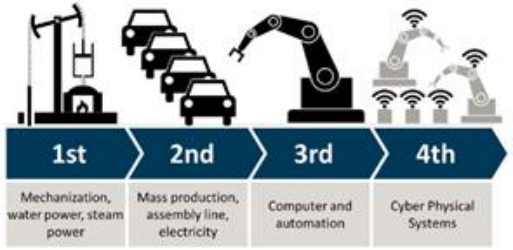
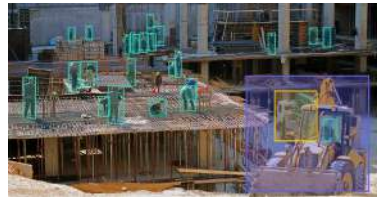
- Health and safety is very documents based, information recorded as free-text in reports, in spreadsheets
- Easy to track reactive and active monitoring is happening, less easy to enumerate around findings

- Large language models, Gen AI, to understand meaning in free text reports
- Computer vision, wireless sensors on plant & people, to track location of workers relative to site hazards, near/real time
- Drones, robotic & autonomous systems, to remove humans from risk loops
- Machine readable requirements, site diaries, inspection/audit reports, enabling smart (auto) compliance checking





Digitally enhanced safety by design, prevention through design

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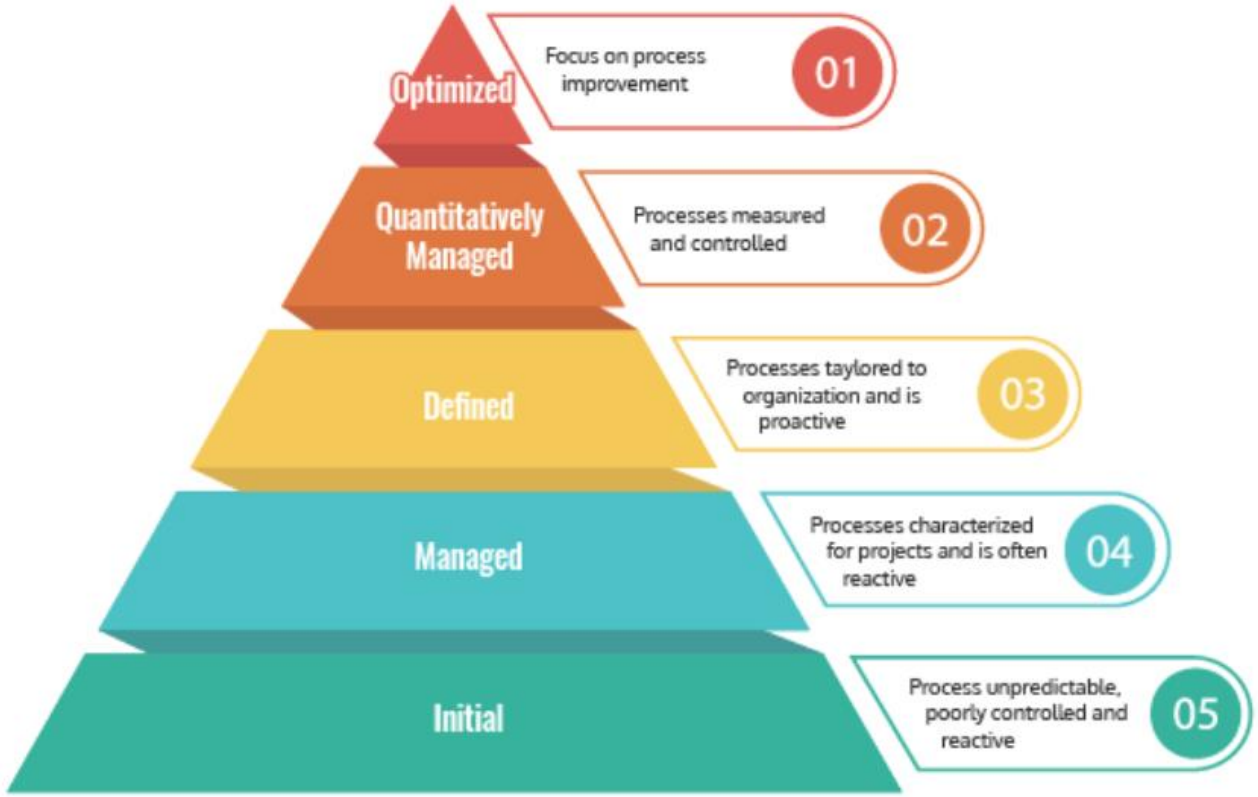
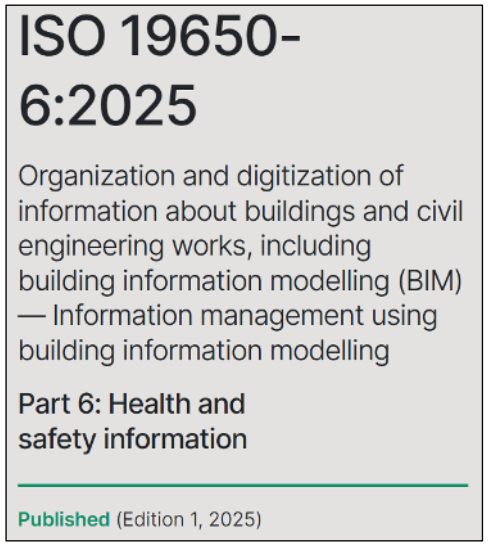
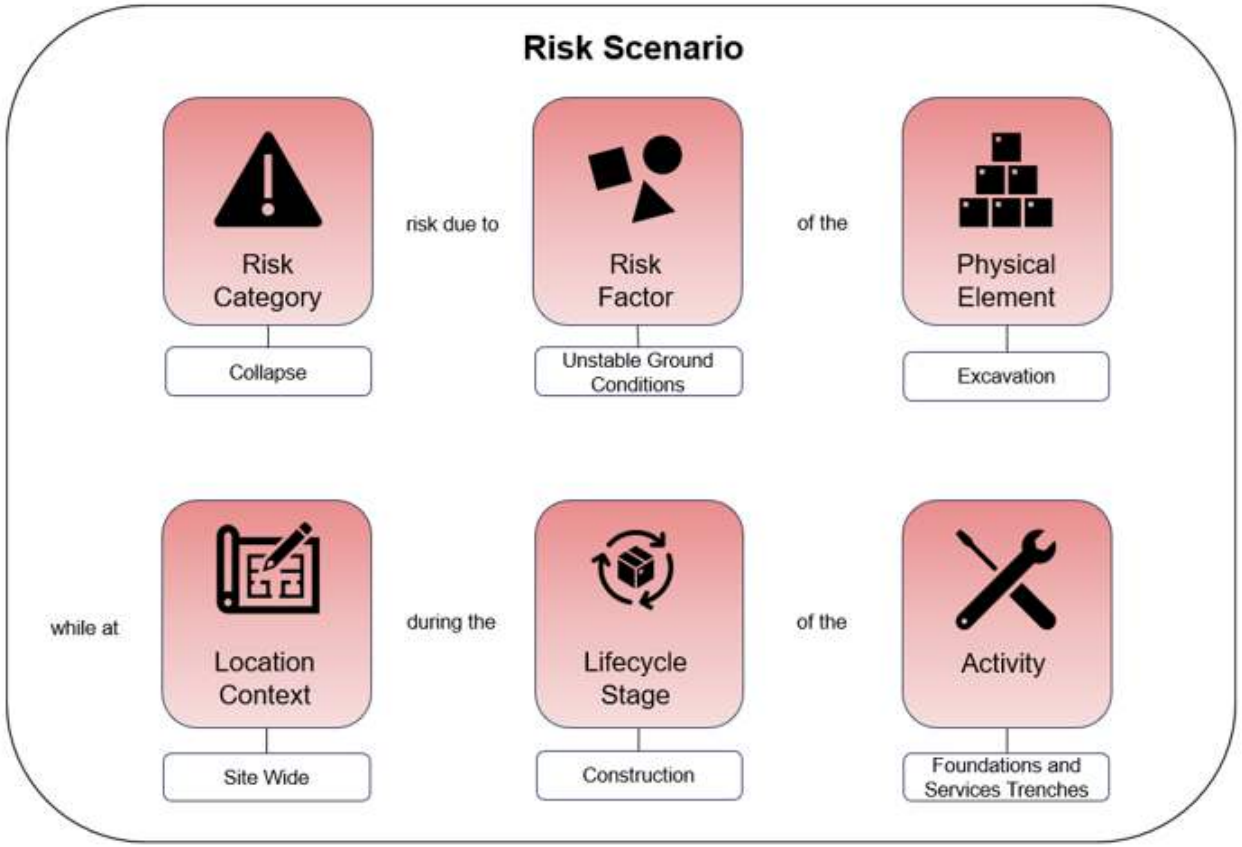
- ISO 19650/6 health and safety information management through BIM standard, NBS Uniclass health and safety risk classification
- Design risk readiness framework
- Assurance of digital rehearsal & high-risk revie processes
- Developing predictive analytic capabilities
- Design risk treatment database





Workings of the design risk treatment database

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE



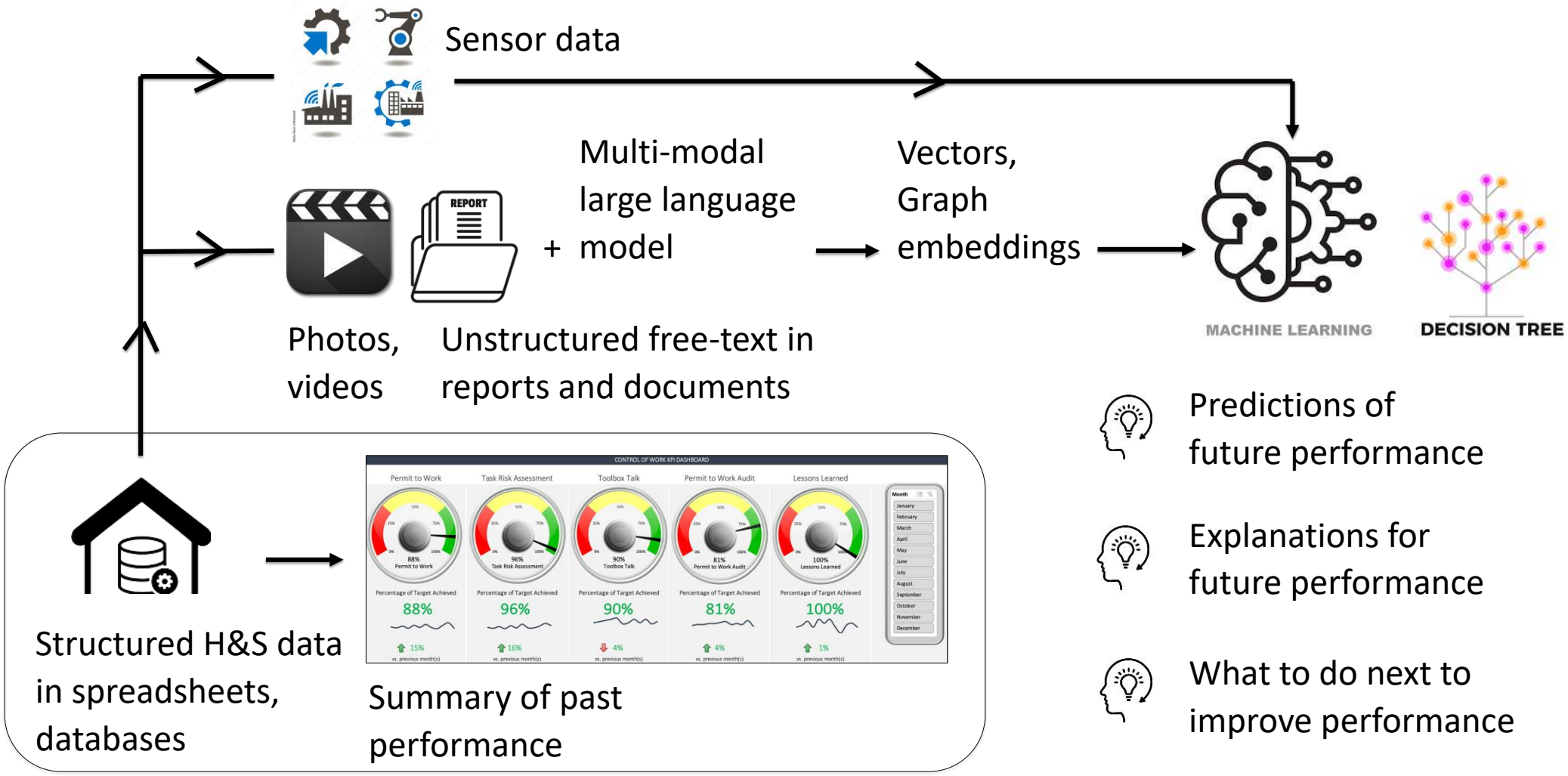
Risk Treatment Matrix

	Eliminate	Reduce	Control	Inform
Preliminary Design	Piled foundation design	Use cantilevered ground beam	Use trench boxes	Supply information on temporary works design
Detail Design		Ensure adequate space to place the excavated soil	Keep traffic routes at safe margin from excavation	
Pre-Commencement		Design out requirements for people to access excavations		Ensure contractors have relevant information
Site Work		Batter sides of excavation		Ensure temporary works requirements are met

Risk scenario described and input, Treatment prompts returned

Moving from describing past performance to improving future performance through more intelligent use of project datasets

PROTECTING PEOPLE AND PLACES FOR 50 YEARS HSE



Plinx/Kier/HSE collaboration on SiteOS Project

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HS2

MURPHY
WORLD-CLASS INFRASTRUCTURE

united living

KIER

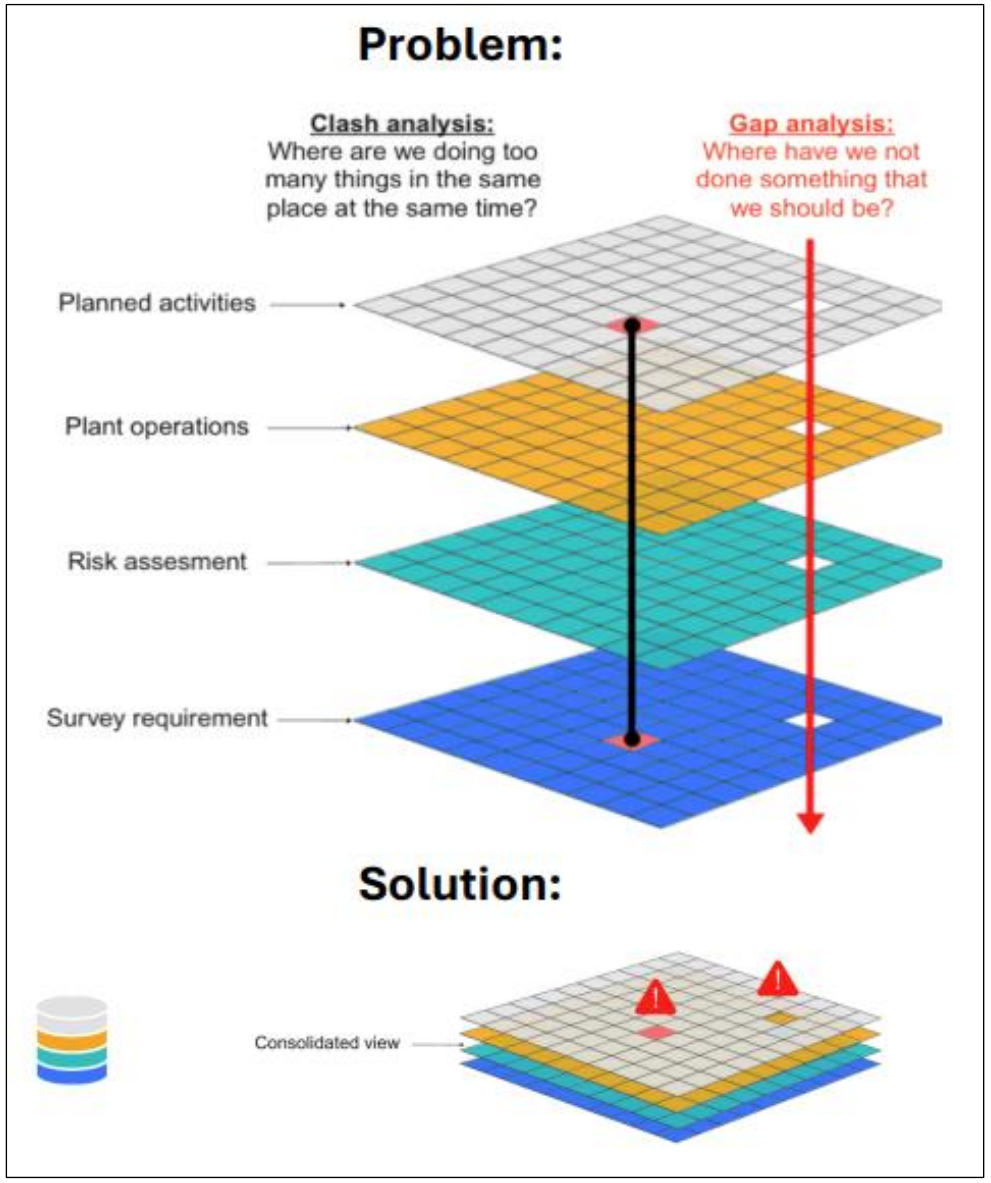
bam nuttall

mtc where progress happens

Heathrow

ferrovial construction

PLINX



Thank you for listening

If you're interested in finding out more on any Discovering Safety work or would like to explore how you might get involved in future work, please reach out!

Steven.Naylor@hse.gov.uk

Keep informed of progress on the Discovering Safety programme by visiting our website and following us on linkedin:

www.discoveringsafety.com

https://www.linkedin.com/company/discovering-safety/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ALFREDO SOEIRO
UNIVERSITY OF PORTO

Illustrating Safety and Health Construction Coordination Effective Costs of Prevention Project Case Study

Alfredo Soeiro

ISHCCO Vice President

APS ISHCCO Congress 14Mar25

Topics

- Case Study
- Types of Costs (general)
- Impact (gravity, probability, exposure)
- Real Costs
- Decision making process (AI?)
- What to do?

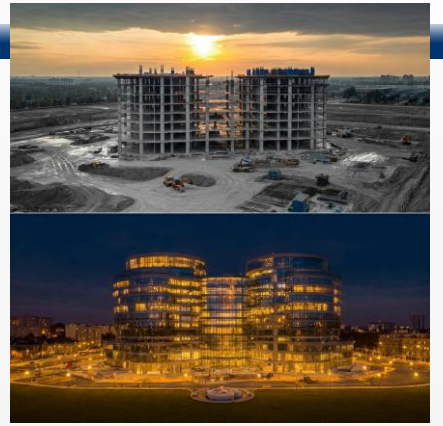
Case Study

- Jorge Granja, adjunct CM
- Road Tunnel Renovation
- About 800k Euros
- 10 months
- No bill of quantities, no costs specified, no specifications
- Just a sum of 2500 Euros for Health and Safety!

Types of costs

- Construction site (fence, lights, signals, etc.)
- Scaffolding temporary works
- Individual equipment (boots, masks, gloves,...)
- Fall prevention (rails, nets, straps, …)
- Coordination design (project, planning, meetings,
- Coordination operation (inspections, meetings, training, …)

Indicative values



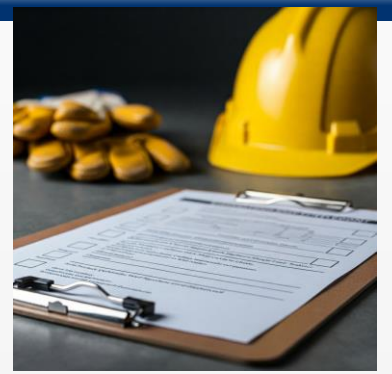
- Construction yard - 4,144€
- Collective equipment - 12,340€
- Individual equipment - 3,670€
- Coordination design, management and supervision - 20,046

- Total cost construction - 780,392€
- Cost prevention - 40,200€ (5,15%) >> 2,500€

Percentage of costs

- ECORYS study for SMEs
- ISHCCO partner of study
- Prevention costs less than accidents
- Finland - 12%
- UK - 8%
- Netherlands - 6%
- Italy - 5%
- Portugal - 2%

Probability, Impact, Exposure, Cost



- Can not invoice prevention costs
- Data from previous accidents
- Associate task plan with risk (R)
- Define impact, seriousness integer scale (I)
- Exposure in days (D)
- Cost of prevention measures for each task (C)
- Calculate and register for the whole duration of construction

How to manage budget

- Three methods for decision making
  - Rationality (Bernoulli)
  - All risks, R, are treated equally
  - Large budget
- Utility Criterion
  - Order by task cost, C, or by impact, I
- Decision Tree
  - Combine probability P, impact, I, exposure, D and cost, C

Example

- Rational (Bernoulli)
  - Concreting a beam
  - Risks: fall or oil contamination: P ,I and C are very different
- Utility
  - Trench failure
  - Lack of struts (58%) and insufficient support (11%)

Example (cont.)

Decision tree

Fatal accidents

P * C * E = 6,215€

Non fatal accidents

P * C * E = 169,850€

Impact

Fatal I = 100,000 - 621,500

Nonfatal I = 1 - 169,850

Conclusions

- Consider P, I, E, C
- Analyse tasks for all construction
- Obtain DATA
- Effectiveness of spending
- Use AI and ML
- Simulate execution associated with risks
- Use funds and time wisely
- Do not accept to coordinate without proper funding for prevention!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PHILIP BAKER
ISHCCO WG CHAIR

INTERNATIONAL SAFETY AND HEALTH CONSTRUCTION CO-ORDINATORS ORGANISATION

SHCC AND SUSTAINABILITY

Philip Baker
Working Group Chair

BASICS

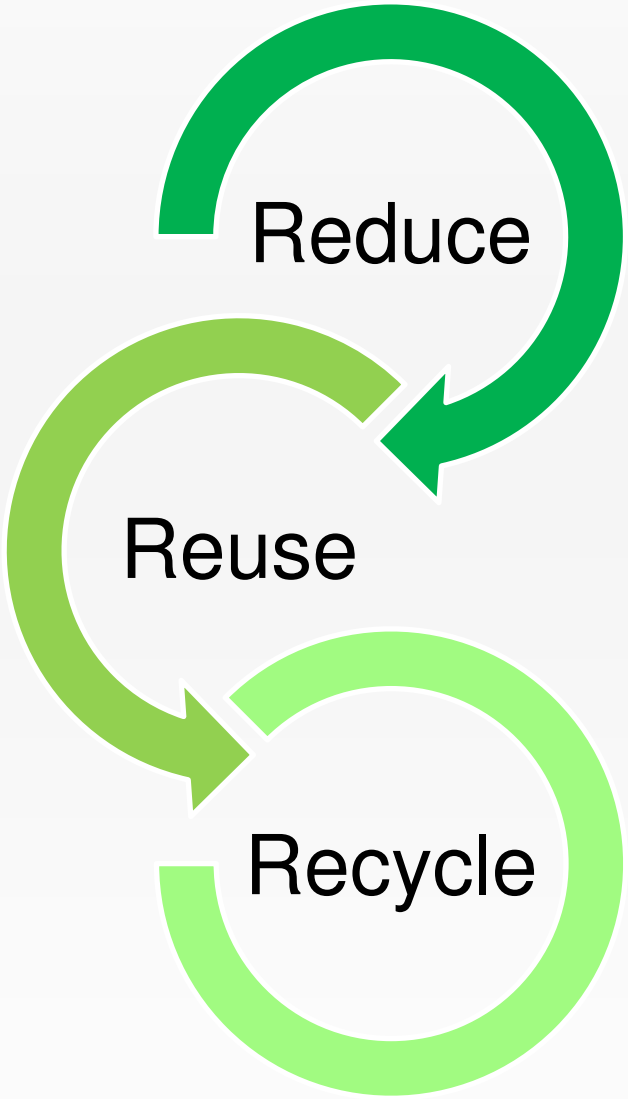
- The SHCC is not the sustainability consultant
- SHCCs have their own specific skills
  - See IQF ISHCCO Qualification Framework - ISHCCO - International Safety and Health Construction Coordinators Organization
- However the SHCC must engage in helping to reduce harm to the climate.

VISION ZERO

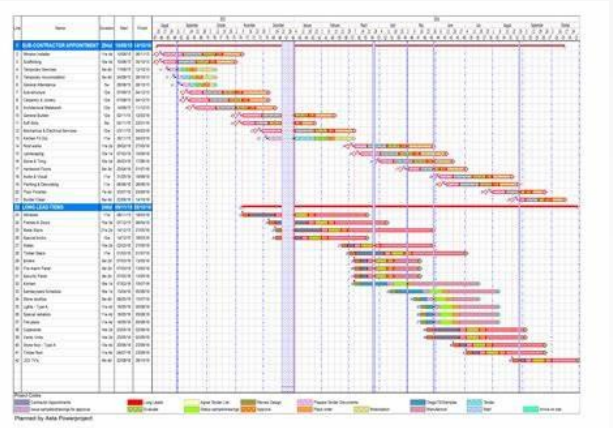
- Seven Golden Rules
  1. Take leadership – demonstrate commitment
  2. Identify hazards – control risks
  3. Define targets – develop programmes
  4. Ensure a safe and healthy system – be well-organized
  5. Ensure safety and health in machines, equipment and workplaces
  6. Improve qualifications – develop competence
  7. Invest in people – motivate by participation.

FUNDAMENTAL

- The fundamentals of sustainability need to be understood by all SHCCs
- Need to be able to articulate and evidence these in work.



OLD MODEL



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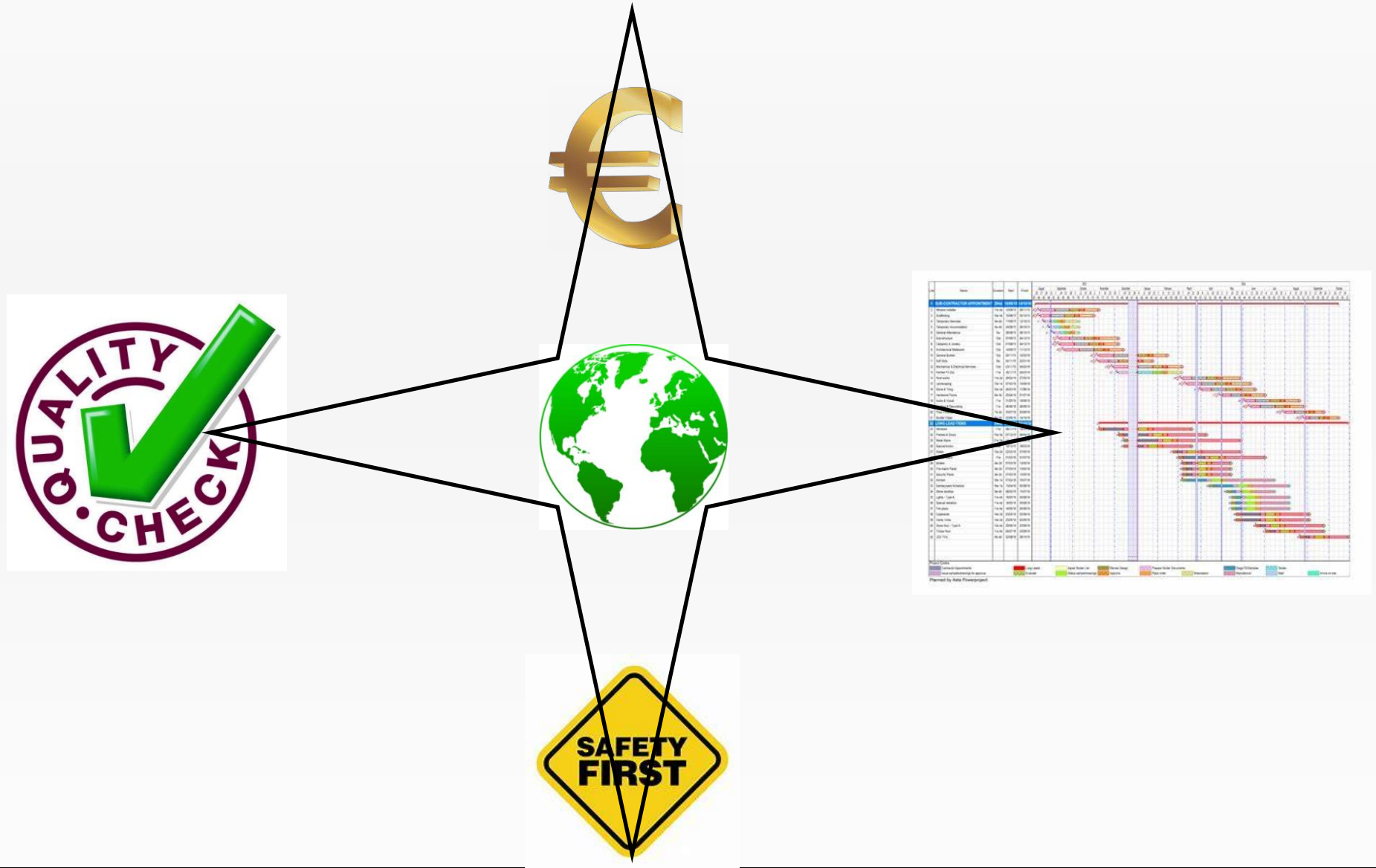
CONSEQUENCES

KameraOne UK 9h

Bridge weakened by surging river collapses in Indonesia, 3 districts cut off

This is the moment an enormous bridge in North Sumatra, Indonesia collapsed after heavy rain... See more

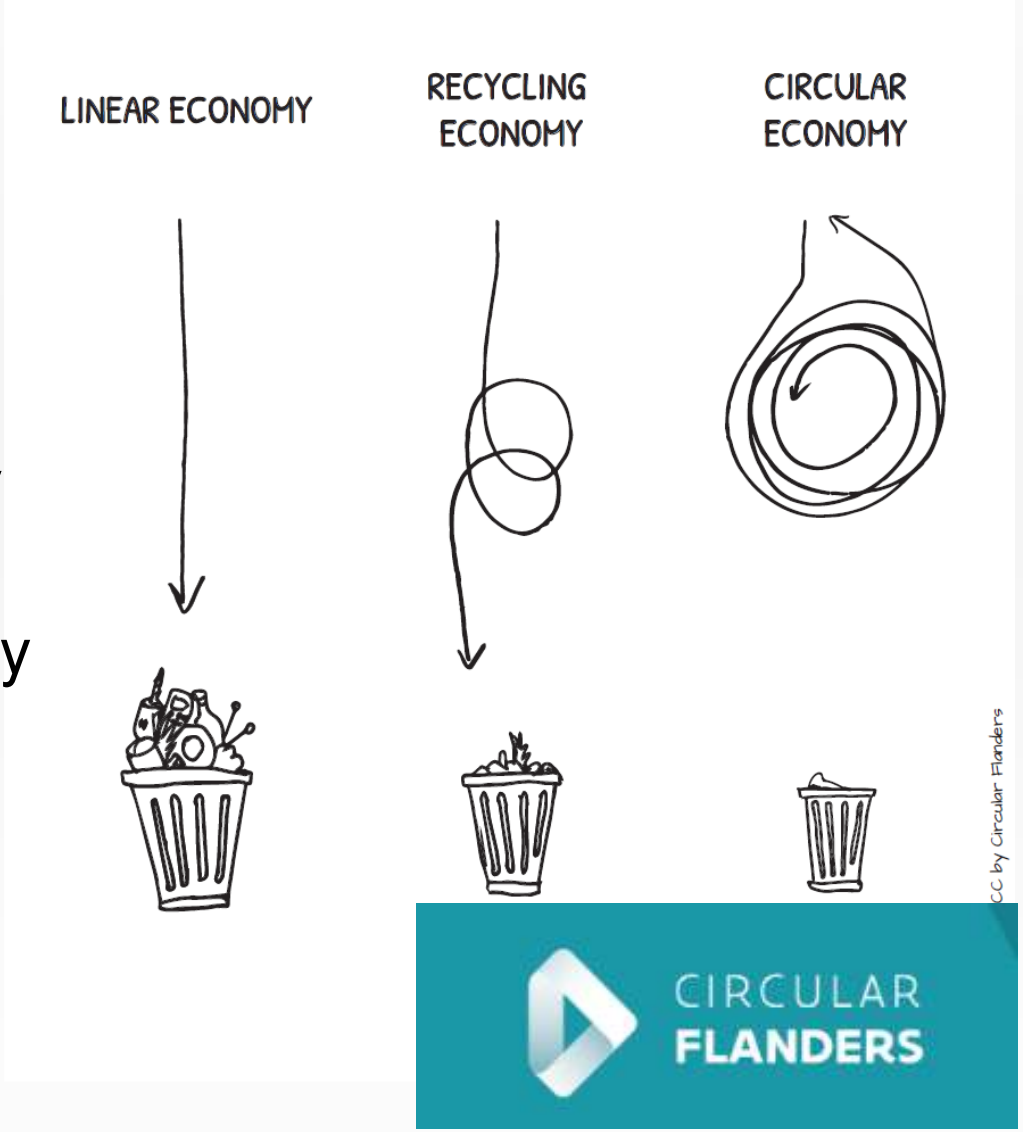
NEW MODEL?



CIRCULAR ECONOMY

Six CE Principles*

1. building in layers
2. designing out waste
3. designing for longevity
4. designing for adaptability or flexibility
5. designing for disassembly
6. using systems, elements or materials that can be reused and recycled.



* London Plan

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TAN HOUSE FOOTBRIDGE


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CONSIDER

- What construction processes have a negative impact on the climate
- What construction processes have a positive impact on the climate
- What substances have a negative impact
- What substances have a postive impact

- The Structural Carbon Tool - version 3 - The Institution of Structural Engineers

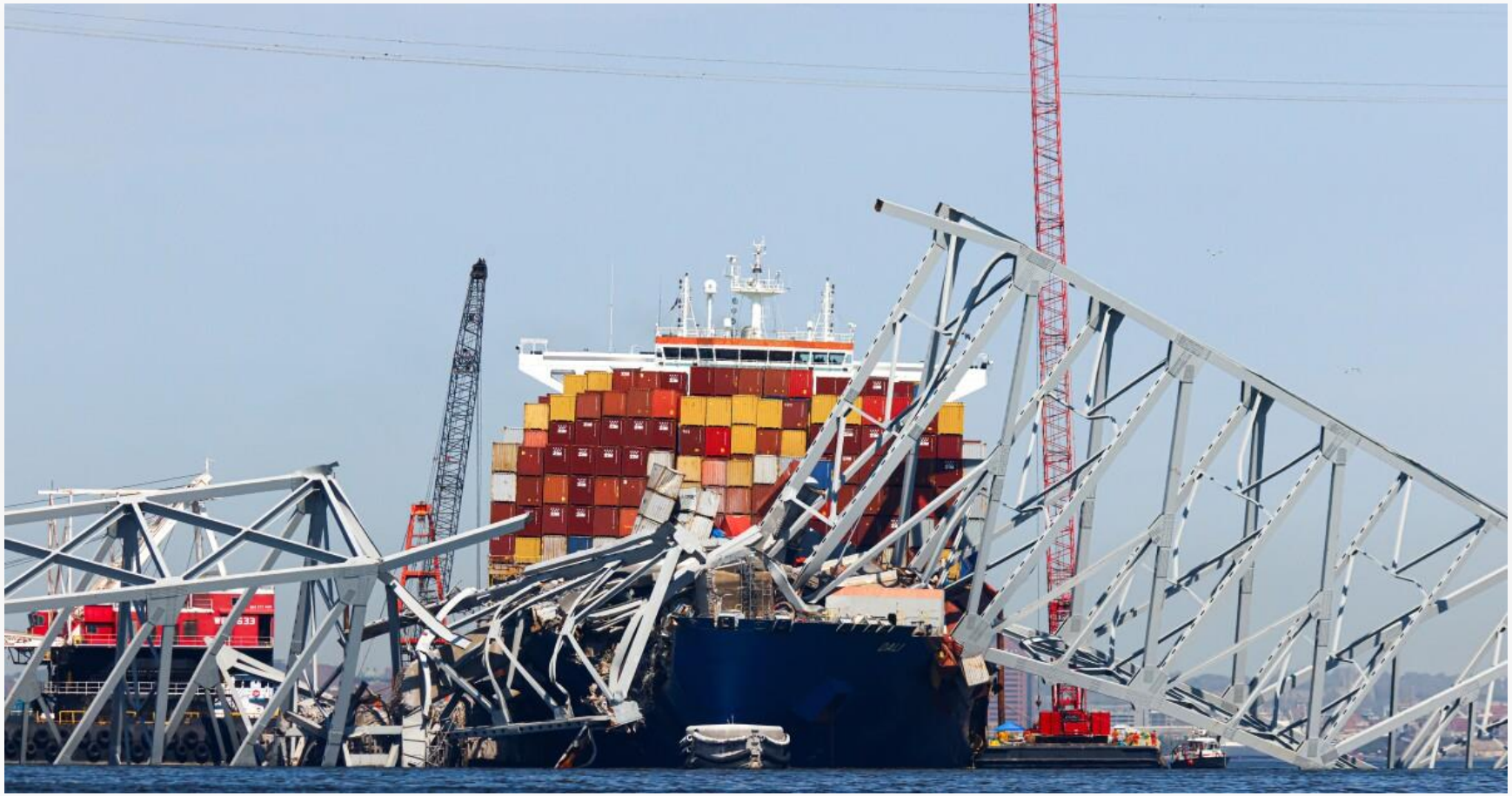
NEGATIVE

- Error
- Failure

GIRI

- 21% of all money spent in construction in UK is spent correcting errors
- An error is a waste of materials and therefore additional carbon.

BALTIMORE



POSITIVE

- Like innovation – ask the right question - what are the health and safety implications of that technique/material

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INNOVATION

DW Follow 4mo

Indian engineer makes carbon-negative bricks

GreenJams is probably the world's first construction materials manufacturer to make carbon-negativ... See more

DOCUMENT

- Sustainability choices
- Management of sustainably issues – Safety and Health Plan
- Legacy sustainability choices – Safety and Health File
- Ensure effective communication
- BIM – ISO 19650

IN USE

- Sustainability issues in operation
- Not SHCC consideration
- Should not be significant as this is where most benefit can be made due to length of time a structure is in use

BEWARE

RESOURCES

- Many and varied
- Build - Green Construction eBook
- THE 17 GOALS | Sustainable Development

- GreenComp, the European sustainability competence framework - Publications Office of the EU

QUESTIONS

- Thank you for your attention
  - Working Group Members
    - Philip Baker
    - Erwin Bruch
    - Reinhard Obermaier
    - Alfredo Soeiro
    - Evangelitsa Tsoulofta

- Any questions?


COFFEE BREAK
15:20 – 16:00

DISCUSSION & OPEN DEBATE

16:00 — 16:45

CLOSING COMMENTS

ISHCCO PRESIDENT


FAREWELL FROM
EDINBURGH –
HASTE YE BACK


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