



International
Labour
Organization

revolutionizing *health and safety:*

The role of **AI and
digitalization** at work.



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World Day
for Safety
and Health
at Work /

2025

How *Digitalization* is Transforming OSH:

Key Benefits



Automation & Advanced Robotics

- ▶ Remove workers from hazardous tasks and high-risk environments
- ▶ Reduce physical strain
- ▶ Minimize repetitive and monotonous tasks



Smart OSH Tools & Monitoring Systems

- ▶ Enable real-time detection of hazards (e.g. air quality, noise, temperature)
- ▶ Support predictive risk assessments for proactive safety measures
- ▶ Provide immediate alerts to prevent injuries



Extended & Virtual Reality (XR)

- ▶ Offers immersive OSH training in safe environments
- ▶ Enhances virtual hazard identification
- ▶ Supports safe remote operations



Algorithmic Management of Work

- ▶ Optimizes scheduling, task allocation, and workload distribution
- ▶ Improves efficiency
- ▶ Helps identify and address skill gaps



Changing Work Arrangements through Digitalization

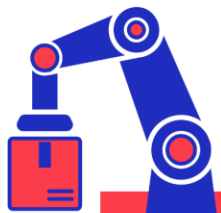
- ▶ Increases flexibility
- ▶ Reduces commuting-related risks
- ▶ Promotes inclusion

How *Digitalization* is Transforming OSH:

Key

Potential

Risks



Automation & Advanced Robotics

- ▶ Unexpected robot movements or malfunctions
- ▶ Ergonomic discomfort from unnatural movements or poorly fitted devices
- ▶ Physical hazards such as excessive noise and vibration
- ▶ Reduced job control and autonomy



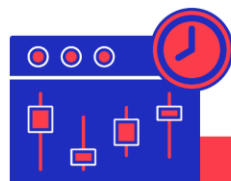
Smart OSH Tools & Monitoring Systems

- ▶ Malfunctions or overreliance on digital systems
- ▶ Discomfort, fatigue, or non-compliance due to poor fit
- ▶ Stress or distraction from frequent alerts and continuous monitoring
- ▶ Privacy and ethical concerns



Extended & Virtual Reality (XR)

- ▶ Disorientation, impaired balance, and limited visibility
- ▶ Visual strain and motion-related discomfort
- ▶ Cognitive overload and stress from complex interfaces



Algorithmic Management of Work

- ▶ Work intensification and pressure from real-time tracking
- ▶ Bias in automated decisions for task allocation or promotions
- ▶ Reduced autonomy and constant oversight
- ▶ Social isolation



Changing Work Arrangements through Digitalization

- ▶ Physical and ergonomic risks from inadequate home workstations
- ▶ Visual strain and sleep disruption from prolonged screen exposure
- ▶ Work intensification, longer hours, and reduced autonomy
- ▶ Cyberbullying

The role of the ILO

- ▶ **Fundamental OSH conventions** guarantee every worker's right to a safe and healthy working environment, even in the context of digitalization and the evolving world of work.
 - ✓ **Convention No. 155** outlines fundamental objectives and basic principles for comprehensive national OSH policies covering all sectors. Calls for periodic reviews to prevent occupational accidents by eliminating or minimizing hazards.
 - ✓ **Convention No. 187** advocates continuous improvement and responsiveness in OSH frameworks, ensuring policies remain responsive to changes in the work environment.
- ▶ **Other key conventions & recommendations**
 - ✓ Occupational Health Services Convention, 1985 (No. 161).
 - ✓ List of Occupational Diseases Recommendation, 2002 (No. 194).
 - ✓ Violence and Harassment Convention, 2019 (No.190).
 - ✓ *Future standard on decent work in the platform economy (2025/2026), ergonomics and machine safety.*
- ▶ **Global initiatives & research**

Global and regional initiatives

Some examples

Global initiatives:

- ▶ **G7 Action Plan for a Human-centred Adoption of Safe, Secure and Trustworthy AI.**

European Union

- ▶ **Machinery Regulation (EU) 2023/1230.** Strengthens binding OSH requirements for advanced robotics and AI-driven systems.
- ▶ **AI Regulation (EU) 2024/168941.** Introduces harmonized risk-based rules for AI systems to ensure transparency, human oversight, and minimization of OSH risks.
- ▶ **Directive on Platform Workers (EU) 2024/283142.** Improves working conditions and regulates the use of workplace algorithms.
- ▶ **EU-OSHA Campaign (2023–25) *Safe and Healthy Work in the Digital Age*.** Raises awareness on OSH benefits and challenges of digital technologies.

African Union

- ▶ **Digital Transformation Strategy 2020-30.** Focuses on workforce digital skills, cybersecurity and ethical AI use.

ASEAN

- ▶ **Digital Integration Framework Action Plan 2019-25.** Guides States in the safe adoption of technologies across sectors.

National OSH initiatives

Some examples

Updating OSH policies and strategies	Integrating digital risks and tools into national frameworks ▶ <i>Argentina, Finland, India, Uruguay, Guyana</i>
Targeted regulations	Laws on AI prevention, robot safety, right to disconnect, and telework ▶ <i>France, Germany, Argentina, Luxembourg, Portugal, Spain</i>
Collective agreements	Bargaining on AI use, surveillance limits, and worker protections ▶ <i>Norway, Spain, Sweden, Germany, UK</i>
Labour inspection tools	AI and big data to target OSH risks and inspections ▶ <i>Mexico, Norway</i>
Voluntary standards and guidelines	Standards for digital tools, automation, and psychosocial risks ▶ <i>Argentina, France, Canada, Australia, USA, Ireland</i>
Training programmes	Courses on safe AI and robotics use across key sectors ▶ <i>Brazil, Canada, Chile, Poland, Singapore</i>
OSH research	Studies on digitalization, algorithmic management, and safety ▶ <i>Austria, Sweden, Chile, USA</i>

Managing digitalization and OSH in the workplace

- ▶ **Implementation of a comprehensive OSH management system (ILO OSH 2001 Guidelines)**



- ▶ **Strong safety culture**
- ▶ **Active worker participation**
- ▶ **Collaborative approach to shape safer and more responsive work environments**



To ensure that new technologies enhance, not compromise worker safety and wellbeing





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Thank you

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