International Labour Organization
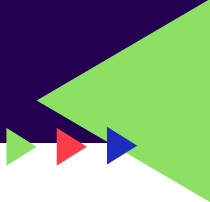
revolutionizing
health and safety:

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

World Day for Safety and Health at Work /

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SOUTH AFRICA NATIONAL COMMEMORATION OF THE WORLD DAY FOR SAFETY AND HEALTH 2025

Evolving OHS challenges due to digitalization: Global context

25th April 2025, Bloomfontein

Content is based on the GLOBAL REPORT:

-in-depth desk review
-interviews with key informants
-review of documented policy and practice

The aim is to:

-provide policy insights
-share best practices and real-world case studies
-serve as a resource for governments, workers and employers, and OSH experts
-facilitate a collaborative, forward-looking, responsible, inclusive and worker-centered approach to digital transition

- **Presentation outline**

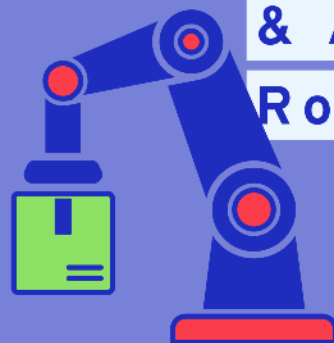**AI and Digitalization options for OSH: What are they?**
Where are they used?
Key benefits
Challenges, limitations and risks
Collaborative efforts in enhancing OSH in the digital era

AI and *Digitalization* in the workplace

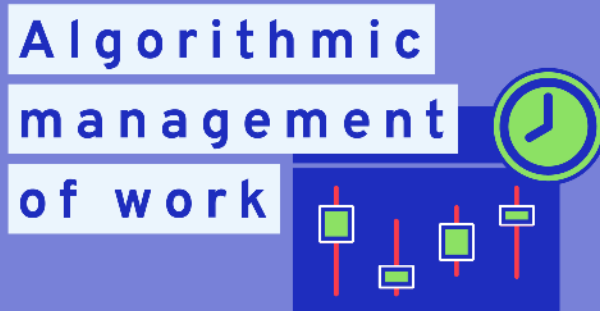**Automation & Advanced Robotics**

Smart OSH tools & monitoring systems

Extended & virtual reality

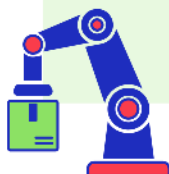**Algorithmic management of work**

Changing work arrangements

International Labour Organization

How *Digitalization* is Transforming OSH:

Key Benefits & Key Potential Risks

Automation & Advanced Robotics

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

Risks
- Unexpected robot movements or malfunctions
- Unnatural movements or poorly fitted devices
- Excessive noise and vibration
- Reduced job control and autonomy

Smart OSH tools & monitoring systems

Benefits
- 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

Risks
- Malfunctions or overreliance
- Discomfort, fatigue, or non-compliance due to poor fit
- Stress or distraction from alerts and continuous monitoring

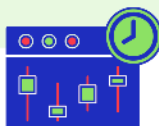## Extended & virtual reality

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

Risks
- Disorientation, impaired balance, and limited visibility
- Visual strain and motion-related discomfort
- Cognitive overload

Algorithmic management of work

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

Risks
- Increased pressure from real-time tracking
- Bias for task allocation or promotions
- Reduced autonomy and constant oversight
- Social isolation

Changing work arrangements through digitalization

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

Risks
- Inadequate home workstations
- Prolonged screen exposure
- Work intensification, longer hours, and reduced autonomy
- Cyberbullying

Collaborative efforts in enhancing OSH in the digital era

International initiatives

Global initiatives:

▶ **G7 Action Plan for a Human-centred Adoption of Safe, Secure and Trustworthy AI** monitors AI's impact on OSH, includes risk assessments and audits, emphasizing the enforcement of labour laws and OSH standards.

International OSH institutions:

▶ **International Ergonomics & Human Factors Association** holds webinars on AI and human-robot interaction.

▶ **Institution of Occupational Safety and Health** explores how AI can enhance safety protocols, improve risk management and streamline workplace operations.

▶ **International Organization for Standardization** develops standards related to information technology, AI, risk management and for the industrial and service robotics sector.

International employers' and workers' organizations:

▶ **International Organisation of Employers** advocates for skills development and the incorporation of OSH in digital implementations. It has published reports on mental health and AI's workplace impact.

▶ **Global trade unions** advocate for stronger regulation of AI and digital surveillance, OSH protections, and collective bargaining for digital platform workers. Unions place a focus on worker participation, the protection of rights and ensuring a just transition to digitalization for workers.

Organisation internationale du Travail

The role of the ILO

The ILO's **fundamental OSH Conventions Convention No. 155 and Convention No. 187** guarantee every worker's right to a safe and healthy working environment, even in the context of digitalization and the evolving world of work, through

▶ periodic reviews to prevent occupational accidents by eliminating or minimizing hazards

▶ continuous improvement and responsiveness in OSH frameworks, ensuring policies remain responsive to changes in the work environment:

Collaboration between governments, employers' and workers' organizations plus research institutions is needed to ensure that OSH policies are inclusive and address challenges posed by digitalization, balancing technological advancements with the protection of workers' safety and health.

Organisation internationale du Travail

▶ ilo.org

The role of the ILO

Additional OSH instruments & initiatives in the digital era

▶ **Future Standards:**

- ✓ Upcoming standard on decent work in the platform economy (2025/2026) and planned normative action for ergonomics and machine safety.

▶ **Global initiatives & research:**

- ✓ The ILO Global Strategy on Occupational Safety and Health 2024-2030 emphasizes the need for research and tools to navigate the opportunities and challenges of new technologies.
- ✓ The ILO Observatory on Artificial Intelligence and Work in the Digital Economy aims to serve as a knowledge hub to support governments and social partners in understanding and managing the digital transformation of work.
- ✓ Research projects also explore the intersection of OSH and workplace digitalization, including working conditions in digital labour platforms, the impact of AM practices, and the conditions of the hidden workforce fuelling the growth of AI.

For more information

Please access the full Global Report for OSH Day 2025, the PPT and other promotional materials through the ILO website

Thank you for your kind attention.

ilo.org