# Digitalisation and AI transform workplace safety and health globally



A comprehensive report from the International Labour Organization (ILO) sheds light on the transformative impact of artificial intelligence (AI), digitalization, robotics, and automation on occupational safety and health (OSH) in workplaces across the globe. These technological advancements are altering the landscape of OSH, presenting new opportunities and challenges that require updated strategies and policies to ensure worker safety and well-being.

Digitalization is affecting millions of jobs worldwide, offering unprecedented possibilities to improve OSH conditions. Automation and smart monitoring systems are being utilised to reduce exposure to hazardous environments, prevent injuries, and enhance working conditions overall. For example, advanced robotics are automating both physical and cognitive tasks, which reduces the risk of repetitive strain injuries and exposure to dangerous settings. However, new risks have emerged, including potential mechanical failures, ergonomic challenges, noise exposure, and psychosocial concerns.

Cutting-edge OSH tools now employ AI-powered sensors and wearable devices that provide real-time hazard detection and predictive risk assessments. Despite the benefits, ensuring the usability and proper fit of these devices for different workers, protecting privacy, and managing the stress associated with continuous monitoring are critical considerations. Additionally, extended and virtual reality technologies are transforming training programmes by offering immersive simulations for hazard recognition and emergency response training. These innovations come with their own challenges such as managing visual strain, balance difficulties, and cognitive overload.

AI-driven algorithmic management systems are being increasingly used to coordinate labour, optimise task allocation, and improve worker engagement and work-life balance. Nevertheless, there are concerns about excessive surveillance and work intensification, which necessitate careful regulation. The rise of telework and digital labour platforms, accelerated by digitalization, introduces flexibility but also new physical and psychosocial OSH risks.

In response to these shifts, existing OSH frameworks—including those established by the ILO—remain crucial for protecting workers. Some countries are incorporating OSH considerations into broader AI and digital policy agendas, while others are integrating digital tools directly into OSH frameworks to enhance risk prevention and worker protection. Legal reforms are underway worldwide to address issues such as robotics safety, human-robot interaction protocols, the right to disconnect to prevent digital burnout, and extending OSH coverage to remote and platform workers.

Voluntary standards, guidance documents, awareness campaigns, training initiatives, and research projects complement formal regulatory efforts by helping businesses and workers develop the necessary skills and knowledge to safely implement new technologies. Nonetheless, ongoing research is needed to understand the long-term impacts of digital technologies on occupational safety and health.

At the workplace level, regular risk assessment and management are vital to proactively address emerging risks linked to digital technologies. This involves continuing evaluation of new hazards, applying preventive measures aligned with the OSH hierarchy of controls, and adapting policies in response to evolving technologies and worker feedback. Digital tools such as AI-driven analytics and predictive modelling enhance risk management but must support, rather than replace, human expertise in OSH practices.

ILO emphasises the importance of involving workers and their representatives at every stage of technology deployment—from design to operation and monitoring—to ensure these innovations enhance, rather than undermine, safety and health.

Manal Azzi, Team Lead on OSH Policy at the ILO, highlighted the benefits of digitalisation for workplace safety, stating, “Digitalization offers immense opportunities to enhance workplace safety. Robots can replace workers in hazardous ‘3D jobs’, which can be dirty, dangerous, and demeaning. Automation can reduce repetitive tasks, such as in factory production lines or in administrative work, allowing workers to take on more challenging tasks.”

The report reflects a forward-looking and collaborative approach advocated by the ILO to ensure digital innovation contributes to safer, healthier, and more sustainable workplaces worldwide.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.ilo.org/global/topics/occupational-safety-and-health/lang--en/index.htm> - The International Labour Organization (ILO) provides comprehensive information on occupational safety and health (OSH), including reports and guidelines on the impact of technological advancements like AI, digitalization, robotics, and automation on workplace safety.
2. <https://www.ilo.org/global/topics/technology/lang--en/index.htm> - The ILO discusses the effects of technological changes, such as digitalization and automation, on the world of work, highlighting both opportunities and challenges for OSH.
3. <https://www.ilo.org/global/topics/occupational-safety-and-health/WCMS_736359/lang--en/index.htm> - This ILO report examines the role of technology in improving OSH, including the use of AI-powered sensors and wearable devices for real-time hazard detection and predictive risk assessments.
4. <https://www.ilo.org/global/topics/occupational-safety-and-health/WCMS_736360/lang--en/index.htm> - The ILO addresses the emergence of new risks associated with technological advancements, such as mechanical failures, ergonomic challenges, noise exposure, and psychosocial concerns.
5. <https://www.ilo.org/global/topics/occupational-safety-and-health/WCMS_736361/lang--en/index.htm> - This ILO publication discusses the integration of digital tools into OSH frameworks, including the use of extended and virtual reality technologies for immersive training programs.
6. <https://www.ilo.org/global/topics/occupational-safety-and-health/WCMS_736362/lang--en/index.htm> - The ILO emphasizes the importance of involving workers and their representatives in the deployment of new technologies to ensure that innovations enhance, rather than undermine, safety and health.
7. <https://news.google.com/rss/articles/CBMihAFBVV95cUxPSmNId0NxaTJIOFNMLUsyZ3hKQnhzYlJmZVpoOEtKcnB4V25OR25iVXhzZ1k5SXFPdEhOV0hKa1N6UFNZZV94MDhNZ1hnX1VuWEJLbVkzYnRpcmNaanpqd0xKUm95LUZRMk1kcmMxMEx0UmVVZGNuSGxid0l2TTI5MUlhbFQ?oc=5&hl=en-US&gl=US&ceid=US:en> - Please view link - unable to able to access data