# AI and robotics reshape workplace safety but introduce new risks, warns ILO



The integration of artificial intelligence (AI), digitalisation, robotics, and automation into Occupational Safety and Health (OSH) is revolutionising work environments across the globe, as reported by the International Labour Organisation (ILO). The recently released report, titled “Revolutionising health and safety: The role of AI and digitalisation at work,” underscores the profound impact of these technologies on enhancing worker health and well-being while also addressing the necessity for proactive policies to mitigate emerging risks.

According to the ILO, these advanced technologies play a critical role in reshaping the landscape of workplace safety. By taking over hazardous tasks such as heavy lifting and routine cleaning, robots are not only minimizing risks but also enhancing operational efficiency across various sectors, including those traditionally viewed as low-tech. For instance, AI-powered systems can significantly improve monitoring capabilities, ensuring compliance and safety standards while alleviating workloads. These enhancements are seen as pivotal for industries where human contributions intersect with increasingly automated processes.

Manal Azzi, Team Lead on OSH Policy at the ILO, emphasizes the transformative potential of digitalisation: “Digitalisation offers immense opportunities to enhance workplace safety. Robots can replace workers in hazardous ‘3D jobs,’ which can be dirty, dangerous, and demeaning.” This sentiment is echoed in studies by various agencies, including the European Agency for Safety and Health at Work (EU-OSHA), which assert that emerging technologies not only improve safety but also provide avenues for more meaningful work engagements by freeing employees from repetitive tasks.

However, the ILO report also illuminates the dual-edged nature of these advancements. While robots and AI can take on dangerous roles, they also introduce new risks, particularly for workers who maintain or interact with these technologies. For example, workers engaged in servicing robots may encounter unpredictable behaviours or cyber threats, elevating their vulnerability in the workplace. Furthermore, ergonomic considerations have emerged as a significant concern, especially regarding the fit and usability of wearable technologies designed to enhance safety.

The implications of rampant digitalisation extend into mental health as well, with persistent connectivity and algorithm-driven workloads contributing to stress and burnout. This alarming revelation points to a broader need for regulatory frameworks that comprehensively address the nuanced challenges presented by digitalisation in OSH. The ILO calls for a collaborative regulatory approach that encompasses not just the technological but also the human aspects of workplace safety. Calls for stronger global and national policies reflect the urgency of adapting to these changes effectively.

Additionally, the report notes critical gaps in existing regulations that govern OSH risks related to digitalisation. While the ILO’s conventions serve as important foundational elements for ensuring a safe workplace, there is a clear demand for policies that integrate modern concepts such as robotic safety and the right to disconnect. By embracing a multi-tiered approach, organisations can create an inclusive framework that also prioritises workers' involvement in the technology adoption process.

Ultimately, the report asserts that training and awareness initiatives are vital for ensuring the safe and effective use of technology in the workplace. Continued research into the long-term impacts of digital transformation on occupational safety and health is essential to preemptively address new and evolving risks. The consensus among experts is clear: while the benefits of AI and digitalisation are significant, the path forward must be navigated carefully to foster environments where technology and human labour can thrive in synergy rather than conflict.

As organisations continue to evolve with these technological advancements, the future of workplace health and safety remains ripe with potential—if managed with foresight and responsibility.

### Reference Map

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## Bibliography

* <https://guardian.ng/appointments/ai-digitalisation-transforming-safety-health-at-work/> - Please view link - unable to able to access data
* <https://www.ilo.org/meetings-and-events/revolutionizing-health-and-safety-role-ai-and-digitalization-work> - The International Labour Organization's report, 'Revolutionizing health and safety: The role of AI and digitalization at work', examines how emerging technologies like AI, robotics, and digitalization are transforming occupational safety and health (OSH). It highlights the benefits of these technologies in improving worker health and well-being, while emphasizing the need for proactive policies to address new risks. The report discusses the role of advanced robotics, automation, virtual and extended reality, and smart wearable devices in enhancing safety and health monitoring, preventing accidents, and reducing hazardous exposures.
* <https://osha.europa.eu/en/publications/artificial-intelligence-worker-management-implications-occupational-safety-and-health> - The European Agency for Safety and Health at Work (EU-OSHA) published a report titled 'Artificial intelligence for worker management: implications for occupational safety and health'. This report explores the risks and opportunities associated with AI-based worker management systems. It emphasizes the need for human-centered and 'prevention through design' approaches to ensure workers' health, safety, and well-being. The study presents recommendations to address risks related to the usage of AI in worker management within the workplace.
* <https://osha.europa.eu/en/publications/impact-artificial-intelligence-occupational-safety-and-health> - EU-OSHA's policy brief, 'Impact of artificial intelligence on occupational safety and health', discusses how AI in the workplace can create both opportunities and challenges for OSH management and regulation. The brief highlights that automation through robots can remove workers from hazardous situations, and collaborative robots (cobots) can facilitate access to work for aging workers or those with disabilities. It also notes that AI has facilitated new forms of monitoring and managing workers based on the collection of large amounts of real-time data, raising legal, regulatory, and ethical questions.
* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10340692/> - The article 'Occupational Safety and Health Equity Impacts of Artificial Intelligence: A Scoping Review' examines how AI technologies can enhance OSH for workers in high-risk industries. It discusses the use of AI in safety optimization systems, real-time exposure data collection, and predicting adverse events. The review also addresses concerns such as increased surveillance, potential biases in AI applications, and the need for algorithmic integrity to prevent discrimination and ensure equitable outcomes in occupational health and safety.
* <https://pmc.ncbi.nlm.nih.gov/articles/PMC10878366/> - The article 'Artificial intelligence in advancing occupational health and safety: an encapsulation of developments' explores the transformative influence of AI-based robotics on workplace safety. It discusses how AI-driven robots can eliminate workers' exposure to dangerous machinery and workplace hazards, leading to a reduction in work-related injuries and fatalities. The article also highlights the establishment of the Center for Occupational Robotics Research (CORR) by NIOSH in 2017 to assess the advantages and drawbacks of incorporating robots into the workforce.
* <https://pmc.ncbi.nlm.nih.gov/articles/PMC11181216/> - The article 'Artificial Intelligence and Occupational Health and Safety, Benefits and Drawbacks' discusses the integration of AI into occupational health and safety practices. It highlights the benefits of AI in monitoring and managing workers through the collection of real-time data, improving OSH surveillance, and providing early warnings of stress, health problems, and fatigue. However, it also raises concerns about legal, regulatory, and ethical questions, as well as potential issues related to privacy, data security, and algorithmic bias in AI systems.