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Artificial Intelligence (AI) in Safety and Health

Artificial Intelligence is no longer a futuristic concept. It is here and is transforming every corner of our daily activities, including the workplace. AI is increasingly used to prevent workplace injuries and illnesses.

The Rise of AI in Workplace Safety and Health



Artificial Intelligence (AI) is revolutionizing safety and health management by enhancing risk prevention, improving compliance, and providing real-time monitoring capabilities across various industries.

Applications of AI in Safety and Health

1. Predictive Analytics

AI utilizes machine learning algorithms to analyse historical data e.g. accidents and identify patterns that allows workplaces to implement proactive measures before incidents occur, significantly reducing workplace injuries and illnesses.

2. Real-Time Monitoring

AI systems equipped with sensors and computer visions can continuously detect unsafe practices or equipment malfunctions, providing immediate alerts to supervisors and workers

3. Enhanced Compliance

AI-driven solutions help organisations maintain compliance with safety regulations by automating inspections, reporting and hazard identification.

4. Training and Education

Virtual reality (VR) and Augmented Reality (AR) applications can simulate hazardous situations, allowing employees to practice safety protocols in a controlled environment

5. Cost Savings

By reducing accidents and improving operational efficiency, AI contributes to significant cost savings by lowering insurance premiums, reduced downtime and lower legal expenses related to workplace incidents.



KEY HIGHLIGHTS

On 23 July 2026, the Minister of State for Manpower Dinesh Vasu Dash announced at the Singapore Workplace Safety and Health Conference 2026 the Safety Advisory and Guidance Engine (SAGE), an AI-enabled knowledge and decision-support tool developed by WSH Council in partnership with SISO, in consultation with the industry.

Designed for WSH professionals, SAGE provides access to trusted, Singapore-specific WSH information, helps users identify workplace hazards, and identifies suitable control measures. It is designed to support professional judgement of WSH practitioners.

Top AI tools for safety :

- Surveillance & computer vision to identify unsafe behaviour and detect workers not wearing PPE
- Wearables to monitor vital signs e.g. heat stress
- Detection software to analyse workplace videos to identify safety risks