

Example opportunities and risks of AI and digital technologies

The use of AI and digital technologies in the workplace can create or increase WHS risks that may cause harm to workers, while at the same time providing opportunities to control WHS risks and improve WHS outcomes.

The following table identifies some possible WHS risks and opportunities associated with the introduction and use of digital technologies at work.

Please note, this is not intended to be a comprehensive list of all WHS opportunities and risks which may be introduced from digital technologies. The types of hazards, and duration, frequency and severity of exposure, will depend on the specific circumstances. PCBU's must identify how AI and digital technologies they implement or use in the workplace might impact health and safety, and control risks as much as they reasonably can.

Further guidance on digital technologies in the workplace can be found on the [Safe Work Australia website](#).

Changes to work	Common hazards	 Examples of opportunities to improve WHS outcomes	 Examples of potential WHS risks
Task automation	Job demands Fatigue Physical hazards Musculoskeletal hazards	Automating tasks may improve workplace efficiency and productivity. Automating routine tasks could reduce physical and/or cognitive job demands for workers.	- Automation of the most stimulating or fulfilling tasks (e.g. technical or creative tasks) could lead to low cognitive demands (e.g. little variety or tasks requiring less expertise). - Automation of routine or basic tasks could result in workers having a greater proportion of tasks which require extensive thought and focus (e.g. work intensification or fatigue). - Automation of physical tasks could make work more sedentary or increase repetitive movements (e.g. repeated movements which require dexterity and cannot be effectively automated).
Workplace monitoring	Job demands Fatigue Poor organisational justice Low job control	Systems may be used to manage WHS risks (e.g. to check whether a driver is taking adequate rest breaks) and could improve efficiency.	- Work intensification and fatigue may result from workers' knowledge of surveillance. - Scope creep may occur where legitimate monitoring is used for invasive or punitive purposes. - High job demands, low job control and fatigue may result when monitoring prevents workers from adjusting their pace of work or how work is performed to suit the specific circumstances.

Changes to work	Common hazards	 Examples of opportunities to improve WHS outcomes	 Examples of potential WHS risks
Updates to systems	Poor organisational change management Job demands Physical hazards Lack of role clarity	Updating inefficient, unclear or unsafe systems may improve efficiency and safety.	- System updates which are unnecessary, too frequent, or have little safety or long-term efficiency benefits may lead to increased workloads while workers relearn updated systems. - System updates may inadvertently create safety issues (e.g. disabling sensors or alarms). - Workers may be unclear on how to interact with or use new or updated systems, leading to delays or inefficiencies.
Decision making	Job demands Fatigue Low job control Organisational justice	- Automating complex decisions may decrease job demands and increase the speed of decision-making. - AI and digital technologies may help identify trends in data and improve WHS strategies.	- Workers may have limited authority to override decisions or outputs from digital technologies or may be unclear on the process to do so. This may lead to organisational justice risks or may harm the health and safety of others at the workplace (e.g. patient care plans created by digital technology which are flawed). - Workers may be organisationally or even legally responsible for decisions made by AI or digital technologies which they cannot control or explain, or where another user can influence outputs (e.g. generative AI chatbots). - Algorithmic management of work may pressure workers to complete work faster or increase cognitive load.
Changes in exposure to traumatic materials	Traumatic materials or events Job demands	Worker exposure to traumatic materials may be eliminated or minimised through means such as automated file labelling, content filters, or access controls on potentially distressing files.	- Workers may be exposed to more frequent or severe traumatic information due to the use of digital technologies if: - there are inadequate content controls in place, or - there is a belief that exposure to traumatic materials via digital means is less harmful than seeing traumatic materials in person (and exposure is not minimised).
Customer /client /patient interactions	Harmful behaviours Job demands Low job control	Automating processes for customers/clients/patients may increase convenience for them and reduce worker exposure to physical and psychosocial risks.	Flawed digital systems may cause frustration for workers or customers/clients/patients. This can lead to increased job demands and harmful behaviours.
Harmful behaviours and harassment	Harmful behaviours Low job control	AI and digital technologies may be used to detect or block online safety issues, such as bullying, abuse and harassment.	- Anonymous abuse and harassment may be facilitated by digital technologies. - Users may be able to bypass systems which detect online safety issues or systems may incorrectly block non-harmful material and cause frustration for users.

Changes to work	Common hazards	 Examples of opportunities to improve WHS outcomes	 Examples of potential WHS risks
			- Systems settings may block communications they were not intended to capture (e.g., because they block words which may be problematic in some contexts but not all). This may increase workload and frustration for workers. - Workers may be unable to disconnect when being bullied at work, especially if personal social media or instant messaging platforms are used for work communication.
Hazard identification	Fatigue Physical hazards	AI and digital technologies may be used to identify hazards like fatigue and predict the risk of fatigue based on historical data.	Over-reliance on AI and digital technologies to detect hazards may result in hazards being missed or underestimated (e.g. workers and PCBU's solely relying on technology to detect fatigue and ignoring workers' own biological indicators of fatigue).
Workplace flexibility	Job demands Fatigue	Digital technologies may provide flexibility for workers to work from remote locations allowing them to work at times that suit them and around non-work commitments.	Use of digital technologies can create an expectation that workers are available outside of work hours, preventing them from fully disconnecting from work and increasing cognitive load and job demands.
Remote or isolated work	Remote or isolated work Fatigue Poor support Job demands	Where work is already remote or isolated, digital technology can increase social interaction and reduce the hazards associated with remote or isolated work.	- Remote working arrangements facilitated by digital technologies may contribute to a poorer workplace culture, for example, by reducing opportunities for social interaction (e.g. where office workers work from home regularly and do not have set common days to work together in person). - Remote working arrangements may increase the risk of fatigue if there is an expectation that workers should be available out of hours. - Remote working arrangements may increase the risk of high job demands and fatigue where there is an expectation that workers should always be immediately able to respond to contact – regardless of comfort breaks or the urgency of other tasks.
Wearable devices	Physical hazards Musculoskeletal disorders	Risks from manual handling tasks (e.g. musculoskeletal disorders or other physical risks) may be reduced through use of advanced robotics or wearable devices.	- Wearable devices may lead to an increased risk of: - excessive heat, - vibration, - ergonomic hazards, or - electrical hazards. - Scope creep may occur where wearable devices are introduced for one purpose but then used for monitoring.

Changes to work	Common hazards	 Examples of opportunities to improve WHS outcomes	 Examples of potential WHS risks
Autonomous plant, advanced robotics or other physical automation	Physical hazards Musculoskeletal disorders	Human exposure to dangerous environments may be eliminated or reduced through the use of autonomous plant, advanced robotics or automation.	Technology misuse or malfunction from autonomous plant, advanced robotics or automation may create risks such as crushing workers or exposing them to hazardous substances (e.g. safeguards such as proximity sensors failing).
Integrating digital technology into training	Physical hazards Traumatic events or material	Virtual and augmented reality systems can be used in training procedures to allow safe and immersive training for high risk tasks, without exposing inexperienced workers to high-risk tasks.	- Virtual and augmented reality systems may not adequately represent the tasks workers are trained for. - Virtual and augmented reality systems may have ergonomic risks for workers who are using them (e.g. blocked visibility, eye health risks, motion sickness, seizures). - Training can be traumatising and distressing if prior warning of triggering content or debriefing does not occur for some hazards (e.g. training on management of violence).
New physical security tools	Harmful behaviours Job demands Organisational justice	Digital technology can improve physical security, e.g. doors which require key cards, improved security cameras/monitoring and digital protections.	There may be scope creep where technologies are implemented for legitimate safety reasons but then also used for other reasons, such as surveillance or performance management, which may lead to increased job demands and poor organisational justice.
New cyber security tools	Organisational justice Harmful behaviours	AI tools can improve fraud or phishing detection for business, reducing the risk that sensitive employee information is accessed or misused for harmful purposes.	- Poorly managed cybersecurity may lead to leaked personal information, potentially leading to targeted harmful behaviours or poor organisational justice as a result of privacy breaches. - Digital technologies can be used by malicious actors to create more sophisticated cyber security risks (e.g. more realistic phishing, fraud), increasing the risk that sensitive employee information is accessed inappropriately or misused for harmful purposes. - Digital technologies can be used to automate cyber security attacks.

Further information

For further information see the [model Code of Practice: How to manage health and safety risks](#) and the [model Code of Practice: Managing psychosocial hazards at work](#) or see the Safe Work Australia website www.swa.gov.au.