Safe and healthy work in the digital age

HWC campaign 2023-2025: Ensuring effective prevention in the digital world of work

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Prevention and Research Unit

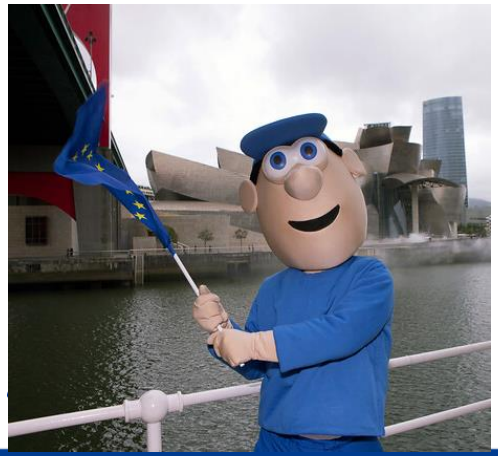
Webinar “Ageing workers in the digital age”
Ljubljana, 9th of October 2025

Europees Agentschap voor veiligheid en gezondheid op het werk

Een gezonde werkplek

European Agency for Safety and Health at Work (EU-OSHA)

- **A body of the EU**
- **Established in 1996 in Bilbao, Spain**
- **EU-OSHA is committed to making Europe a safer, healthier and more productive place to work, by promoting a culture of risk prevention to improve working conditions in Europe.**
- **Tripartite Board bringing together:**
  - governments, employers' and workers' organisations
  - the European Commission



Threefold mission

1. **Research** to support evidence-based policy making
2. **Guidance and tools** to assist in prevention of risks at work
3. **Networking and awareness-raising** to foster a prevention culture

Our work

- **EU-OSHA: “We work to make European workplaces safer, healthier and more productive — for the benefit of businesses, employees and governments.”**

Research projects

European Agency for Safety and Health at Work

Healthy Workplaces

NAPO

Surveys

OiRA Online Interactive Risk Assessment

ESENER

Campaigns

OSH WIKI Networking knowledge

Foresight

E-tools / guides

European Agency for Safety and Health at Work

https://healthy-workplaces.eu

Healthy Workplaces

Healthy Workplaces Campaign 2023-25
Safe and healthy work in the digital age

Ensuring effective prevention in the digital world of work

Europees Agentschap voor veiligheid en gezondheid op het werk

Een gezonde werkplek

Veilig en gezond aan 't werk, dat raakt iedereen. Goed voor jou en voor de zaak.

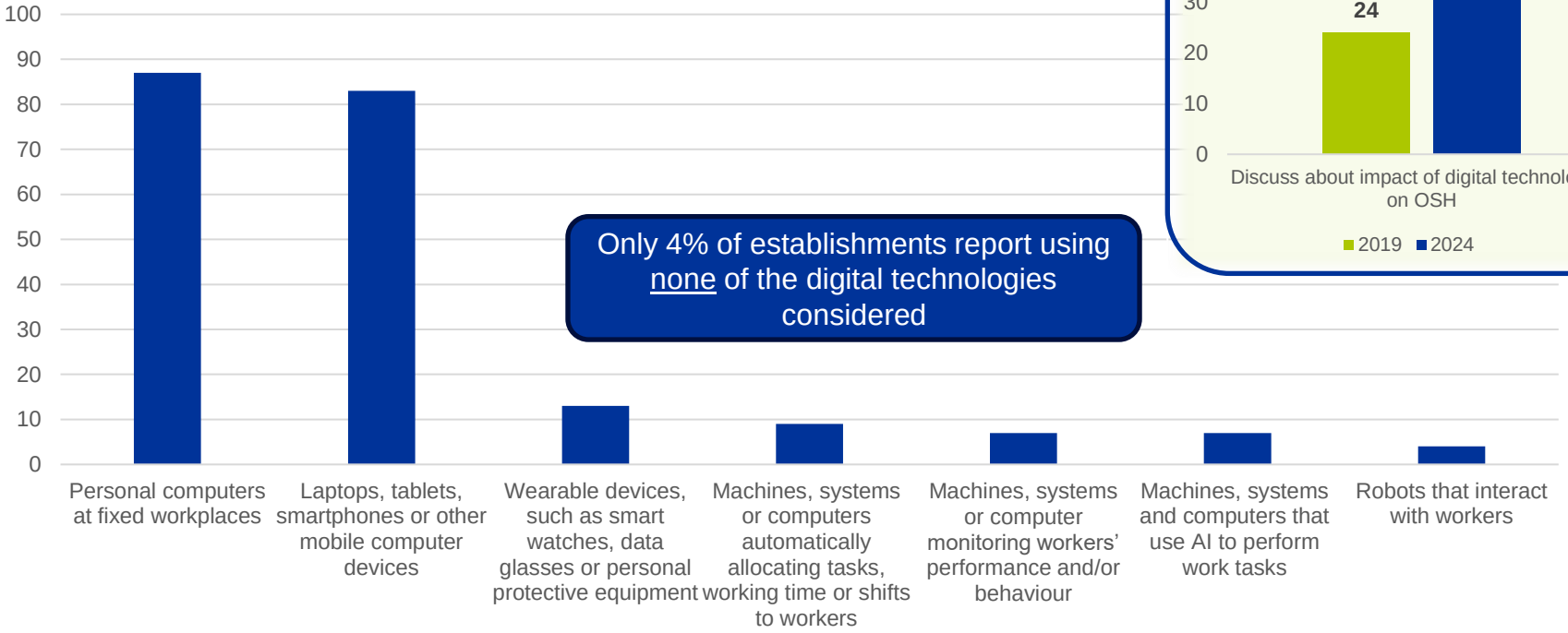
Campaign objectives

The campaign aims to:

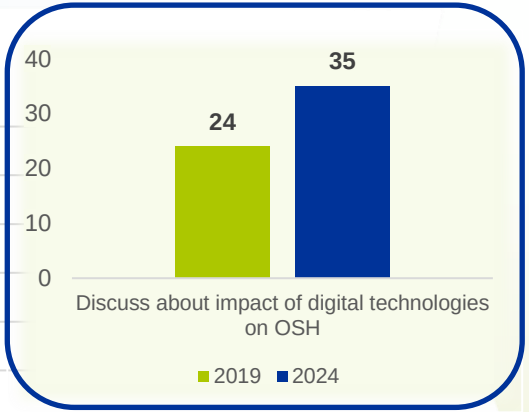
- Raise **awareness** of digitalisation and its OSH implications
- Increase **knowledge** about the safe and productive use of digital technologies across all sectors
- Inform about **emerging risks and opportunities**
- Promote **risk assessment** and the healthy and safe management of digital transformation of work
- Facilitate the **exchange of information and good practices**

Use of digital technologies in establishments in the EU (%)

ESENER 2024 (EU-27)



Only 4% of establishments report using none of the digital technologies considered

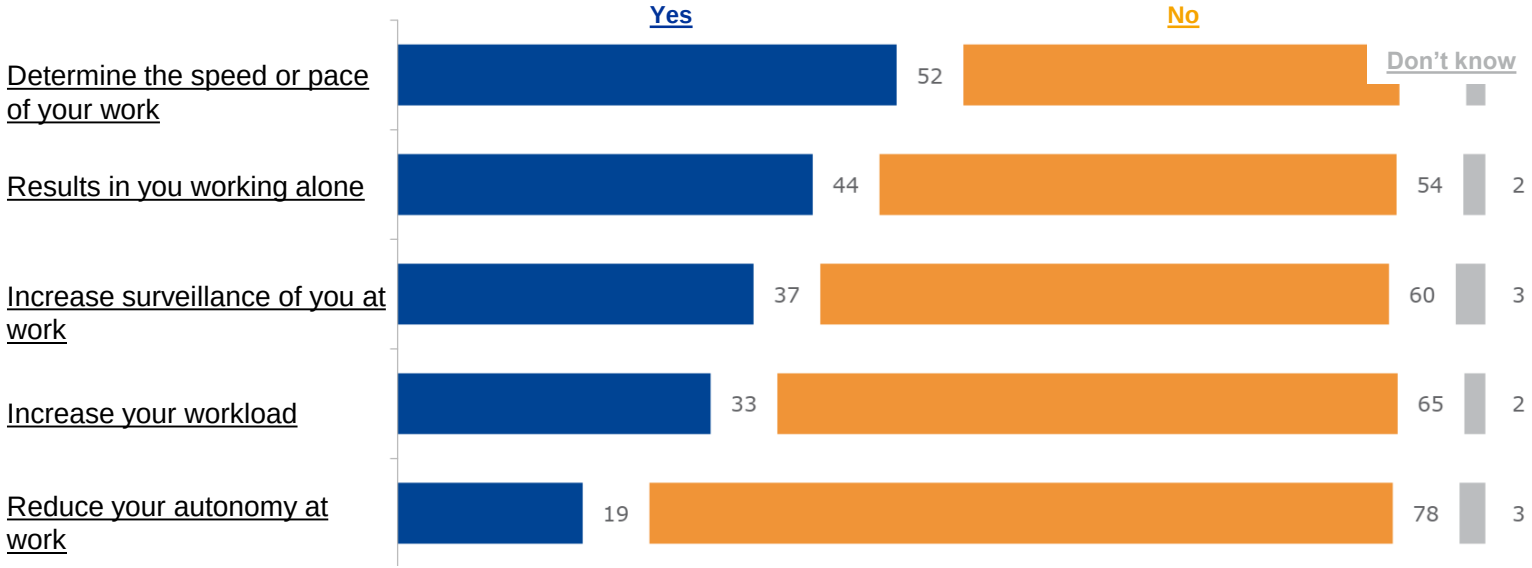


Base: all establishments.

Facts and figures – use of digital technologies

EU-OSHA, OSH Pulse 2022

Would you say that the use of digital technologies in your workplace… ?



Base: all respondents, EU27 (n=25 683)

Facts and figures – Psychosocial risks

EU-OSHA, ESENER 2019

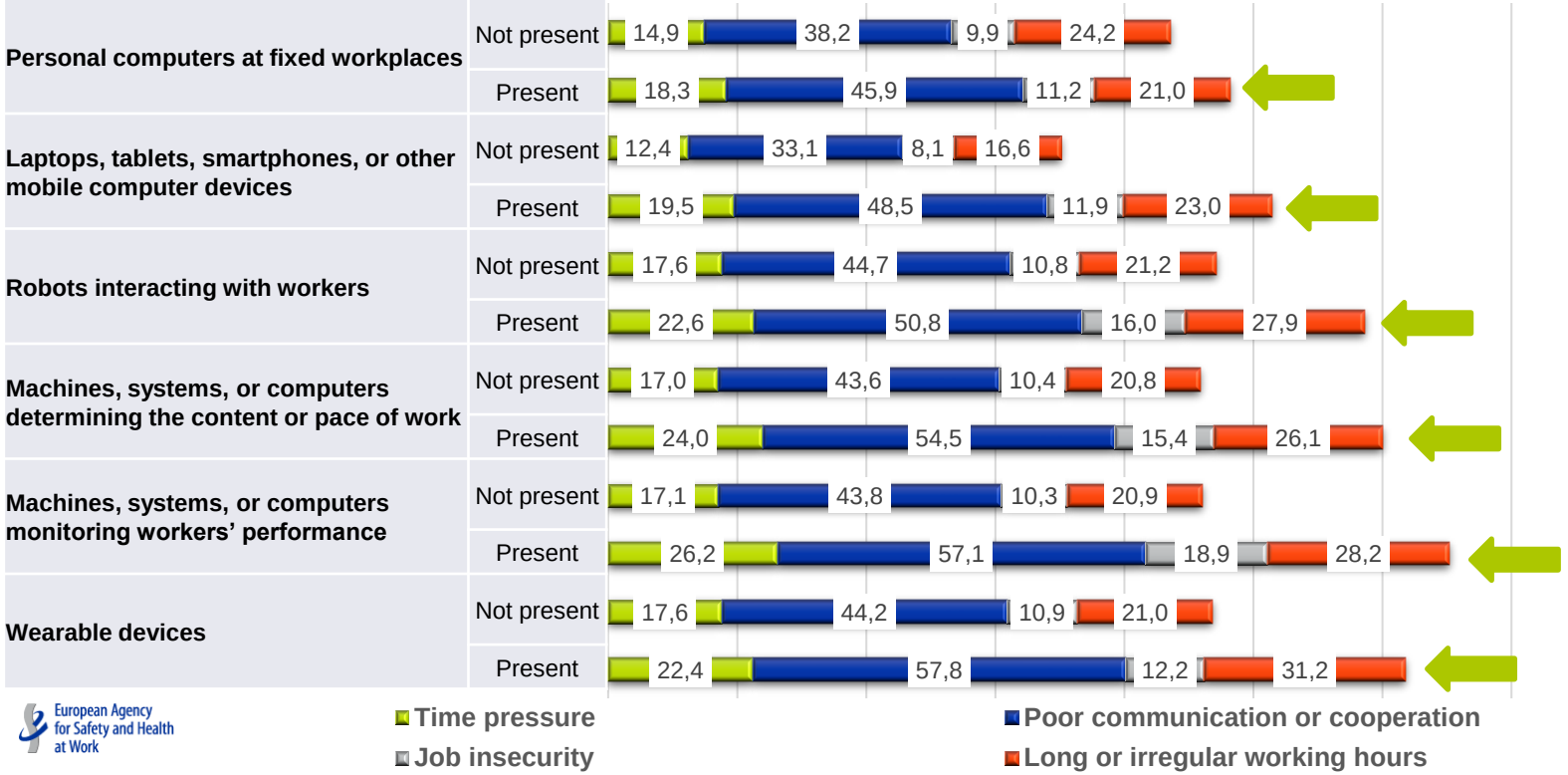
Psychosocial risks most commonly associated with digital technologies:

- time pressure
- long/irregular working hours
- poor communication/cooperation
- job insecurity

Facts and figures: digital technologies & psychosocial risks

EU-OSHA, ESENER 2019

Workplaces reporting psychosocial risks by presence of digital technology, EU27



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Facts and figures: digital technologies & psychosocial risks

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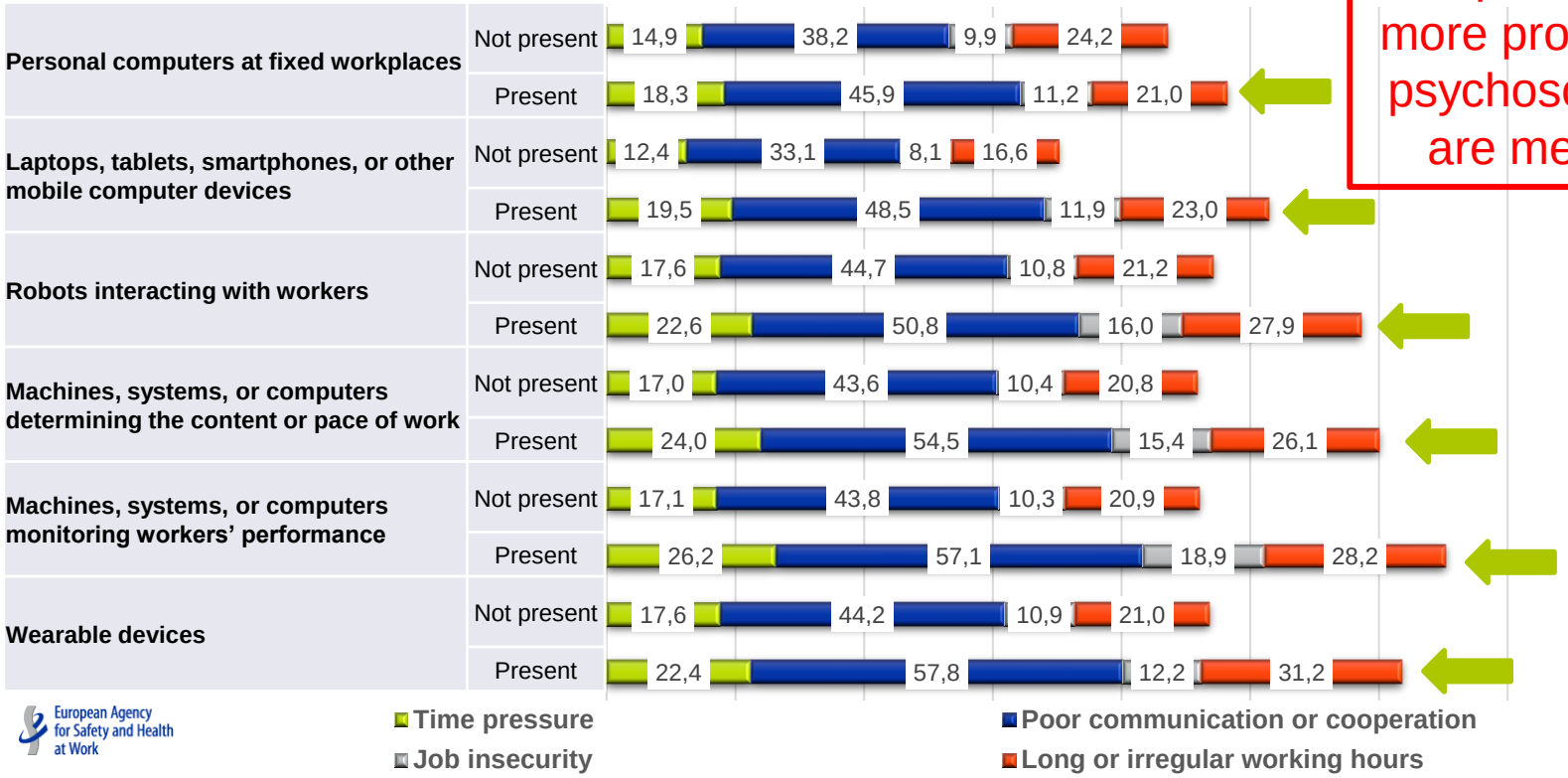

Where technology is present, it is more probable that psychosocial risks are mentioned

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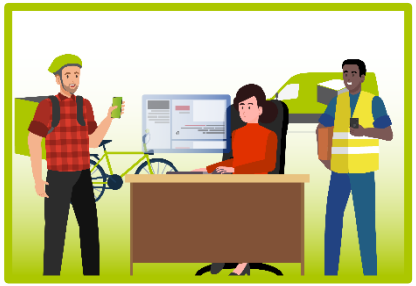
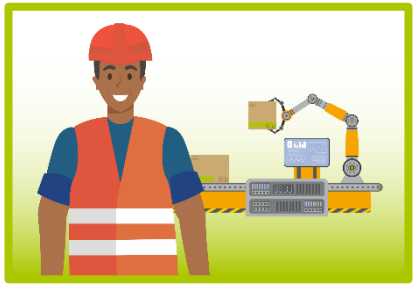
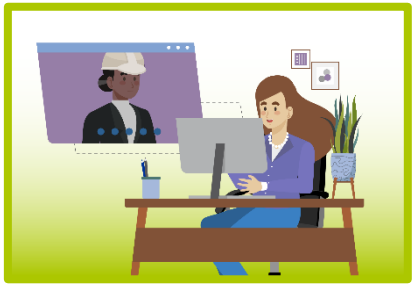
Priority areas



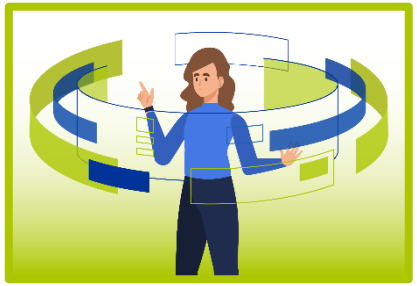
Digital platform work



Automation of tasks



Remote and hybrid work



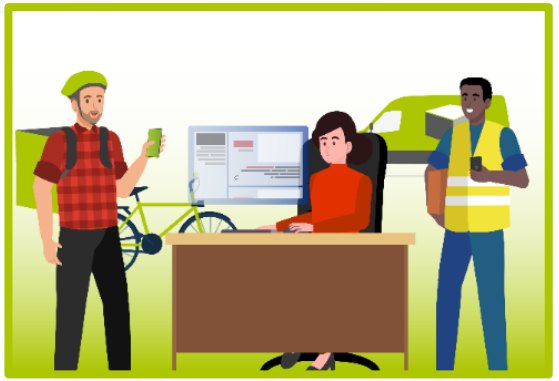
Worker management through AI

Smart digital systems

Priority areas – Digital platform work

OPPORTUNITIES

- Worker autonomy
- Flexible working hours
- Improved access to the labour market for disadvantaged workers



RISKS AND CHALLENGES

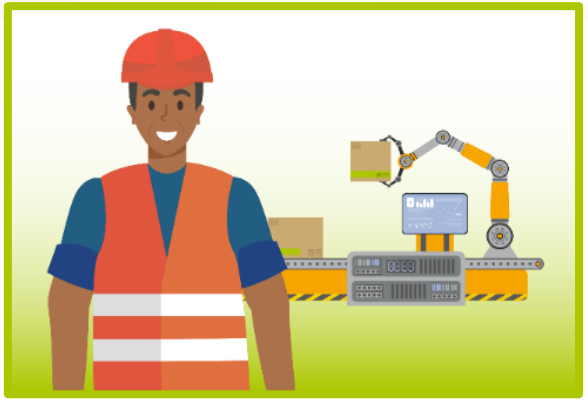
- Professional isolation
- Long/irregular working hours
- Algorithmic management
- Digital monitoring/surveillance
- Limited OSH regulations

"Digital platform work frequently involves jobs in occupations and sectors that are at high risk and associated with poorer working conditions."

Priority areas – Automation of tasks

OPPORTUNITIES

- Automation of high-risk or repetitive work tasks
- Increased time for worker learning/creativity
- Reduced exposure to hazardous environments



RISKS AND CHALLENGES

- Loss of human situation awareness
- Over-reliance
- Possible loss of specific skills of workers

"Using digital technologies for automation processes comes with a number of opportunities, but also potential risks and challenges, such as the loss of human situation awareness, over-reliance, or possible loss of specific skills of workers."

Priority areas – Remote and hybrid work

OPPORTUNITIES

- Increased autonomy and flexibility
- Better work-life balance
- Improved motivation and productivity
- Reduced commute time
- Safety from high-risk environments

RISKS AND CHALLENGES

- Isolation and lone working
- Work intensification
- Long/irregular working hours
- Conflicts between private and working life
- Inadequate equipment

"Remote work must be included in the employer's mandatory risk assessment."

Priority areas – Worker management through AI

OPPORTUNITIES

- Improved scheduling and task allocation
- Optimised work organisation
- Information to identify OSH issues

RISKS AND CHALLENGES

- Reduced worker autonomy and control
- Increased pressure to work faster
- Invasion of privacy

"It is essential to build trust in these systems by informing, consulting and allowing workers to participate in their design and implementation."

Worker management is as old as work is … BUT nowadays…

Digital technologies

Personal computers

Laptops & Mobile devices

GPS

Cameras

Wearable devices

Other sensory devices

In all jobs using ICT

Both in and outside the workplace

Large amount of real-time data collected

Time spent per task

Content of calls or emails

Keyboard clicks

Screenshots

Websites visited

Social media

Movements

Locations

Worker ratings

Vital signs

Indicators of stress and fatigue

Micro-facial expressions

Tone of voice

Workplace

Etc.

Processed by Artificial Intelligence (AI) / algorithms

Providing diagnostic, prescriptive or predictive insight

To make automated or semi-automated decisions

AI-based Worker Management (AIWM) to improve:

Productivity and efficiency

Management of work (task allocation, shift scheduling, etc.)

Worker performance (directing how to work, controlling performance, nudging/penalising)

HR management, incl. performance appraisals, career development, talent management

Worker engagement

Health and safety monitoring, prevention and training

Worker well-being

Potential benefits of AIWM for OSH

- Better allocation of tasks and workload to workers
- Risk monitoring and alerting to various psychosocial risks
- Personalised digital counselling for workers
- Data to support workplace risk assessment
- Input into OSH training programmes

So far OSH improvements through AIWM remain limited in practice

OSH risks and challenges associated with AIWM

- Constant monitoring and direction of workers
- Reduced worker autonomy and job control
- Increased performance pressure/time pressure/ work intensity
- Isolation and feeling of loneliness
- Reduced interactions with managers and peers
- Reduced intervention in decision-making
- Lack of transparency and Information imbalance
- Reduced/no opportunities for feedback/negotiation
- Privacy/data protection issues

Psychosocial risks need specific attention

Napo.. In technostress

https://healthy-workplaces.osha.europa.eu/en/tools-and-publications/napo-films


napofilm.net

Priority areas – Smart digital systems

OPPORTUNITIES

- Monitor (real-time) risks, support risk assessment, help prevent and minimise harm to workers
- Digital counselling for workers
- Informed decision-making
- Input to design OSH trainings
- Support targeted OSH inspections

RISKS AND CHALLENGES

- Data inaccuracies or misinterpretation
- Overreliance on technology
- Risk of “delegating” the workplace risk assessment to technology
- Use of data a different purpose/surveillance
- Overwhelming (OSH) managers with data

These new systems use digital technologies to collect and analyse data or signals in order to identify and assess OSH risks, thereby preventing or minimising harm and promoting OSH.”

Wearables, sensors, smart systems with real-time assessment, generating warnings, for example:

- **Smartphone apps** that are used for nudging workers towards a healthier behaviour
- **Smart glasses**, or **drones** in the construction and the mining industries, to effectively reach and monitor dangerous areas of work site avoiding to put humans in danger.
- **E-textile technologies** able to interact with workers, with sensors that may be embedded in **hardhats or safety glasses**
- **Smart watches** that enable the gathering of physiological, emotional data of people via IoT
- **VR/AR tools** used for training, as an interface providing monitoring data.
- **Wearable devices** that can identify levels of gases, toxins, noise levels and high-risk temperatures
- **Smartphone apps** to allow easy reporting and/or task assistance in the event of accidents at work.

Smart digital systems: proactive versus reactive

Proactive OSH monitoring systems

Reactive OSH monitoring systems

Smart Digital Tools for monitoring workers' OSH: risks/challenges

Practical limitations

Technology malfunctioning

e.g., batteries exploding or sensors not working

Sensor accuracy

How reliable are sensors in facilities with multiple environmental factors?

Hardware hindering movement

Wearing exoskeletons or PPE' s

OSH monitoring systems' technological limitations

e.g., infrared-cameras

OSH monitoring systems' net effects

e.g., impact of redistribution of weight through exoskeletons for other parts of the body

Psycho social /physical harm

Work intensification

Workplaces as electronic sweatshops?

Work alienation

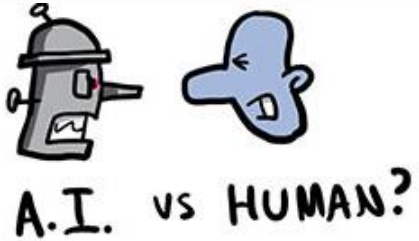
Quantity vs. quality

Work as a social place

Invasion of privacy

Loss of ownership

Overwhelming OSH managers with data and expectations



Data considerations

Data privacy, security and Data accuracy

Data interpretation and (mis)use

European Agency for Safety and Health at Work

https://healthy-workplaces.eu

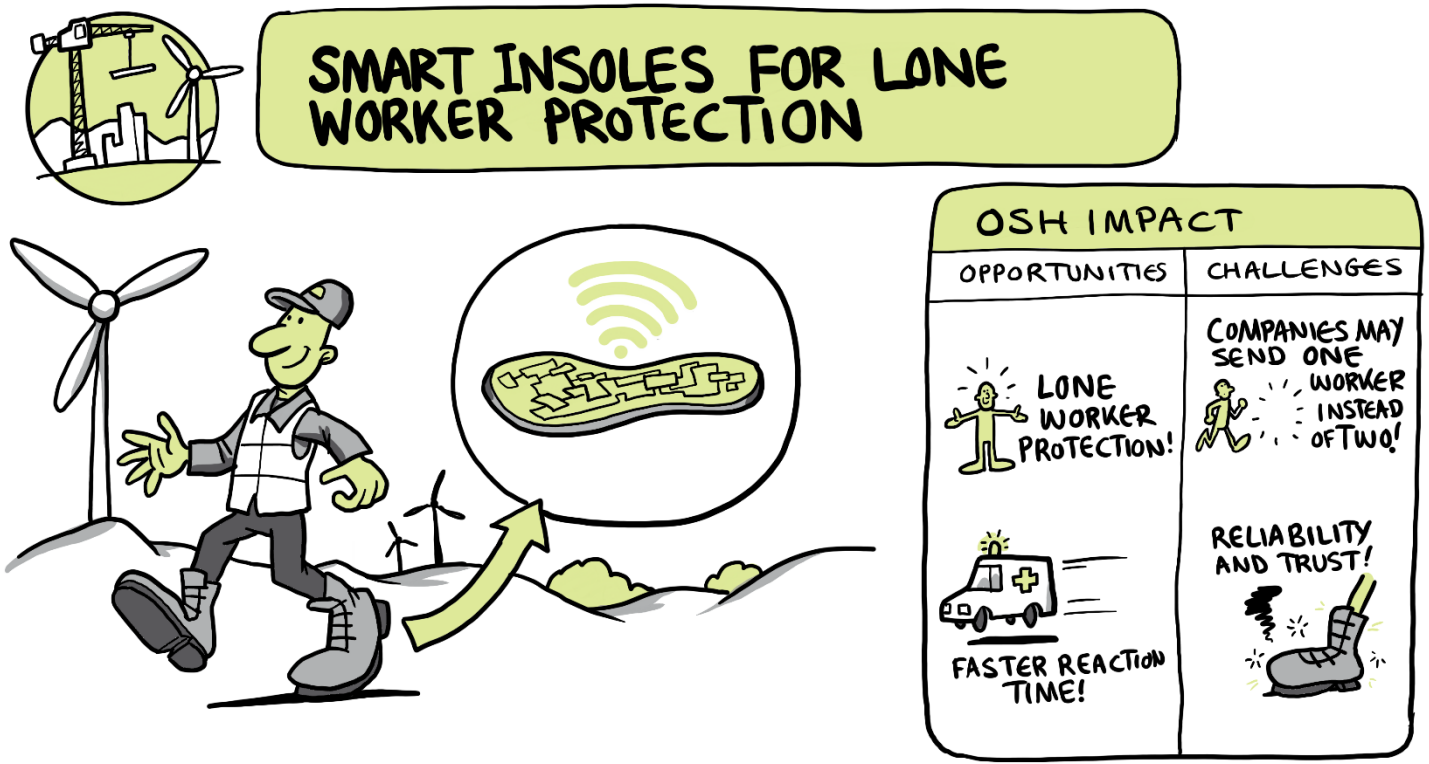
Healthy Workplaces

drawingALISM drawing knowledge

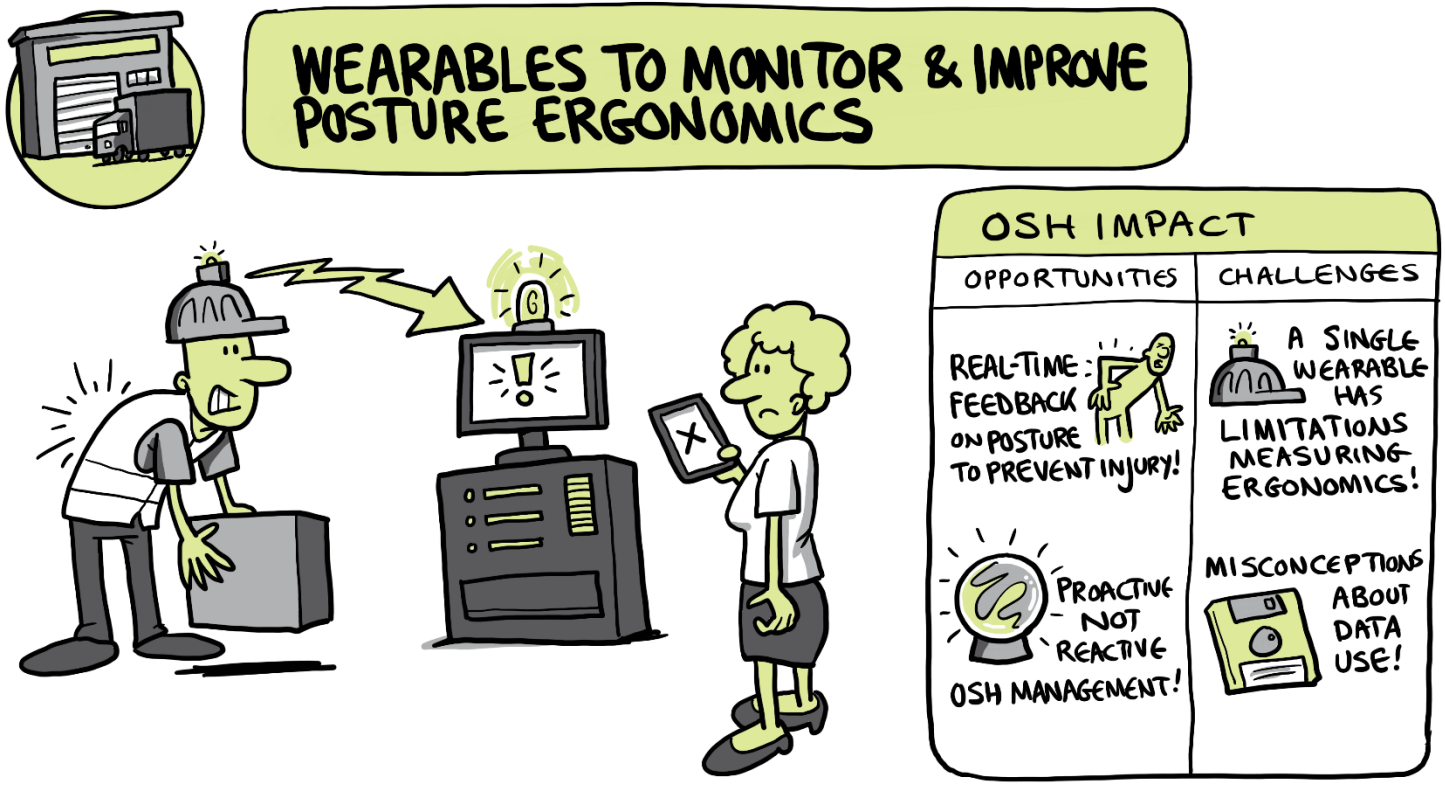
Smart digital tools for monitoring workers' OSH: case studies

- 9 in-depth case studies with companies designing or using monitoring systems at the workplace
- Variety of locations
- Variety of technologies used
- Multiple economic sectors

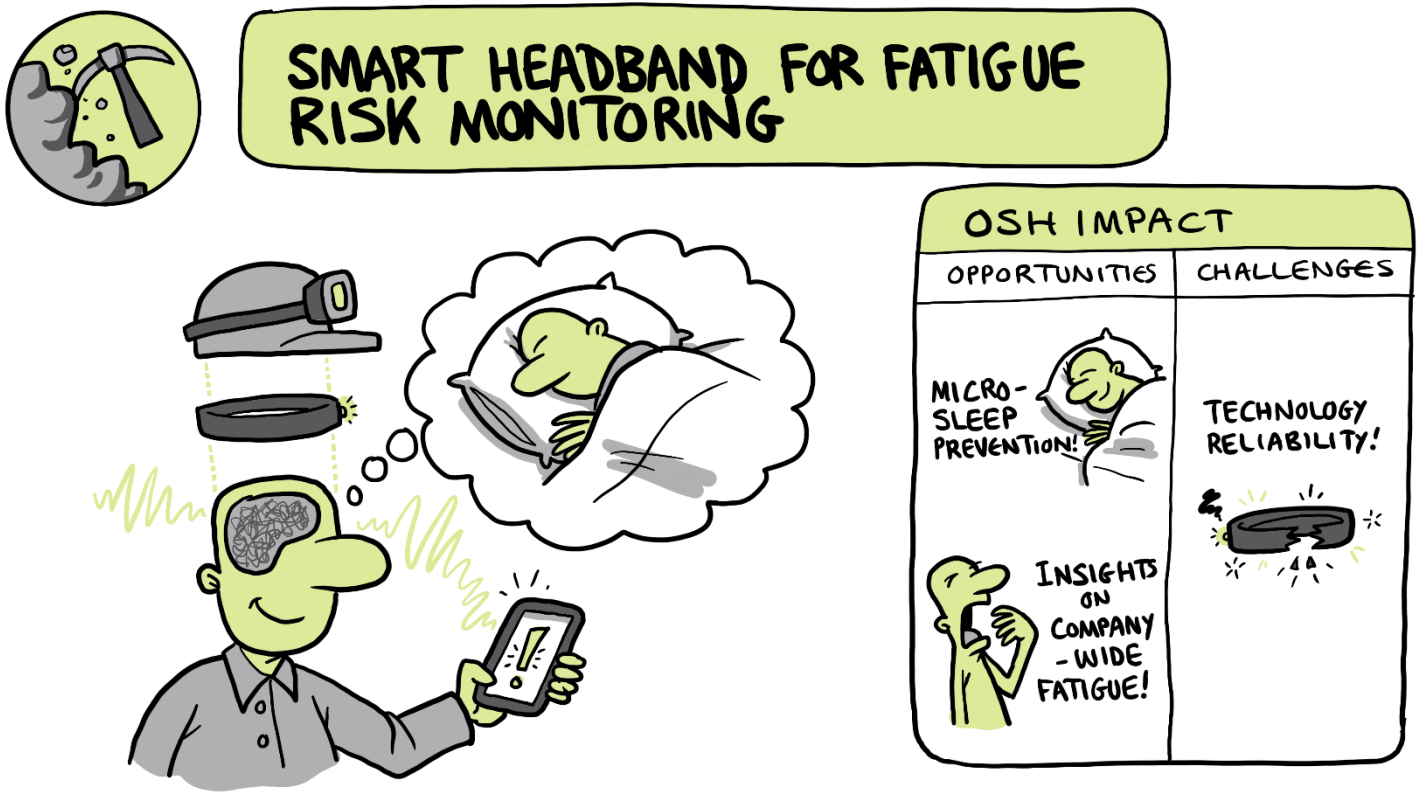
Case studies (3)



Case studies (6)



Case studies (7)



Learnings: worker Involvement

- Prior consultation
- Allow workers to test the tool or system during trial periods
- Work with ambassadors
- Find different engagement opportunities
- On-the-job training, team briefings, walks & talks
- Technology discovery workshops

Focus on data management: privacy by design

- **Anonymisation**

- **Data minimisation**

- **Compliance**

- **Storage and cybersecurity**

On some occasions: privacy by choice; restricting data access to designated persons

Smart digital tools – key takeaways

- Smart digital tools can improve workplace safety & health in an innovative proactive way
- **Transparent** use of technology is essential
- Distinguishing between **performance measurement and OSH monitoring** helps maintain and build workers' **trust**
- **Worker engagement and involvement** in the entire process of smart digital tool onboarding is important
- Smart digital systems **must complement other OSH measures**
- **Legislation, labour inspections, and research** must evolve to keep pace with smart digital systems
- Technologies like wearables promote **inclusion** and diversity

The future: Europe's Green and Digital Transition

The Just Transition Mechanism: making sure no one is left behind

(Binh Nguyen/Canary Media)

Risk prevention

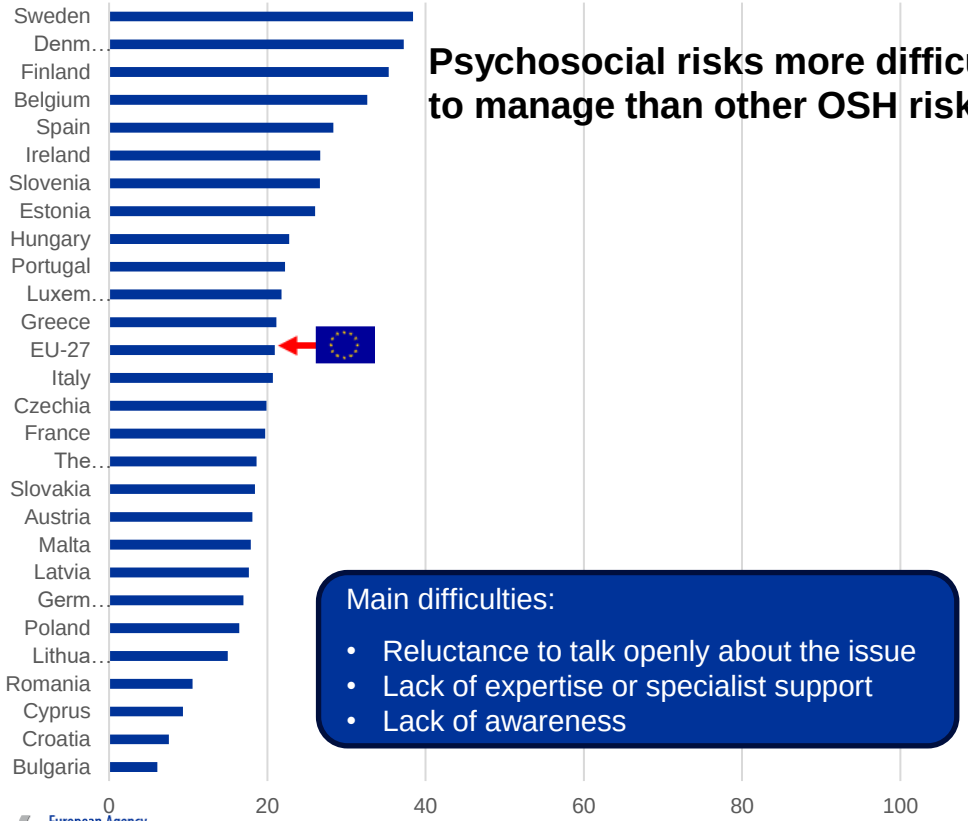
- Human-centred approach
- Equal access to information of all stakeholders
- Worker consultation/participation in the development, implementation and use of digital technologies and systems
- Transparency about the way a digital tool operates
- Holistic approach to evaluating the impact of digital technologies and systems on OSH

Key pointers for OSH prevention

A human-centred approach with humans in-command

- ✓ Regulation
- ✓ Prevention-through-design
- ✓ Selection of tasks and processes to be digitalised
- ✓ To preserve workers' job control and autonomy
- ✓ Sound OSH policy and OSH management system in place
- ✓ Regular Workplace Risk Assessment (EU-OSHA OiRA tools on Telework & Automation)
- ✓ Training and upskilling
- ✓ Equal access to information and worker participation
- ✓ Raise awareness for psychosocial risks & mental health
- ✓ Exchange of expertise (EU-OSHA Case studies & examples of Good practices)

Psychosocial risks – difficult to manage – but increase in action

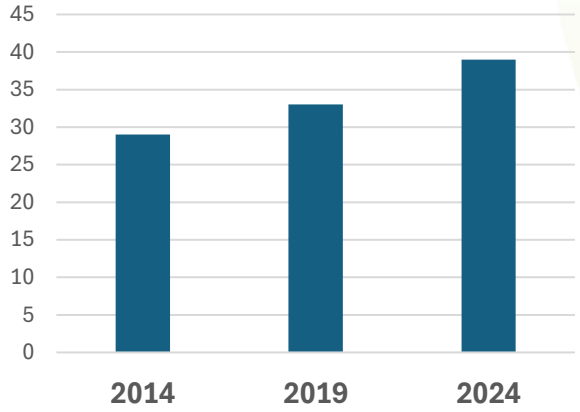


Psychosocial risks more difficult to manage than other OSH risks

Main difficulties:

- Reluctance to talk openly about the issue
- Lack of expertise or specialist support
- Lack of awareness

Action plans to prevent work-related stress (EU-27)



Main drivers:

- Workers wellbeing
- Legal obligations

European Agency for Safety and Health at Work

Base: asked to all establishments in the EU-27 reporting the presence of at least one psychosocial risk factor

https://healthy-workplaces.eu

Healthy Workplaces

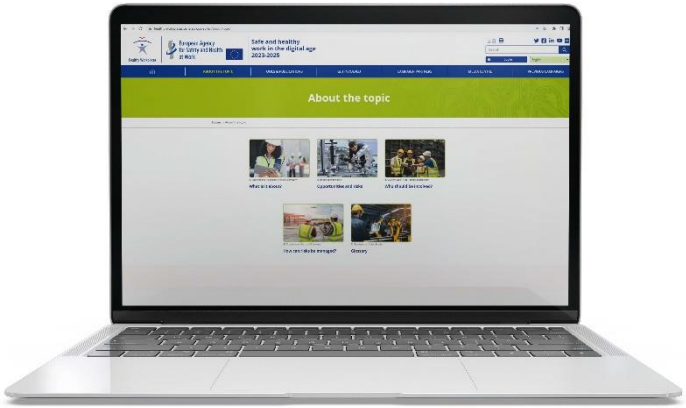
NEXT: EU-OSHA research on psychosocial risks and mental health at work

- **Preventing and managing work-related psychosocial risks** is the cornerstone of good mental health at work

- **Research contributes to:**

- EU Strategic Framework on OSH 2021-27
- ‘Comprehensive approach to mental health’ (EC, 2023)
- EU-OSHA Healthy Workplaces Campaign 2026-28

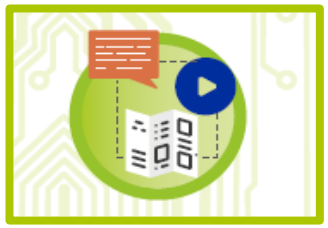
Resources



Consult all publications on the topic:

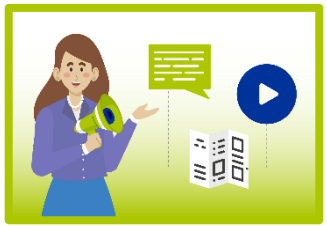
https://healthy-workplaces.osha.europa.eu/en/about-topic/priority-area/smart-digital-systems

Campaign resources



Publications

Campaign materials



Campaign toolkit

Social media kit

Napo films

OSHwiki

Case studies

Legislation and regulations

Infographics

EU-OSHA publications

- **OSH overview Digitalisation and OSH (2021-2023):** **https://osha.europa.eu/en/themes/digitalisation-work**

- **Campaign Safe and healthy work (2023- 2025)** **www.healthy-workplaces.eu**

- **Foresight study on Circular economy** **https://osha.europa.eu/en/emerging-risks/circular-economy**

Thank you!

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