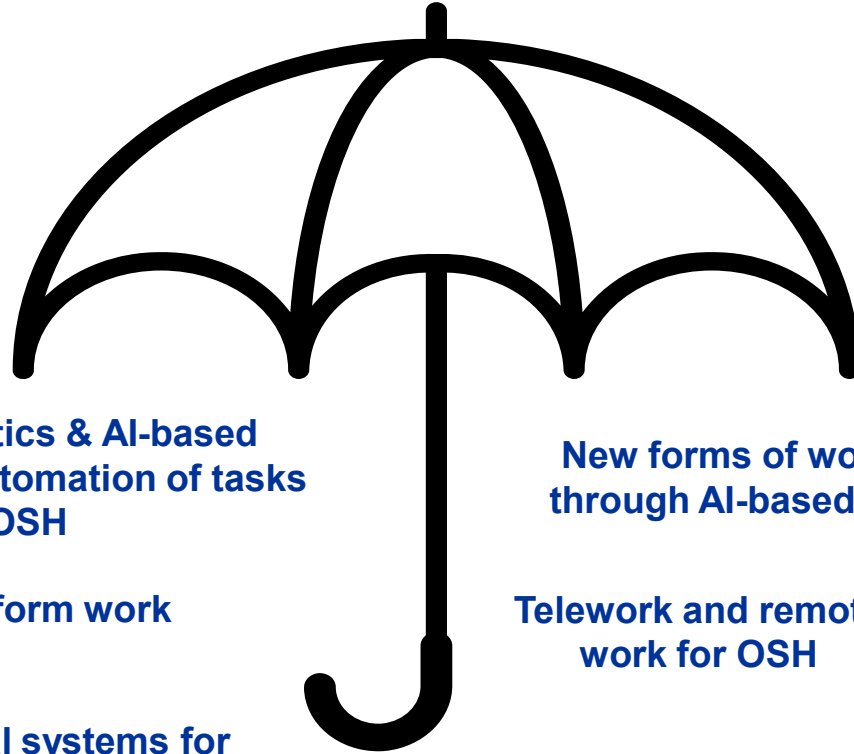# HEALTHY WORKPLACES SUMMIT 2025

Safe and healthy work in the digital age

Smart digital systems for better safety and health at work

Kyrillos Spyridopoulos, Senior Research Manager | Ecorys.com

European Agency for Safety and Health at Work

Healthy Workplaces

OSH Overview on Digitalisation (2020-2023)

Advanced robotics & AI-based systems for the automation of tasks and OSH

New forms of worker management through AI-based systems and OSH
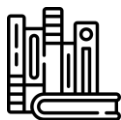
OSH and digital platform work

Telework and remote work for OSH

Smart digital systems for better safety and health

What are the opportunities and challenges of smart digital systems in terms of improving workers' safety and health?

Smart digital systems for better safety and health – Project numbers
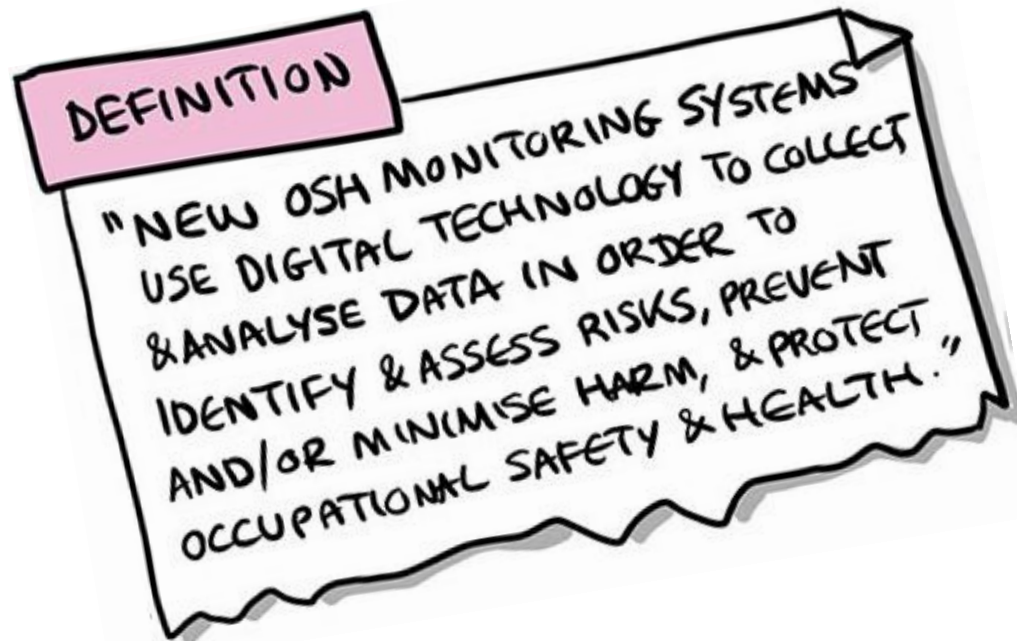
150 + resources

20+ interviews

10 case studies

2 workshops

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Smart digital tools, what do we mean?

"NEW OSH MONITORING SYSTEMS USE DIGITAL TECHNOLOGY TO COLLECT & ANALYSE DATA IN ORDER TO IDENTIFY & ASSESS RISKS, PREVENT AND/OR MINIMISE HARM, & PROTECT OCCUPATIONAL SAFETY & HEALTH."

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Digital technology that collects and analyses data to:

✓ **Identify and assess** risks

✓ **Prevent / minimise** harm

✓ **Promote** OSH

Smart digital systems for better safety and health – Taxonomy

A strict taxonomy is challenging as new OSH monitoring systems serve multiple functions. A useful approach is to distinguish between:

Proactive monitoring systems

Preventing OSH risks

Reactive monitoring systems

Reacting to OSH risks

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Smart digital systems for better safety and health – Opportunities

Proactive OSH monitoring systems

Monitoring individual and workplace risks

- Wearables monitoring individual risks

- Cameras monitoring worker movement and unsafe behaviours

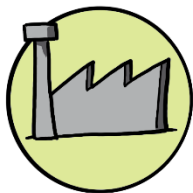### Alerting workers and providing on-the-job training

- Infrared-cameras on industrial vehicles for collision avoidance

- On-the-job training via IoT wearables (ergonomics, exposure levels)

Remote risk assessments

- Drone-based inspections and risk-assessments

Providing data insights that can help workplaces improve OSH

- Insights on risk hotspots

- Aggregate data guiding OSH planning & facility adjustments

Case studies

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Smart digital systems for better safety and health – Opportunities

Reactive OSH monitoring systems

Responding to emergencies

- Detecting emergencies (man-down functions)

- Localising emergencies and reducing the time of rescue operations

Accident investigation and reporting

- Supporting accident-investigation through data-driven approaches

Providing data insights that can help workplaces improve OSH

- Insights on risk hotspots

- Aggregate data guiding OSH planning & facility adjustments

SMART INSOLES FOR LONE WORKER PROTECTION

OSH IMPACT

OPPORTUNITIES	CHALLENGES
LONE WORKER PROTECTION!	COMPANIES MAY SEND ONE WORKER INSTEAD OF TWO!
FASTER REACTION TIME!	RELIABILITY AND TRUST!

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Smart digital systems for better safety and health – Challenges

Physical / psycho-social effects

Practical issues

Reliability

e.g., batteries failures, faulty sensors

Sensor accuracy in real environments

How reliable are sensors in facilities with multiple environmental factors?

Hardware that restricts movement

Technical limitations

e.g., infrared-cameras

Unintended effects

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

Work intensification

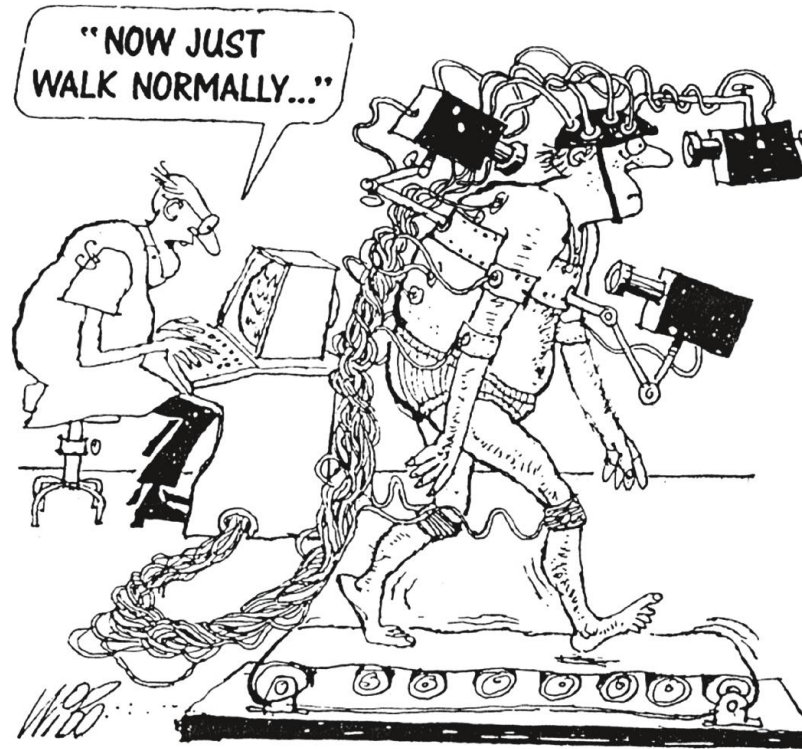Workplaces as electronic sweatshops?

Work alienation

Quantity vs. quality

Work as a social place

Invasion of privacy

Loss of ownership

Overwhelming OSH managers with data and expectations

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Smart digital systems for better safety and health – Challenges

Data issues

- Data privacy
- Data security
- Data accuracy
- Data interpretation and (mis)use

New OSH monitoring systems

1. **can have reverse effects**
2. **can have limitations in terms of what they can achieve**
3. **can only be part of the OSH solution but not the solution itself**
4. **come with important issues around the use of data**

Smart digital systems for better safety and health – Harnessing the opportunities

To harness the opportunities, it would be useful to:

1. **Better understand the role of new OSH monitoring systems and communicate clearly their limitations**

   - ensuring that new OSH monitoring systems do not come at the expense of standard health and safety procedures

2. **Adapt new OSH monitoring systems to the needs of companies and workers**

   - tailor made vs off-the-shelf solutions

3. **Consult all parties on the use of new OSH monitoring systems**

   - bottom-up vs top-down implementation

   - addressing issues around the use and mis(use) of the systems

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Smart digital systems for better safety and health – Harnessing the opportunities

What activities do product manufacturers of OSH monitoring systems and establishments take to effectively integrate new OSH monitoring systems at the workplace?

1. Involving workers in selecting, testing and optimising the new OSH monitoring system

2. In-situ or remote trainings

3. Talks or toolbox meetings

The walks and the talks:
having an OSH manager on the ground and
maintaining an open channel with workers

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Smart digital systems for better safety and health – Key messages

Placing emphasis on existing OSH procedures

✓ New OSH monitoring systems are part of the solution but not the solution itself

✓ Companies with a strong safety culture more likely to effectively integrate new OSH monitoring systems

Involving workers in every step of the process

✓ Involving workers in testing, selection and optimisation is important

✓ Need to maintain open channels between workers and OSH managers

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Smart digital systems for better safety and health – Gaps and needs
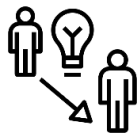
Knowledge Exchange

Cross-company or cross-sectoral dialogues through peer-learning activities

Accessible information

Accessible resources providing information on rights, data and limitations

Workers' consultation

Bottom-up versus top-down actions are likely to be more successful

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Thank you for your attention!
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