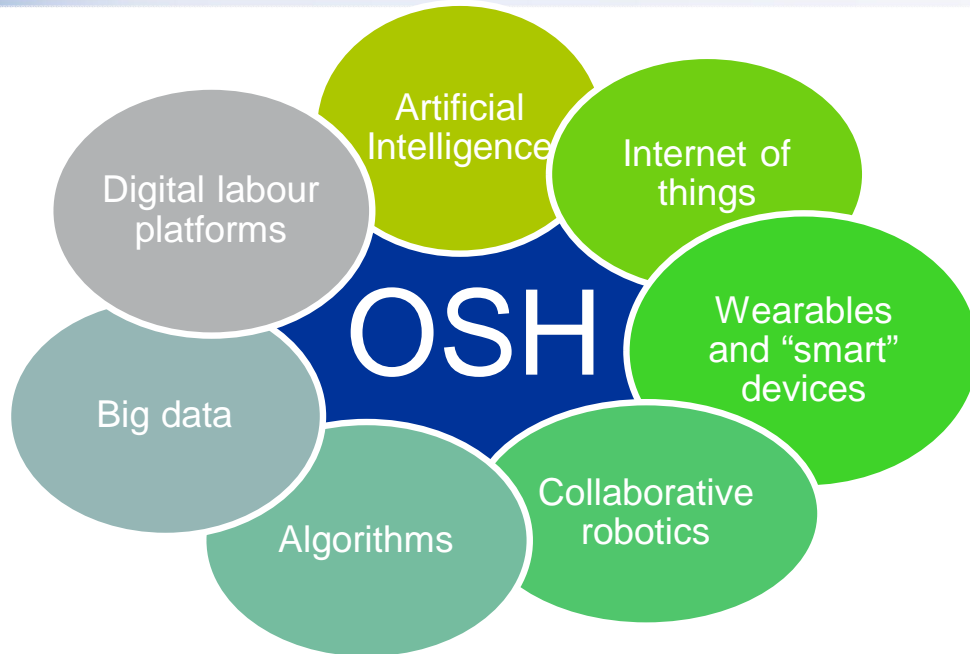# Safe and healthy work in the digital age: the Healthy Workplaces Campaign 2023-25

Maurizio Curtarelli – Senior Research Project Manager – Prevention and Research Unit – EU-OSHA

Presentation at the IMA-Europe 2024 OSH Seminar "Dust Exposure Monitoring and Health and Safety in the Digital Age" - 13 – 14 November 2024, Sassuolo, Italy

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What is it about?

Artificial Intelligence

Internet of things

Digital labour platforms

OSH

Wearables and "smart" devices

Big data

Algorithms

Collaborative robotics
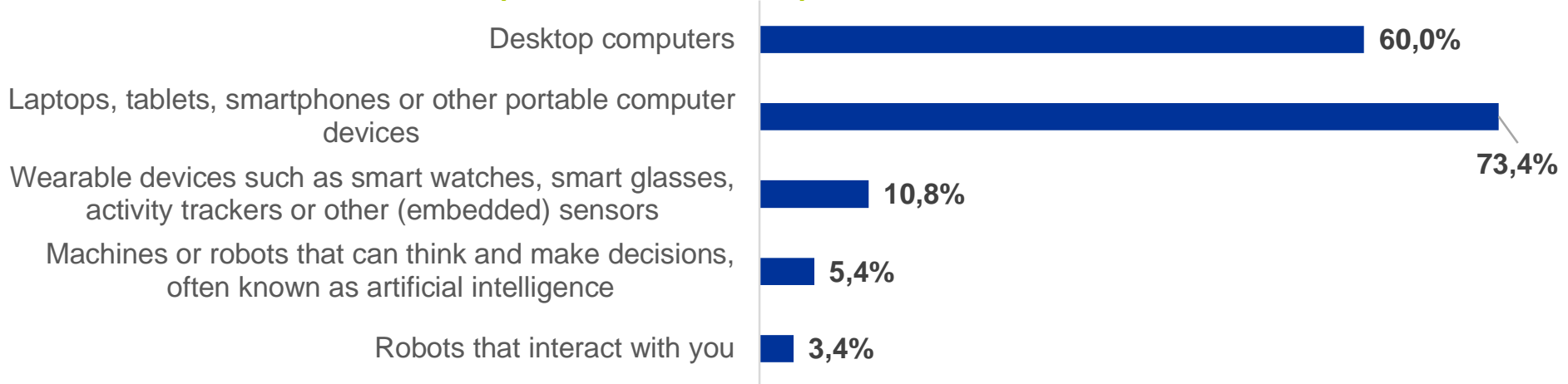
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- Digital technologies are rapidly changing how, where and when we work

- For workers and employers in all sectors, digital technology offers increased opportunities but also presents challenges and risks in terms of safety and health

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Use of digital technologies at work

EU-OSHA, OSH Pulse 2022 (% workers, EU27)

Technology	%
Desktop computers	**60,0%**
Laptops, tablets, smartphones or other portable computer devices	**73,4%**
Wearable devices such as smart watches, smart glasses, activity trackers or other (embedded) sensors	**10,8%**
Machines or robots that can think and make decisions, often known as artificial intelligence	**5,4%**
Robots that interact with you	**3,4%**

EU-OSHA, ESENER 2019 (% imprese)

Type of digital technology	EU27
Desktop computers	**87%**
Laptops, tablet, smartphones and other mobile devices	**77%**
Technologies to determine content or pace of Work	**12%**
Tecnologies to monitor worker performance	**8%**
Wearables, sensors and other similar technologies	**5%**
Robots that interact with workers	**4%**

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Use of digital technologies at work

EU-OSHA, OSH Pulse 2022

To your knowledge, does the organisation where you work use digital devices such as a tablet, smartphone, computer, laptop, app or sensor to… ?
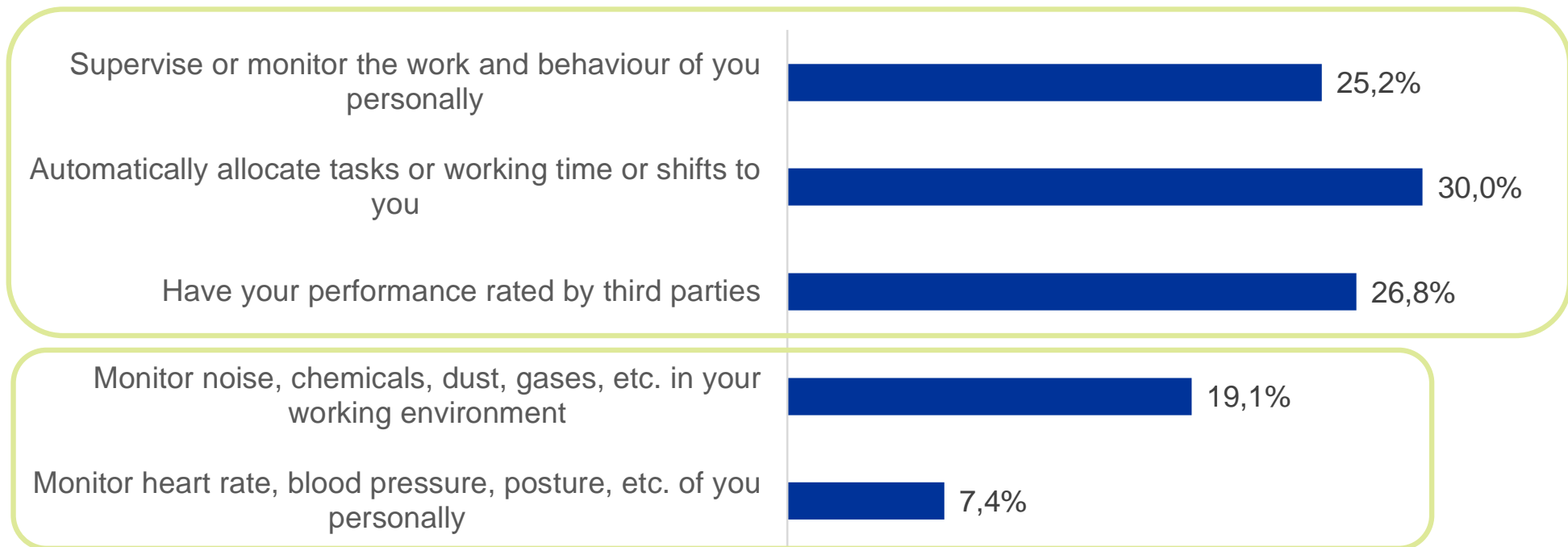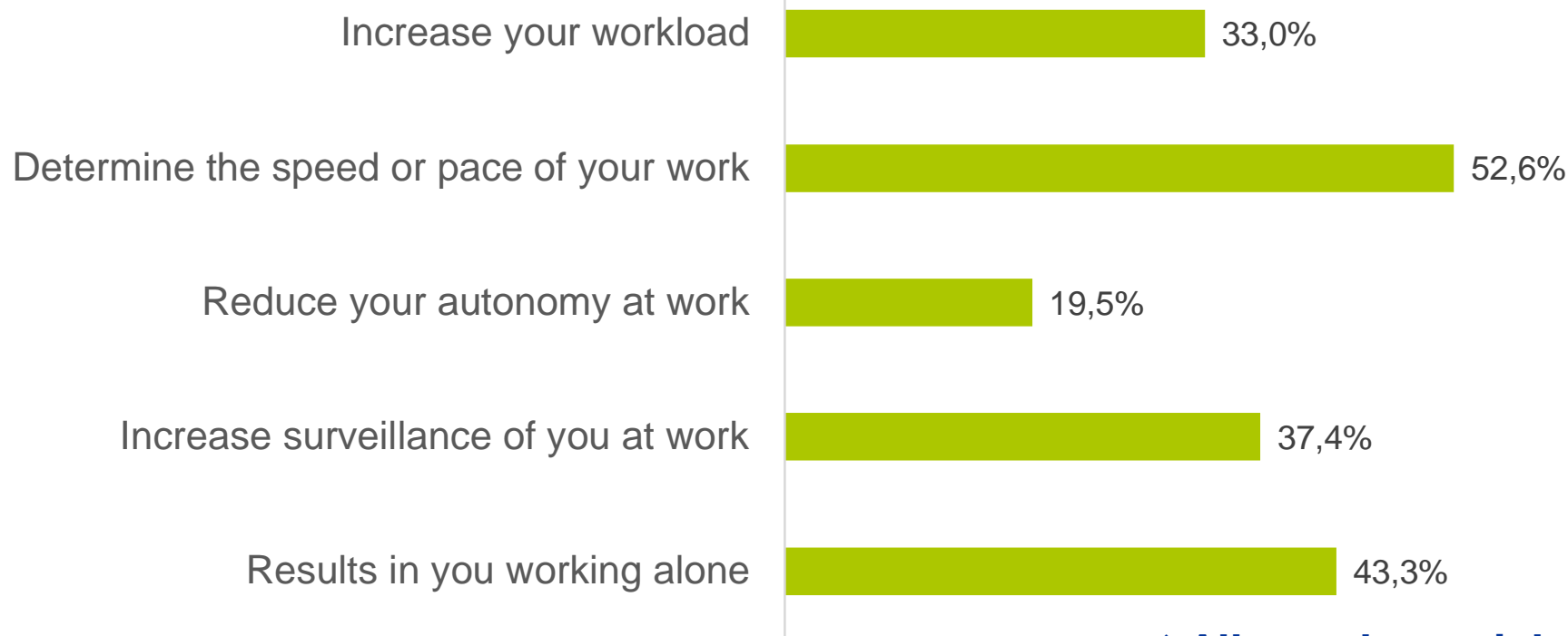
Supervise or monitor the work and behaviour of you personally — 25,2%

Automatically allocate tasks or working time or shifts to you — 30,0%

Have your performance rated by third parties — 26,8%

Monitor noise, chemicals, dust, gases, etc. in your working environment — 19,1%

Monitor heart rate, blood pressure, posture, etc. of you personally — 7,4%

■ All sectors

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

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Psychosocial risks and digital technologies

EU-OSHA, OSH Pulse 2022

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

Category	All sectors
Increase your workload	33,0%
Determine the speed or pace of your work	52,6%
Reduce your autonomy at work	19,5%
Increase surveillance of you at work	37,4%
Results in you working alone	43,3%

■ All sectors

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

❖**All psychosocial risk factors**
❖**All work organisational problems**

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Stress, depression and anxiety and use of digital technologies

When technology is used, it is more probable that stress etc. are mentioned
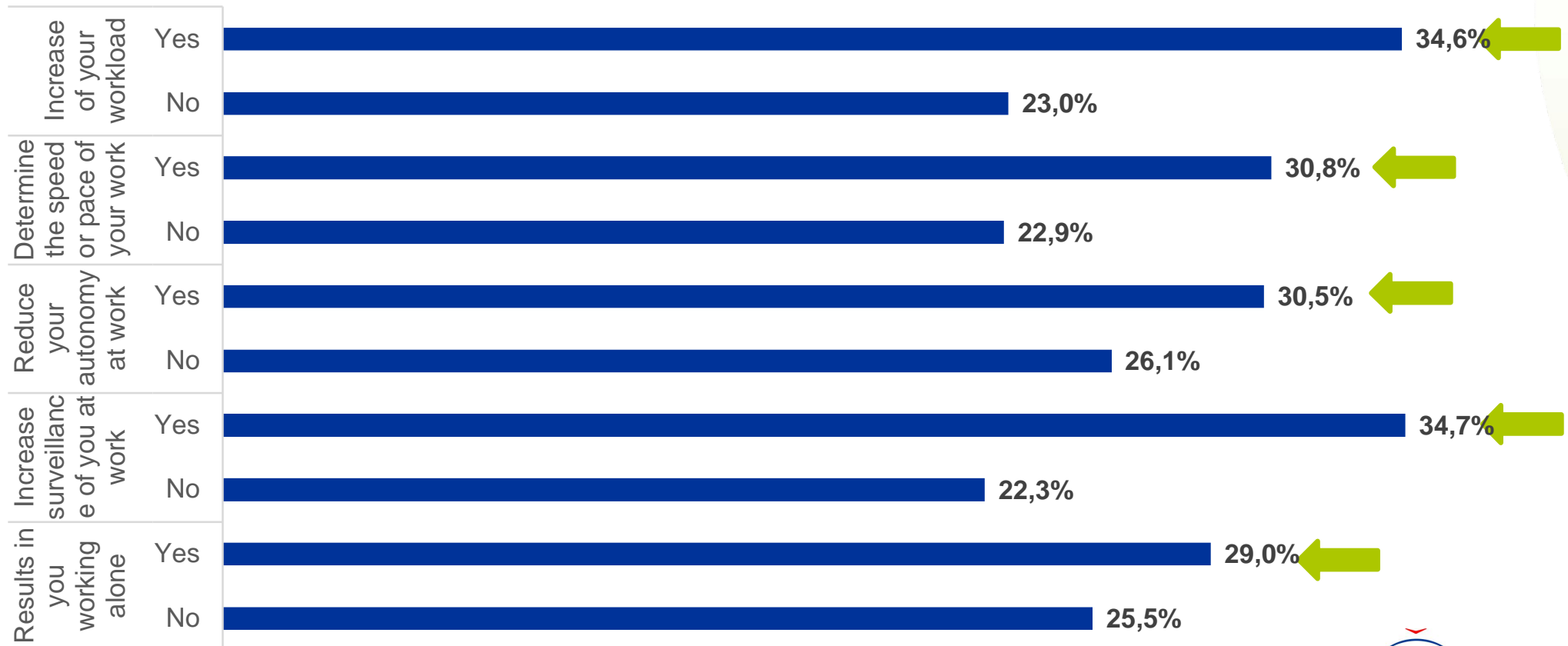
EU-OSHA, OSH-pulse 2022

Stress, depression or anxiety

Technology		Response	Percentage
Desktop computers		NO	26,0%
		YES	27,5%
Laptops, tablets, smartphones or other portable computer devices		NO	24,0%
		YES	28,0%
Wearable devices such as smart watches, smart glasses, activity trackers or other (embedded) sensors		NO	26,7%
		YES	28,3%
Machines or robots that can think and make decisions, often known as artificial intelligence		NO	26,8%
		YES	28,2%
Robots that interact with you		NO	26,8%
		YES	29,0%

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

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Stress, depression and anxiety and use of digital technologies

EU-OSHA, **OSH-pulse 2022**

Stress, depression or anxiety

Increase of your workload	Yes		34,6%
	No		23,0%
Determine the speed or pace of your work	Yes		30,8%
	No		22,9%
Reduce your autonomy at work	Yes		30,5%
	No		26,1%
Increase surveillance of you at work	Yes		34,7%
	No		22,3%
Results in you working alone	Yes		29,0%
	No		25,5%

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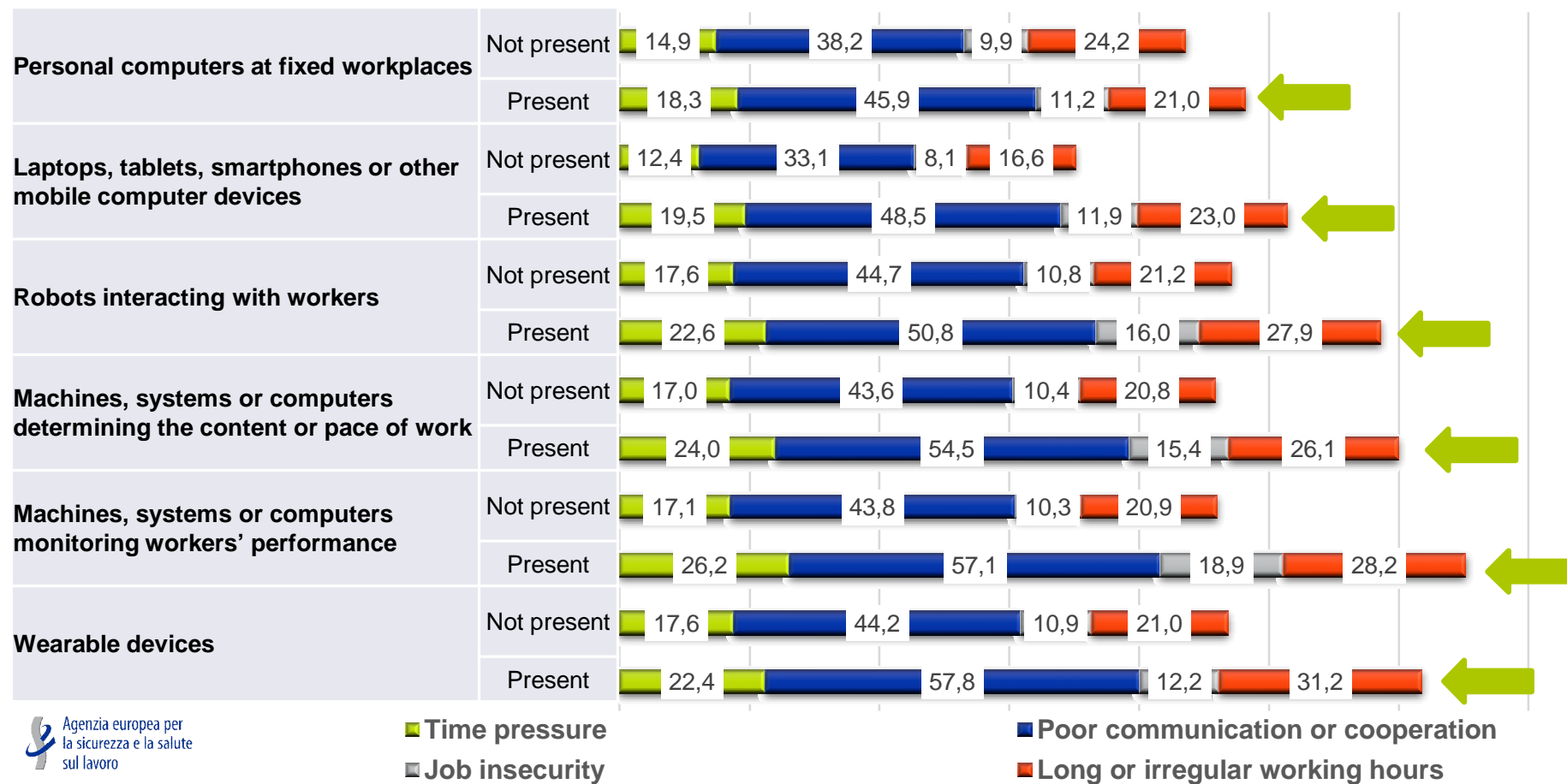
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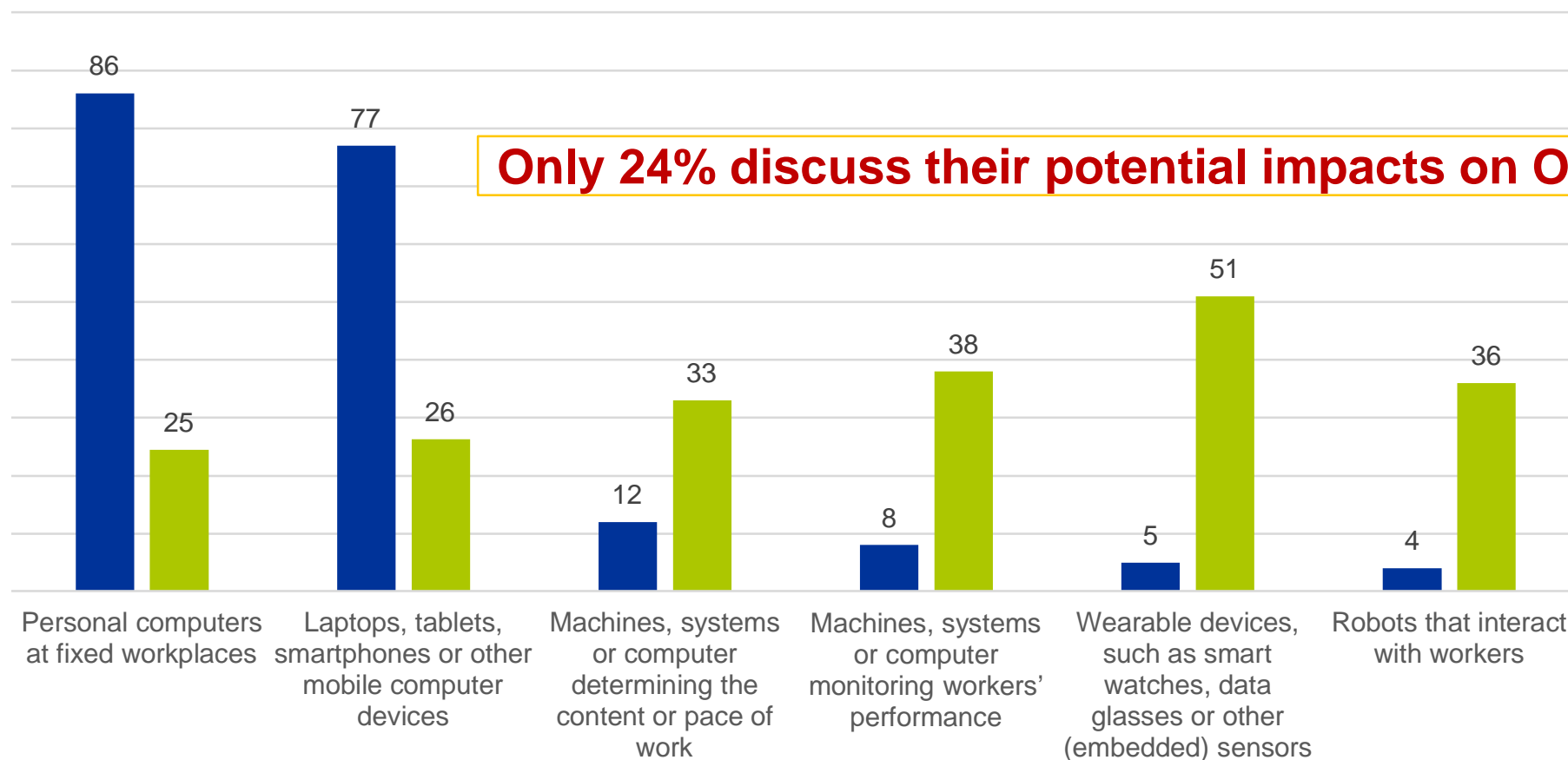# Psychosocial risks and digital technologies (workplaces)

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

EU-OSHA, ESENER 2019
Workplaces reporting psychosocial risks by presence of digital technology, EU27

Category		Time pressure	Poor communication or cooperation	Job insecurity	Long or irregular working hours
Personal computers at fixed workplaces	Not present	14,9	38,2	9,9	24,2
	Present	18,3	45,9	11,2	21,0
Laptops, tablets, smartphones or other mobile computer devices	Not present	12,4	33,1	8,1	16,6
	Present	19,5	48,5	11,9	23,0
Robots interacting with workers	Not present	17,6	44,7	10,8	21,2
	Present	22,6	50,8	16,0	27,9
Machines, systems or computers determining the content or pace of work	Not present	17,0	43,6	10,4	20,8
	Present	24,0	54,5	15,4	26,1
Machines, systems or computers monitoring workers' performance	Not present	17,1	43,8	10,3	20,9
	Present	26,2	57,1	18,9	28,2
Wearable devices	Not present	17,6	44,2	10,9	21,0
	Present	22,4	57,8	12,2	31,2

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■ Time pressure
■ Job insecurity
■ Poor communication or cooperation
■ Long or irregular working hours

8

Establishments (%): Using digital technologies
Discussing their impacts on OSH

Only 24% discuss their potential impacts on OSH.

86 — Personal computers at fixed workplaces
25 — Personal computers at fixed workplaces

77 — Laptops, tablets, smartphones or other mobile computer devices
26 — Laptops, tablets, smartphones or other mobile computer devices

12 — Machines, systems or computer determining the content or pace of work
33 — Machines, systems or computer determining the content or pace of work

8 — Machines, systems or computer monitoring workers' performance
38 — Machines, systems or computer monitoring workers' performance

5 — Wearable devices, such as smart watches, data glasses or other (embedded) sensors
51 — Wearable devices, such as smart watches, data glasses or other (embedded) sensors

4 — Robots that interact with workers
36 — Robots that interact with workers

Base: all establishments in the EU27_2020.

■ Use   ■ Discussing potential impacts

Source: ESENER-2019

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Healthy Workplaces Campaign (HWC) 2023-25

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

The campaign relies on research carried out by EU-OSHA and disseminates its findings

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Safety and health at work is everyone's concern. It's good for you. It's good for business.

Healthy Workplaces Campaign 2023-2025

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Safe and healthy work in the digital age

#EUhealthyworkplaces

European Agency for Safety and Health at Work

Healthy Workplaces

Scan this code for more information on the digital world of work

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Priority areas

Digital platform work

Automation of tasks

Remote and hybrid work

Worker management through AI

Smart digital systems

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Digital platform work

An online facility or marketplace operating on digital technologies (including the use of mobile apps) that are owned and/or operated by an undertaking, facilitating the matching between the demand for and supply of labour provided by a platform worker.

The OSH risks that platform workers face in relation to the tasks they carry out are <u>similar outside</u> the platform economy.

HOWEVER:
- Digital platform work frequently involves jobs typically in <u>occupations and sectors that are at high risk</u> and associated with poorer working conditions.

- AND some specific factors associated with the digitlal platform economy result in <u>additional OSH risks and complicate OSH prevention and management</u>

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Priority areas – Digital platform work

RISKS AND CHALLENGES

- Employment status and limited application of OSH regulations
- Shifting of OSH responsibilities onto workers
- Use of algorithmic management and digital surveillance
- Professional isolation, lack of social support
- Long working hours and a poor work-life balance
- Job and income insecurity

OPPORTUNITIES

- Worker autonomy
- Flexible working hours allowing to better balance work and life
- Improved access to the labour market for disadvantaged workers

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Automation of tasks

Use of smart robots or AI systems to execute (partially or fully) a function that was previously, or conceivably could be, carried out (partially or fully) by a human.

- Over 30% of jobs are likely to change as individual tasks are automated (OECD)

- Robots are becoming <u>mobile, intelligent and collaborative:</u> cobots

- Intelligent systems are also taking over a range of not just manual but also <u>cognitive tasks</u> previously done by humans

- In many <u>different sectors and settings</u>

Automation of tasks

OPPORTUNITY
RISK

- DECREASED COGNITIVE LOAD
- REDUCED MONOTONY
- WELLBEING

- PERFORMANCE PRESSURE
- COGNITIVE OVERLOAD
- FEAR OF JOB LOSS
- FEAR OF INJURY

- LOSS OF AUTONOMY
- DEPERSONALISATION

- MOTIVATION
- PERFORMANCE

- DISTRUST
- NEGATIVE ATTITUDE
- DATA PROTECTION ISSUES
- WORKER SURVEILLANCE

- UPSKILLING
- RESKILLING
- TASK VARIETY

- DESKILLING
- DECREASED TASK COMPLETENESS
- LOSS OF JOB CONTROL
- MONOTONY

MENTAL HEALTH

SAFETY AND HEALTH

Physical

Psychosocial

AUTONOMY

TRUST

JOB TRANSFORMATION

Organisational

OSH MANAGEMENT

SOCIAL STRUCTURE

- REDUCED WORKLOAD
- ERGONOMIC WORKSPACE
- DECREASED ACCIDENTS
- STRAIN / LONG-TERM INJURY PREVENTION

- (RESIDUAL) PHYSICAL RISKS: COLLISIONS, RISKS FROM THE ROBOT´S EQUIPEMENT
- HUMAN-MACHINE INTERFACE
- CYBERSECURITY AND FUNCTIONAL SAFETY

- UNPREDICTABILITY
- BLACK BOX
- RISK ASSESSMENT

- INCLUSION
-
- COMMUNICATION PROBLEMS
- REDUCED INTERACTION WITH PEERS

OPPORTUNITIES
- Automation of high-risk or repetitive tasks
- More time available forworkers for learning/training/creativit
- Reduced exposure to dangerous environments or tasks.

RISKS
- Fear of job loss
- Overrreliance on technology
- Loss of specific skills (deskilling).

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Remote and hybrid work

Remote work is any type of work involving the use of digital technologies (e.g. personal computers, smartphones, laptops, tablets, etc.) to work away from the employer's premises.

Telework is a common way to define home-based remote work.

The combination of telework with work at the employer's premises is also referred to as *hybrid work*.

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

75% of EU workplaces carry out risk assessment on regular basis but only 31% of those allowing telework cover also homes (ESENER-2019)

There are tools for the prevention of risks related to telework/hybrid work for workers and employers.

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Remote and hybrid work

OPPORTUNITIES

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

RISKS AND CHALLENGES

- Isolation and lone working
- Work intensification, information overload
- Long/irregular working hours, constant availability
- Working while feeling unwell
- Conflicts between private and working life
- Poor ergonomics of equipment and workstation
- Communication between hybrid team members and management, partly at the employer´s premises and partly remote, with frequent changes
- Transferring the risks of telework/virtual work into the employer´s premises

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Worker management through AI and algorithmic systems

DEFINTION

Worker management system that gathers *data*, often in real time, on the workspace, workers and the work they do, which is then fed into an AI-based model that makes automated or semi-automated decisions or provides information for decision-makers on worker management-related questions.

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Worker management through AI and algorithmic systems

RISKS

- Reduced worker autonomy and job control
- Increased performance pressure – production targets
- Increased work intensity
- Reduced relationships with peers/managers
- Lack of transparency
- Information imbalance
- Privacy issues

OPPORTUNITIES

- Improved scheduling and automated task allocation
- Optimised work organisation
- Information to identify OSH issues
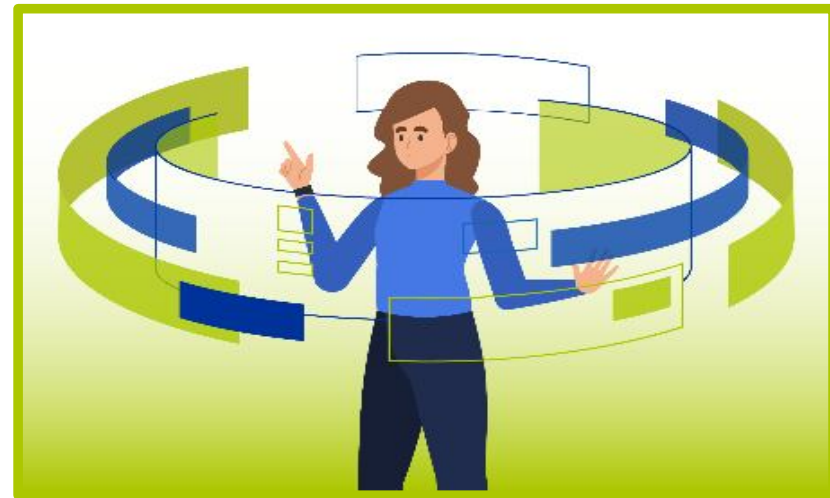
"It is essential to build trust in these systems by informing, consulting and allowing workers to participate in their design and implementation."

Smart digital systems for OSH

Digital systems for monitoring and enhancing workers' safety and health. Examples:

- *smart Personal Protective Equipment (PPE)* - that can identify levels of gases, toxins, noise levels and high-risk temperatures,

- *wearables* - able to interact with workers, with sensors that may be embedded in hardhats or safety glasses,

- *mobile or static systems that use cameras and sensors* - e.g. drones that effectively reach and monitor dangerous areas of work sites avoiding to put humans in danger in the construction and the mining industries.

"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."

SMART HELMETS!
SMART GLASSES!
SMART PHONES
SMART WATCHES!

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Smart digital systems for OSH

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
- Use of data for different purpose/surveillance
- Overreliance on technology
- Overwhelming (OSH) managers with data
- Risk of "delegating" the workplace risk assessment to technology

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In conclusion: key messages for risk prevention

- Human-centred approach
    - Workers and managers should remain in command
    - Technology and AI to support but not replace human control and decisions
    - Preserve workers´ job control and autonomy

- Transparency about the way digital tools and digital processes operate

- Equal access to information of all stakeholders

- Worker consultation/participation in the development, implementation and use of digital technologies and systems

- Holistic approach to evaluating digital technologies and systems
    - Raise OSH awareness of all actors: policy-makers, developers, workplace level
    - Specific attention to impacts on workers´ mental health
    - Prevention through design

- Proper consideration of digital technologies in the workplace Risk Assessment
    - The workplace Risk Assessment should not be "delegated" to technology

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Grazie per l'attenzione!

- **For additional information and research materials (reports, articles, etc.): https://osha.europa.eu/en/themes/digitalisation-work e www.healthy-workplaces.eu**

- **Find out more on the campaign website: www.healthy-workplaces.eu**

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