HEALTHY WORKPLACES SUMMIT 2025

Safe and healthy work in the digital age

European Agency for Safety and Health at Work

Healthy Workplaces

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

AI-driven systems for improving workers' health and safety in light of the AI Act

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Healthy Workplaces

Agenda

1. Introduction

2. AI Act and AI-driven OSH systems

3. The interplay between AI Act, GDPR and EU OSH legislation

4. Key takeaways for stakeholders

5. Concluding remarks

Introduction

AI-driven OSH systems

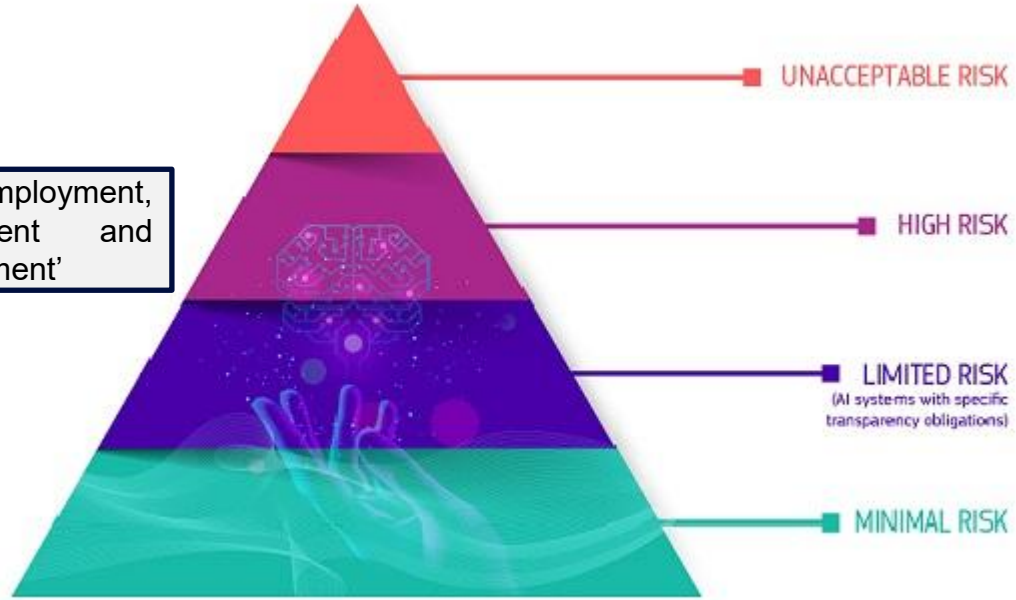
- **Wearables**, **exoskeletons, smart robots** …
- **Opportunities** for safeguarding workplace health and safety
- **Challenges and risks** for the respect of workers' fundamental rights

AI Act

- **Harmonize rules** concerning the design, development, and use of **AI systems** in the European market
- Tech **innovation** vs. **health**, **safety**, **European Union's values and fundamental rights > Human-centric and trustworthy** AI
- **Risk-based** approach

Introduction

E.g., AI systems in ‘Employment, workers’ management and access to self-employment’



E.g., AI Emotion recognition technologies in the workplace

Source: https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai

AI Act and AI-driven OSH systems

"The following AI practices shall be **prohibited** […]:

(f) the **placing on the market, the putting into service** for this specific purpose, or the **use** of **AI systems to infer emotions of a natural person in the areas of workplace** and education institutions, **except where the use of the AI system is intended to be put in place or into the market for medical or safety reasons;**" (Article 5(1)(f) AI Act)

AI Act and AI-driven OSH systems

Definition of AI Emotion recognition technologies

"an AI system for the purpose of identifying or inferring **emotions or intentions** of natural persons on the basis of their **biometric data**" (Article 3(39) AI Act)

- **Emotions or intentions**: e.g., happiness, sadness, anger
- **Biometric data**

AI Act and AI-driven OSH systems

<u>Examples</u> of different AI technologies:

- software for speech and facial recognition and analysis, wearables (e.g., smart earbuds)
- etc…

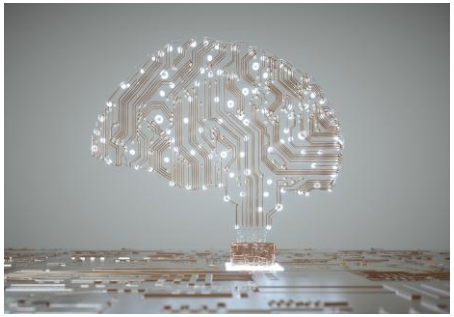
<u>(Potential) Applications:</u>

- selection of personnel
- evaluation of employee engagement, performance, and monitoring
- **AND monitoring and improving workers' safety, health, and well-being** …

AI Act and AI-driven OSH systems

AI-driven OSH systems that could qualify as AI emotion recognition systems under the AI Act

- **Neurotechnologies** used to track **workers' cognitive stress**
- **Wearables** to monitor workers' physiological parameters that are indicators of **stress** > **workplace wellness programs**



AI Act and AI-driven OSH systems

Outside the scope of the prohibition

AI systems that infer emotions **not based on biometric data**	E.g., inferring emotions from **workplace written communication**
AI systems that infer **physical states** (e.g., fatigue and pain; stress?)	E.g., **neurotechnologies**, **AI-powered cameras**, and **smart wearable (textile)** for **fatigue detection**
AI systems that only detect '**readily apparent expressions, gestures or movements**' (e.g., smiles)	Boundaries between **emotion recognition** vs. **expression recognition?**

AI Act and AI-driven OSH systems

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- **Case-by-case assessment**
- Must be **interpreted narrowly**
- Examples of **factors** to be considered:
  - Is AI emotion recognition **necessary** to protect workers' health and safety?
  - Are there **less intrusive means** to reach the same purpose?
  - Are there **adequate safeguards** in place?

AI Act and AI-driven OSH systems

High-risk AI

When the exception is not applicable	When the exception is likely applicable
General stress monitoring & detection of general aspects of well-being and mental health ▪ E.g., measure workers' stress (e.g., in office settings) in the context of corporate wellness initiatives	**'Safety': protection of life and health, not other employers' interests** ▪ monitoring stress levels of workers who operate dangerous machines or deal with dangerous chemicals (Commission guidelines on prohibited practices) ▪ monitor stress levels in safety-critical professions and sectors (e.g., transportation, construction, and first responders)

AI Act and AI-driven OSH systems

HIGH RISK AI SYSTEMS

1. High-risk systems: AI systems that are safety components of products (e.g., personal protective equipment, machinery, toys) or are themselves a product

- ‘Product’ in the product safety legislation listed in the AI Act (e.g., PPE Regulation and Machinery Regulation)
- Third-party conformity assessment

- ❑ Smart Personal Protective Equipment
- ❑ Smart Machineries (e.g., cobots, robots, unmanned aerial vehicles)

AI Act and AI-driven OSH systems

2. High-risk systems: Standalone systems

- **AI Emotion recognition technologies (e.g., those falling under the exception 'for medical or safety reasons)**

- **AI systems in 'Employment, workers' management and access to self-employment', intended to be used:**

  - For the **recruitment and selection** of personnel;

  - to **make decisions that affect terms of work-related relationships**, the promotion or termination of work-related contractual relationships, **to allocate tasks** based on individual behavior or personal traits or characteristics, or **to monitor and evaluate workers' performance and behavior.**

AI Act and AI-driven OSH systems

- **To what extent do AI-driven OSH systems fall under the high-risk category 'Employment, workers' management and access to self-employment'?**
  - '**Intended purpose**' in the AI Act > **no explicit reference** to OSH-related purpose in this high risk category
  - AI systems that are intended to safeguard workers' health and safety (e.g., wearable with safety warnings) via, for instance, allocating tasks based on the individual characteristics or monitoring workers' behaviour > included?

Wearable heat strain monitoring	AI-powered cameras that identify risky driving behaviours
	

AI Act, GDPR, and EU OSH legislation

- The AI Act acts as **complementary** legislation to other European and national legislation

- **EU-OSH framework**

  - **No shift** in OSH responsibility
  - **Risk assessment** also for AI-driven OSH systems
  - AI-driven OSH systems integrated into the **existing company's OSH management systems**
  - **Information and consultation rights** (also in AI Act)

- **GDPR**: compliance with data protection principles (e.g., purpose limitation), necessity, proportionality

Key takeaways for stakeholders

Scientific (organizational, OSH, and legal) research

- ❑ Application of the AI Act to AI-driven OSH systems
- ❑ Interplay between the AI Act and other legislations (e.g., data protection, OSH)

EU policy

- ❑ Further clarity and guidance on, e.g.,
  - ➢ Distinction between ‘emotions or intentions’ and ‘physical states’
  - ➢ Application of the AI high-risk category to AI-driven OSH systems

Employers, workers (and their representatives), and OSH professionals

- ❑ Grey areas, ambiguities, layers of regulation > compliance risks
- ❑ Practical implementation of information and consultation rights
- ❑ How to integrate AI-driven OSH systems in an existing company’s OSH management system

Concluding remarks

1. AI Act will **restrict the entry into the market and use of several AI emotion recognition technologies**, also some of those intended for OSH-related purposes (e.g., general stress monitoring)

2. **Ambiguities** and **lack of clear boundaries** (e.g., emotions vs physical states) > may put breaks on tech innovation in the field > **compliance risks**

3. Exception 'for medical or safety reasons' and exclusion of physical states from the definition of emotion recognition > **open doors** for further development and use of **innovative AI-driven OSH systems** (e.g., neurotechnologies)

4. **Multi-layered regulatory framework** > careful consideration before designing, developing, and using AI-driven OSH systems

   - **New Directive on Algorithmic Management** on the horizon > emotion recognition and neurosurveillance