

Automatisierung von Tätigkeiten: Chancen und Risiken für sicheres und gesundes Arbeiten

Nationaler Kick-off der EU-OSHA Kampagne „Gesunde Arbeitsplätze“ 2023–25

Patricia H. Rosen
02.11.2023, Berlin

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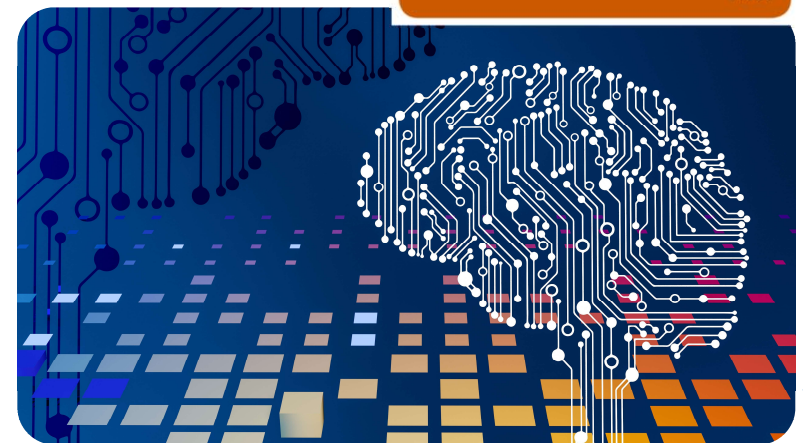


Bild: Steve Johnson via Unsplash

Projekt Übersicht

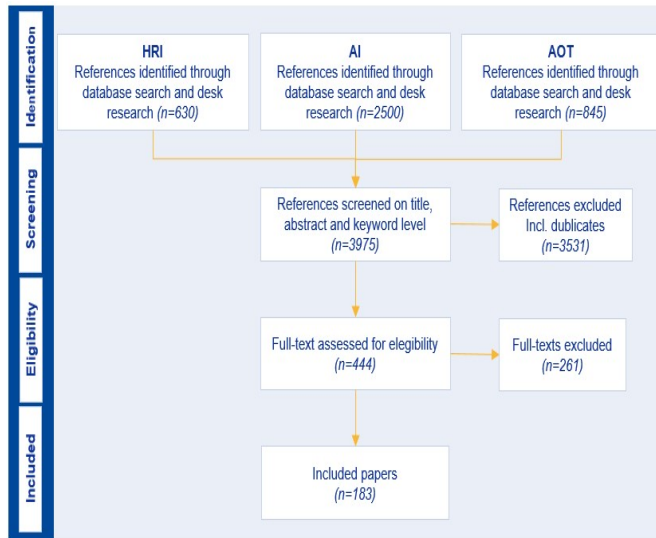
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Literaturanalyse (n = 183)

Experten Interviews (n = 7)

FoP Befragung (n = 13)

Fallstudien (n = 16)



INTERVIEW GUIDE

OVERVIEW OF POLICIES, RESEARCH AND PRACTICES IN RELATION TO ADVANCED ROBOTICS AND AI-BASED SYSTEMS FOR AUTOMATION OF TASKS AND OCCUPATIONAL SAFETY AND HEALTH (OSH)

Introduction to the study

This interview is part of the project "Overview of Policies, Research and Practices in Relation to Advanced Robotics and AI-based Systems for Automation of Tasks and OSH". The project is one out of four main projects from the 4-year research programme "OSH overview on digitalisation" conducted by the European Agency for Safety and Health at Work (EU-OSHA). This project is conducted by the German Federal Institute for Occupational Safety and Health (BfArh), Milieu Law & Policy Consulting and the University of Leicester on behalf of EU-OSHA.

The goal is to assess the current landscape in Europe regarding the (semi-)full automation of cognitive and/or physical tasks with AI-based systems (like advanced robots able to directly interact with humans or smart information and communication technology) and the impact on occupational safety and health (OSH). We try to address the research questions of how AI-based systems can be defined and categorised, in which sectors we can find current and potential use cases and what policies, strategies, initiatives and programmes regarding AI-based systems and related to OSH can be found on a national and international level.

To analyse national policies, strategies, initiatives and programmes especially related to intelligent robots and OSH, we use the several quantitative and qualitative data collection methods:

- Literature review, including scientific and grey literature.
- development, submission and analysis of a questionnaire addressed to the national focal points in a survey form and
- semi-structured interviews of technology experts, social partners, labour inspectors and representatives from standardisation bodies.

Information collected via desk research and online surveys will be complemented by semi-structured interviews to address gaps in the collected data and to gain deeper insights through expert knowledge. In addition, interviews will allow follow-up with stakeholders on certain issues, which are too specific and/or detailed to be addressed via surveys.

The focus of this interview lies on the (semi-)full automation of tasks, physical and/or cognitive, through AI-based systems such as:

- advanced robotics (incl. collaborative robots) or
- smart information and communication technology (ICT) (e.g. decision support systems).

As defined by the European Commission artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. decision support systems, voice assistants, image analysis software, speech and face recognition systems) or be embedded in hardware devices (e.g. advanced robots like collaborative robots (cobots), autonomous vehicles or drones). Hence, AI-based systems can be **embodied** or **non-embodied**. Within this survey embodied AI will subsequently be referred to as **advanced robotics** (incl. cobots), while non-embodied AI will be referred to as **smart ICT** (e.g. decision support systems).

The survey is part of the project work and aims at expert knowledge within the national focal points. Results will be merged and published by EU-OSHA.

AI-OSH-FOP-Survey

Fields marked with * are mandatory.

EU-OSHA consultation on the automation of tasks through AI-based systems and OSH implications

Dear participant,
thank you for taking part in this survey!

This survey is part of the project "Overview of Policies, Research and Practices in Relation to Advanced Robotics and AI-based Systems for Automation of Tasks and OSH". The project is one out of four main projects from the 4-year research programme "OSH overview on digitalisation" conducted by the European Agency for Safety and Health at Work (EU-OSHA). This project is conducted by the German Federal Institute for Occupational Safety and Health (BfArh), Milieu Law & Policy Consulting and the University of Leicester on behalf of EU-OSHA.

The goal of this survey is to assess the current landscape in Europe regarding the (semi-)full automation of cognitive and/or physical tasks with AI-based systems (like advanced robots able to directly interact with humans or smart information and communication technology) and the impact on occupational safety and health (OSH). More precisely, we are interested in policies, strategies, initiatives, programmes and best practices related to these AI-based systems and OSH on your national level. Therefore, the focus of this survey lies on the (semi-)full automation of tasks, physical and/or cognitive, through AI-based systems such as:

- advanced robotics (incl. collaborative robots) or
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Projektpartner: University of Leicester, University of Essex und Milieu Consulting SPRL



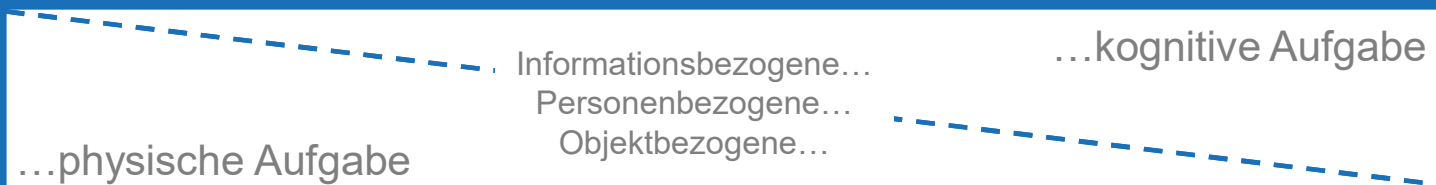
Tätigkeitsansatz

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Fortschrittliche Robotik

Smarte IKT



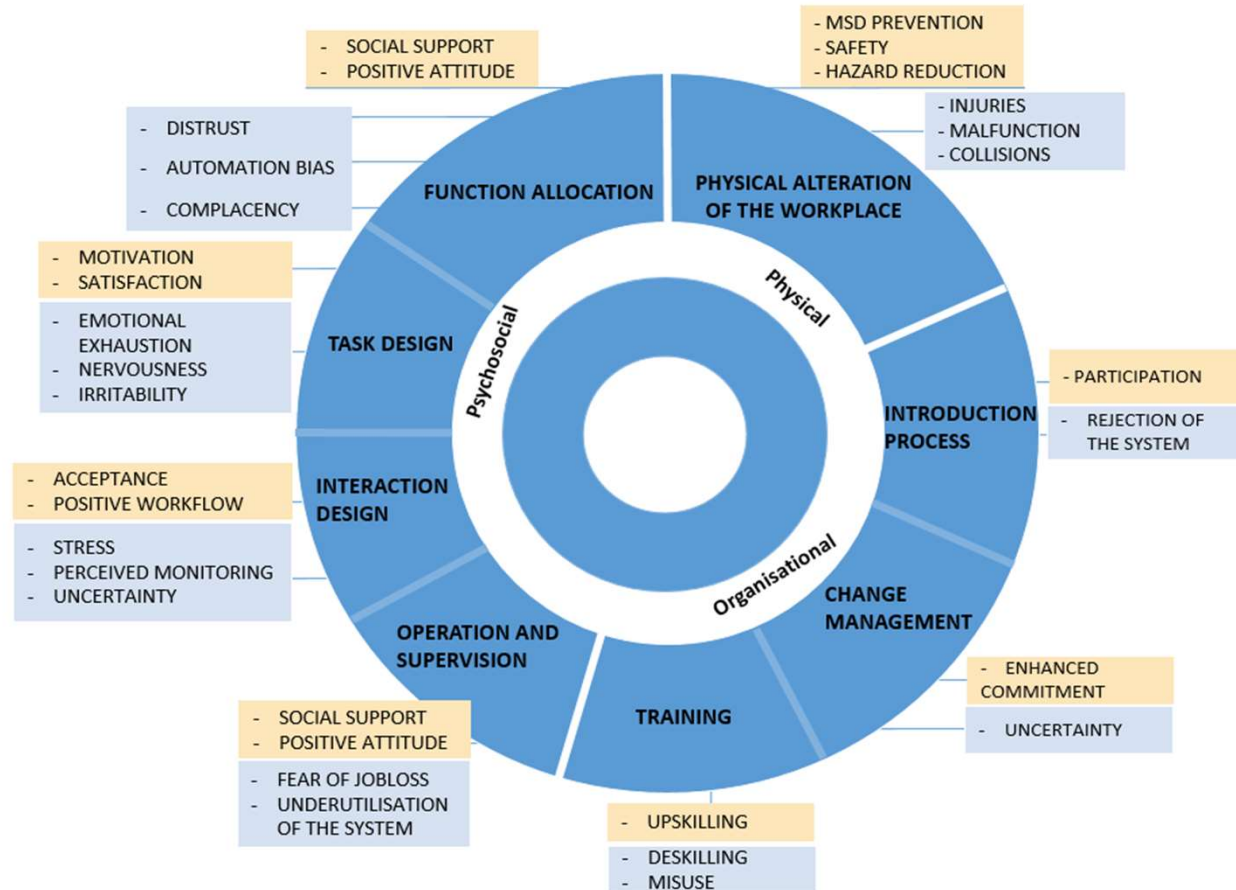
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Chancen und Risiken fortschrittlicher Robotik

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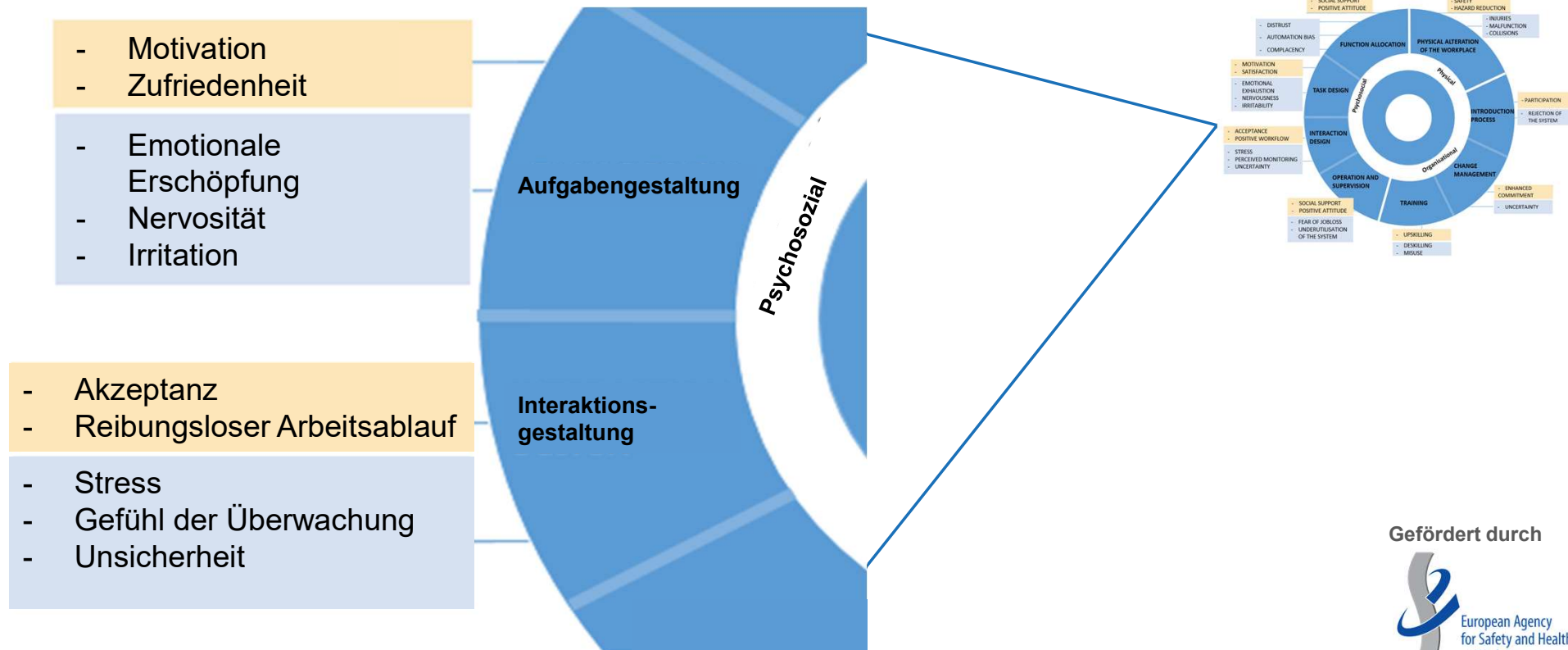
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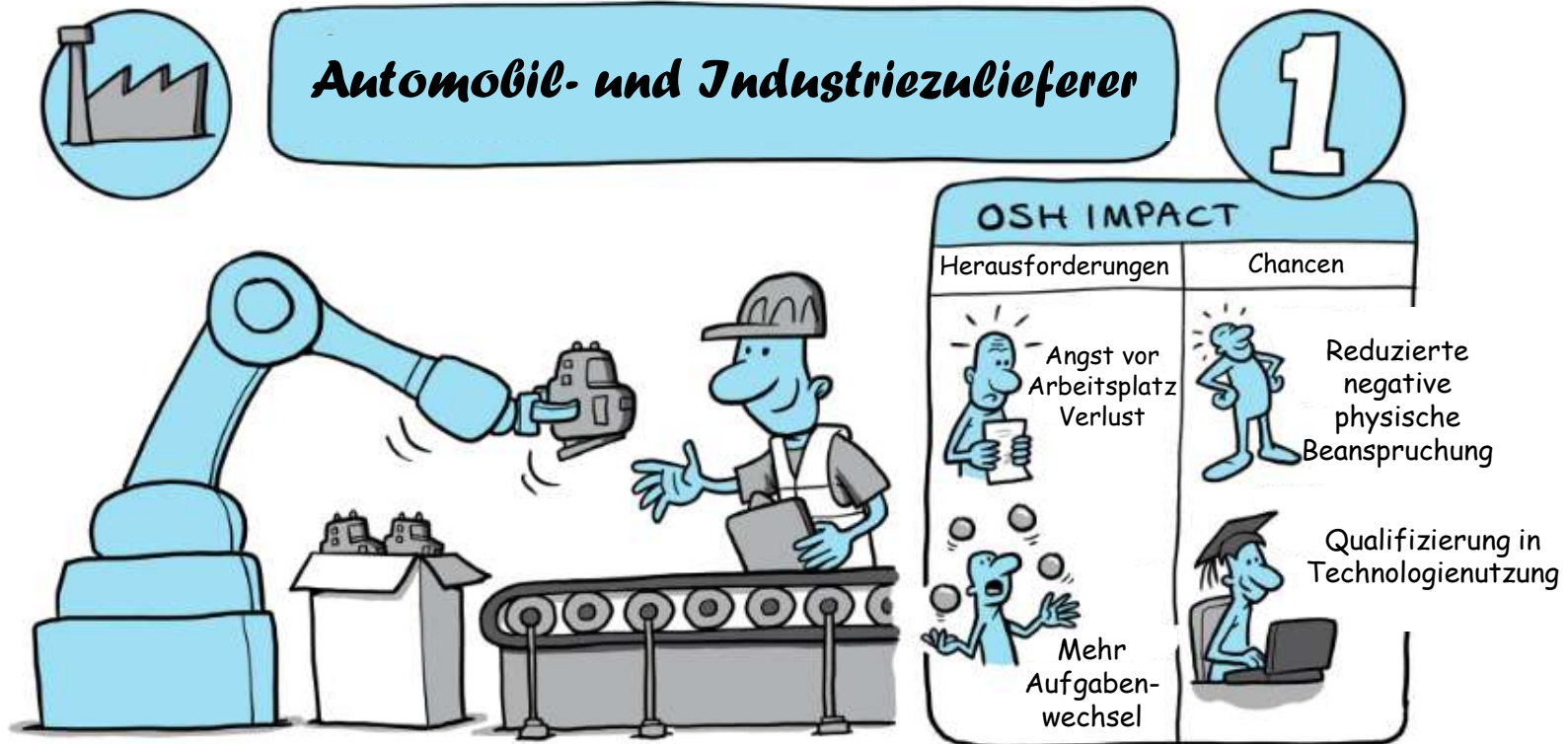
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Objektmanipulation mit kollaborativem Roboter

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Quelle: <https://osha.europa.eu/en/publications/collaborative-robot-lifting-parts-automotive-and-industrial-supplier-id1>

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KI-basierte Bagger zum automatisierten Grabenaushub

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Fahrzeugautomatisierung Start-Up

6



OSH IMPACT	
Herausforderungen	Chancen
 Erhöhte kognitive Anforderungen	Minimale Exposition gegenüber physischen Risikofaktoren wie... Vibration Hitze Lärm

Quelle: <https://osha.europa.eu/en/publications/artificial-intelligence-based-vehicular-automation-fitted-excavators-automate-trenching-id6>

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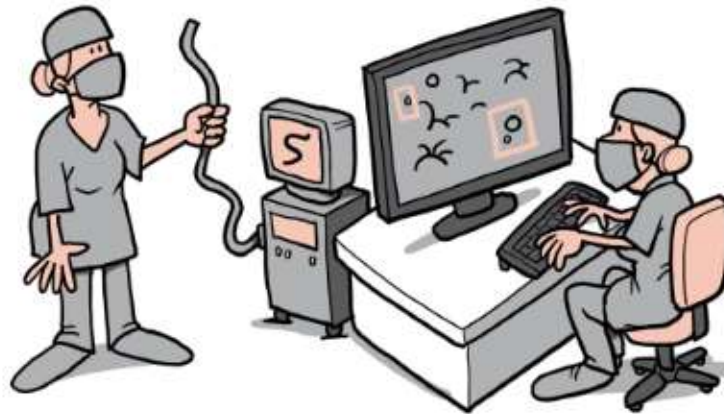
KI-Unterstützung bei der Koloskopie-Diagnose

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Onkologie Zentrum in einem Krankenhaus



OSH IMPACT	
Herausforderungen	Chancen
 Vermehrtes Treffen von Entscheidungen	 Langfristig: Verringerung der Arbeitsintensität
 Verfahren braucht etwas länger	 Zuverlässigeres Treffen von Entscheidungen

Quelle: <https://osha.europa.eu/en/publications/artificial-intelligence-software-supporting-physicians-colonoscopy-diagnostic-tasks-id9>

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Handlungsempfehlungen aus den Fallstudien

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- Frühzeitige Einbindung der Mitarbeitenden und Bereitstellung von Schulungen.
- Aufbau klarer und direkter Kommunikation während des Wandels.
- Konsequente Verwendung von Interaktionsdesign-Prinzipien in der Systementwicklung.
- Berücksichtigung von Arbeitsschutz- und Gesundheitsaspekten von Anfang an.

Quelle: <https://healthy-workplaces.osha.europa.eu/en/publications/summary-advanced-robotic-automation-comparative-case-study-report>

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Vielen Dank für Ihre Aufmerksamkeit!

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Overview of project products

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- 4 Reports + 4 Summaries
- 6 Policy Briefs
 - Artificial intelligence, advanced robotics and the automation of tasks at work: taxonomy, policies and strategies in Europe (*already available in many different languages*)
 - Advanced robotics and automation: What is it and what is the impact on workers?
 - Advanced Robotics and automation: What are the risks and opportunities for occupational safety and health?
 - Advanced robotics and automation: Key considerations for human interaction and trust
 - Cognitive automation: impact, risks and opportunities for occupational safety and health
 - Cognitive automation: what are the EU and Member States doing to protect workers?
- 16 Case Studies
- **All available at: <https://osha.europa.eu/en/publications>**

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