

New monitoring systems for improving worker safety and health: An overview of research and practices.

New digital technologies have entered the EU workplaces and are transforming work for both workers and employers. In particular, recent years have seen the emergence of technologies and systems such as artificial intelligence (AI), machine learning (ML), Virtual and Augmented reality (VR and AR), widespread connectivity, the internet of things (IoT), big data applications, wearables, smart PPE, exoskeletons and others. This project investigates how such technologies are used by new OSH monitoring systems to improve workers' safety and health. While these systems hold promise to improve OSH, to present, little is known about them. How can new OSH monitoring systems be classified, what are their challenges and opportunities across different sectors, and what does their future look like?

This study comes at an important time for the development of policies and interventions aimed at improving workers' safety and health in the workplace in the European Union (EU), including with the support of digitalisation and new monitoring technologies

EU-OSHA embarks on this inquiry by the present project: overview of research and practices in relation to new monitoring systems for improving worker safety and health. The project is part of a wider umbrella of the agency's 2020 - 2022 projects on digitalisation and OSH¹ aiming to inform its EU-wide Healthy Workplaces Campaign on digitalisation².

The overall objective of the project is to identify types, purposes, and uses of new monitoring systems for OSH. The project unfolds in **three stages** that will take place over 2021-2023.

The main objectives of each stage as well as the current stage of the research are shown in the Figure below.



2021-2022

- ✓ Review of workplace taxonomy of new OSH monitoring systems
- ✓ Assessment of challenges opportunities of new OSH monitoring systems
- ✓ Workplace resources for effective integration of new OSH monitoring systems
- ✓ Validation workshop



2022-2023

- ✓ Case studies: investigation of the design / development and the implementation and use of new OSH monitoring systems and their impact on workers, through case studies.



2023

- ✓ High-level validation workshop on findings of the previous stages
- ✓ Provision of recommendations for policy, research, and practice to support decision-making.

¹ For more information, refer to: <https://osha.europa.eu/en/publications/digitalisation-and-occupational-safety-and-health-eu-osha-research-programme>.

² For more information, refer to: <https://osha.europa.eu/en/campaigns-and-awards/healthy-workplaces-campaigns>

Across all three stages, the research team is conducting a rigorous literature review of resources and a robust stakeholder consultation with product manufacturers, employers' and employees' organisations, policymakers, national OSH agencies and technology experts, in Europe and the world. Thus far, more than 200 sources and 35 key-informants have been consulted for the purpose of the project. These insights will be informing a number of publications offering a deep-dive into the challenges and opportunities of new OSH monitoring systems with tangible examples across a wide range of sectors as well as practical guidance documents on how to implement such systems. If you are a product manufacturer or employer using new OSH monitoring systems and would like to be part of this study, please contact the Project Manager, Dareen Toro (Dareen.toro@ecorys.com) to explore how you can feature in its case studies. In the meantime, follow EU-OSHA's website to keep up to date with the latest publications on the topic.

Authors: Andrea Broughton, Dareen Toro, Monica Andriescu, Mario Battaglini, Kyrillos Spyridopoulos (Ecorys)

Project Management: Annick Starren, European Agency for Safety and Health at Work (EU-OSHA)

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