

## FACTS

### Futures. Foresight and priority setting in OSH

To respond timely and properly to the new challenges for workers' health and safety, it has become crucial to make forward-looking efforts to identify and tackle new and emerging occupational risks as early as possible. Furthermore, increasing reductions in funds availability for OSH research underpin the importance of identifying and prioritizing knowledge gaps on new and emerging OSH risks that research should fill.

Hence, in the last decades, several studies on setting OSH research priorities to be included in the National Agenda of individual countries as well as in European and Global OSH strategies have been developed<sup>1,2</sup>. EU-OSHA conducted the last of the European level studies on this matter in 2012<sup>3</sup>. The study approach was based on desk research and consultation of experts and stakeholders with the objective to identify the OSH research needs coming from global economic, social and technological changes.

Starting from the macro themes identified in the EU-OSHA study, the PEROSH project aimed to provide an updated identification of upcoming research needs and to prioritize them by the level of consensus among the researchers working in 12 European OSH research institutes.

#### Study design and development

This study was performed through a modified two-rounds Delphi method, which involved a panel of researchers from all PEROSH member institutes at the time of the project's kick off.

The Delphi method is the most widely used technique to build up information and explore consensus on topics for which only uncertain or incomplete knowledge is available.

This technique has already been used either in previous studies carried out by EU-OSHA and in a number of national studies on OSH priorities. The present study was the first to include only researchers in the Delphi panel and to be exclusively focused on the exploration of knowledge needs to be filled by OSH research.

Participants have been selected in each institute according to specific criteria, including their research expertise in one or more of the four EU-OSHA study macro-areas:

- Demographic change - sustainable work for healthier and longer working lives.
- Globalization and the changing world of work – OSH research contribution to sustainable and inclusive growth.
- OSH research for safe new technologies as a prerequisite for sustainable growth.
- Research into new or increasing occupational exposures to chemical and biological agents for the benefit of a smart and sustainable economy.

In the first round, 126 open-ended, macro-area specific electronic questionnaires were administered to 110 researchers, asking to list 3 to 5 well focused research proposals on which they think there is a need of further research.

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**PEROSH** (Partnership for European Research in Occupational Safety and Health) is a Network of European Occupational Safety and Health research institutes.

**PEROSH** has developed several joint research projects. The project "**Futures. Foresight and priority setting in OSH**", coordinated by INAIL (Italy) with the support of HSL (UK), IFA (Germany) and INRS (France), has been the first joint project where all PEROSH members were actively involved.

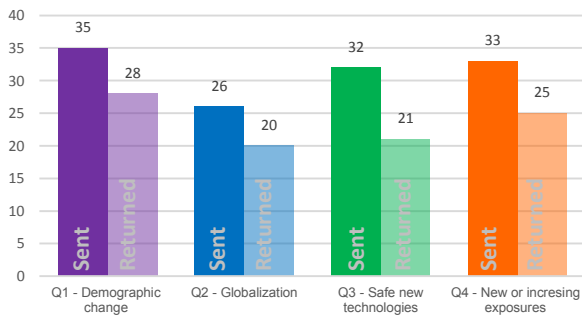


Fig. 1: Delphi Questionnaire – 1<sup>st</sup> Round

At the end of the first round, the project team performed a text analysis based on keywords and recurrences of all the proposals returned and classified them into research topics. A new questionnaire was elaborated and structured by the main research topics, each one containing the specific research priorities derived from the original proposals. Around ten proposals impossible to group under the main topics, but still considered interesting, were included under a separate section (“Miscellaneous”).

Accounting for few changes in the original list of participants, 112 researchers were invited to participate in the second round on a dedicated web-based platform. They were asked to rate the level of importance of each research priority and of each topic considering whether it is addressing a real OSH research gap and the impact that OSH research might have in terms of breadth of workers’ population affected and severity of avoidable health damages.

The rating system was based on a scale of importance, from 0 (= not at all important) to 5 (= extremely important).

An “I don’t know” option was also provided, allowing those researchers who felt not to have enough expertise on a specific item to abstain.

## Results

At the end of the first round, 354 research proposals were returned. The second round questionnaire included 16 research topics and 77 research priorities.

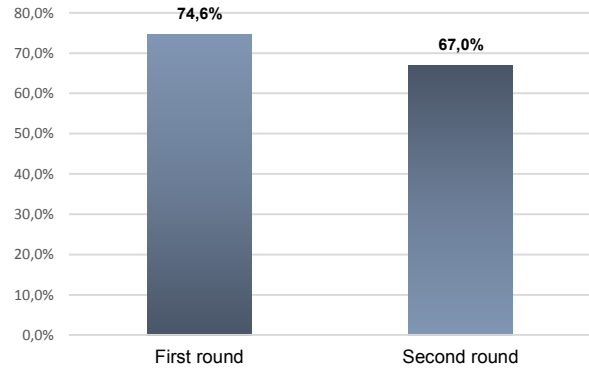


Fig. 2: General response rates

Mean values were calculated for each research priority. Standard deviation was calculated and considered as a “consensus indicator”.

The prioritization within the four macro-areas was obtained by analyzing only the scores given by the researchers selected as experts for each specific macro-area. For the “Miscellaneous” section (where research priorities are more transversal), and the research topics, prioritization was based on the scores assigned by the entire sample. For the research topics, it is also provided an analysis of the results by geographical groups to highlight convergences and possibly stimulate joint collaboration in specific areas of research.

## Top five research priorities in the 4 macro-areas. Experts’ scoring.

Q1 – Demographic change Number of Respondents (NoR) = 24	NoR	Mean (SD)
Investigate ways and tools to prevent disability and to facilitate return to work in order to promote a longer working life, including adaptation of the workplace and work arrangements.	24	4.21 (0.78)
Identify the potential impacts of work organisation and job design on older workers’ H&S and the ways in which these can support individual older workers. Specific areas of interest include MSDs, stress, and interventions for SMEs.	24	4.13 (0.80)
Understand and address the impact on OSH management of linguistic, cultural and knowledge diversity in multi-cultural workplaces: how to develop a sustainable and inclusive OSH system for multinational and multi-ethnic workforces.	23	4.00 (0.80)
Investigate the causes of early departure from work and the potential OSH measures (e.g. products, support, adaptation and incentives) to improve the work environment, and support, rehabilitate and retain ageing workers over a longer working life.	24	4.00 (0.93)
Extended working lives and prolonged workplace exposures to physical, chemical, biological and psychosocial hazards: development of techniques and models to collect lifelong exposure data and to assess the effects of such exposures on workers’ H&S.	24	3.92 (0.88)

<b>Q2 – Globalization and the changing world of work</b> <b>Number of Respondents (NoR) = 19</b>	<b>NoR</b>	<b>Mean (SD)</b>
Better understand and address effects of working-time flexibilisation (long working hours and shift work) on health, wellbeing and productivity of the working population (specific attention should be paid to vulnerable workers).	19	<b>4.42 (0.61)</b>
Impact of prolonged precariousness on health conditions, wellbeing and quality of life of an ageing workforce.	18	<b>4.28 (0.83)</b>
OSH management in new forms of employment (crowdsourcing, internships, zero hours contracts).	19	<b>4.21 (0.92)</b>
Precarious work and job insecurity: better understand and address effects on workers' H&S.	18	<b>4.11 (0.90)</b>
Further improve knowledge on restructuring impact on risk factors (including psychosocial) for workers' H&S.	19	<b>4.05 (0.97)</b>

<b>Q3 – OSH research for safe new technologies</b> <b>Number of Respondents (NoR) = 22</b>	<b>NoR</b>	<b>Mean (SD)</b>
Improve risk assessment for workers exposed to NOAA (toxicological evaluation, studies of effects on human and biological systems and development of bio-monitoring programs).	18	<b>4.28 (0.83)</b>
Develop regulations, guidelines and good practices for safely working with NOAA.	19	<b>4.26 (0.65)</b>
Improve risk management tools for exposure to NOAA.	18	<b>4.11 (0.93)</b>
Develop standardised sampling and measurement methods to quantify and characterise exposure to NOAA.	19	<b>4.11 (0.57)</b>
Define Occupational Exposure Limits (OEL) for NOAA.	19	<b>4.11 (0.94)</b>

<b>Q4 – Chemical and Biological agents</b> <b>Number of Respondents (NoR) = 24</b>	<b>NoR</b>	<b>Mean (SD)</b>
Improve sampling and detection devices in providing an early and reliable detection of chemicals.	23	3.91 (0.95)
Increase the availability of reliable and non-invasive biomarkers for measuring occupational exposure to chemical substances and their effects.	23	3.83 (0.94)
Development of appropriate measurement devices and standardised methods for workplace sampling and assessment of exposure to bio-aerosols.	21	3.67 (1.24)
Analyses and hazard assessment of biological agents at workplaces with complex exposure situations.	22	3.59 (0.91)
Scrutinising existing Occupational Exposure Limits (OEL) and their harmonisation with regulatory models (REACH and European Food Safety Authority - EFSA) in order to better protect workers' health.	22	3.59 (1.14)

### **Top five research priorities in the Miscellaneous section. Total sample.**

<b>Miscellaneous</b> <b>Number of Respondents (NoR) = 75</b>	<b>NoR</b>	<b>Mean (SD)</b>
From research to practice: translation of OSH research evidence into practical tools to be used at company level and identification of the best ways to reach workers.	72	<b>3.82 (1.17)</b>
OSH implementation in micro, Small and Medium Enterprises (SMEs): develop methods and tools to exploit available data to locate, identify, characterise and better regulate ever-changing SMEs.	67	<b>3.61 (1.17)</b>
Develop knowledge, concepts, techniques and tools to foster a transdisciplinary approach to research on new technologies development, able to address OSH issues from the design stage.	64	<b>3.33 (1.31)</b>
Develop tools and methods to support European companies to better address their specific prevention needs and build programmes to monitor and "secure" employees' health.	67	<b>3.21 (1.25)</b>
Studies on polarisation of employees' occupational health resources in the labour market (between employees, workplaces, regions, sectors of employment) and prevention of processes leading to unequal distribution of health at various levels.	59	<b>2.85 (1.11)</b>

## Top ten research topics. Total sample.

Research topics	NoR	Mean (SD)
Older workers	73	3.90 (0.82)
Nanomaterials	63	3.89 (0.95)
Emerging technological devices	71	3.87 (0.96)
Chemical agents	64	3.83 (0.94)
Working conditions, work organisation and job content	72	3.81 (1.03)
Disabled and chronically sick workers (work disability prevention and return-to-work research)	73	3.66 (0.96)
Changing employment patterns and practices	69	3.65 (1.04)
Information and Communication Technology (ICT)	69	3.58 (1.13)
Biological agents	64	3.58 (0.97)
Health inequalities and work – Vulnerable workers	71	3.48 (1.04)

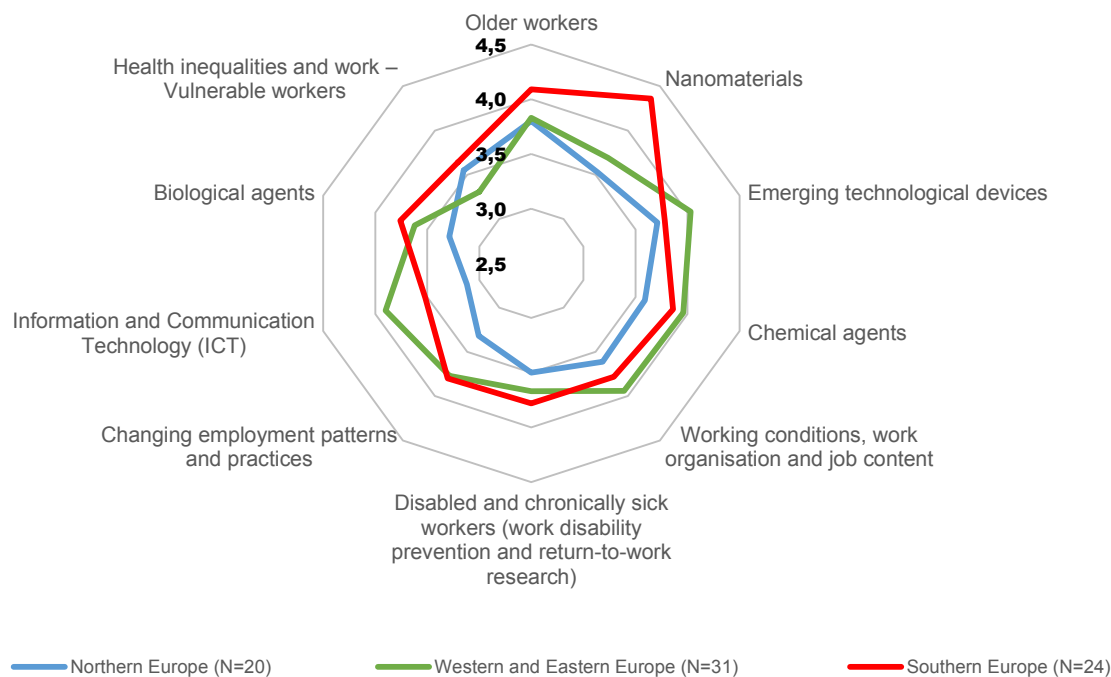


Fig. 3: Comparison by geographical distribution. Total sample.

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<sup>1</sup> Iavicoli S., Rondinone B.M., Marinaccio A., Fingerhut M., Research priorities in occupational safety and health: a review, *Industrial Health*, 2006

<sup>2</sup> Reinert D., Flaspöler E., Hauke A., Brun, E. Identification of emerging occupational safety and health risks, *Safety Science Monitor*, Issue 3, 2007

<sup>3</sup> EU-OSHA Priorities for occupational safety and health research in Europe: 2013-2020, Luxembourg: Publications Office of the European Union, 2013