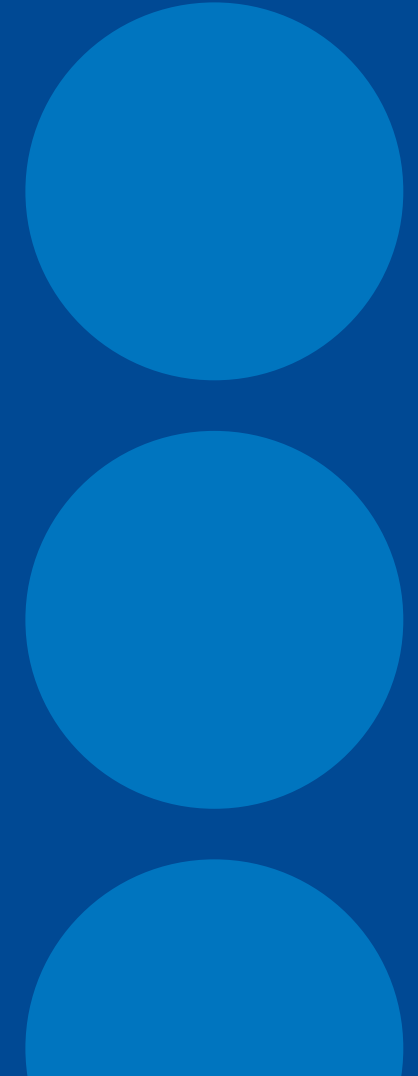


The German Social Accident Insurance's Risk Observatory: Future trends and their impact on OSH

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Event Stockholm
Eva Flaspöler & Angelika Hauke, 6 - 8 September 2023



Why a risk observatory (RO) for OSH?

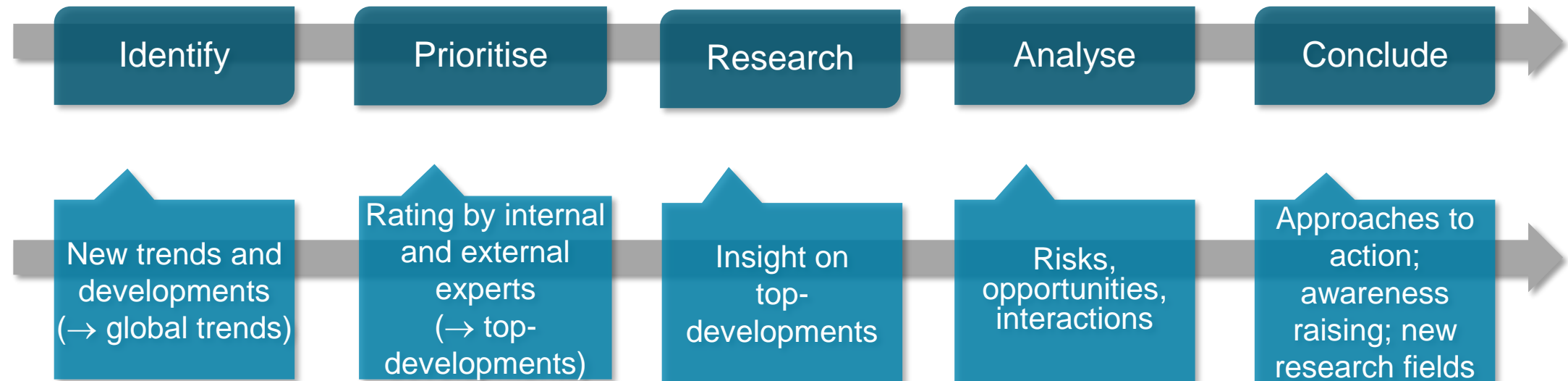


to be prepared

**to be ready to
react in good time**

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Aims and process of the RO



→ Support of the German Social Accident Insurance institutions by identifying new prevention needs and fields of action

1. Identify – Trend collection as a basis

- Continuous trend collection throughout the entire RO process
 - Sources for trends and developments:
 - Scientific societies
 - Future institutes
 - EU, EU-OSHA, OSH institutes, federal ministries
 - Reinsurers, associations
 - Press
 - German Social Accident Insurance (institutions)
 - ...
- Currently **117 developments**, allocated to 10 global trends

1. Identify – 10 Global trends

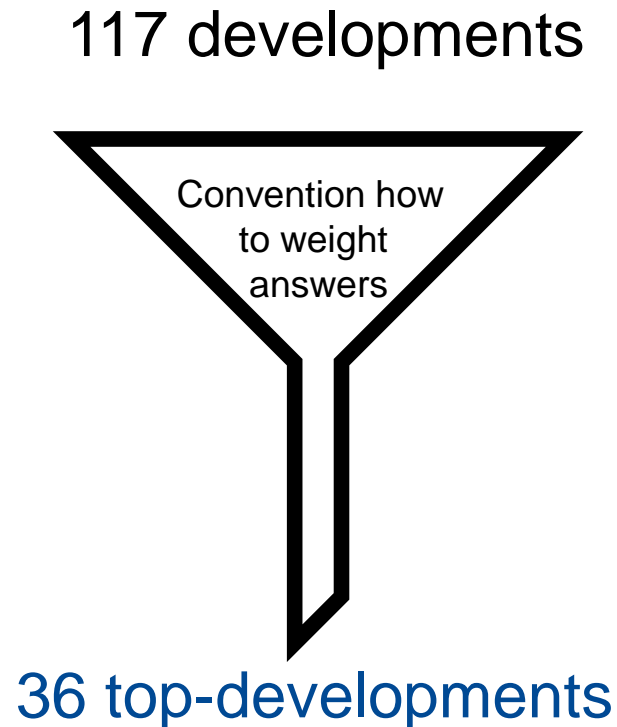
- Digitalisation and connectivity
- New technologies
- Globalisation
- Economy
- New Work
- Climate change, nature and resource conservation, decarbonization
- Infrastructure
- Mobility
- Demographic developments and diversity
- Social affairs and health

1. Identify - Trend collection



Global trend – Climate change, nature and resource conservation, decarbonization	
Storage technologies	Climate change
Alternative fuels (e.g. hydrogen, methane, ..)	Natural disasters and extreme weather
Sustainability (minimalism, sharing, repairing, ecology)	Reduction of greenhouse gases in the atmosphere
Laboratory produced (in vitro) meat/fish	Pathogenic germs and allergens
Relocalisation	Solar Radiation Management
Energy efficiency	Loss of biodiversity
Expansion of renewable energies	Insects as pest controllers
New plastics and alternatives for plastic	Air pollution
Deep-sea mining	Soil pollution/litter
Recycling and circular economy	Water pollution
Shortage of raw materials	Ammunition scrap in soils and waters
New foods (e.g. meat substitutes, insects, algae)	Biocides, plant protection products and fertilisers
Use of high-yielding and resistant plants	Per- and polyfluorinated alkyl compounds (PFAS)

2. Prioritise – Rating via future-relevance surveys



10 surveys

- one per global trend
- mostly scientists but also OSH experts rate developments

How do you assess the influence of [development x] on the world of work in the next 5 to 10 years in Germany?

[only OSH experts] How do you assess the influence of [development x] in the next 5 to 10 years on OSH in Germany?

1 = no influence – 2 – 3 – 4 – 5 = moderate influence – 6 – 7 – 8 – 9 = very high influence

2. Prioritise – Response rate future-relevance survey

Global trend	N mailed to	n replied	Response rate (%)
All	1332	219	16,44
Digitalisation and connectivity	157	24	15,3
New technologies	138	16	11,6
Globalisation	70	11	15,7
Economy	95	12	12,6
New Work	148	44	29,7
Climate change, nature and resource conservation, decarbonisation	368	53	14,4
Infrastructure	86	10	11,6
Mobility	82	19	23,1
Demographic developments and diversity	88	19	21,5
Social affairs and health	100	11	11

2. Prioritise - 36 top-developments (future-relevance surveys)

DIGITALISATION AND CONNECTIVITY

- Artificial intelligence
- Networked automation
- Cloudcomputing
- Robotisation
- Big data

NEW TECHNOLOGIES

- Digital models for representation
- Novel rechargeable accumulators and batteries
- Sensors and (ultrasensitive) detectors
- Lightweight construction

GLOBALISATION

- Global migration
- Changing world order and changing of international relations
- National egoism and protectionism in Europe

ECONOMY

- Monopolisation (e.g., GAFAs corporations)
- Platform economy
- Logistics and delivery services

NEW WORK

- Flexibilisation of working time and place
- New office concepts

CLIMATE CHANGE...

- Renewable energies
- Energy efficiency
- Sustainability
- Recycling and CE
- Climate changes
- Natural disasters and extreme weather

INFRASTRUCTURE

- Supply insecurity
- Expansion of communication network (5G, 6G)
- Upgrading of the electricity grids

MOBILITY

- Sustainable mobility
- Connected mobility
- Driver assistance systems
- Modified or novel means of transport, incl. autonomous

DEMOGRAPHIC DEVELOPMENTS AND DIVERSITY

- Shortage of skilled workers and staff
- Demographic change and unbalanced age structure

SOCIAL AFFAIRES AND HEALTH

- Physical inactivity
- Unhealthy diet
- Self-optimisation
- New drugs, vaccines, and therapies

2. Prioritise – Sector-relevance survey

- 117 developments were rated by sector experts from the German social accident insurance institutions
- Tendencies as sample size varied from 1 to 17 (N = 252 over all sectors)
- 57 sectors were considered

With regard to the next 5 to 10 years:

How do you assess the influence of [development x] on the safety and health of insured persons in your specified sector?

1 = no influence – 2 – 3 – 4 – 5 = moderate influence – 6 – 7 – 8 – 9 = very high influence

→ Identification of developments with high influence ((mean) value ≥ 7.0) in numerous sectors (> 30 % of 57 sectors)

2. Prioritise – sector-relevance survey: 11 developments with high influence in numerous sectors

DIGITALISATION AND CONNECTIVITY

- Cybercrime*

NEW TECHNOLOGIES

- Novel rechargeable accumulators and batteries

CLIMATE CHANGE...

- Renewable energies
- Energy efficiency
- Recycling and CE
- Alternative fuels*

INFRASTRUCTURE

- Supply insecurity
- Modernisation, refurbishment, maintenance, and equipment backlogs*

MOBILITY

- Driver assistance systems

DEMOGRAPHIC DEVELOPMENTS AND DIVERSITY

- Shortage of skilled workers and staff
- Demographic change and unbalanced age structure

*not included in 36 top-developments of the future-relevance surveys

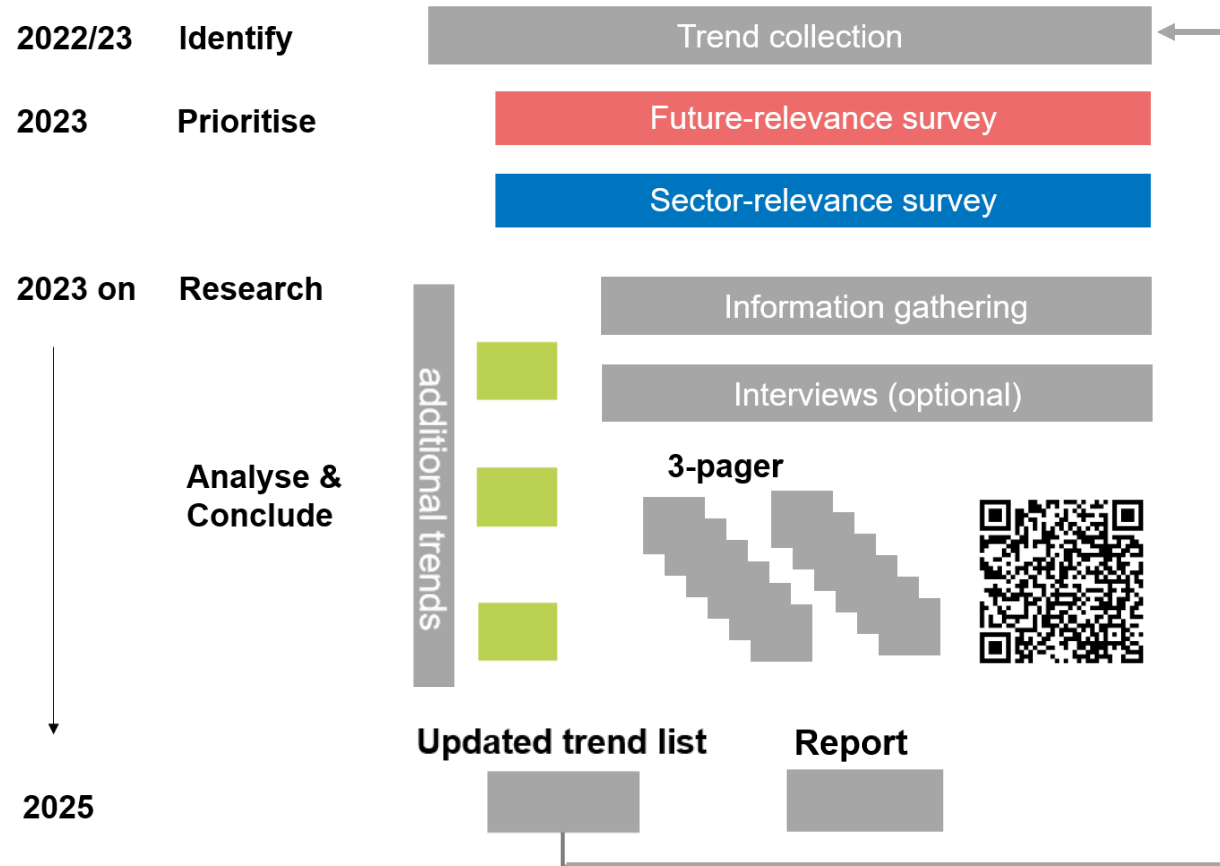
3. Research

- Focus on top-developments and those with high influence on numerous sectors (36 + 3)
 - gathering information (online and print) and reading
 - additional interviews where necessary
(with inhouse-experts or willing survey participants)
- deeper understanding of the developments and their impacts on OSH

4. Analyse and Conclude

- What is meant by the development (definition)?
 - What accelerates the development, what slows it down?
(→ interactions with other developments)
 - Which sectors/groups are particularly affected by the development?
 - What changes will result for the safety and health of employees?
(→ opportunities and risks)
 - **What are the findings and perspectives for OSH?**
- 3-page descriptions for all 39 developments

RO time line and cycle

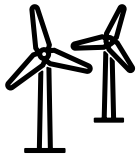
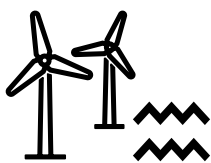
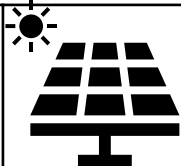






Excursus: Expansion of renewable energies (RE)

- Germany: 65 % reduction of greenhouse gas emissions by 2030

Power generation

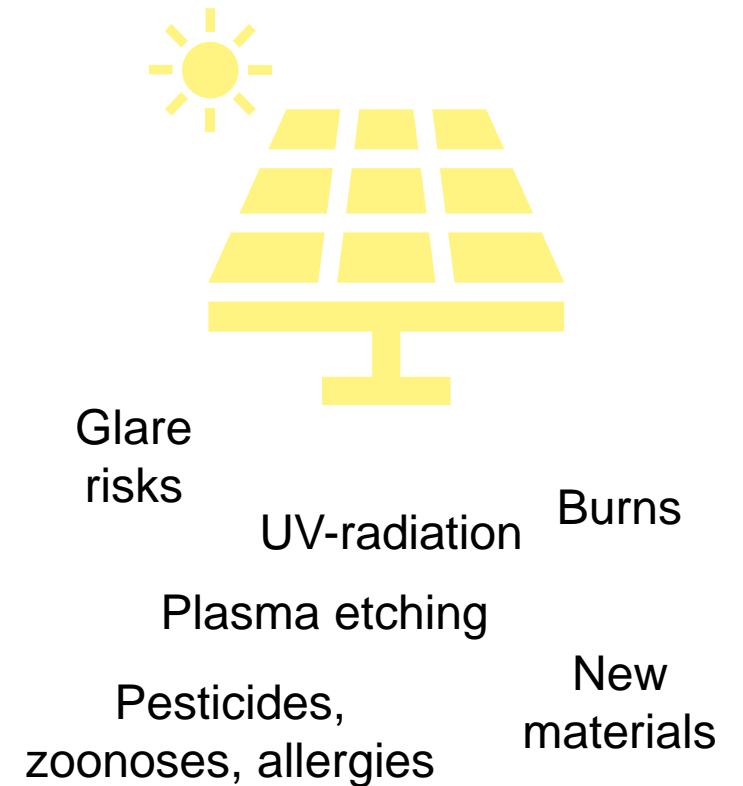
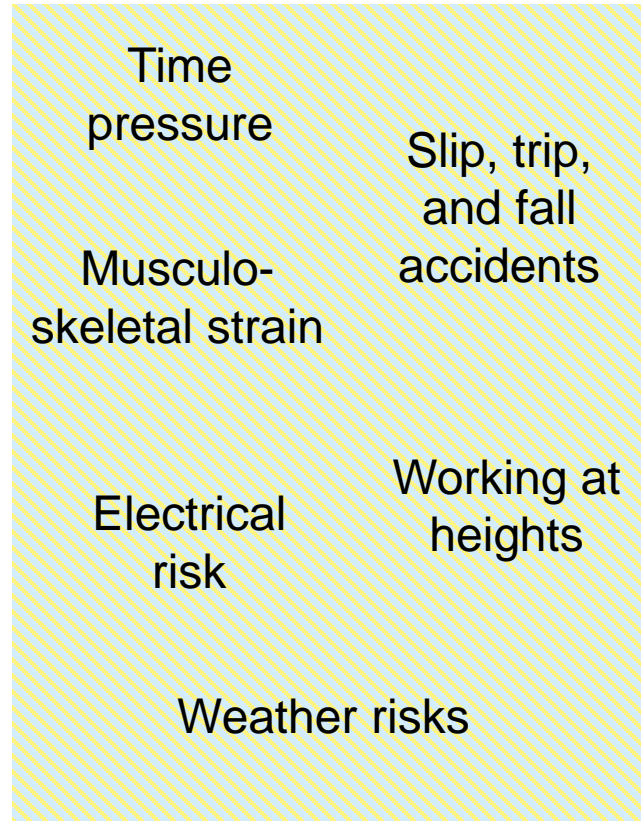
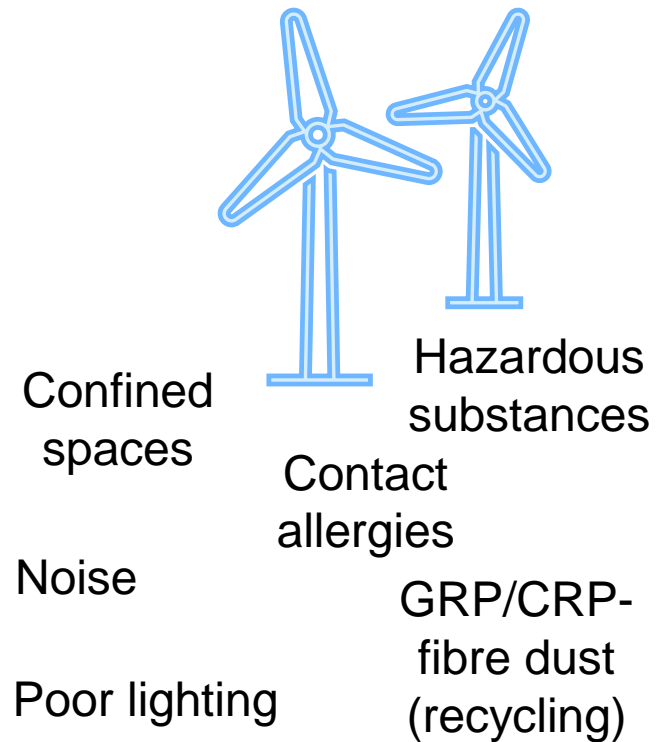
Share of renewable energies

				 deep and medium-deep geothermal energy			
2022	58.1 GW	8.1 GW	67.4 GW	-	46.2 %	17 %	6,8 %
2030	115 GW	30 GW	215 GW	10 TW	80 %	27 %	32 %
Factor	1.98	3.7	3.2		1.7	1.6	4.7



Wind and solar energy must be expanded 3 times faster than before
 Wind and solar energy systems installed in the early 2000s need to be replaced now
 Installation of 6 million heat pumps by 2030
 15 million fully electric passenger cars by 2030 + charging infrastructure

Excursus: Expansion of RE: Risks when working on wind energy and solar plants



Excursus: Expansion of RE – Perspectives for OSH

- 1** Risks and preventive measures associated with the use of RE and hydrogen are known in principle, but not necessarily in the sectors affected by the green transformation. → Knowledge transfer
- 2** The urgency of transformation processes coupled with the widespread shortage of skilled workers increases the likelihood of work-related stress. → Greater consideration of psychosocial strains in the affected sectors → Qualification, safe and healthy work, and flexibility gain in importance

Excursus: Expansion of RE – Perspectives for OSH

3 With the expansion of RE, new or changed technologies, processes, professions and jobs are created. → Anticipation, identification and assessment of risks and upcoming qualification needs

4 The expansion of RE will not be possible without new recovery and disposal processes and the development of a European recycling infrastructure for electric batteries and e-waste, and also for rotor blades of wind turbines. → A new industry will emerge in waste management, giving OSH the chance to help shape it from the start.

Thank you very much for your interest!

[angelika.hauke\(at\)dguv.de](mailto:angelika.hauke@dguv.de)
[eva.flaspoeler\(at\)dguv.de](mailto:eva.flaspoeler@dguv.de)

