

PARIS - NOVEMBER 14, 2024

**FORESIGHT**

**FOR OCCUPATIONAL  
SAFETY AND HEALTH**



# EU-OSHA's Foresight project on the Circular Economy and its impact on OSH

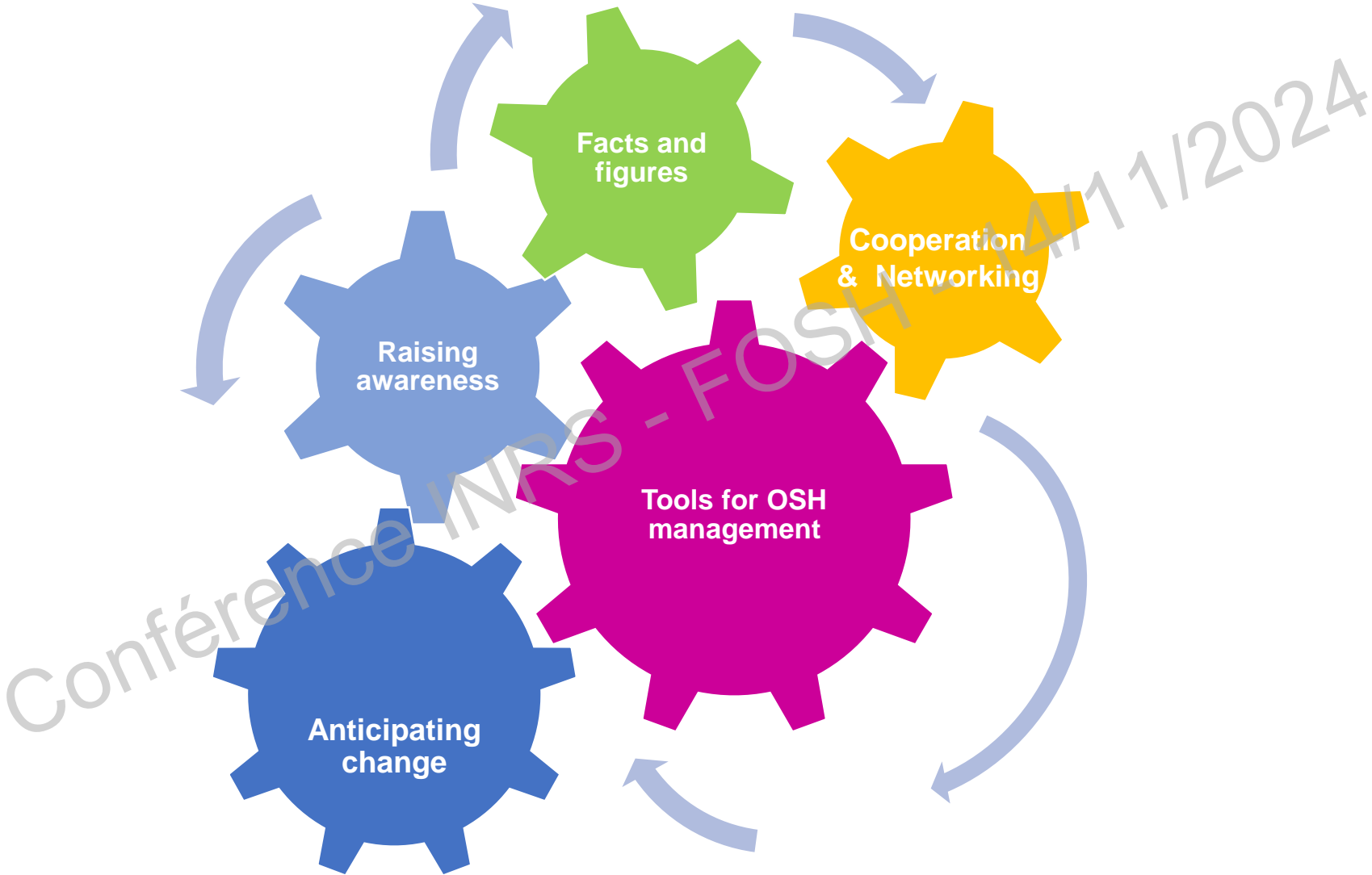
Annick Starren, Nadia Vilahur (EU-OSHA)

# European Agency for Safety and Health at Work (EU-OSHA)

- A body of the EU
- Established in 1996 in Bilbao, Spain
- EU-OSHA is committed to making Europe a safer, healthier and more productive place to work, by promoting a culture of risk prevention to improve working conditions in Europe.
- Tripartite Board bringing together:
  - governments, employers' and workers' organisations
  - the European Commission



# EU-OSHA key activity areas



# Anticipating change

## EU-OSHA Foresight activities:

- Foresight studies since 2008
- Future of Work (FOW) articles.

**Because many of today's challenges are long-term**

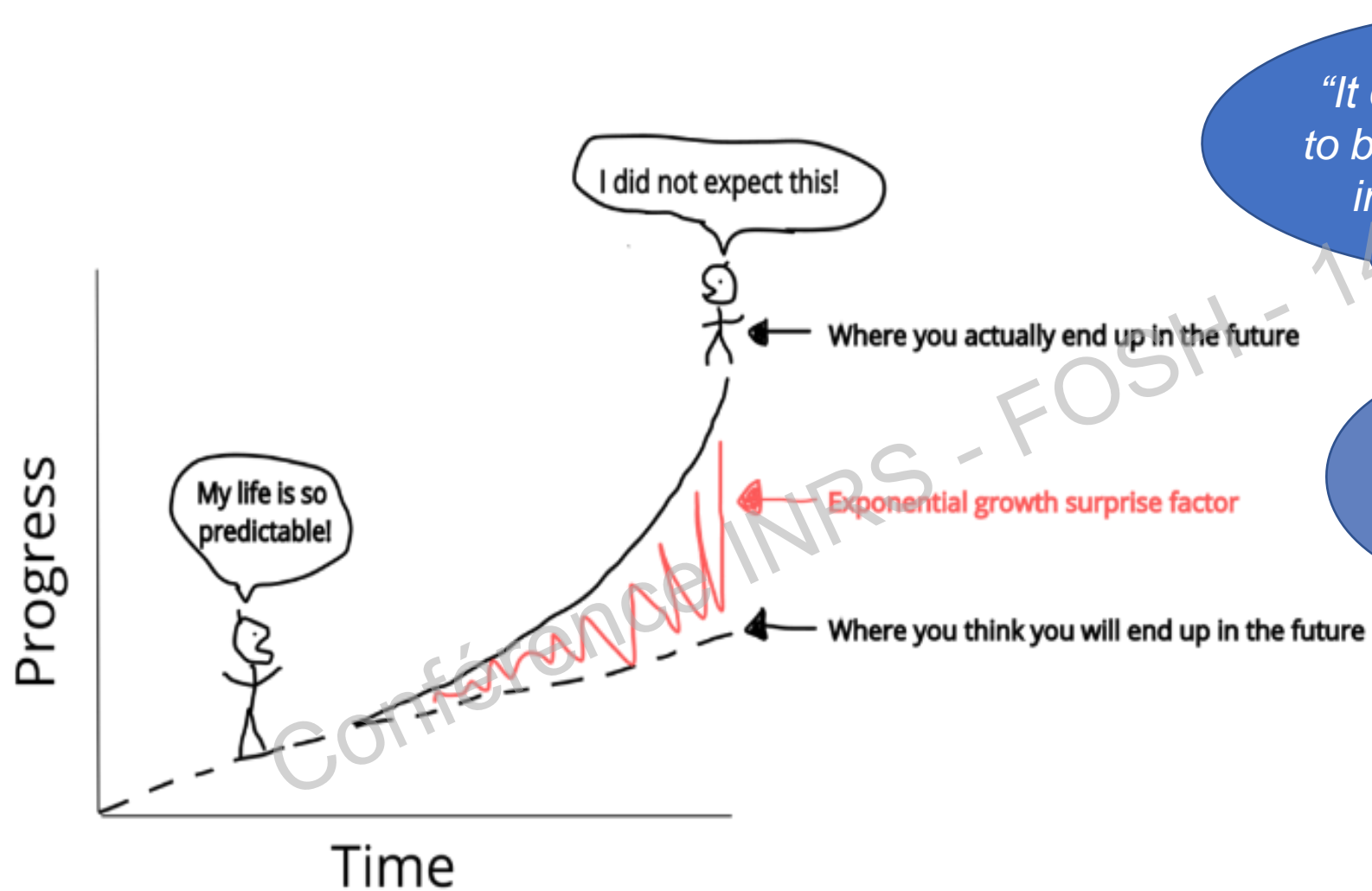
**Because things are changing fast in unpredictable ways**

**Because the EU needs to deal with complexity**

**Because we need good collective intelligence**

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# Methodology Foresight: Scenario-building



*"It offers the possibility to be more creative than in usual meetings."*

*"It opens your mind, a good tool to be creative."*

*"It gives a new vision & perspective."*

*"We were all very skeptical at the beginning, now we're all very positive."*

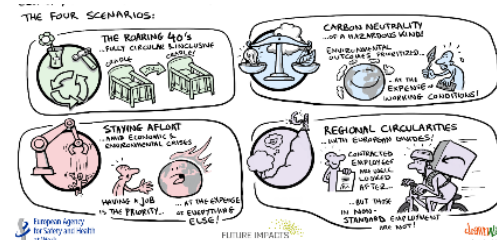
# EU-OSHA's Foresight activity

- **2002 – 2006: 4 Expert forecasts**

- On emerging physical, chemical, biological and psychosocial risks
- Based on Delphi surveys

- **Since 2008: Foresight cycles**

- Impact of new technologies on the safety & health of workers in “green jobs” in 2020;
- Impact of ICT/digitalisation on the safety & health of workers in 2025,
- In 2020 on Circular economy (CE) and its effect on OSH in 2040.
- In 2024 EU-OSHA initiates a 4th foresight cycle on OSH implications of climate change related developments and crises.



<https://osha.europa.eu/en/emerging-risks>



# EU-OSHA's Foresight activity

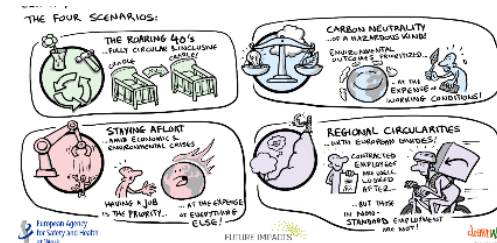
- **2002 – 2006: 4 Expert forecasts**

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- Based on Delphi surveys

*based on scenario-building*

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<https://osha.europa.eu/en/emerging-risks>

# 3rd Foresight on the Circular Economy (CE), 2019 - 2023.

European Agency for Safety and Health at Work



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**Foresight Study on the Circular Economy and its effects on Occupational Safety and Health**  
Phase 1: Macro-scenarios  
Executive Summary



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





# The future: Europe's Green and Digital Transition



DIGITALEUROPE EVENT

## Uniting the twin transitions: There is no Green Deal without digital

# The Just Transition Mechanism: making sure no one is left behind

## PAGE CONTENTS

### Introduction

### Financing

### Just Transition Fund

### Just Transition Platform

### Who will benefit?

## Introduction

The Just Transition Mechanism (JTM) is a key tool to ensure that the transition towards a climate-neutral economy happens in a fair way, leaving no one behind. It provides targeted support to help mobilise around €55 billion over the period 2021-2027 in the most affected regions, to alleviate the socio-economic impact of the transition.



(Binh Nguyen/Canary Media)



# 3rd Foresight: Circular Economy (CE) and impacts on OSH

## Relevance:

- Transitioning to a CE is a key driver of the **EU Green Deal** implementation and of the EU goal of achieving carbon neutrality by 2050 while creating sustainable growth and jobs.
- It has significant policy and regulatory implications that will affect future jobs.
- It will also have consequences for workers' safety and health.
- Relevance to the **EU OSH Strategic Framework 2021-2027**  
Key objective: "Anticipating and managing change in the new world of work brought about by the **green**, digital and demographic transitions"



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# Introduction on the Circular Economy and OSH

Adaptation/innovation in working processes, creativity in business models, short circles, new ways of collaboration, less waste

- new type of **design of working processes** for the future
- incorporation of **digital technology**.
- preserving and extending **what's already made**
- **prioritising regenerative resources**, especially use "waste" as a resource
- **adaption of the existing 'Business models'**
- better **collaboration** to create joint value.



It will have consequences for workers' safety and health:

- impacts on jobs in hazardous sectors, related to maintenance and repair, disassembly and recycling, could have a negative impact on working conditions;
- changes in organisational processes and/or redesigning tasks could have an impact on job content and satisfaction



# The development of Foresight macro scenarios

## Objective:

Produce a set of scenarios on the **future of the Circular Economy** and its **potential implications** for OSH, in the European context. (To be utilised and reflected on more with stakeholders in next project phase)

### Literature review



1

#### Key studies on (the future of):

- CE
- Work
- OSH

INRS study: translation & key insights

### Expert interviews



2

Interviews with experts in CE and future of OSH to **validate research findings & provide additional insights / check blind spots**

### Review of relevant publications



3

Review of key drivers, megatrends & scenarios from earlier EU-OSHA foresight cycles based on insights from literature review & expert interviews

### Scenario Creation



4

Key factor selection & descriptions, incl. projections

Software-based Robustness / Consistency Analysis

Scenario drafts on the future of CE with OSH implications

### Expert interviews



5

Interviews with experts in CE and future of OSH to **validate scenario drafts and provide additional insights / check blind spots**

### Reporting & Communication



6

Final report, policy briefs and visualizations (incl. Focal Points Network presentation & OSHwiki article)

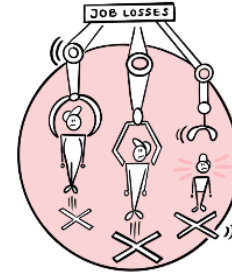


# Phase 1: Macro-scenarios

Four different CE (and OSH) futures until 2040, in the EU

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# Results: four macro scenario's on CE and OSH in the EU until 2040



<b>The roaring 40's – fully circular and inclusive</b>	<b>Carbon neutrality – of a hazardous kind</b>	<b>Staying afloat – amid economic and environmental crises</b>	<b>Regional Circularities – with European Divides</b>
<p>In 2040, the products that sell best are those that are cradle-to-cradle and “net-positive” in terms of social and environmental sustainability.</p>	<p>The year 2040 marks the achievement of carbon neutrality in Europe. But: With environmental outcomes having been prioritized above all else, this has often come at the expense of job quality and working conditions.</p>	<p>In 2040, the biggest concern for many is just having a job – and not what the job entails. Most people are focused on keeping things afloat, so that there's little consideration for much else - neither the environment, social rights nor job quality.</p>	<p>In 2040, everyone knows: Contracted employees are well looked after, but those in non-standard employment are not. Neither is the environment, with circularity being mostly regional.</p>

# General insights: what will CE mean for OSH

- Safety of **shared, reused, repaired, or recycled equipment and tools**, for both independent contractors and employees
- **e-Waste and recycling hazards**, e.g. in the case of e-vehicle batteries
- Maintenance risks, especially when applying new technologies or reusing devices and equipment, **in-house maintenance**
- Need for **continuous reskilling**
- Overreliance on robots may lead to **deskilling** (in particular, less experience in critical situations), less task variation and more sedentary tasks
- Workers could be confronted with **new biological agents** where they least expect them
- **New technologies (from biotechnology to nanomaterials)** can present new risks
- Recycling of nanomaterials (e.g. paints)
- **Repeated recycling**
- **Digitalisation** can support OSH, but also create new/unknown risks



# Phase 2: Dissemination workshops & micro-scenarios

4 workshops on the CE and OSH in 2040, and the development of 16 micro-scenarios

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# Exploring the macro-scenarios with stakeholders at the four workshops



## Key questions at the four workshops

- 1. What changes could the different scenarios bring about for the future of work until 2040?**  
Thinking about specific implications for (i.e., vulnerable workers, most affected sectors, or your country / region?)  
And what these changes might mean for OSH?
- 2. What could policy-makers do to improve future OSH perspectives?**  
incl. which actors and stakeholders play a key role in this? What are key levers, i.e., most important measures, for supporting workers?



# Phase 2: sixteen micro-scenarios



## The Roaring 40's – Fully Circular and Inclusive

Low-skilled worker +  
Energy sector

Migrant worker +  
Transport sector

Non-standard employment  
contact + Construction  
sector

High-skilled worker +  
Manufacturing sector



## Carbon Neutrality – of a Hazardous Kind

High-skilled worker +  
Energy sector

Low-skilled worker +  
Transport sector

Migrant worker +  
Construction sector

Non-standard employment  
contact + Manufacturing  
sector



## Staying Afloat – Amid Economic and Environmental Crisis

Non-standard employment  
contact + Energy sector

High-skilled worker +  
Transport sector

Low-skilled worker +  
Construction sector

Migrant worker +  
Manufacturing sector



## Regional Circularities – with European Divides

Migrant worker + Energy  
sector

Non-standard employment  
contact + Transport sector

High-skilled worker +  
Construction sector

Low-skilled worker +  
Manufacturing sector

# WORKING SESSION 3: ROAD-MAPPING / OCCUPATIONAL SAFETY AND HEALTH LEVERS FOR PROTECTING VULNERABLE WORKERS



WE NEED TO GUARANTEE 'CLEAN ENERGIES' DO NOT PUT WORKERS AT RISK!



WE NEED A 'WORKER CENTRIC' APPROACH TO RISKS LINKED WITH NEW TECHNOLOGY & AUTOMATION!



A BROAD COVERAGE OF OSH TO ALL WORKERS!



COOPERATION BETWEEN SOCIAL PARTNERS!



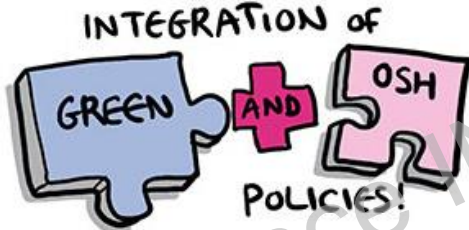
VULNERABLE WORKERS MUST BE PROTECTED BY A CLEAR LEGAL FRAMEWORK!



SCREEN RETIRED WORKERS & LINK THEIR DISEASES TO PAST WORK LIVES!



GREEN & JUST PUBLIC PROCUREMENT!



INTEGRATION OF GREEN AND OSH POLICIES!



WHITE PAPER ON OSH RISKS



NEED TO MONITOR UNLAWFUL OSH CONDITIONS!



LIFELONG LEARNING!



TARGETED TRAINING



CIRCULAR ECONOMY MEANS INNOVATION!  
...IS THERE TIME FOR RISK ASSESSMENT OF THE NEW PROCESSES?

FUTURE IMPACTS



FIND WAYS TO CONNECT OSH TO SCIENTIFIC CONCEPTS...

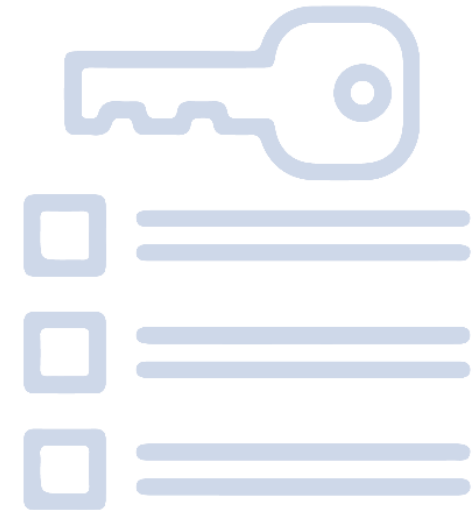
...AND EMBED INTO INDUSTRY 5.0

# | Key findings from the project

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# In short: final recommendations

- A call to integrate OSH knowledge and regulation into all relevant EU policy areas that concern materials, products and processes that potentially produce waste, as well as the need for early regulatory detection and monitoring mechanisms for OSH within the waste sector.
- The need to integrate OSH expertise in the earliest stages of material, product, and process design within a CE with a focus on proactively developing safe guidelines for product *dismantling and repairing processes* and *promoting a worker –centric approach*.
- The development of **clear CE/OSH certification and standards** for every stage in the Life Assessment Cycle, ensuring **that safe and trustworthy information reaches all workers** within the waste sector via comprehensive **up-to-date training, reskilling, and upskilling** initiatives.
- For example:
  - ✓ standards to create a *safe and trustworthy ‘secondary raw materials*
  - ✓ *better coverage of OSH information and training to those workers currently excluded (including those within the informal economy), through setting up local structures and networks in collaboration with social partners.*





# Results:

## actions to safeguard workers in the transition to a CE

- OSH knowledge should be a primary consideration in all relevant legislation (such as e.g. the EU Green Deal, Fit for 55 Package, etc). Need to integrate OSH considerations as early as possible into relevant CE & industrial policies to safely anticipate future changes in the world of work from the CE.
- Clear EU-wide standards / guidelines need to be set that close OSH loopholes and effectively regulate.
- Need to increase cross-sectoral dialogue & collaboration via communication of relevant information (OSH-related research, best practices, etc.), development of EU-wide cross-sectoral OSH certifications & standards.



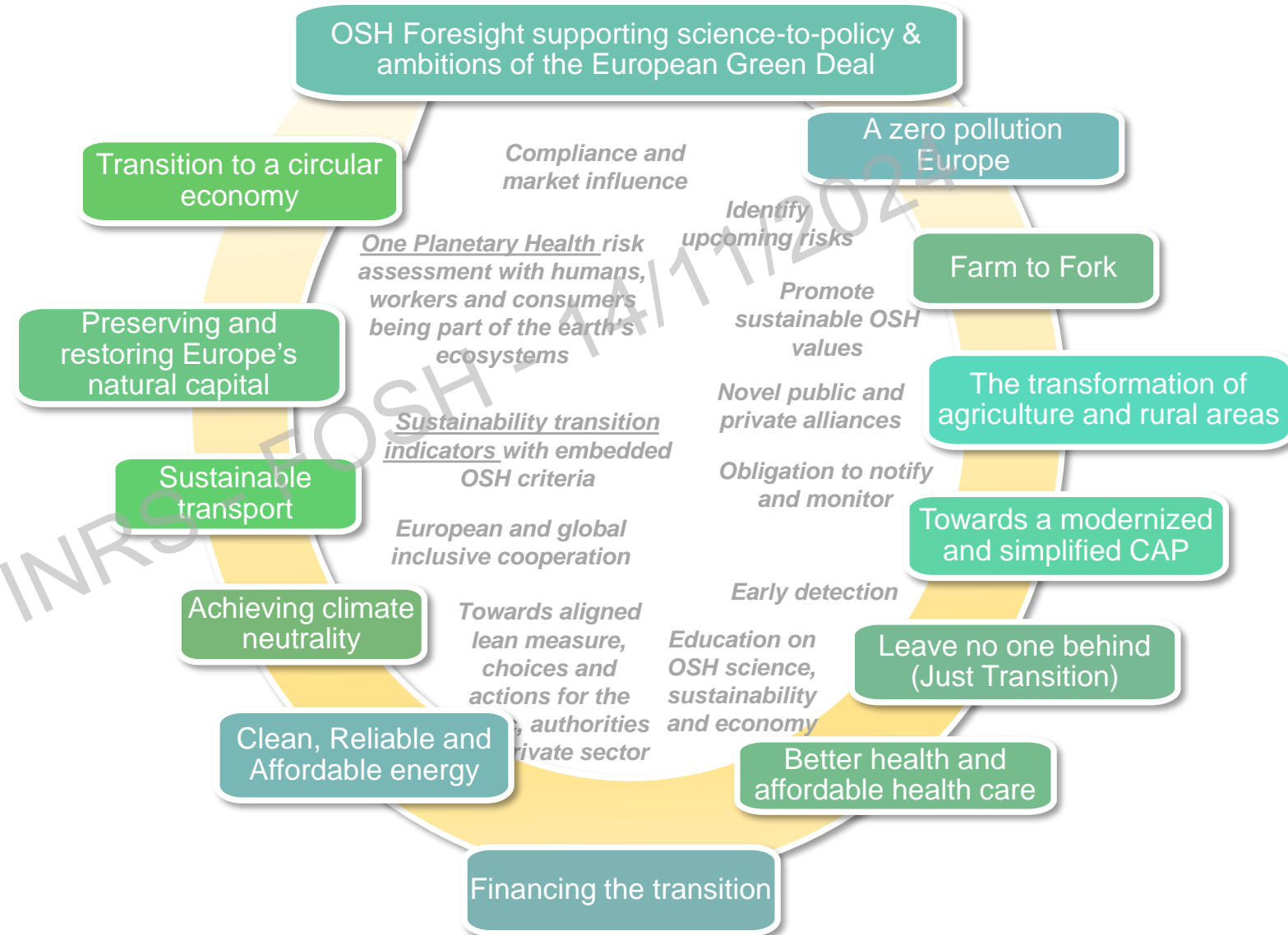
Key stakeholders: European and National Authorities; Knowledge developers; Industry; Worker representatives & organisations, ...



# OSH Foresight supporting the green, social and digital EU policies' transitions

Contributing to modernizing and strengthening of OSH in key areas in view of the **EU's employment and social policies**.

And having in mind: the **European Pillar of Social Rights**, the **European Green Deal** and the **United Nations Sustainable Development Goals**, as well as challenges related to digitalisation, the changing world of work and work patterns as well as demographic changes.



Adopted and modified from:  
Fantke, Peter., Bruinen de Bruin, Yuri, Schlüter, Urs. et al. (2022). [The European Exposure Science Strategy 2020–2030](#). Environment International, p.107555.

# Results of Phase 2



**POLICY BRIEF**

## WHAT WILL THE CIRCULAR ECONOMY (CE) MEAN FOR OCCUPATIONAL SAFETY AND HEALTH (OSH)?

An overview of four foresight scenarios

**Context**

With its key policy initiative, the current European Commission has set Europe on a course towards a green future: the 2020 European Green Deal is primarily focused on making Europe climate neutral by 2050<sup>1</sup>. One of its main building blocks is the new Circular Economy Action Plan<sup>2</sup>, an expansion of the 2015 Circular Economy Package<sup>3</sup>. 'Closing the loop' to keep Europe's resource consumption within planetary boundaries has many significant policy and regulatory implications that will affect future jobs in different ways and have a wide range of consequences for workers' safety and health.

As part of its mission to ensure safe and healthy working conditions in the EU, the European Agency for Safety and Health at Work (EU-OSHA) has for some years been applying foresight approaches when analysing, preparing and disseminating information on possible future challenges for occupational safety and health (OSH). This document is part of a new foresight cycle that uses four scenarios to explore the effect that implementing a circular economy (CE) would have on OSH. The scenarios' primary role is to encourage dialogue and reflection around future possibilities; they show alternative pathways to the future and demonstrate the broad range of imaginable developments. They are not intended to predict what the future may or may not hold and are not the final result of the project. Rather, they are a first step towards the next phase of stakeholder engagement, which will reflect in more depth on what the results imply for OSH research, initiatives and policy-making today.

**European circular economies in 2040: four scenarios**

Four scenarios looking at Europe in 2040 were developed for this project (see Figure 1). They represent the outcomes of policy decisions taken over the next decade: in each case, the CE was implemented and plays out differently, and the scenarios' impacts on the world of work and OSH vary widely.

Figure 1: An overview of the four scenarios

The roaring 40's — fully circular and inclusive	Carbon neutrality — of a hazardous kind	Staying afloat — amid economic and environmental crisis	Regional circularities — with European divides
In 2040, the products that will best be those that are cradle-to-cradle and net-positive in terms of social and environmental sustainability.	In 2040, Europe has achieved carbon neutrality. But with environmental outcomes taking top priority, job quality and working conditions have suffered — at least in some areas.	In 2040, work is what people want — any job will do. Keeping your head above the water is all that matters; the environment, social rights or job quality come a distant second.	By 2040, work has become a two-tier system: contracted employees are well looked after, those in non-standard employment are not. Neither is the environment, with circularity being mostly regional.

<sup>1</sup> For further information, including the Green Deal Action Plan, see COM (2019).  
<sup>2</sup> For further information on the Circular Economy Action Plan, see European Commission (2020).  
<sup>3</sup> For further information on the Circular Economy Package, see COM (2015).

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

## Publication of reports and Policy briefs on:

- Overview of the project
- Policy pointers”
- Vulnerable groups
- Most impacted sectors

### All available at:

<https://osha.europa.eu/en/emerging-risks/circular-economy>

### Results of the 4 Foresight workshops (2022):

<https://www.euosha-events.eu/ForesightWS4>

<https://www.euosha-events.eu/ForesightWS3>

<https://www.euosha-events.eu/ForesightWS2>

<https://www.euosha-events.eu/ForesightWS1>

## Phase 3: dissemination tools

Serious game and mapping exercise

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# Phase 3: focus on dissemination activities and the identification of policy and action needs (2023)

- Mapping of synergies for integration of OSH knowledge and insights in current and future transitions **across green, social and digital policies** (EU Green deal and SDG 8 implementation, sustainable economic growth, full and productive employment, decent work for all, etc).
- Development of a Serious Game: the Scenario Exploration workshop: to identify the role, needs and opportunities of OSH (in near, medium and long term future), exploring options to frame OSH within current and future policies.
- Evaluation and preparation for start of new Foresight 4.

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# Scenarios Exploration Systems workshop (Serious Game)





# Scenarios Exploration Systems workshop: aims and expected outcomes

## Aim:

Introduce you to the results from the EU-OSHA Circular Economy foresight project so far, and:

→ explore together key policy synergies and opportunities for integrating the prevention of OSH impacts of the Circular Economy into relevant policy fields

→ As well as a first look at which key stakeholders should be involved



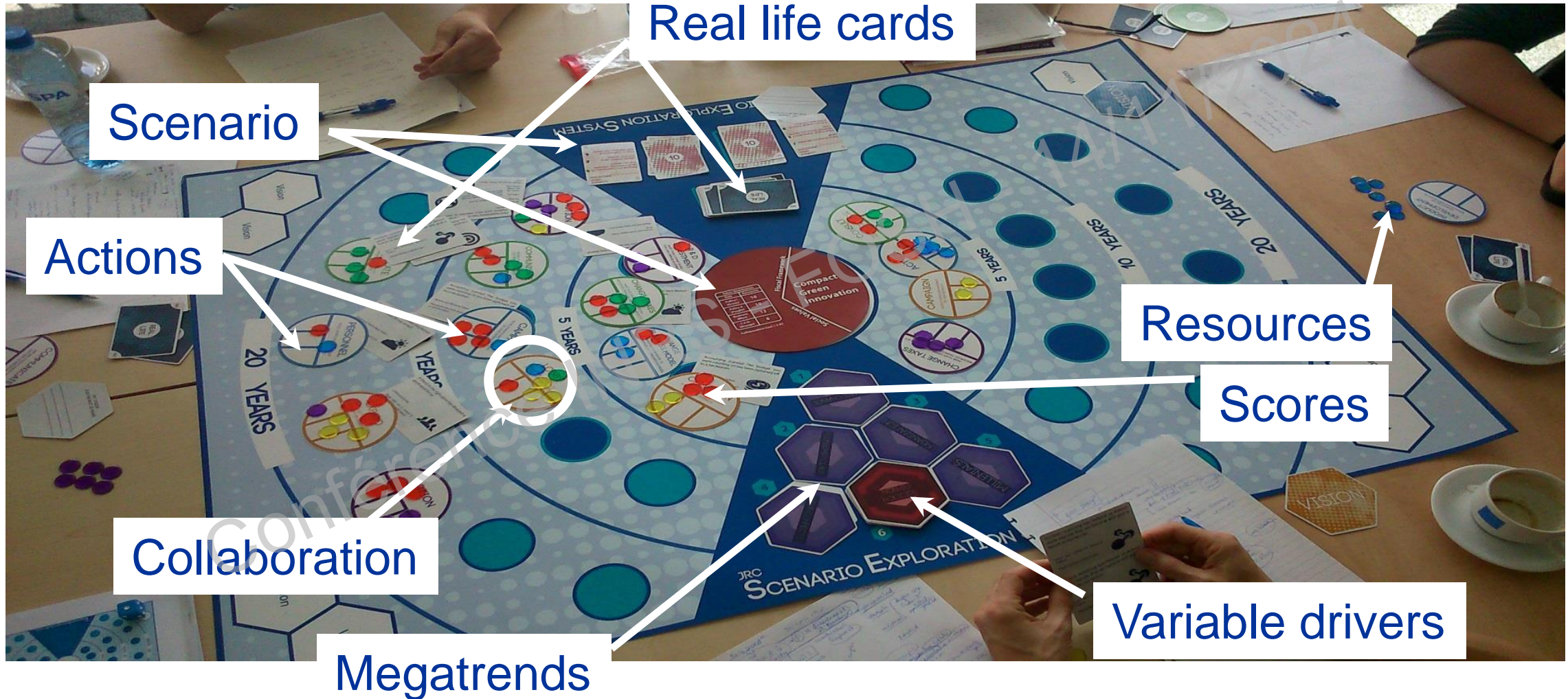
## Expected outcomes:

- Shared understanding of potential future policy pathways for the CE & OSH
- Insights / shared reflection on key stakeholder groups and strategies
- Fun playing the Scenario Exploration System (SES) game!

## Train – the trainer:

First step creating a **more structural Foresight infrastructure** with the aim to perform continuous and co-creative horizon scanning (Foresight capacity building).

# How it works



# The SES game set up

You immerse into one scenario in 3 years (+5, +10 and +15 years), afterwards you dive in a 2<sup>nd</sup> scenario

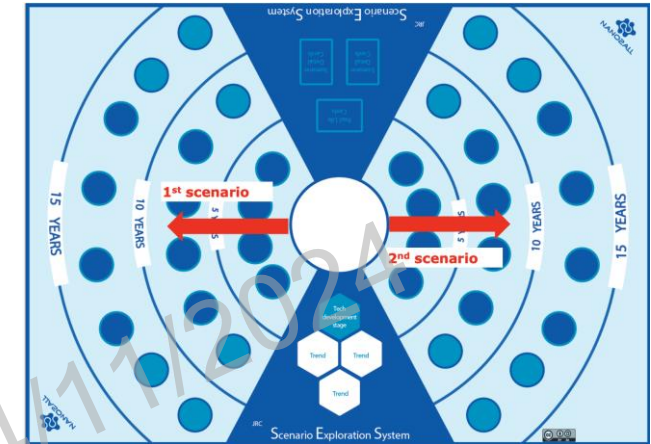
You step into the shoes of an actor to explore the scenario

- EU policymaker
- Business
- Trade union representative
- Civil society organization

You define the specifics of the role and the long-term objectives (linked to circular economy)

– note on record sheet

- A public / workers voice: judges actions of the explorers with its own bias



Four Scenario Explorers



Board  
One Public Voice



Record sheet



# New Foresight (2024 - 2026)

## OSH implications of future climate change-related developments and crises

- how OSH related policies and practices can be adapted to the new circumstances of work as a consequence of the climate change.
- how the world of work is going to adjust to the possible *permanent* changes and disruptions that will be regularly triggered by extreme future climate events (continuous droughts and forest fire, intense rainfall, severe flooding, heat waves, pandemics)
- the new ways of working that emerge as a *human response* to those changes (e.g. adaptation needs in the agriculture/forestry, tourism, and energy sectors) and how this impacts safety and health at work;
- associated phenomena such as forced migration waves, geopolitical and economic instability are also likely to impact workplaces and OSH

# Update: results and recommendations of ex-post evaluation 3rd Foresight (2023- 2024)

## Objectives:

To assess the performance of the Third Foresight Cycle based on criteria of

- **Effectiveness**
  - **Relevance**
  - **EU added value**
  - **Coherence**
- 
- To feed in the design and implementation of 4th Foresight Cycle 2024 – 2027
    - OSH implications of future climate change related developments and crises

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## Recommendations for existing practices to be continued

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- Act as a pioneer and innovator in the field of OSH
- Ensure involvement of relevant stakeholders and experts
- Leverage state-of-the-art, innovative methodological approaches
- Guarantee the quality of foresight work and products
- Foster synergies within EU-OSHA and wider OSH and foresight communities

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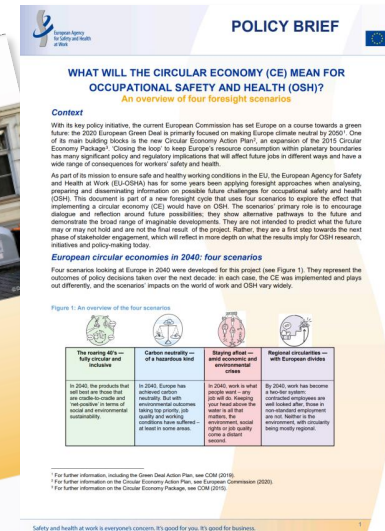
# Thank you!

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 <https://osha.europa.eu/en/emerging-risks/circular-economy>



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# Thank you !