



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

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**Brussels, 14 June 2022**

## OBJECTIVE:

### To anticipate new and emerging challenges to Occupational Safety and Health (OSH)

- **EU Strategic Framework on Health and Safety at Work 2014-2020, Community Strategy 2007-2012**

*Calls EU-OSHA to “Anticipate possible negative effects of new technologies and changes in work organisation on workers’ health and safety”*

- **EU Strategic Framework on Health and Safety at Work 2021-2027**

Key objective: *“Anticipating and managing change in the new world of work brought about by the green, digital and demographic transitions”*

- **2002 – 2006: 4 Expert forecasts**
  - On emerging physical, chemical, biological and psychosocial risks
  - Based on Delphi surveys
- **Since 2008: 3 Foresight cycles based on scenario-building**
  - OSH in green jobs
  - Digitalisation and effects OSH
  - Circular Economy and its effects on OSH (*ON-GOING*)

# Method: Scenario-building

## ■ A tool for strategic futures thinking

- Doesn't assume the future is pre-determined, doesn't demand consensus
- To provide insight and stimulate debate into ways to shape the future

## ■ Scenarios of plausible, possible futures:

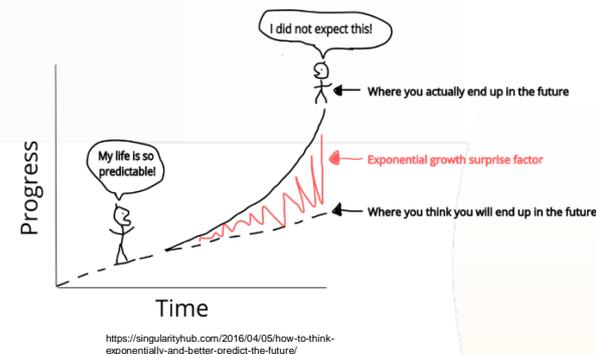
- Help policy-makers gain insights into long-term developments
- Better understand what decisions could help avoid/ encourage these futures

## ■ Participatory:

- To engage with different groups of stakeholders and generate strategic discussions
- With multi-disciplinary experts and policy-makers to gain knowledge of each other's disciplines and mainstream OSH

## ■ Global approach

- Societal, technological, economical, political context are taken into account



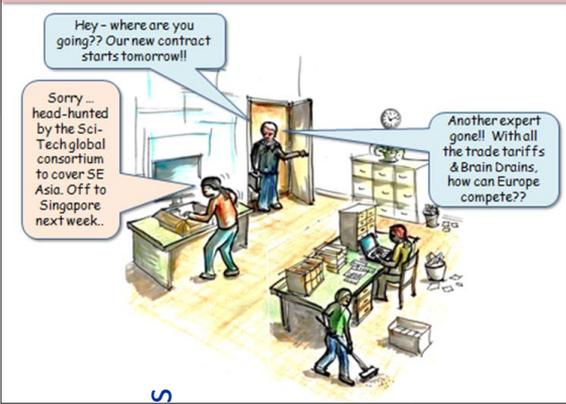
*“It offers the possibility to be more creative than in usual meetings.”*

*“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.”*

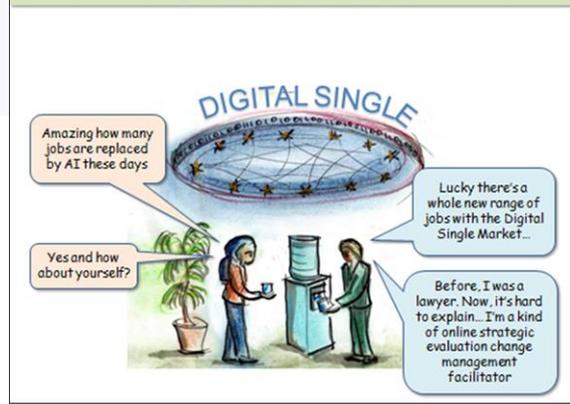
### BRAIN DRAIN



## Example: Scenarios Digitalisation

High/Supportive

### DIGITAL SINGLE MARKET



Governance & public attitudes

Low

Scenario 1 Evolution

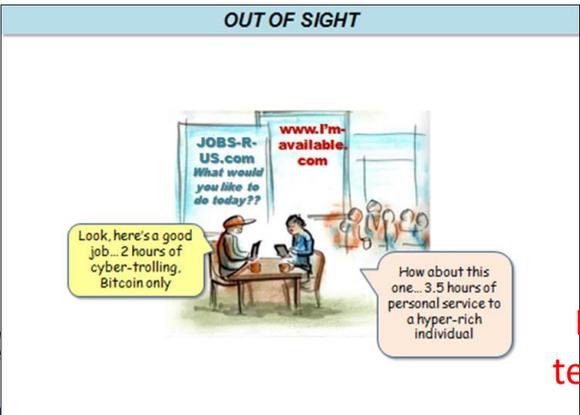
Scenario 2 Transformation

Scenario 4 Fragmentation

Scenario 3 Exploitation

High

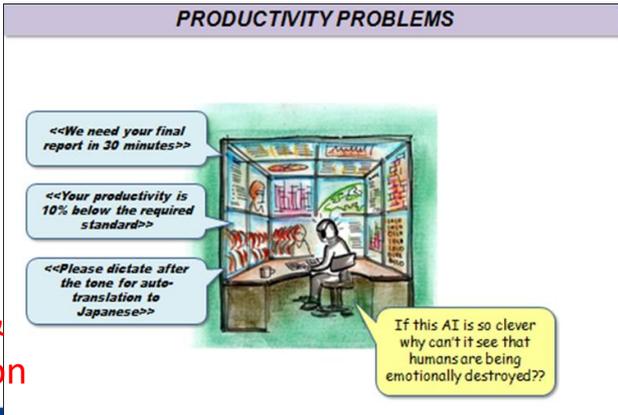
### OUT OF SIGHT



Low/ Resistive

Economic growth & technology innovation

### PRODUCTIVITY PROBLEMS



# 3<sup>rd</sup> 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”

# Foresight study on the circular economy and OSH

**First phase (2021):** scenario development - Macro scenario's.

**Second phase (2022):** dissemination and tailoring of the macro-scenarios, via stakeholder dialogue and workshops - Micro scenario's.



## **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

# Phase 1 (2021): focused on 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**

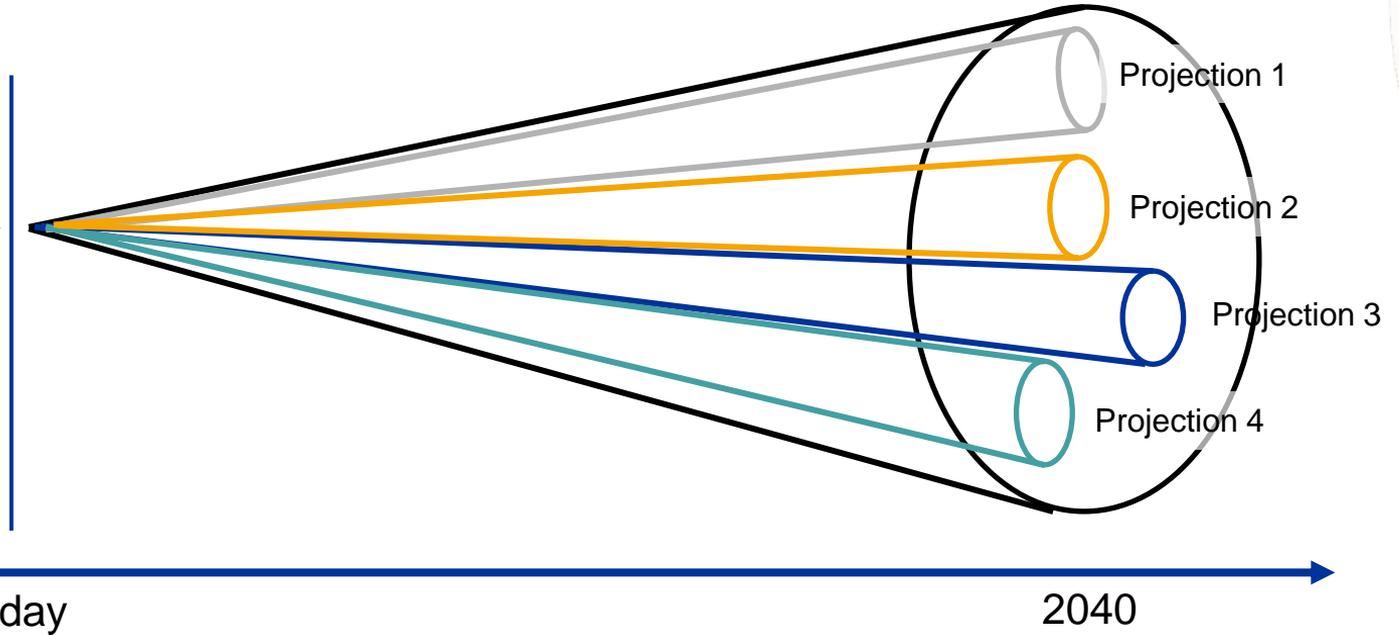
### Reporting & Communication



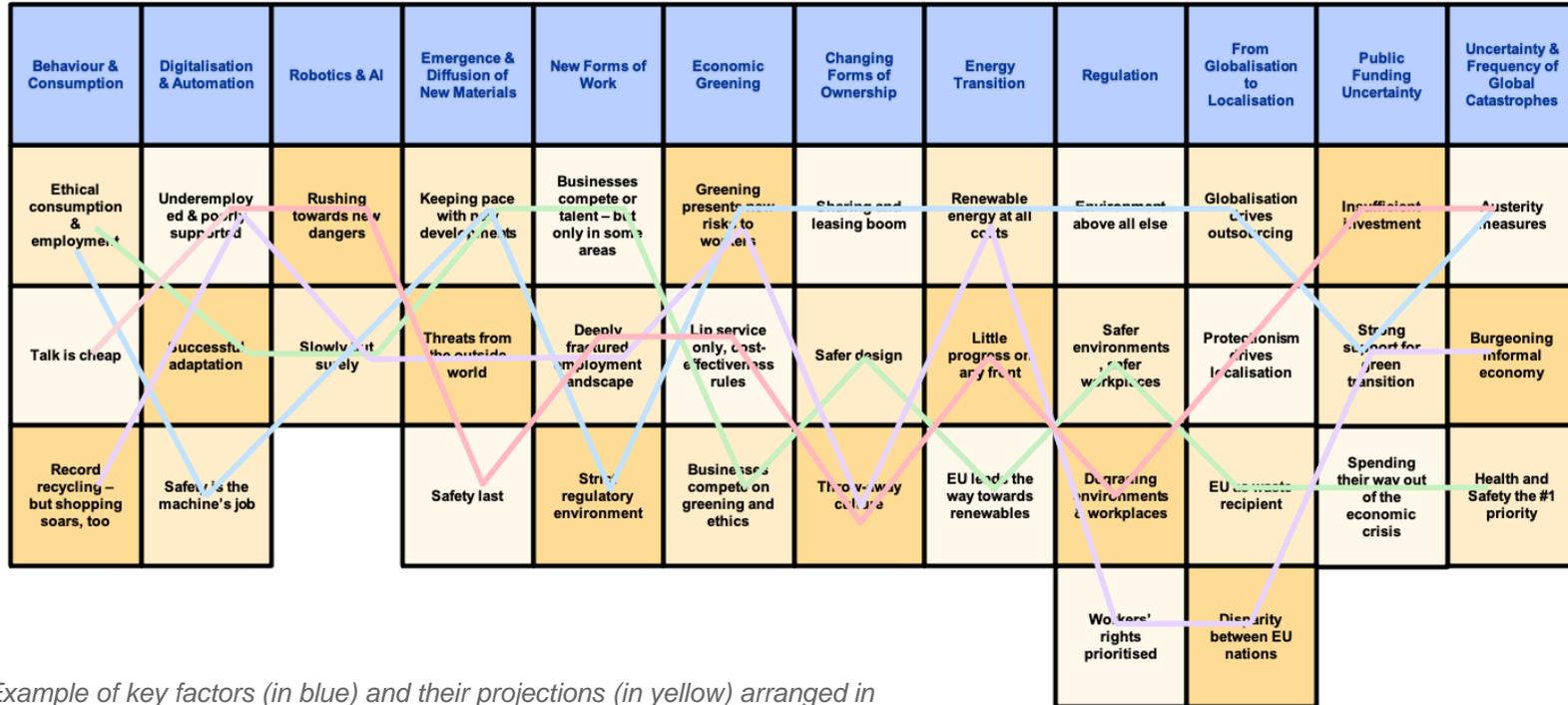
6

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

# The scenarios: four different CE (and OSH) futures until 2040

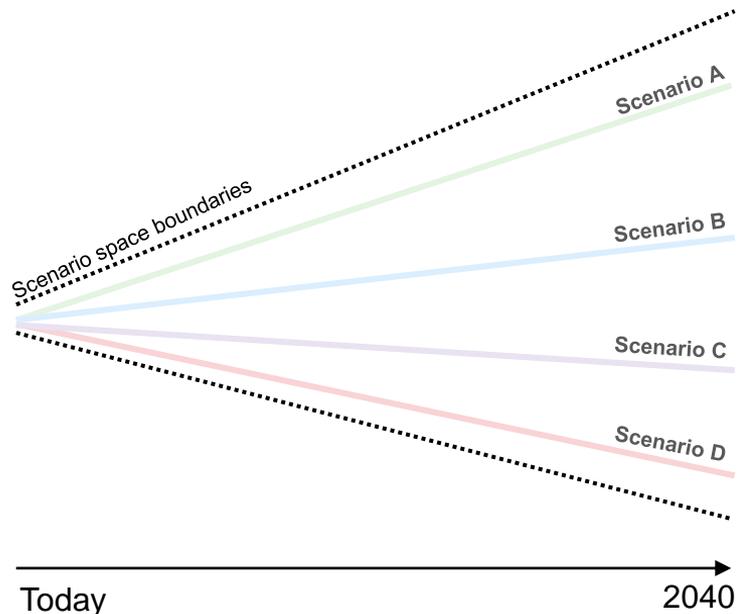


# Scenario Construction



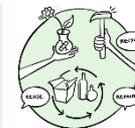
Example of key factors (in blue) and their projections (in yellow) arranged in a morphological box. The raw scenarios are represented by the coloured lines

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

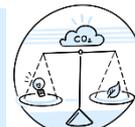


## The 4 Scenarios:

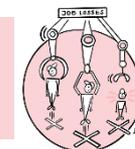
**The roaring 40's – fully circular and inclusive**



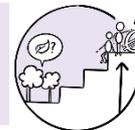
**Carbon neutrality - of a hazardous kind**



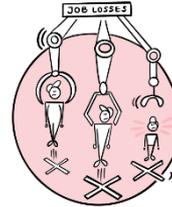
**Staying afloat – amid economic and environmental crises**



**Regional Circularities - with European Divides**



# Result Phase 1: 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>

# The roaring 40's – fully circular and inclusive

In 2040, the products that sell best are those that are cradle-to-cradle and 'net-positive' in terms of social and environmental sustainability.



# The roaring 40's – fully circular and inclusive

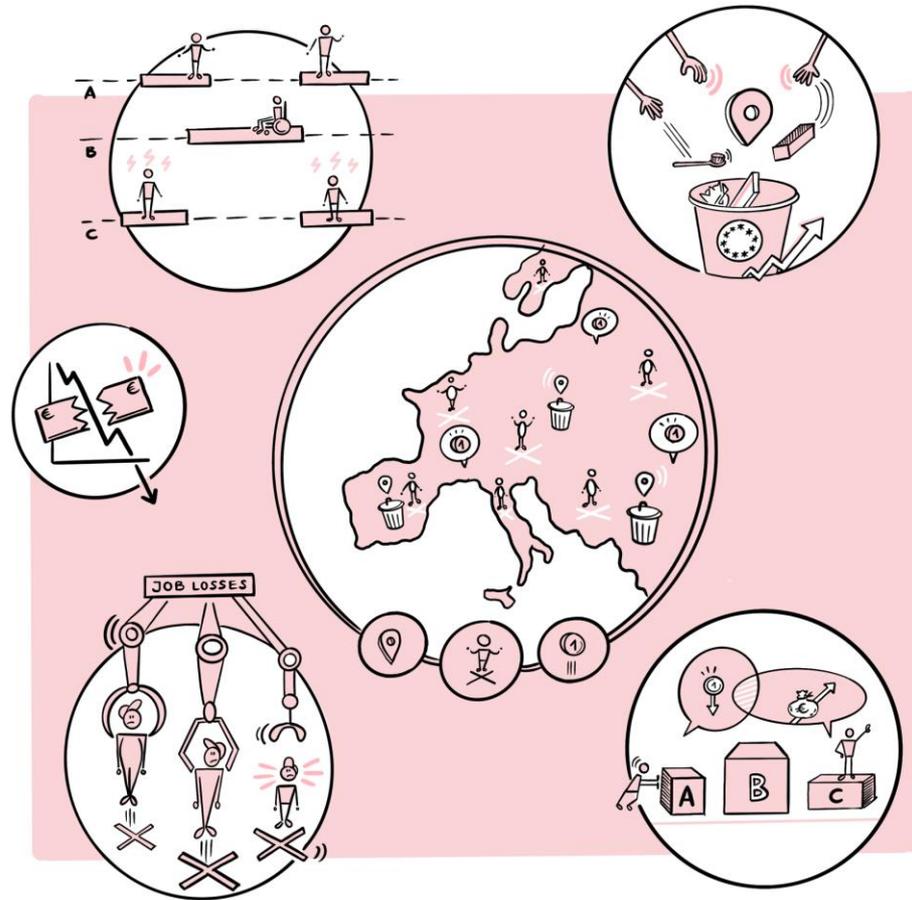
## Phone call between the union representative and a maintenance worker (names withheld for privacy reasons), 1.6.2040:

Maintenance worker: 'Kind of you to ask, but no, I'm **not worried about anything. I like it up here — and I do feel safe.** Sometimes, when you hear about the accidents people **had two decades ago** when the first serious urban PV installations started; it feels ridiculous, **or horrifying.** People working with helmets and hi-vis vests only, no airbag, nothing. Plus, it sounds like **no one was ultimately responsible for them. I have my safety AI Eugene watching over me ...'**



# Staying afloat – amid economic and environmental crises

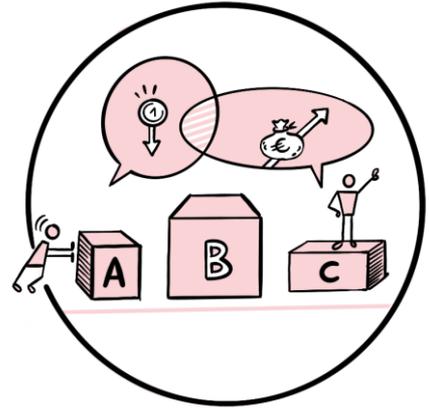
In 2040, the biggest concern for many is just having a job – and not what the job entails. Most people are focused on keeping things afloat, so that there's little consideration for much else - not the environment, not social rights and not job quality.



# Staying afloat – amid economic and environmental crises

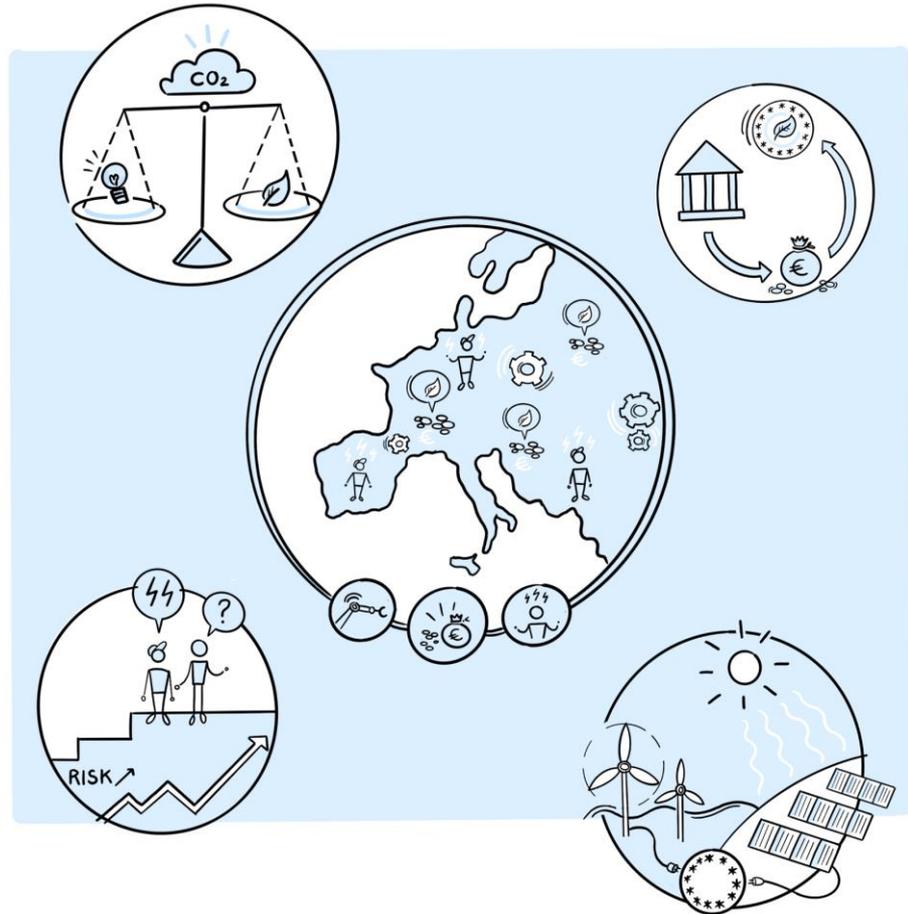
## Agáta Novotná, Zlín, Czechia, March 2040

Agáta wakes up at 04:50 sharp, giving her just enough time to roll out of bed and log on to jobseek.eu, where job vacancies are published throughout the EU daily. With a professional background in real estate (who would buy in this market?) Agáta has increasingly been forced to take on **platform jobs in the waste collection industry** just to make ends meet. Like the Uber drivers of yesteryear, cash'4'collect drivers provide on-demand waste collection services to households in the Moravia region. **All that is required of potential workers is their own vehicle and a prompt collection and drop-off service.** Today looks like a quiet one, though, with hardly any collection tickets on offer. Agáta slips back into bed, deciding to put off worrying about how she's going to pay rent this month until after she next wakes up.



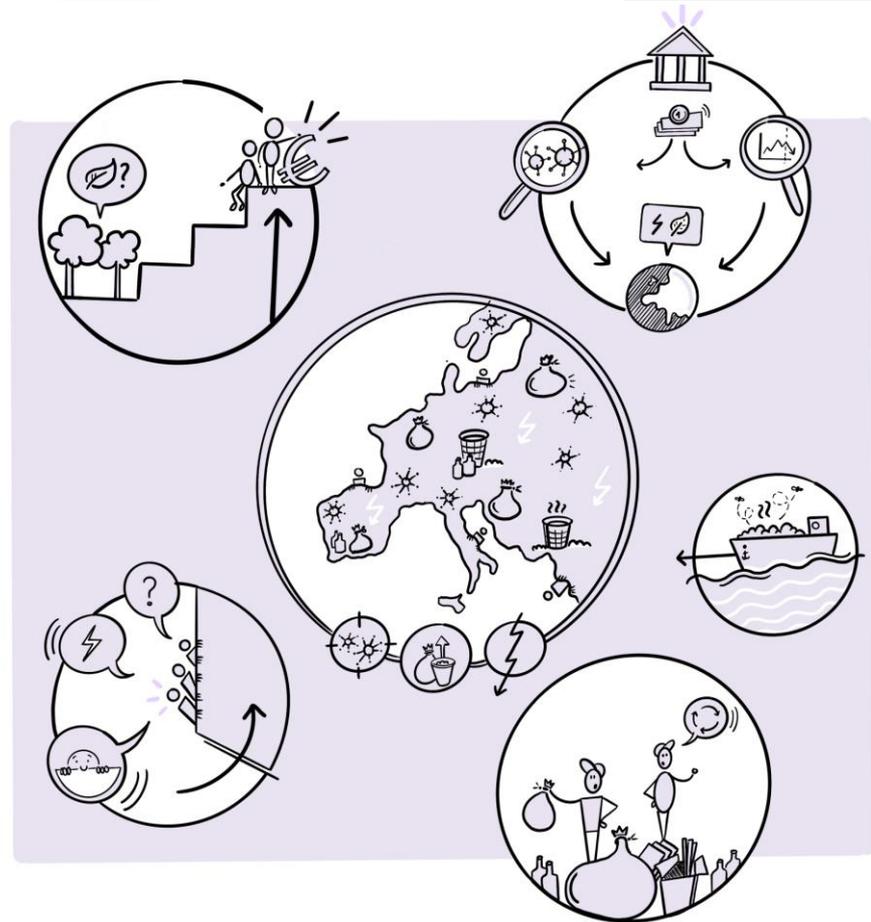
# Carbon neutrality - of a hazardous kind

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.



# Regional circularities - with European divides

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.



## Phase 2: dissemination and tailoring of the scenario's

### ✓ Definition of the stakeholder groups (stakeholder analysis)

- Potential workshop participants
- Target audience for effective communication and dissemination

### ✓ Development of 4 different “lenses” for the workshops

- Workshop 1: focus on vulnerable stakeholder groups (incl. e.g., migrant workers, lower-skilled, youth, etc.).
- Workshop 2: focus on most affected sectors by the transition to a circular economy.
- Workshop 3: focus on waste management (stakeholders from the waste industry as well as other high waste producing sectors).
- Workshop 4: focus on cross-cutting implications for OSH as well as regional perspectives.

# Workshop lenses (i.e., focus) for each of the workshops, including suggested stakeholder groups.



# The workshops:

Each workshop starts from the existing macro-scenarios (with already tailored content).

## Examples of guiding questions:

- What kind of **change** can we expect the macro-scenario to bring about **for the stakeholder groups** (both collectively and individual groups)?
- How would **work change** in the scenario (covering opportunities as well as risks)?
- What are the specific **OSH implications?**
- From the macro-scenario, what are the **(new) needs for action and policy?**
- Which **needs for further research** can we identify today?
- Which of the changes and implications identified in the discussions **cut across the scenarios, and which ones are specific for one specific pathway?**

# Planning

## Workshops:

The first **3 workshops** have taken place on resp. the 9th and the 29th of March, and 7<sup>th</sup> of June 2022.

The **4th workshop** will take place in October 2022 and the lens is focused on cross-cutting implications for OSH as well as regional perspectives.

- Mix of policy makers from a broad cross section of networks and disciplines
- Regional representation guaranteed via FOP nominees

## Reports and further dissemination:

The interactive workshops and further desk research will lead to the development **of a set of micro scenarios** for 4 relevant branch/stakeholder group combinations per scenario (16 in total). These will be published as a report (including a summary and policy briefs) beginning of 2023.

# In development: draft micro-scenarios (16)



## 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

Narrative  
Vignette  
on waste  
sector E.g.  
day in the  
life, news-  
paper  
clipping



## 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

Narrative  
Vignette  
on waste  
sector

Placeholder for  
new visuals on  
micro-scenarios



## Staying Afloat – Amid Economic and Environmental Crisis

Non-standard employment  
contact + Energy sector

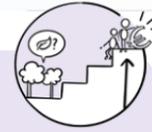
High-skilled worker +  
Transport sector

Low-skilled worker +  
Construction sector

Migrant worker +  
Manufacturing sector

Narrative  
Vignette  
on waste  
sector

Placeholder  
for new visuals  
on micro-  
scenarios



## 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

Narrative  
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**NB:** in the final report, ways will be explored how to best integrate new scenario pathways around what have been **major developments** in the interim period since Phase 1 of the project, **including e.g. the Ukraine crisis** and the potential effects of these developments on both the circular economy and working conditions (and OSH) in the EU until 2040.

# Preliminary results Circular Economy and OSH [ongoing]

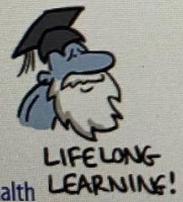
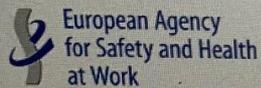
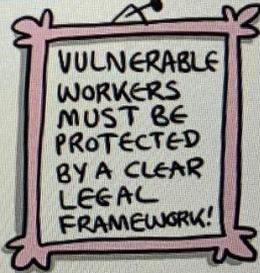
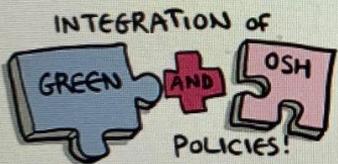
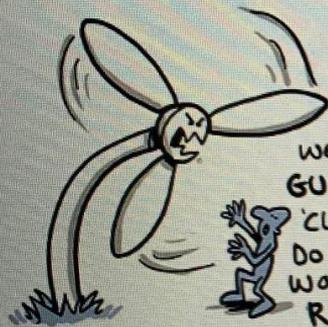
## Adaptation/innovation in working processes, creativity in business models, short circles, new ways of collaboration, less waste

- new type of **design of working processes** for the future
- incorporation of **digital technology**.
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- **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;
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# WORKING SESSION 3: ROAD-MAPPING / OCCUPATIONAL SAFETY AND HEALTH LEVERS FOR PROTECTING VULNERABLE WORKERS



...IS THERE TIME FOR RISK ASSESSMENT OF THE NEW PROCESSES?

FUTURE IMPACTS



# SHARING RESULTS, FINAL REFLECTIONS & NEXT STEPS

CORNELIA DAHEIM,  
JESSICA PRENDERGAST,  
FUTURE IMPACTS

ANNICK STÅREN  
EU-OSHA

ON HOW DIFFERENT  
SECTORS MIGHT BE  
AFFECTED...

ENERGY... AND ...WASTE

... WILL BE STRONGLY  
AFFECTED!

CASH IS  
KING!

... A LACK OF  
INVESTMENT

A NEED FOR  
AN INTEGRATED  
REGULATORY  
APPROACH!

European Agency  
for Safety and Health  
at Work

OSH COULD PLAY  
A SUBSTANTIAL  
ROLE IN ENSURING  
A POSITIVE, SAFE,  
FAIR & SUSTAINABLE  
TRANSITION!

WILL WORKERS  
BE AT THE MERCY  
OF THE TECHNOLOGY  
eg. DRIVERS RESTING WHILE  
EVs RECHARGE

THE BIG  
PICTURE  
IS  
MISSING!

THE GREATEST RISKS  
ARE WHERE LARGE  
INFRASTRUCTURE  
IS NEEDED!

FUTURE IMPACTS

RAPID &  
FAR-REACHING  
CHANGE!

? NEW  
JOBS!

NEW  
MATERIALS!

THE BOUNDARIES  
BETWEEN  
SECTORS  
ARE BLURRING!

DECREASED  
DRIVE FOR  
RECYCLING!

KEY QUESTIONS  
AROUND NEW & EMERGING  
HAZARDS

NEW  
RISK  
FROM  
NEW  
TECH?

DANGER!  
NANOBOTS!

TRAINING  
AND  
RESKILLING!

DIGITAL  
TAGS!

CONTINUOUS  
INVESTMENT  
IN TECHNOLOGY  
& INFRASTRUCTURE!

drawnALISM  
drawing knowledge

ON OSH LEVERS FOR  
SUPPORTING THE MOST  
AFFECTED SECTORS...

TAKE AN  
ANTICIPATORY  
APPROACH FOR  
OSH & RISK  
ASSESSMENT!



**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 (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 rising 40's — fully circular and inclusive	Carbon neutrality — a fairer world	Staying afloat — with economic and environmental crises	Regional circularities — with European divides
In 2040, the products that are used are those that are circular and inclusive and that promote 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 — and job will do. Keeping our head above the water is all that matters; the environment, social rights or job quality come at a distant second.	By 2040, work has become a free-market system; contracted employees are well looked after, those in non-standard employment are not. Neither is the environment, with circularity being merely optional.

<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 a report and 2 Policy briefs:**

- “The role of digitalisation in the circular economy and implications for OSH”
- “Challenges and opportunities for occupational safety and health in the waste sector”

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

**ON-GOING:**

- Workshops with stakeholders
- Development of micro-scenarios with stakeholders dedicated to specific contexts (regions, sectors, activities, workers' groups)
- Final reports with micro-scenario's expected Q1 2023

# Concerns

- If green jobs are to be truly sustainable, we need to make sure that they benefit workers' safety and health, as well as the environment. In the green economy, as elsewhere, good OSH plays a vital role in increasing competitiveness and productivity. In this fast-developing area, we need to ensure that what is good for the environment is good for workers too.
- Given how quickly the green economy is expected to grow, it is important that we anticipate any new or emerging OSH risks in relation to green jobs before they appear. That is why EU-OSHA has carried out foresight studies and reviews looking at the challenges and opportunities that will arise as part of the transition towards climate neutrality:
  - *Emerging risks and OSH challenges in the agriculture and forestry sector* (<https://osha.europa.eu/en/highlights/emerging-risks-and-osh-challenges-agriculture-and-forestry-sector>)
  - *Circular economy and its effects on OSH* (<https://osha.europa.eu/en/emerging-risks/circular-economy>)
  - *Workers' safety and health in green jobs* (<https://osha.europa.eu/en/emerging-risks/green-jobs>)



**Thank you!**

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