



POLICY BRIEF #2

JANUARY 2025

STRENGTHENING LABOUR FORCE RESILIENCE IN THE FACE OF CHANGE

Key Points

Labour market shocks pose a significant threat to Europe's social and economic stability. It is essential to involve workers in shaping the design of future work technologies, which includes prioritising manufacturing jobs to make digital and sustainable transitions possible and to ensure better and more sustainable employment opportunities. Addressing skill gaps is central to societal resilience, enabling individuals to navigate economic, technological, and environmental changes effectively.

Initiatives like the **FutuResilience FICTIONS Lab** demonstrate how digital technologies can transform workplace dynamics while prioritising worker well-being and inclusivity.

- **Participatory approaches** capture workers' expectations, fears, and needs during disruptive technological change.
- **Workforce training** addresses skill gaps and ensures a better understanding of the transformative forces impacting labour markets.
- Human-centric approaches should prioritise developing **tailored technological solutions** for workplace well-being.
- **Speculative design** encourages creative thinking and debates about complex labour market challenges, promoting resilience and adaptability.





Introduction

The FutuResilience project aims to strengthen European economic and social resilience through an enhanced ability to respond quickly to future crises. **Future labour market shocks** threaten the European social and economic environment, worsening workers' well-being. The manufacturing sector facing **high labour shortages** needs new approaches to build resilience.

This policy brief emphasises the need for resilience-building policies in digital skills development, drawing lessons from the FICTIONS Lab. **Addressing skill gaps** is vital for societal resilience, equipping citizens to adapt to economic, technological, and environmental challenges. The participatory and human-centred approaches in the FICTIONS Lab serve as a prototype for similar actions in other contexts.

Building resilience in the labour force

Labour market shocks threaten **social cohesion** in the EU and must be addressed to achieve a just transition, as mandated by the European Green Deal. These shocks arise both from policy-driven structural changes (e.g., the progressive phase out from fossil fuels) and from existing and emerging trends, including disruptive technological change, alterations to the preexisting geopolitical environment, exogenous shocks such as pandemics, and demographic changes. Workers employed in the **manufacturing sector** are particularly exposed to these changes because of the rapid diffusion of automation and **new technologies**, disruptions in global markets for output and critical inputs due to geopolitical changes, and the high emission and material intensity of manufacturing sectors, which call for stringent environmental policies to reduce pollution and achieve net zero emissions by 2050. Moreover, the pervasive adoption of new technologies influences the relative demand for skills in manufacturing sectors, leading to the contemporaneous presence of skill obsolescence and skill gaps. While **skill obsolescence** is a driver of socioeconomic inequalities, **skill gaps** could represent a significant bottleneck for fully deploying private and public investment to transform European industry.

These challenges call for novel and innovative approaches to building resilience in labour markets. While **traditional labour policies** (e.g., unemployment benefits, employment protection legislation, active policies, retraining, etc.) still represent the backbone of labour market resilience, **novel and tailor-made approaches** are needed for workers to cope with the highly uncertain consequences of digital and automation technologies for their jobs and to improve their well-being.



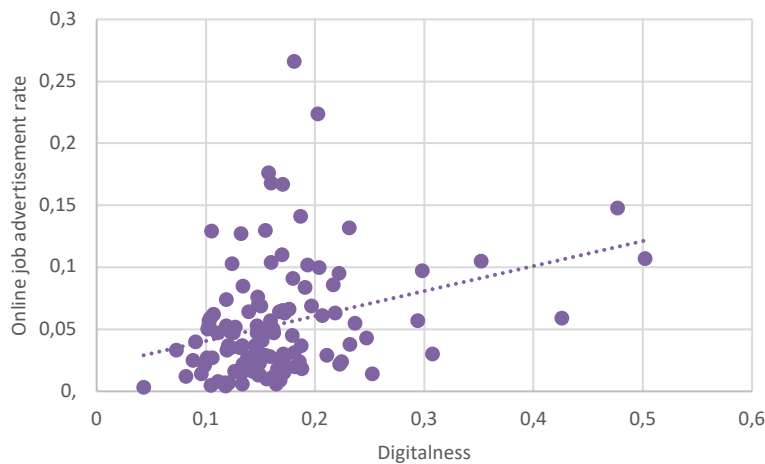


Figure 1. Open vacancies in occupations by level of 'digitalness' (Source: own elaboration on Eurostat and Cedefop – Skill-Ovate data for year 2023)

In this respect, **providing workers with digital skills** is critical to contribute to the resilience of the labour force. The pervasive diffusion of digital technologies across all sectors of the economy increasingly affects the task composition of occupations and, consequently, the demand for different skills. At the same time, this leads to skill obsolescence and scarcity. According to the most recent data from Cedefop and Eurostat, a robust correlation was found in 2023 between the degree of 'digitalness' of occupations and the rate of open (i.e., not yet filled) vacancies in the EU, suggesting large digital-skill gaps in the EU labour market.

The **European Skills Agenda** aims to develop digital and sustainable skills, facilitating the twin (green and digital) transition and ensuring social fairness. The FICTIONS Lab exemplifies an approach that uses **experimental training** to address skill gaps and improve workplace well-being.

Digital technologies in the manufacturing sector: the FICTIONS Lab

The **FICTIONS Lab operates in North Portugal**, which is the most industrialised area in the country. The workers involved in the lab were recruited from the Portuguese engineering and construction company Domingos da Silva Teixeira, S.A. (dst), and the lab activities were led by Fraunhofer Portugal AICOS, a not-for-profit research centre on digital technology.

The FICTIONS Lab explores **how digital technologies (e.g., large language models and cobots) can transform workplace dynamics, emphasising worker well-being and inclusivity**. The lab also considers the overlap of technological changes with other changes in the workplace, including cultural shifts, demographic changes and safety. A survey of industrial workers revealed a **generally positive attitude towards automation**, paired with **concerns about job monotony** and **skill dispensability**. Workers identified safety, efficiency, and communication as critical areas expected to significantly impact automation. Three **workers attitude types** were identified:

- **Novice technology users** with minimal experience.
- **Change-averse workers** fearing isolation and skill disposability.
- **Safety advocates** foreseeing enhanced physical safety and a pressure-free work environment.

Workshops with stakeholders explored systemic challenges, such as health, migration, and societal integration, using creative exercises to address future workplace scenarios. **Training sessions** on cyber-physical systems, human-machine interactions, and AI call attention to the need for frequent training, adaptable leadership, and universally accessible technology.





A key feature of the FICTIONS Lab is the use of **speculative design**, a practice aimed at exploring future possibilities and impacts of, among other things, emerging technologies to trigger debates about the future. Four workshops facilitated speculative design exercises and policy discussions.

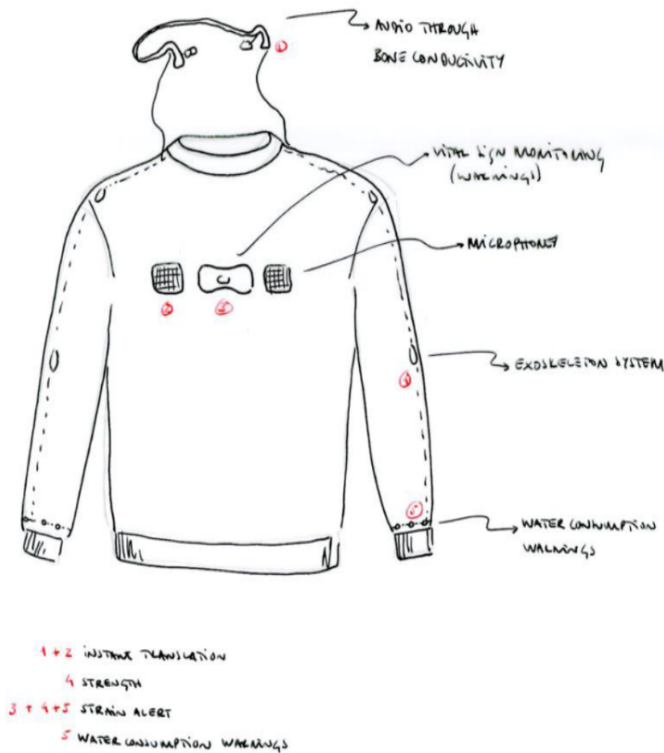


Figure 2 Speculative design of a human-centred technology embedded into a sweater (source: Fictions lab)

Workers collaborate on addressing factors such as aging, resource availability, and migration through creative tools such as collages and futuristic prototypes to imagine the future of their workplace and develop human-centred digital technologies to improve workers' well-being in a changing world. For example, a **provocative prototype** consisted of a sweater equipped with i) an instant translation from/to a foreign language using a microphone and a bone conduction headset; ii) vital sign monitoring with warnings; iii) an integrated exoskeleton for upper limbs; iv) water consumption warnings. These exercises allowed the workers to experience future technology as it is today and reflect more deeply on its implications for their jobs and their skills in a deeper way. For instance, through these exercises, workers considered that occupational safety and health regulations would need to change in the face of emerging technologies at work. While imagining themselves wearing these technologies, workers concluded there was a risk that some technologies contributing to improving physical health (e.g., facilitating communication on the job) would, on the other hand, constitute a risk for mental health (e.g., surveillance).

Policy implications and action items

The future of work will be shaped by ageing, migration, resource availability, and workplace safety. The FICTIONS Lab proposes **innovative approaches** to integrating digital technologies in the workplace, emphasising worker participation, tailored training, and inclusive policies. The project points to the need to **address diverse worker needs and prepare them for future technological challenges**.

Four concrete policy actions are recommended:

- **Use participatory approaches** to understand workers' expectations, perceptions, fears and needs.
- **Prioritise training** to fill skill gaps and help workers understand labour market changes.
- **Develop human-centric technological solutions** considering all dimensions of workplace well-being.
- **Apply speculative design** to stimulate creative thinking and debate about challenging futures.



Project Identity

Project Name	Creating FUTUre societal RESILIENCE through innovative, science-based co-creation labs [FUTURESILIENCE]
Consortium	[Coordinator] European Future Innovation Systems (EFIS) Centre – Belgium; NTNU Social Research – Norway; Fraunhofer ISI – Germany; University of Ferrara – Italy; University of Urbino – Italy; Maastricht University – Netherlands; Regional Development Institute – Greece; Polytechnic University of Cartagena – Spain; Copenhagen Institute for Future Studies – Denmark; Foresight Centre at the Riigikogu – Estonia; Mid-Sweden University – Sweden; Bulgarian Association of Personalised Medicine – Bulgaria; Municipality of Murcia – Spain; Municipality of Chios – Greece
Funding Scheme	Horizon Europe / HORIZON-WIDERA-2022-ERA-01: An experimentation space for the uptake and use of R&I results for EU resilience and future preparedness
Website	www.futuresilience.eu
Duration	36 months (January 2023 – December 2025)
Budget	€2,889,406.25

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