NEWSLETTER 4

Up·Skill

UP-SKILLING FOR INDUSTRY 5.0 ROLL-OUT

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UK Research and Innovation

IN THIS EDITION

As the Up-Skill project approaches its final phase, we continue to explore how European industries can embr**ace the principles of** Industry 5.0—where **human-centricity, sustainability, and resilience** take centre stage in shaping the future of work.

In this edition, we bring together some of the project's most insightful research outputs, including new reports on **system effectiveness, future skills development, and training methodologies** tailored for increasingly automated and digitised work environments. These findings showcase how technology and human expertise can complement one another, driving innovation while safeguarding craftsmanship and cultural heritage.

We also share perspectives from project partners such as **TWI** and **J4IC**, who reflect on their experiences and the transformative potential of human-machine collaboration. Alongside these updates, we highlight related initiatives from across Europe—projects like **BRIDGES 5.0, PROSPECTS 5.0**, and **SEISMEC**—that are collectively redefining industrial innovation and workplace transformation.

This issue also features details about upcoming events, including **EUWIN's online discussion on Europe's evolving industrial landscape**, the **ShiftLabs Roadshow in Sweden**, and the **Up-Skill Final Conference**, which will take place in Brussels in early 2026.

PROJECT PROGRESS

TOWARDS INDUSTRY 5.0: ENHANCING SYSTEM EFFECTIVENESS WITH HUMAN-CENTRIC TECHNOLOGY

As technologies rapidly evolve, so do the challenges faced by businesses wanting to adopt them. Previous research from the Up-Skill project has identified a need for balancing the integration of new technologies with existing practices whilst ensuring active worker involvement and management awareness of economic, social, and technical impacts.

The latest System Effectiveness Report from the Up-Skill project explores how businesses can achieve this balance, ensuring sustainability, resilience, and human-centricity remain at the core of technological transformation.

The report examines the critical role of human skills in increasingly automated environments, identifying the competencies that allow workers to thrive alongside autonomous systems. It explores how businesses can mobilise human creativity, ensure skilled employees...

READ THE ENTIRE ARTICLE HERE >

FUTURE SKILLS AS A FOUNDATION FOR HUMAN-CENTRIC TRANSFORMATION

The Future Skills Training Content report, developed by the Up-Skill project, offers a rethinking of how skills are defined, developed, and applied in the context of Industry 5.0. Far from being static inventories, skills are reinterpreted as emergent, context-specific capabilities that evolve through continuous interaction between workers, technologies, and organisational structures.

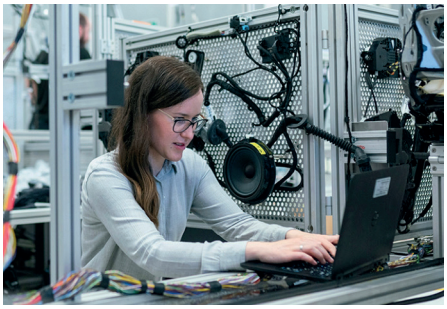
At its core, the report challenges traditional top-down models of skills mapping. Instead, it proposes a dynamic, participatory, and human-centric framework—one that reflects the lived realities of modern work environments, especially in small and medium-sized enterprises (SMEs) and artisanal firms. By recognising that skills emerge through experience, experimentation, and problem-solving, the report offers an adaptive approach better suited to the complexities of today's socio-technical landscapes.

Aligning with Industry 5.0: A Human-Centric Vision...

READ THE ENTIRE ARTICLE HERE >

TAILORED TRAINING FOR INDUSTRY 5.0: INSIGHTS FROM THE PROGRAMME TRAINING AND USAGE METHODS REPORT

The Programme Training and Usage Methods Report is a key deliverable within the Up-Skill project, which supports European organisations in preparing their workforces for Industry 5.0. The report brings together findings from nine industrial case studies, examining how companies identify skills needs, select technologies, and adapt their training approaches while transitioning to more human-centric and intelligent production systems.



Originally envisioned as a set of training manuals, the deliverable evolved into a narrative report that documents the learning gained from nine company case studies. Each case examines how technology choices were made, what challenges emerged, and which new skills were required to support implementation. This change in scope reflects the practical realities of industrial collaboration...

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NEWS & UPDATES

DARREN WILLIAMS FROM J4IC DISCUSSES THE UP-SKILL PROJECT

In this article we talk to EUR ING Professor Darren Williams MEng, EngD, CEng FIET, MWeldI, who works for TWI Ltd as Welding Systems Team Manager and for Lancaster University as Director of the Joining 4.0 Innovation Centre (J4IC), a strategic partnership between TWI and Lancaster University. Both roles focus on research and development (R&D) of novel, digital technologies for implementation in welding and joining techniques.

The Up-Skill project: Up-skilling for Industry 5.0 Roll-out project, is focused on building a better understanding of how businesses in industrial and manufacturing environments can leverage value from human-machine integration. In particular, Up-Skill is looking at what happens when new, 'intelligent' production technologies are introduced into organisations, examining how artificial intelligence (AI), robotics and other technologies can change working practices, the skills people use, and how they respond to and interpret the practices. Research undertaken during the project will also map out wider changes that could occur, using ethnographic studies to consider working methodologies and social interactions, and routes to understanding and obtaining the technologies to be implemented.

Prior to joining TWI, Darren worked for Rolls-Royce where he played an integral part in setting up a brand new, state-of-the-art production facility, the Advanced Blade Casting Facility (ABCF). While there, Darren was the Area Process Owner, responsible for optimising and managing automated production lines, product integrity, training and continuous improvement as well as leading engineering teams.
Darren has been an active volunteer for over 19 years, receiving national recognition for his contributions including:

-Paul Fletcher Award 2019 Winner – The Institute of Engineering Technology (awarded annually to an IET volunteer for outstanding achievement in contributing to the Institute's activities)

-2018 British Black Business Award (BBBA) Winner – Science Technology Engineering Maths: Rising Star, STEM category, under 35 years old (BBBA is a premium awards programme, receiving 1000's of entries each year, that recognises, rewards and celebrates, exceptional performance and outstanding achievements of black people in businesses operating in Great Britain)

-2017 STEM Ambassador of the Year 2017 – awarded by the prestigious Armourers & Brasiers in recognition of volunteering activities contributing to the promotion of engineering

Darren was appointed Director of J4IC in 2020 and, since then, has established the Centre as a key digital partner focused on artificial intelligence (AI), machine learning, and the connection and enhancing of legacy systems within a welding and joining context. Find out more about some of J4IC's projects.

In this interview with Darren, we take an insightful look at the Up-Skill project, which J4IC is a consortium partner on.

Why did J4IC join the Up-Skill project?

The Up-Skill project aims not only to identify the key features of the topology that defines human-machine relations in industry 5.0 but to define the managerial competencies needed to succeed in this space. Up-Skill will link different strategic contexts, technology implementation and detailed workplace ethnographies within a single research project, primarily addressing the workforce implications of industry 5.0, in the context of the relationship between automation choices and maintenance of skilled work. J4IC, therefore, joined the project to support the ethnographic studies based at end user organisations, and develop and apply AI and machine learning across these use cases...

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NEWS & UPDATES

TWI'S KANDARP AMIN SHARES HIS EXPERIENCES FROM THE UP-SKILL PROJECT

The Up-Skill project, 'Up-skilling for Industry 5.0 Roll-out', aims to deepen our understanding of how industrial and manufacturing businesses can maximise the benefits of human-machine collaboration. It specifically examines the impact of introducing AI, robotics, and intelligent production technologies into organisations, exploring how these advancements reshape working practices, skill requirements, and employee interactions.

Through ethnographic studies, the project also analyses broader organisational and social changes, providing insights into how companies can effectively adopt and integrate these technologies.

In this article, we speak with Kandarp Amin, a specialist at TWI with over six years of experience in brazing, diffusion bonding, wire bonding, and robotics adoption in manufacturing. He shares his expertise on robotic brazing and the evolving role of automation in industrial processes.

Why did you join the Up-Skill project?

TWI has joined the Up-Skill project because of our interest in improving the future digital and robotic workspace, thus ensuring manufacturing techniques align with industrial requirements whilst maintaining high quality joints.

How are human-automation challenges related to the core values of Industry 5.0 and expectations of the EU?

Industry faces continuing pressure to achieve more with less by using cost effective and sustainable resources. Up-Skill takes this premise and builds in the human contribution by considering Industry 5.0 and specifically, in this case, considering robot or cobot (cooperative robot) transitions toward fostering a harmonious interaction between the human and cobot working processes.

The benefits of cobots include high accuracy, repeatability and safety, allowing close human/machine interaction and exact assistive production efficiencies, in terms of load-carrying, product placement and reducing repetitive functions for operators.

How is your experience in R&D and engineering informing your current work within Up-Skill?

My experience of working within a technologically advanced research environment with particular reference to next generation mobile telephony, their influence on industrial robotics and supporting equipment has been directly transferable into Up-Skill. I'm supporting the project with robotic set up; our application uses cobots to deposit braze paste ready for components to be brazed using a vacuum furnace; but other processing is also possible.

What is your vision for the project and how that will contribute to the project outcomes.

Robots and cobots are programmed to follow a set of commands. This means that a pathway is created for the cobot to follow, which may also include other operations such as switching of vacuum systems, applying adhesive, polishing, spraying or welding, etc. The pathway could be as simple as a straight line but could be as complex as following multiple compound curves, an aircraft wing for example, and performing several operations enroute. Therefore, the level of programming is complex and takes significant time to trial and hone.

How do you hope TWI will benefit from participating in the project and its outcomes?

We aim to show that a toolpath incorporated in the original CAD can be automatically exported to the cobot and converted into a cobot toolpath program.

The possibility of exporting toolpath data really advances the ease with which toolpath planning can be undertaken...

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RELATED PROJECT NEWS

A BRIGHT FUTURE FOR TEACHING AND LEARNING FACTORIES

The summer seems to be a period in which not a lot happens in projects. However, there is more activity than meets the eye.
Bridges 5.0 is coming to the results phase as the project teams work diligently on their research. In the past months, our UK team has delivered the results of big data analyses and, during the summer, our Greek and Spanish teams finalised...

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A NOVEL PERSPECTIVE ON INDUSTRY 5.0: TOWARDS THINKING 5.0

The world is facing increasing challenges: climate change, resource scarcity, inequality, and economic uncertainty. Traditional models of industrial growth (i.e., Industry 4.0), rooted in efficiency and automation, have proven not to be adequate to address these urgent issues. In this context, Industry 5.0 has emerged as a paradigm shift that redefines...

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IMPLEMENTING THE INDUSTRY 5.0 ASSESSMENT FRAMEWORK: INSIGHTS FROM WORKSHOP WITH USE CASES

On May 7, 2025, the PROSPECTS 5.0 consortium held an in-person workshop in Modena, Italy, focused on monitoring the implementation of the Industry 5.0 Assessment Framework (I5.AF) across the project's use cases. The session was part...

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THE PRELIMINARY INDUSTRY 5.0 ASSESSMENT FRAMEWORK: A KEY MILESTONE IN THE PROSPECTS 5.0 PROJECT

The preliminary Industry 5.0 Assessment Framework (I5.AF) published by the PROSPECTS 5.0 project represents a fundamental milestone, marking the culmination of the project's first year. This framework lays the groundwork for aligning industrial practices...

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ADVANCING INDUSTRY 5.0: BUILDING SKILLS, ENHANCING, EMPLOYEE VOICE AND DRIVING WORKPLACE INNOVATION

The SEISMEC project, in collaboration with the EUWIN, BRIDGES 5.0, and BROADVOICE EU projects, co-organised a conference on the future of work, employee voice, and Industry 5.0. The event was held at the Irish College in...

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FRAMING THE USE OF AI FOR A FLOURISHING WORKPLACE: A TAXONOMY FOR HUMAN CENTRICITY IN AN INDUSTRIAL CONTEXT

As part of the EUWIN and Bridges 5.0 events schedule, the SEISMEC project was invited to the "Framing the use of AI for a Flourishing Workplace: A Taxonomy for Human Centricity in an Industrial Context" webinar...

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UPCOMING EVENTS

THE EUROPEAN WORKPLACE, THE BASIS FOR COMPETITIVE ADVANTAGE?

Online

31st October 2025

Organizer: EUWIN

Steven Dhondt from TNO will discuss the European Union's evolving transition from a regulatory to a more interventionist approach to governance, characterised by the European Green Deal and Industry 5.0. This new industrial vision promotes human-centricity, resilience, and sustainability, moving away from the mass production mindset of Industry 4.0.

EVENT WEBSITE

SHIFTLABS ROADSHOW 2025 DISSEMINATION EVENT

Eskilstuna, Sweden

6th November 2025

Organizer: Mälardalen Industrial Technology Center AB - MITC

How do we strengthen digitalization in Swedish industry – and how can collaborations between regions, actors and initiatives take us further together?
During the fall of 2025, ShiftLabs invites you to a series of dissemination activities around the country. On November 6, it is time for MITC in Eskilstuna to host a full day of inspiration, results, future exploration and networking.

EVENT WEBSITE

THE UP-SKILL PROJECT FINAL CONFERENCE

Brussels, Belgium

February 2026. Exact date TBC

Organizer: KNEIA S.L

The Up-Skill Final Conference will be a hybrid event, held in Brussels and streamed live online. The event will be an opportunity for stakeholders to discuss and engage with the Up-Skill researchers on the results from their research and the implications for the future of work in EU.
Stay tuned to our website and social media channels for more information soon!

COMING UP IN THE NEXT EDITION!

In the final edition of the Up-Skill newsletter, we will bring you all of the final results, news and videos from the Final Conference, policy briefs and the Up-Skill final video.

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