International Forum on Skills Intelligence in Post-Secondary & Higher Education

Universitat Oberta de Catalunya

Advancing Skills Intelligence in Post-Secondary & Higher Education:

Anticipation, Alignment, and the Future of Work

Introduction

International Forum on Skills Intelligence in Post-Secondary & Higher Education

Universitat Oberta de Catalunya

IFSI OPENING REMARKS

Àngels Fitó

Universitat Oberta de Catalunya (UOC)

UOC Opening & Rector's Welcome Address

It is a pleasure to **welcome** you to the first International Forum on Skills Intelligence. This forum was created with a clear goal: to explore how skills intelligence can become a strategic tool to guide, improve, and make the link between education and employment more fair.

I would like to start by **thanking** all the people, institutions, and professionals who made this event possible. We are here today at IFSI to support a powerful idea: that **lifelong learning is not just an individual aspiration, but a shared responsibility**. And that doing it with equity, quality, and relevance is essential to ensure people's employability and well-being in a world that is becoming more and more complex.

At the Universitat Oberta de Catalunya, we have been working for more than thirty years to make this vision a reality. As a native digital, flexible and open university, the UOC's mission is to provide access to inclusive, high-quality higher education that aligns with the needs of a **diverse and changing student body.** Thanks to this experience, we can clearly identify **three** common **myths** often associated with lifelong learning, which we need to overcome:

First, lifelong learning is **not linear**. Contrary to the traditional model inspired by the European Higher Education Area, learning paths are neither fixed nor unidirectional; they are open, flexible and often discontinuous.**Second**, lifelong learning is **not continuous**. People move in and out of the educational system depending on their personal life, their professional needs, or their availability of time and resources. Lastly, lifelong learning is **not monodisciplinary**. True learning, and true job opportunities often happens at the intersections of different fields, combining knowledge to shape hybrid, adaptive and relevant profiles. Assuming these three principles compels us to **redefine the system**. And to do so, we must **systematically interconnect three key elements**: the portfolio, people, and the environment.

1. **The portfolio**: We must design a modular, stackable and traceable educational offering that allows students to create personalized learning pathways, tailored to their individual needs, interests, and goals. Through initiatives such as the **Labour Market Intelligence Report**s and **training needs analysis**, the UOC works to align offer and demand, translating data into strategic pedagogical decisions.

2. **People**: At the UOC, **student support** is not something extra—it is **central**. Research shows that people are not just seeking education, but also **guidance** and **advice**. That's why we have developed the **GPS Professional tool**, a digital guidance system that helps students and alumni make informed, and independent decisions about their learning and career paths.

3. **The environment**: Only with an **ecosystemic view** can we build meaningful skills intelligence. This involves observing the labour market, listening to productive sectors, and translating the resulting data into **useful knowledge**. The **Catalonia Skills and Occupations Barometer**, and our **Virtual Job Fair** are clear examples of tools that **connect learning, talent and opportunity**. These tools turn **data into guidance**, and labour market **observation into action.**

Video

Àngels Fitó

Universitat Oberta de Catalunya (UOC)

Now, to truly interlink these three elements—a training portfolio, the individual and their environment—we must activate **three key levers**: knowledge, technology and alliances.

1. **Knowledge**: to generate useful evidence, interpret data and turn it into relevant learning solutions. With this goal, we launched the **Lifelong Learning Living Lab (L5)**: a laboratory designed to expand the boundaries of lifelong learning, applying data analytics and leveraging the opportunities offered by artificial intelligence.

2. **Technology**: to meet the demands of **large-scale learning** while enabling equally large-scale **personalisation**. This will only be possible if we harness the potential of AI ethically and strategically. Technology is no longer just a tool—it is what helps us scale up the quality and the impact of learning while ensuring equity.cAt the UOC, we bring together the elements of portfolio, individual, and environment through the **Insignia project**. Insignia is a new step in our educational model and goes beyond the classroom and is built around four pillars: self-knowledge, personalised guidance, building one's own pathway, and professional projection. It is our commitment to shaping learners with agency, who are equipped to navigate, change and take ownership of their futures.

3. **Alliances**: the key to consolidating a **systemic, networked approach** and to building a more inclusive European Higher Education Area, one that actively engages with a constantly evolving labour market.

In this regard, I would like to highlight the **Open EU alliance**, a fully open pan-European university, and an initiative we are proud to lead. Comprising fourteen universities and thirteen organisations from across Europe, this alliance aims to address major challenges—such as digital transformation, inclusion, and lifelong learning—through a collaborative and systemic approach. The **alignment of the UOC** with the objectives of this forum is therefore both **profound** and **strategic**. We share the vision that, to truly drive transformation, lifelong learning must be supported by robust, operational and shared skills intelligence.

This forum is much more than an academic gathering. It is a **unique opportunity** to forge a new **architecture of trust** between education and employment. We are convinced that **collaboration, knowledge, and innovation** are fundamental to anticipating the essential skills demanded by a constantly evolving labour market. Only through **joint efforts** guided by a systemic perspective and a deep sense of social responsibility can we ensure that education truly transforms lives.

Thank you for being part of this experience and wishing you all an **inspiring**, **engaging** and **meaningful** forum.

Video

Carmen Pagés

Universitat Oberta de Catalunya (UOC)

Opening & Welcoming Remarks: Setting the Global Stage

It is a great pleasure to welcome you to the first International Forum on Skills Intelligence. As the Director of the Skills Intelligence Unit at UOC, I am truly honored to open this important gathering. Reviewing the list of invited speakers and keynotes, and at the list of registered participants, I see a rich mosaic of perspectives: policy leaders, researchers, educators, technologists, and practitioners, spanning numerous disciplines and the whole world, from east to west and from north to south. We, at the Universitat Oberta de Catalunya are truly excited to offer a global platform for dialogue around such an important issue.

This forum represents a unique opportunity: to pause, reflect, and co-create a shared vision for how we understand and act upon skills intelligence, in the context of post-secondary and higher education. Why skills intelligence? We live in a time of rapid change. Technological shifts, climate transitions, demographic changes, and geopolitical tensions are transforming the nature of work, learning, and inclusion, and also the demand for skills.

In this context, skills intelligence—the timely and actionable understanding of skills needs, gaps, and trends—has become not just important, but essential. It informs policies that prepare people for evolving labor markets. It helps educational institutions align their programs with real opportunities and emerging needs. And most importantly, it empowers learners to make informed decisions that can change their lives.

At the UOC, we are deeply committed to this agenda. As a pioneering and leading institution in digital education, we see the opportunity and responsibility to strengthen the data ecosystems, the tools, and the institutional capabilities that make meaningful skills intelligence possible—particularly in lifelong and higher education. We are just at the beginning, but we are committed to walking this path, in collaboration with many of you.

Over two days, IFSI aim to do three things: **First,** to build a shared understanding of what skills intelligence means in the context of postsecondary and higher education, and in particular, to guide curricula development and students careers. **Second**, to showcase innovations—from cutting-edge research to practice-based solutions—that demonstrate how skills intelligence is already being used to improve decision-making and outcomes. And **third**, to foster a **community of** collaboration—across countries, institutions, and sectors—so that this work can support long-term, systemic change.

Last, but not least, I would like to extend a big thank you to all my colleagues at the Skills Intelligence Unit, UPAL, and the broader UOC team whose hard work and dedication made this forum possible. Also, a special thanks to our President, Angeles Fitó, who has placed skills intelligence at the core of our lifelong education strategy. And, of course, a big thank you to all of you for being here and contributing your time, insight, and energy.

Video

Mitchell Peters

Universitat Oberta de Catalunya (UOC)

Opening & Welcoming Remarks: Setting the Global Stage

Welcome to the inaugural edition of the International Forum on Skills Intelligence (IFSI). We extend our sincere thanks to all speakers and participants for your presence today—and, more importantly, for your willingness to generously share your expertise, practices, and insights. Your contributions are the foundation of this event.

IFSI emerged from a shared recognition: the need for a dedicated space—now more than ever—where cutting-edge practices, policies, and partnerships in *skills intelligence* can come together. Not only in theory, but in action. Not just at the systems level, but also within institutions whose missions and strategies are increasingly aligned with a **skills-first agenda**. The purpose of IFSI is threefold:

1. **To establish a global platform** for advancing the emerging, interdisciplinary, and multi-actor field of skills intelligence in post-secondary and higher education. As the field evolves—methodologically, technologically, and operationally—it demands a space for co-creation, reflection, cross-pollination, and community-building.

2. **To address long-standing challenges**: fragmentation, siloed initiatives, and structural barriers that hinder the integration of skills intelligence into education and training systems. The tools and data exist, but they remain underutilized, disconnected, or misunderstood. We aim to change that.

3. **To seed a sustainable network** that extends beyond today's forum. We envision a global community of practice that maintains momentum, facilitates ongoing knowledge exchange, and supports the next generation of applied skills intelligence initiatives.

This conversation is urgent. We are living through a moment of profound uncertainty and transformation—shaped by macroeconomic volatility, geopolitical instability, the rise of AI, and a redefinition of higher education's role in society. These forces are driving the need for more agile, evidence-based, and future-ready education and training systems. At the same time, the global micro-credential movement is gaining traction, reinforcing the importance of **lifelong learning for employability**—not as a distant goal, but as a present imperative.

Yet despite growing interest and innovation, the skills intelligence landscape remains fragmented. Actors from universities, training providers, employers, public agencies, social partners, and civil society are often working in isolation, speaking different "languages," and missing opportunities for alignment and collaboration. This limits our collective capacity to support learners and workers through the uncertain decade ahead.

What we need is an ecosystemic response.

IFSI invites you to think beyond your institution or sector. To share openly. To engage critically. And above all, to work together in addressing the structural challenges that continue to hinder progress toward a genuinely skills-first education and training ecosystem.

Video

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KEYNOTE SPEAKERS

International Forum on Skills Intelligence in Post-Secondary & Higher Education

Advancing Skills Intelligence in Post-Secondary & Higher Education:

Anticipation, Alignment, and the Future of Work

Universitat Oberta de Catalunya

Konstantinos Pouliakas

European Centre for the Development of Vocational Training (CEDEFOP)

Making sense of uncertainty: Two decades of Cedefop building the EU's skills intelligence warehouse, helping learners navigate changing jobs and skills in Europe

Over the past 20 years, Cedefop has transformed skills intelligence from a technical exercise into a cornerstone of modern labour market and education policy across Europe. Far beyond traditional labour market information, skills intelligence represents a dynamic, expert-driven process of gathering, analysing and communicating both quantitative and qualitative insights on skills trends and mismatches.

Through innovative tools like the European Skills Forecast, Cedefop's European skills and jobs surveys (ESJS) and the big-data-driven Online Vacancy Analysis Tool for Europe (OVATE), Cedefop provides actionable intelligence to anticipate future skill needs and guide policy development, curriculum design and career guidance.

Yet, five core challenges remain: aggregation limits practical use, data gaps and comparability persist, resourcing is uneven, real-time insights are partial and accurately surveying skills is complex. Big data, while promising granularity and speed, faces representativity and classification hurdles.

To address these gaps and align educational provision with evolving labour market needs, Cedefop champions a participatory and blended methodological approach to skills intelligence. Cedefop's recent TalentGap index is a case in point.

Ultimately, the next generation of skills intelligence depends on robust skills governance, shared infrastructures, and sustained multi-actor engagement. Cedefop's proposed EU blueprint provides a strategic framework for countries to build tailored systems that support better learning and stronger skills matching.

Video

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Kathleen deLaski

Education Design Lab &
Harvard Project on Workforce

Why Is Building a Skills-First Learning System Suddenly A Conundrum?

Just when we were making visible progress to align postsecondary learning to workforce objectives, AI has challenged the paradigm. What is a skill? How could a university be relevant in a post-artificial generative intelligence future intelligence state where a machine can accomplish any intellectual task that a human can? Kathleen deLaski will share insights from her new book "Who Needs College, Anymore?," which traces the rise and fall of the reputation of the university degree and now the rise of skills-based learning and hiring.

She will provide examples of how, in the US, some colleges are moving toward a "step-ladder" approach, so that learners can access an agile system with many short-term credentials and opportunities to pivot to new sectors. With talent shortages, universities and employers are designing "micro-pathways," to shortcut the length and generality of most degree programs. Labor market data is informing a regional approach to job training, and providing useful skill requirements to design into micro-credentials. It is informing a host of career navigation tools built to provide agency for consumers.

But, amid this progress, it is also dawning on the field that AI clouds the usefulness of retrospective data and portends a potential apocalypse for entry level knowledge workers. Certainly, AI foretells the age of unbundled degrees, so we can better target the skills we need in a timely manner. But does it also suggest a new premium on higher order thinking, which was the original point of a liberal arts degree?

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Terence Hogarth

University of Warwick

Emerging Practices and Methods for Skills Intelligence Inside and Outside the Academy

The address will focus on how the analysis of skills anticipation has developed over the relatively recent past and reflect on the current state of play. In doing so, it will reflect on the analysis of skills mismatches and the potential for the green and digital transitions to transform (or not) the demand for skills and the capacity of the supply side to deliver them.

Consideration is given to where evidence base is relatively weak (and where it is relatively strong). Building on this, the presentation suggests how data collection, analysis, and dissemination might be effectively developed in the future.

It also point to some of the dangers of treating skills as a panacea that can solve, in isolation, a myriad of social and economic problems.

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WORKSHOP SHOWCASE

Jeff Strohl

Georgetown University Center on Education and the Workforce (CEW)

Labor market alignment and the future of career pathways

The presentation is in two parts:

The Center will present some ongoing work on program alignment and projected education demand. This work brings together aggregate supply (production) of skilled work with projected demand ultimately as a tool for enrollment management and strategic systems planning.

We then discuss how work on occupational distance could form a new approach to thinking about career pathways which in the US have primarily been focused on education pathways but little about how people move through the labor market from first job to next job to best job.

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Kerry McKittrick

Harvard Project on Workforce

Delivering on the Degree: Leveraging Data to Connect College Students to the Workforce

Kerry McKittrick, co-director of the Harvard Project on Workforce, will share insights from two research initiatives that explore what it really takes to connect college students to meaningful careers.

The “College-to-Jobs” initiative combines a playbook of proven programs and policies with an interactive data tool mapping regional job demand and college graduate supply trends in the U.S. The “Data and Technology in Action” project builds on a series of case studies of community colleges to explore how strategic labor market information use can improve resource allocation, program development, and student supportive services.

This session will provide actionable strategies, real-world examples, and data tools to help institutions better prepare students for the workforce.

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Carme Pagés

Universitat Oberta de Catalunya (UOC)

Anticipating the Future of Work: The Role of the Labour Market Intelligence Unit (UPAL) at the Open University of Catalonia (UOC)

In the context of rapid labor market transformation, higher education institutions are increasingly called upon to align their educational offerings with emerging skill needs. The Skills Intelligence Unit (UPAL) at the Open University of Catalonia (UOC) is an innovative example of how universities can integrate real-time labor market insights into strategic academic planning and student career guidance.

This presentation introduces UPAL's mission, structure, and key initiatives, including skills occupational and skills analysis, curricula-market alignment and tools for students career guidance, like the professional GPS. In addition, through projects like Projecta't and the Baròmetre PIMEC-UOC, UPAL not only supports institutional and students decision-making but also strengthens skills and labour market alignment at the systemic level.

The session will explore how UPAL's work can inform similar efforts in institutions with a focus on educational and professional training institutions, career guidance and skills intelligence.

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Parallel Sessions

Track A:

Skills Intelligence, Educational Policy and Planning, and Organisational Change

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Advancing Skills Intelligence in Post-Secondary & Higher Education:

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Universitat Oberta de Catalunya

Gillian Golden

Higher Education Policy Team, OECD

Leveraging skills intelligence effectively in higher education settings

It is expected that a growing share of future jobs across OECD countries will require tertiary education. Yet, many of these same countries are already facing challenges relating to overqualification and skills mismatch in the tertiary educated population. When embedded thoughtfully into higher education systems, skills intelligence, informed by robust skills anticipation and assessment exercises, can help to address disconnection between higher education and the labour market. High quality, reliable skills intelligence can support policy and programme development, inform funding and quality assurance decisions and help learners make informed choices about their educational pathways.

However, the adoption of skills intelligence approaches in higher education systems has been slow, fragmented and often contested. This presentation will examine the specific challenges involved in governing, embedding and responding to skills intelligence within complex higher education systems. It will propose potential ways forward for addressing these challenges, drawing on 'next practices' emerging across OECD countries.

Particular attention will be given to how skills intelligence can be used to distinctively inform and support different levels and sectors of higher education, reflecting the diversity of provision, institutional missions and learning pathways within higher education systems.

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Marc Goffart

European Commission

The Union of Skills and its implications for Higher Education

The Union of Skills complements the European Education Area in ensuring high-quality, inclusive education and training for all learners. Europe's competitiveness, security and prosperity critically depend on education and skills. The Union of Skills puts education and skills: at the heart of Europe's economic and social agenda, right where they belong.

The higher education sector has an important role to play in making that sure that education matches the real needs of the labour market, and of students and graduates for that matter. EU policies seek to boost the evidence base for labour market analysis, including at the European level, and for matching education and training to job requirements. The European Skills Intelligence Observatory will provide crucial intelligence and signalling for the Union of Skills.

The European Higher Education Sector Observatory (EHESO) and the European Graduate Tracking Initiative (launched in follow-up to the 2017 Council Recommendation on tracking graduates) have been identified as relevant data sources contributing to such skills intelligence. Graduate outcomes data (on education and mobility, on employment and earnings as well as on job satisfaction and skills use) provide valuable information for analysts to inform policy-making, support quality assurance and guide career advice.

In follow-up to the European strategy for universities (2022), EHESO is a major initiative of the European Commission to provide data, indicators and tools for the monitoring of European higher education policies, targeting its key stakeholders: policy-makers, higher education institutions, analysts and academics, as well as [last but not least!] students and graduates. Future EHESO development will focus on improving the availability and comparability of graduate outcomes data, including on the added value of transnational cooperation and mobility.

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Michael Gaebel

European University Association (EUA)

Skills and Education for Europe's Competitiveness

The European Commission's Union of Skills initiative outlines concrete steps to address current challenges. But it also offers a valuable opportunity to discuss how higher education contributes to society and the economy, particularly in the context of the green and digital transitions.

A key premise is that, even with improved data quality, including through the use of AI, responding in a timely manner to changing skills demands will remain difficult. This is due to the complex and interrelated factors involved, such as technological innovation, migration, and demographic shifts, as well as the relatively long lead times inherent in higher education.

This presentation invites discussion on whether and how this could be improved, and what the implications would be for higher education provision and institutions. It is informed by a recent statement from the European University Association in response to the Union of Skills.

Video

PPT

Graciana Rucci

Inter- American Development Bank

Building Relevant Learning-Labor Trajectories in Latin America and the Caribbean in Practice

Successful lifelong skill development systems worldwide are based on four pillars, beyond their governance: identification of skills required by productive sectors, curriculum development based on qualifications and competencies, certifications and quality assurance, and financial planning and resource allocation.

These systems encompass formal, non-formal, and informal education. Saying it is easy, doing it is not so much. Strengthening the system requires combining diverse methods for demand identification, coordinating stakeholders, modernizing learning methods, and—above all—developing processes and mechanisms to ensure relevant training provision and continuous improvement.

LAC faces challenges in achieving sustained growth and enhancing labor productivity, with human capital being a fundamental determinant. At the same time, there are significant opportunities for quality job creation and business development. In this regard, the IDB has been working with various productive sectors and policymakers in the region—examples of which will be presented here—, generating evidence to improve the efficiency and effectiveness of public policy, innovating, and piloting scalable solutions.

Video

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Parallel Sessions

Track B:

New Research and Methodologies in Skills Intelligence (Anticipation, Alignment, Action)

Liga Baltina

Fondazione Giacomo Brodolini

Advancing Skills Intelligences: Methodological insights from the assets and skills pulse projects

As labour markets evolve under the pressure of technological innovation and shifting strategic priorities, the capacity to generate timely, precise, and sector-relevant skills intelligence has moved from an analytical luxury to a practical necessity. The presentation provides insights into methodological and technological advances in skills intelligence developed through two EU funded projects: (i) ASSETs+ project focused on emerging technologies in defence-related sectors; and (ii) SkillPulse project which builds a broader framework for anticipating skills shortages across Europe.

Both projects apply novel approaches to skills data: combining diverse data sets (ranging from online job advertisements and the European Jobs and Skills Survey, to training curricula and expert inputs) using natural language processing and machine learning to extract, align, and interpret complex skills information. The presentation explores how these projects operationalise new methodologies to better align education and training systems with future labour market realities.

The ASSETs+ project used the combination of these methods to construct a dynamic Defence Technology Roadmap. This roadmap identified technology clusters, from AI and robotics to autonomous systems and cybersecurity, and classified them by maturity and defence relevance. Building on this, the project developed a multi-layered Skills Blueprint, mapping relationships among job profiles, technical and transversal skills, and enabling technologies. These insights informed the creation of over 40 targeted training programmes, including pilot courses at EQF levels 4 to 7, tailored for both current professionals and future entrants.

The SkillPulse project addresses an important challenge in European skills policy: the lack of consistent, replicable indicators for identifying skill shortages across countries and time. Building on the European Skills and Jobs Survey (ESJS2), SkillPulse developed an indicator of potential skill shortages, which was then benchmarked against real-time labour market data from Lightcast. This approach enables the distinction between labour and skill shortages, and captures changes in skill demand with greater temporal granularity.

Video

PPT

Andrew Dean

Marchmont Employment and Skills Observatory, University of Exeter

Advancing Skills Intelligence in Post-Secondary & Higher Education

The European Commission's Union of Skills initiative outlines concrete steps to address current challenges. But it also offers a valuable opportunity to discuss how higher education contributes to society and the economy, particularly in the context of the green and digital transitions.

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This presentation invites discussion on whether and how this could be improved, and what the implications would be for higher education provision and institutions. It is informed by a recent statement from the European University Association in response to the Union of Skills.

Video

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Carles Bruguera & Natalí Basilico

Universitat Oberta de Catalunya (UOC)

Sustainability and Digital Transformation: Key Insights from University-Industry Co-Creation Workshops

The twin transition—concurrent shifts toward digitalization and sustainability—is transforming economic structures and organizational practices. According to the World Economic Forum's Future of Jobs 2025 report, advancements in AI, automation, and energy systems will impact 60% of businesses by 2030. In this context, aligning educational programs with evolving industry needs is critical. Effective alignment requires close collaboration between universities and organizations to identify emerging competencies and professional profiles.

This study analyzes the outcomes of the first in a series of participatory co-creation workshops hosted by the Universitat Oberta de Catalunya (UOC), involving 30 Catalan organizations engaged in the twin transition. The workshop focused on three core areas: (1) hard-to-fill professional roles, (2) key competencies in the evolving labor market, and (3) emerging trends shaping the twin transition.

Findings indicate a significant talent gap, particularly in roles demanding expertise in data analytics and sustainability. Participants emphasized that sustainability should be embedded across all professional domains, rather than isolated in niche roles. The workshop also underscored the importance of lifelong learning, advocating for flexible, modular training formats—such as micro-credentials—to help professionals stay abreast of technological and regulatory change. Soft skills were likewise identified as essential to workforce adaptability.

The workshop demonstrated the strategic value of university–industry collaboration in anticipating labor market needs and shaping future talent. Such co-creation initiatives not only help identify skill gaps but also contribute directly to curriculum development, thereby improving the relevance and responsiveness of academic offerings and reinforcing graduates' employability. Integrating real-world challenges into education fosters more agile, workforce-ready graduates equipped to navigate and lead in the context of the twin transition.

Video

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Parallel Sessions

Track C:

The Role of OJA, AI & Big Data in Skills Intelligence

Deborah Everhart

Credential Engine

Enabling Skills Intelligence through Credential and Skill Data Transparency

In increasingly complex credential and skill ecosystems—spanning higher education, vocational training, lifelong learning, and ongoing upskilling for workforce agility—the ability to clearly understand and compare credentials and match skills is vital for learners, employers, educators, and policymakers. Credential Engine is a non-profit whose mission is to make credential and skill data open, accessible, and interoperable with meaningful metadata in the Credential Transparency Description Language (CTDL).

CTDL is a robust linked open data schema that includes over 1300 well-defined, semantically rich terms to describe credentials, skills, courses, pathways, jobs, and more. It enables clear, consistent, and comparable communication of key information, such as cost, duration, requirements, quality assurance, and outcomes. Structured credential and skill metadata in CTDL is used in systems that enable skills mapping, career advising, job matching, and reliable data exchange across platforms. Globally, CTDL can play a role in bridging between fragmented qualification frameworks, supporting policy alignment across regions, and providing a concrete data structure for learning mobility.

Linked open data in CTDL fosters transparency and trust: enabling practical solutions and providing reliable grounding for AI-powered tools, dramatically improving accuracy and relevance in lifelong learning journeys.

Video

PPT

Stefan Humpl

3s Unternehmensberatung GmbH
& 3s Research Laboratory

Skills Intelligence to Develop new Training Programmes

Skills intelligence is seen as crucial in the development of labour market intelligence and to prevent unemployment or labour shortages. But also some aspects of skills intelligence are also already used to develop and design new curricula in Higher Education (HE), but even more in Vocational Education and Training (VET), as this system is more closely connected to the labour market. But new methodologies and data in skills intelligence have been developed in the last years (such as automatic online job advertisement extraction and analyses, connecting different data sources for graduate tracking, or big data analyses to extract labour market trends) which might also have an influence on the development of curricula in HE or VET. Before going into detail it is relevant to know that the border between HE, VET and Lifelong Learning (LLL) are vanishing more and more; skills developed in a curriculum may loose their relevance on the labour market much quicker than in the past due to an increasing speed in technology and innovation.

Therefore some basic skills such as “learning to learn”, “adaptability of one's own skills to new working environments” or “working in fast changing teams” are more important nowadays than they ever were, but will not appear as relevant in many skills intelligence outcomes (as they are seen already as relevant to everybody). New possibilities in skills intelligence might be used to foster evidence as basis for curriculum development, e.g.

- Online Job Advertisement analyses to show a growing need for specific skills sets, which may act as the basis for new occupations and / or curricula
- Graduate Tracking showing that there is a shift in the addressed labour market segments which should lead to curriculum development (either changes or new developments)
- Technology trends (such as AI) that will lead to the need for new jobs in the future

Skills intelligence used for the development of new curricula in HE and VET should subsequently make use of all different aspects of skills intelligence (labour market developments and changes, technology developments, but also social developments and changes). But there are even more aspects to be considered in curriculum development, such as:

- Competitive development of curricula, as different institutions might work on similar curricula and therefore may struggle to have enough students
- Curriculum development is also always connected to the people involved and their specific needs connected to the curriculum development (meaning that own subjects from the development teams might have a stronger role in the curriculum than others)
- Balance between labour market driven developments, scientific disciplines and technology trends: HE does not only fulfil labour market needs, but there is also the need for developing the scientific disciplines, basic and applied research, a role of universities in the society, etc.

New possibilities such as micro-credentials serve as new drivers for the development of lifelong learning. They may be included in HE curricula, but also can be developed as singular points of learning and skills development in further education (either in specific institutions, but also in HE institutions).

Video

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Gianni Anneli

University of Warwick

New Approach to Measuring Skill Shortages: Insights from the Chilean Labour Market

Skills shortages are a critical global challenge, undermining productivity, innovation, and economic growth. Factors such as rapid technological advances, demographic shifts, and evolving labour market dynamics intensify mismatches between employer needs and workforce skills. If not addressed early, skill shortages can cause long-term harm; once severe, solutions become more expensive, complex, and slow. This research introduces a novel approach to measuring skill shortages in the Chilean labour market by utilising quasi real-time data from online job advertisements and jobseeker CVs (2017–2020) from Chile. Few studies have used CV-based data for this purpose, offering a fresh perspective. Techniques from text mining, Machine Learning, and Large Language Models extracted valuable information on salaries, required skills, experience levels, and other labour attributes.

These data formed a composite “Skill Shortage Index” derived from ten variables: offered salaries, salary expectations ratio, vacancy-to-worker ratio, required years of experience, intensity of cognitive skills demanded, intensity of socioemotional skills demanded, years of experience requested, skill-experience volatility, and length of job advertisements postings. The index serves as an early detection system, highlighting occupations with skill shortage signals, establishing a methodological framework that can be adapted to other labour markets.

This study contributes to the literature by presenting an innovative method for measuring skill shortages in a middle-income country. It demonstrates that online data can enhance the measurement of skill shortages and complement traditional survey-based methods. The approach offers insights into Chile's labour market and provides a model for other nations facing similar challenges. The research underscores the importance of real-time labour market monitoring and suggests that such methods can enable a preventive approach to identifying emerging skill shortages before they become critical and provide actionable insights for policymakers.

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Parallel Sessions

Track B:

New Research and Methodologies in Skills Intelligence (Anticipation, Alignment, Action)

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Advancing Skills Intelligence in Post-Secondary & Higher Education:

Anticipation, Alignment, and the Future of Work

Universitat Oberta de Catalunya

Patricia Navarro-Palau

OECD

Good practices on implementing Skills Assessment and Anticipation

Across the OECD, 23% of workers are over-qualified and 26% report being over-skilled for their current roles (OECD, 2024). These skills mismatches, jointly with skills shortages, decrease job satisfaction and wages for mismatched workers (OECD, 2024) and can have an impact on economic growth, as they limit businesses' productivity (McGowan and D., 2015; OECD, 2024b). The success of interventions to tackle these skills mismatches and shortages depends on having accurate and comprehensive data about current and future skill needs. This presentation will focus on good practices regarding data sources and methodologies to use for Skills Assessment and Anticipation (SAA).

It relies on an analysis of 17 national and whole-of-economy exercises in Australia, Austria, Canada, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, the Netherlands, Singapore, Slovenia, Spain and Sweden. Information was gathered in early 2025 through desk research, supplemented with interviews and a peer-learning workshop with international experts. SAA exercises use a range of methodologies, both quantitative and qualitative. Quantitative approaches generally offer more consistent and comparable results, and can be more easily replicated.

However, they tend to be more suited to identifying labour shortages and surpluses than skill mismatches, as information on skills is limited. Recent innovations in SAA have focused on identifying skills demand using big data, such as job postings. However, identifying skills supply is more complex, particularly for skills provided by higher education, which are determined at the institution level. Efforts are underway using new technologies to identify skills supply from Higher Education Institutions' (HEIs') documentation, such as programme descriptors. Quantitative approaches may also miss important information not yet visible in the data, such as technological innovations that will have an impact on skill requirements at work.

Quantitative analysis is therefore frequently complemented with qualitative information, either as an input to the SAA exercise or to validate the quantitative assumptions, methodology, or results. Given the extensive information required and the multiple potential uses of SAA exercise results, it is crucial to engage as many relevant stakeholders as possible. This serves to validate the results but also ensures the exercise meets stakeholders' needs and that they contribute relevant information.

Video

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International Forum on Skills Intelligence in Post-Secondary & Higher Education

Advancing Skills Intelligence in Post-Secondary & Higher Education:

Anticipation, Alignment, and the Future of Work

Universitat Oberta de Catalunya

Natalí Basilico & Gonzalo Cubillos

Universitat Oberta de Catalunya (UOC)

Skills Intelligence Tools for HEIs Offer Alignment: The Labour Market Reports

Amid rapid technological advancement, the proliferation of artificial intelligence, the global transition towards sustainability, and the enduring impact of the COVID-19 pandemic, higher education institutions (HEIs) are increasingly challenged to adapt to evolving labour market dynamics. Recent findings by the Boston Consulting Group and the Burning Glass Institute reveal that 37% of the most in-demand job skills have changed within the past five years, with 20% of these skills being entirely new.

This session introduces a case study of the Universitat Oberta de Catalunya's Labour Market Research and Analysis Unit (UPAL), which has developed a set of skills intelligence tools grounded in advanced labour market data analytics. The project integrates a range of data sources, including over 10 million online job postings (OJVs) from Lightcast, ESCO occupation-skill mappings, primary data from interviews and workshops with employers and sector experts, and a review of cutting-edge international and local reports and literature on emerging trends.

In addition to producing a comprehensive labour market report that aims to identify current and future occupational shifts, the project also delivers an interactive tool that enables academic staff and programme directors to explore job–skill relationships, geographic and sectoral trends, and programme-specific indicators.

This case exemplifies how HEIs can leverage emerging research methodologies and data technologies to build agile, skills-driven learning ecosystems that are better aligned with ongoing societal and labour market transformation.

Video

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Carla Cisternas & Chantal Clerc

Ministerio de Trabajo, Chile

Anticipating the Future of Work: Chile's Labor Observatory Program and National Labor Demand Survey

In November 2023, Chile's Ministry of Labor and Social Security approved and published the National Labor Market Foresight Strategy (ENPL), proposed by the Ministerial Advisory Commission on Labor Foresight. This initiative provides the Ministry and its associated employment services with an institutional framework to address the challenges of the future of work by establishing a robust and comprehensive system to monitor and anticipate the characteristics of, and mismatches between, labor supply and demand.

The main implementation tool of the ENPL is the Labor Observatory Program, designed to generate territorial and sector-specific insights into the country's key occupations, their characteristics, supply and demand, and the technological and socio-ecological challenges workers face. One of the program's most important components is the National Labor Demand Survey (ENADEL), a probabilistic and stratified survey aimed at characterizing business labour demand and measuring unmet workforce needs by occupation across various economic sectors.

The 2024 edition of the survey achieved its highest historical coverage, surveying 5,965 companies. Over 3.5 million hires were identified in the 12 months prior to the survey, primarily in administrative services, agriculture, commerce, and construction. The most in-demand roles were operational and labor-intensive, accounting for 85.0% of active or projected vacancies for 2025. Despite this, mismatches remain: 9.6% of companies reported difficulties filling vacancies. In this context, 64.9% of businesses expect to provide training for their staff over the next year.

Finally, the findings show that although digitalization and automation are present in more than 95.3% of companies, their impact on employment has been limited. By contrast, the effects of climate change, though still emerging, have already affected 24.9% of companies. In this way, ENADEL is becoming a key tool for evidence-based labour market foresight, capable of anticipating structural transformations and informing more agile and targeted policies focused on strengthening the country's human capital.

Video

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Simone Ravaioli

Instructure

Credential Intelligence: Redefining Skills Recognition in the AI Era

As AI reshapes our world, traditional digital credentials increasingly fall short in capturing the full spectrum of learning and achievement. This session introduces Credential Intelligence (CI), a transformative approach that leverages Radical Transparency and Generative Recognition to discover, document, and validate skills recognition. Participants will explore how intentionally recording human-AI interactions can build trust, provide deep insights into learning processes, and reveal hidden skills, while AI-driven analysis tailors personalized pathways for continuous improvement.

The rapid evolution of AI challenges the credibility of conventional credentialling systems, which often overlook the nuanced contributions of both human and machine. Credential Intelligence (CI) addresses these gaps by introducing two key concepts:

Radical Transparency: By deliberately documenting learning processes—including human-AI interactions, metacognitive reflections, and collaborative exchanges—Radical Transparency enriches our understanding of learner experiences. This comprehensive record not only boosts trust but also enables a deeper insight into the diverse skills acquired during the learning journey.

Generative Recognition: Building upon this transparency, Generative Recognition employs AI to analyze documented interactions. This analysis uncovers latent skills and offers customized recommendations for further upskilling or employment opportunities, fostering a dynamic and continuous cycle of personal and professional growth.

Throughout the session, we will showcase an example of early implementation of CI, suggesting a roadmap on how to extend existing credentialling standards and address related considerations.

Video

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International Forum on Skills Intelligence in Post-Secondary & Higher Education

Universitat Oberta de Catalunya

Parallel Sessions

Track D:

Lifelong Learning & Micro-Credentials for Workforce Adaptation

Don Presant

Learning Agents, CanCred.ca

Open Recognition for Better Skills Intelligence

Recognition of Prior Learning (RPL, VPL, etc.) is traditionally understood as a combined process to transfer credits and to formally recognize informal learning for credit or program admission. But what happens when formal, structured recognition is not enough — when recognition is needed beyond institutional walls, and into workplaces and communities?

What if non-formal, informal and “messier”, even “less rigorous” forms of recognition were not just embellishments to formal credentials but went beyond them to provide contextual value, relevance and agility to skills intelligence in a world that is increasingly volatile, uncertain, complex and ambiguous?

As with open learning, open recognition does not have to happen all at once. Learn ways to “open up” your recognition practices to improve results for your institution and your learners, with examples and use cases from Europe, the Americas, and beyond.

Video

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International Forum on Skills Intelligence in Post-Secondary & Higher Education

Advancing Skills Intelligence in Post-Secondary & Higher Education:

Anticipation, Alignment, and the Future of Work

Universitat Oberta de Catalunya

Johnny Sung

University of Oxford

A Skills-first paradigm: Key features and implications for post-secondary education, vocational training and adult learning

The global labour market increasingly faces critical skills shortages and persistent skill gaps, prompting a fundamental rethink of education and lifelong learning strategies. The "skills-first" approach emerges as a transformative framework prioritising demonstrable skills and proficiencies, supported by, rather than relying on solely traditional qualifications. This presentation outlines the key features of a skills-first paradigm, distinguishing it from qualification-centric and skills-based hybrid models, and explores its implications for post-secondary education, vocational training, and adult learning.

The discussion highlights three significant structural barriers that educational institutions must navigate to successfully implement a skills-first strategy: signalling failures, coordination deficits, and cultural resistance. These barriers reflect the continued reliance on credentials as imperfect proxies for actual skills, the fragmentation among stakeholders in education, employment, and policy, and deeply ingrained societal norms that equate formal qualifications with competence.

Crucially, the skills-first model does not diminish the role of qualifications but reframes their function within a broader skills ecosystem. The presentation identifies strategic opportunities for educational policymakers and institutions to foster enhanced collaboration with industry stakeholders, develop universally recognised skill frameworks, and align curricular outcomes directly to labour market requirements.

Acknowledging existing research limitations concerning SMEs and industry-specific requirements, the presentation briefly discusses tailored educational and training strategies to overcome these specific challenges. Ultimately, this approach positions education and lifelong learning systems as proactive agents capable of directly addressing contemporary labour market demands.

Video

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International Forum on Skills Intelligence in Post-Secondary & Higher Education

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Universitat Oberta de Catalunya

Anastasia Pouliou

European Centre for the Development of Vocational Training (CEDEFOP)

Microcredentials and Skills Intelligence: Empowering Lifelong Learning for a Transforming Workforce

As the global economy becomes increasingly dynamic and digitally driven, the demand for agile, adaptive, and continuous learning is reshaping the landscape of post-secondary and higher education. Traditional degrees, while foundational, are no longer sufficient to reflect the breadth and pace of evolving workforce needs. Microcredentials have emerged as a transformative solution—offering flexible, targeted, and verifiable learning experiences that support lifelong learning and directly respond to labour market demands. This presentation will explore the strategic role of microcredentials within the broader context of employability, workforce adaptation, and the emerging interdisciplinary field of skills intelligence.

Microcredentials are more than short courses—they represent a shift in how learning is recognized, delivered, and applied in real-world contexts. They provide learners with stackable, skill-specific achievements that are often co-designed with industry and aligned to current and future skills needs. For employers, microcredentials offer granular insight into workforce capabilities; for educators, they create pathways for modular, personalized education; and for learners, they provide accessible opportunities for upskilling, reskilling, and career mobility. Drawing on earlier Cedefop evidence, the current research is looking at microcredentials emerging outside formal education and training systems. The need to focus on quality assurance and recognition arrangements as well as specific labour market sectors will be highlighted.

Furthermore, the presentation will explore the policy requirements needed to scale microcredential adoption globally, including trusted qualifications frameworks. Particular emphasis will be placed on whether microcredentials can support non-traditional learners, thus promoting equity in access to skills recognition. Participants will leave with a deeper understanding of how microcredentials and skills intelligence together can empower individuals, institutions, and economies to thrive in the age of continuous transformation.

Video

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Mitchell Peters

Universitat Oberta de Catalunya (UOC)

Project Insignia: A Skills Intelligence strategy affirming UOC's commitment to improving people's employability

Project Insignia is the Universitat Oberta de Catalunya's (UOC) strategic response to the growing need for personalized, lifelong, and lifewide learning pathways that support employability. Designed as a transversal institutional initiative, Insignia aligns skills intelligence with high-quality, modular learning through online higher education. Insignia features a rigorous competency-based, student-centred educational model and augments UOC's existing educational model through novel forms of student support and career guidance that integrates labour market data to help learners navigate their professional futures.

By integrating tools like GPS Professional for skills self-assessment and career orientation, and by issuing learner-owned, portable, and verifiable digital credentials, Insignia enhances the visibility and value of learners' competencies.

This presentation will explore how Insignia's augmented educational model consolidates UOC's efforts to build future-ready education through labour market aligned micro-credentialing, novel forms of data-driven career guidance, and academic and professional identity building to create a coherent, person-centred support ecosystem for students and professionals in a rapidly evolving labour market.

Video

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International Forum on Skills Intelligence in Post-Secondary & Higher Education

Universitat Oberta de Catalunya

Parallel Sessions

Track E:

Skills Intelligence for Career Guidance & Student Support

Marina Muñoz

Universitat Oberta de Catalunya (UOC)

Professional GPS: A Skills Intelligence Tool for Career Development

The Professional GPS is an innovative, web-based tool designed to support students and professionals in navigating their career paths by identifying, assessing, and reusing their competencies. The system targets individuals seeking to improve in their current roles or transition into new professions by leveraging existing skills across different occupational contexts. Developed with a strong focus on skills intelligence, the platform bridges the gap between education and employment by aligning personal competencies with evolving labor market demands.

The tool is currently available as a functional prototype hosted on the official website of our university, where it has been tested with diverse user profiles, including students from various academic disciplines and professionals looking to adapt to changing job requirements. Through an intuitive interface, users can map their skills, explore potential career paths, and receive tailored guidance on upskilling and reskilling opportunities.

In this session, we will showcase the Professional GPS and demonstrate its main functionalities, giving attendees a clear view of how the tool works in practice. We will explain the types of data used in the system, such as competency frameworks and labor market information, and how they are integrated to provide meaningful insights for users.

Additionally, we will share lessons learned throughout the development and testing phases, focusing on user feedback, usability challenges, and key decisions made in the design of the user experience (UX). We will also present planned improvements for the next version of the tool, both in terms of UX enhancements and new features aimed at increasing personalization, improving data visualization, and expanding the range of professional pathways that the system can support.

Ultimately, the Professional GPS represents a practical response to the growing need for skills intelligence solutions that empower individuals and organizations to anticipate change, foster lifelong learning, and build more agile and resilient workforces.

Video

PPT

Aljaž Leben & Kamarul Adha

Knowledge Innovation Centre (KIC)

Leveraging Generative AI with Semantic Searching to Build Customisable Skills Frameworks

The current skills landscape lacks a centralised platform for aligning skills across frameworks and national contexts, creating a significant knowledge gap between employer needs and qualifications offered by higher education institutions. This gap introduces difficulties for learners to identify relevant reskilling pathways and life-long learning opportunities in today's complex job market.

Knowledge Innovation Centre (KIC) set out to develop an integrated, open-access customisable skills intelligence ecosystem. Our AI-powered methodology helps HEI institutions and HR professionals to discover, organise, and manage skills data at scale, while enabling custom taxonomies and interoperability between diverse systems. We created a comprehensive skills toolbox (skilldata.info) featuring three key innovations:

1. The Skill Finder tool employing semantic AI search that understands context beyond simple keyword matching, enabling nuanced skill discovery across established frameworks like ESCO.

2. The Skill Framework Builder tool allowing organisations to create customised skill taxonomies with multilevel definitions tailored to specific sectoral needs.

3. Machine-readable exports using Rich Skill Descriptor (RSD) schema ensuring interoperability with HR and learning systems

Our implementation in the LCAMP (Learner Centric Advanced Manufacturing Platform) project demonstrated the system's effectiveness by successfully linking manufacturing courses from different countries to standardised skill frameworks, showcasing its cross-border applicability. During our demonstration, we will show how the system organises messy skill data into clear, usable frameworks.

In the future we are planning to expand the toolbox by developing exciting new features including the job profile builder and personalised learning pathways. By translating courses into skills-based language, users will be able to find suitable job profiles based on their skills and discover targeted upskilling opportunities for career growth.

Video

PPT

Zane Culkstena

ERDA & Kim?

Shaping Future-Ready Youth: Latvia's AI Career Guidance for High Schoolers

Across Europe, young people aged 15–29, which are classified as NEETs - not in employment, education, or training - contribute to nearly €1.6 trillion in lost productivity over a decade. In Latvia alone, roughly 27,000 young people fall into this category annually, costing the economy over €320 million per year. One major driver of this disengagement is the gap between what young people aspire to and the realities of the job market. Many students lack the tools to connect their interests with viable career paths or to understand how their skills align with labor market needs.

"Nākotnes darbs" (Future Work) is Latvia's first AI-powered career guidance platform designed specifically for high school students. Launched under the auspices of the World Economic Forum's Education Accelerator, the platform combines psychometric testing (Holland Code-based personality profiling) with real-time analysis of over 30,000 job ads across Latvia. It provides users with tailored job recommendations, localized salary insights, and skill requirements - all mapped to the European ESCO classification framework.

In just the first six months of 2025, the platform engaged over 5,000 students and 140+ career consultants. The platform not only empowers students to make informed decisions about their futures but also supports educators and policymakers. Career consultants gain access to tools for data-driven counseling, while policy makers can monitor youth interest trends and identify gaps between supply and demand in the labor market.

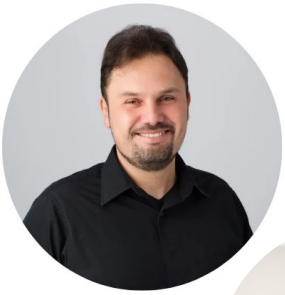
The presentation will explore how AI can personalize and democratize access to career guidance, share early impact data and testimonials, and discuss how this initiative contributes to Latvia's broader ambitions around national AI strategy in education and employment. It is a scalable, evidence-based model for any country seeking to improve youth engagement and workforce alignment in the age of automation.

Video

PPT

Strac Inanov & Tony Bonen

Conference Board of Canada



Skills Demand & Supply Analysis in Curriculum Planning

This session will feature an overview of techniques and approaches that the Conference Board of Canada uses to distill insights into the fast-changing demand for skills to help inform the curriculum planning processes at Canadian post-secondary institutions.

We will explore the use of job postings data to gain granular real-time insights into the demand for skill and how this demand is clustered within specific occupations and knowledge areas. We will also look into ways to understand the available supply of skills in the labour force.

Finally, we will explore how these insights can be used to forecast the future demand for skills beyond the level of individual occupations.

Video

PPT