Embedding Transversal Skills: Guide to Enriching the Educational Offer in 4EU+

Introduction

The purpose of this guide is to provide a comprehensive rationale for integrating transversal skills into university educational offerings and research-based education. It presents practical examples, strategies, and methodologies designed to help institutions enhance student skill development in essential areas. This guide serves as a valuable tool for universities, offering inspiration and access to best practices. As a priority for the European Commission, this guide will also form the basis for 4EU+ Alliance´s future cooperation in this area. The primary target groups for this guide include university administrators, faculty members, curriculum developers, and career services.

Methodology

The methodology for the development of this document involved two primary approaches: a questionnaire and the collection of best practices. The questionnaire was distributed to gather input and feedback from 4EU+ member universities. In parallel, we collected best practices from across the 4EU+ Alliance members to ensure a comprehensive understanding of effective approaches and to facilitate the sharing of successful strategies. The third method used was an online workshop with students to present findings and to gather the students´ perspective.

Role of Skills in a Changing World

The following section will focus on the explanation of transversal skills and their growing relevance in modern education and the job market, providing an overview of key transversal skills and highlighting global trends that are shaping current and future skill requirements.

The 4EU+ Alliance brings together 8 European universities. In recent years, the European area has experienced several situations that determine the direction of development of what current students (future graduates and employees) - will need to successfully manage and sustain their transition to the labour market. At the same time as professional or specialised education in a specific field is essential, sufficient space must be devoted to support the development of transversal skills.

Skills are key for sustainable competitiveness, resilience and ensuring social fairness for all. Businesses require workers with the skills necessary to master the green and digital transitions, and people need to be able to access the right education and training to thrive in life.[1]

Individuality must also be considered. Different factors play a role in the students and graduates individual needs and understanding of the labour market. Taking into consideration factors such

[1] Questions and answers: European Skills Agenda for sustainable competitiveness, social fairness and resilience (https://ec.europa.eu/commission/presscorner/detail/it/qanda_20_1197).

as discipline of study, country of origin, ethnicity, or socio-economic status, developing the right skills requires equal access to up-skilling opportunities for people across Europe, regardless of gender, racial or ethnic origin, religion or belief, disability, age, or sexual orientation, and people with a migrant background. Similarly, all territories should be covered, from big cities to rural, coastal or remote areas across the whole Europe.[2]

Navigating the Future: The Forces Reshaping Skills and Careers

What is the connection between the factors shaping Europe's development and how universities equip their students to thrive in an ever-changing labor market?[3]

The Importance of Skills in Times of Crisis

The coronavirus pandemic has emphasized the need for individuals to have the right skills, not only to support strategic sectors but also to navigate life and career transitions. Job losses forced many to upskill or acquire new abilities, transitioning to different sectors. This shift particularly highlighted the increasing importance of digital skills, both in everyday life and in maintaining business operations.

The Shift Towards a Climate-Neutral Europe

The rapid move towards climate neutrality in Europe is reshaping how we learn, work, and live. The global climate crisis will disrupt labor markets, leading to significant job losses in certain areas (e.g., manufacturing changes and plastic bans), but also creating new opportunities in green technology and agricultural reform. These developments will require diverse skill sets, specialized knowledge, and the ability to collaborate within multidisciplinary teams.

Urbanization and Sustainability Challenges

The acceleration of urbanization presents cities with complex challenges in achieving long-term sustainability while minimizing environmental impact. However, if managed well, cities can become centres of innovation, creativity, and economic growth, offering new opportunities for individuals who are agile, adaptable, and forward-thinking.

The Impact of Technological Change

Technological change remains a topic of debate, but its effects on the labor market are already clear. Digitalization, artificial intelligence, big data, and the shift toward remote work have altered the way businesses operate. With the half-life of technical knowledge shrinking, organizations are prioritizing skills such as adaptability, resilience, and lifelong learning to stay competitive.

Political Uncertainty and Economic Influence

Political instability also plays a significant role in shaping the labor market. Since the 2007 financial crisis, the World Uncertainty Index has shown a consistent rise in economic policy

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[2] Questions and answers: European Skills Agenda for sustainable competitiveness, social fairness and resilience (https://ec.europa.eu/commission/presscorner/detail/it/qanda_20_1197).

[3] For example, McKinsey's reports on "reskilling the workforce" highlight how the pandemic accelerated digitization, necessitating new skills in sectors like healthcare, remote work, and digital tools. They also discuss the broader shifts in labor markets due to political uncertainty, globalization, and climate change.

uncertainty across 143 countries. Political changes, such as Brexit and the recent war in Ukraine, have added further unpredictability, influencing business strategies and individual decision-making.

Globalization and Shifting Economic Dynamics

Globalization and evolving economic patterns are redistributing power, wealth, and opportunities between developing and developed nations. Rapidly developing countries with large working-age populations and strong investments in education and business are expected to experience job growth as more companies outsource skilled work. At the same time, technological advances risk exacerbating inequalities between developed and emerging economies, while migration pressures will continue to challenge global markets.

Demographic Shifts and Labor Market Adjustments

Demographic changes, particularly the aging population in developed nations and a shrinking working-age demographic, are transforming labor markets. Growth in sectors like health and social care is expected, while individuals will need to cultivate career management skills to navigate multiple transitions, adapt to emerging sectors as jobs become obsolete, and succeed in a multigenerational workforce.

4EU+ skills and competencies

“Transversal skills”, often referred to as "soft skills" or "transferable skills," are abilities that are useful across various fields and professions. These skills are essential for effective communication, collaboration, and personal development in any context, making students and workers more adaptable and resilient to change. As the economy evolves, driven by technological advancements, globalization, and demographic shifts, the importance of transversal skills has become increasingly evident.

- Communication Skills (verbal and written)
- Interpersonal Skills (teamwork, empathy, conflict resolution)
- Critical Thinking and Problem Solving
- Organizational Skills (time management, project management)
- Adaptability and Flexibility
- Leadership Skills
- Ethical and Cultural Awareness
- Emotional Intelligence (EQ)
- Numeracy and Digital Literacy
- Innovation and Creativity
- Lifelong Learning

"Future skills" refer to the competencies and abilities that will be essential for success in the rapidly evolving job market and societal landscape. For university students, these skills are critical to ensure they remain competitive and adaptable in a world characterized by technological advancements, globalization, and changing work dynamics.

- Digital Literacy and Technological Proficiency (coding, data analysis, AI, cybersecurity)
- Critical Thinking and Problem Solving
- Communication and Collaboration (verbal and written communication, teamwork)

- Emotional Intelligence (EQ)
- Adaptability and Flexibility
- Leadership and Management
- Ethical Judgment and Integrity
- Global Awareness (environmental literacy, economic and political awareness)
- Innovation and Entrepreneurial Skills
- Health and Well-being (stress management, work-life balance)
- Specialized Knowledge (industry-specific skills)

In the context of the 4EU+ Alliance and a joint 4EU+ Graduate Skills, Competencies and Values portfolio, which corresponds to the profile of a 4EU+ graduate (open-minded, multilingual, exposed to multiculturalism and plurality of views, entrepreneurial, critical thinker, data literate and socially engaged), this skill set will establish a new baseline for the European citizen. The 11 general skills listed can be mapped to these five core skills and competencies as follows. This mapping ensures that the general skills align well with the 4EU+ core competencies, supporting the holistic development of students in both academic and real-world contexts:

1. **Multilingualism**:
    - **Communication Skills (verbal and written)**: Multilingualism is primarily about effective communication across different languages, which strongly aligns with verbal and written communication skills.
    - **Ethical and Cultural Awareness**: Understanding and respecting different cultures is a key component of multilingualism, as language is deeply tied to cultural identity.
    - **Emotional Intelligence (EQ)**: Navigating multilingual contexts often requires emotional intelligence, especially when interacting with speakers from different cultural backgrounds.
2. **Critical Thinking**:
    - **Critical Thinking and Problem Solving**: This is a direct match. The ability to think critically and solve problems is foundational for success in academic and real-world contexts.
    - **Innovation and Creativity**: Critical thinking fosters innovation by encouraging students to question assumptions and approach problems with fresh perspectives.
    - **Lifelong Learning**: Critical thinkers are naturally inclined toward continuous learning and adaptation as they constantly seek to improve and expand their knowledge.
3. **Societal Engagement**:
    - **Interpersonal Skills (teamwork, empathy, conflict resolution)**: Societal engagement requires working with others, often in diverse and challenging environments, making interpersonal skills critical for effective collaboration.
    - **Leadership Skills**: Societal engagement often involves leadership—motivating others and fostering collective action for social causes.

- **Ethical and Cultural Awareness**: Societal engagement is rooted in understanding social issues from ethical and cultural perspectives, making this awareness crucial.

4. **Entrepreneurship**:
   - **Organizational Skills (time management, project management)**: Entrepreneurs need strong organizational skills to manage projects, deadlines, and resources effectively.
   - **Adaptability and Flexibility**: Entrepreneurship involves navigating uncertainty and adapting to changing market conditions or challenges.
   - **Innovation and Creativity**: These are essential traits for entrepreneurs, as they must constantly innovate to stay competitive and meet new demands.
5. **Data Literacy**:
   - **Numeracy and Digital Literacy**: Data literacy is directly related to understanding and working with numbers, data, and digital tools, making these skills crucial.
   - **Critical Thinking and Problem Solving**: Analyzing data requires critical thinking, especially in identifying patterns, drawing conclusions, and solving complex problems.
   - **Lifelong Learning**: As data and digital tools evolve rapidly, a commitment to lifelong learning is necessary to stay proficient in data literacy.

Summary Table:

4EU+ Skills	**General Skills**	**Explanation**
Multilingualism	Communication Skills, Ethical and Cultural Awareness, Emotional Intelligence	Effective multilingual communication requires these skills.
Critical Thinking	Critical Thinking and Problem Solving, Innovation and Creativity, Lifelong Learning	These skills enable deep thinking and continuous innovation.
Societal Engagement	Interpersonal Skills, Leadership Skills, Ethical and Cultural Awareness	Societal involvement demands collaboration, leadership, and ethical awareness.
Entrepreneurship	Organizational Skills, Adaptability and Flexibility, Innovation and Creativity	Entrepreneurs need to manage projects, innovate, and adapt to changes.

4EU+ Skills	General Skills	Explanation
Data Literacy	Numeracy and Digital Literacy, Critical Thinking and Problem Solving, Lifelong Learning	Data analysis requires numerical skills, critical thinking, and constant learning.

Let's map and compare the **4EU+ skills** (multilingualism, critical thinking, societal engagement, entrepreneurship, and data literacy) to the **future skills** listed. This mapping ensures that the **future skills** are well aligned with the **4EU+ core skills and competencies**, supporting students' preparedness for a rapidly changing world while addressing both global and industry-specific needs.

1. Multilingualism

- **Communication and Collaboration (verbal and written communication, teamwork)**: Multilingualism directly impacts communication across languages and effective collaboration in diverse teams.
- **Global Awareness (environmental literacy, economic and political awareness)**: Knowing multiple languages enhances global awareness and understanding of international contexts, fostering better engagement with global issues.
- **Ethical Judgment and Integrity**: Multilingual individuals are often better positioned to navigate cross-cultural ethical challenges with integrity.

2. Critical Thinking

- **Critical Thinking and Problem Solving**: This is a direct match as critical thinking skills are essential for solving complex problems and evaluating information.
- **Innovation and Entrepreneurial Skills**: Critical thinkers challenge conventional ideas and find new, creative solutions, aligning well with innovation and entrepreneurship.
- **Ethical Judgment and Integrity**: Critical thinking underpins ethical decision-making, enabling individuals to navigate moral dilemmas with sound judgment.

3. Societal Engagement

- **Global Awareness (environmental literacy, economic and political awareness)**: Societal engagement requires understanding global issues, particularly those involving the environment, politics, and economics.
- **Leadership and Management**: Societal engagement often involves taking leadership roles in community initiatives, motivating others to act on social causes.
- **Ethical Judgment and Integrity**: Engaging in societal matters demands high ethical standards and integrity when addressing complex social challenges.

4. Entrepreneurship

- **Innovation and Entrepreneurial Skills**: This is a direct match, as entrepreneurship requires a mindset focused on innovation and creative problem-solving.
- **Adaptability and Flexibility**: Entrepreneurs must adapt quickly to market changes and uncertainty, making flexibility crucial.
- **Leadership and Management**: Entrepreneurs often lead teams and manage projects, making leadership and management essential for success.

5. Data Literacy

- **Digital Literacy and Technological Proficiency (coding, data analysis, AI, cybersecurity)**: Data literacy is fundamentally tied to digital literacy and proficiency in analyzing and utilizing data, making this a direct match.
- **Specialized Knowledge (industry-specific skills)**: Data literacy often requires specialized knowledge in areas like AI, data analysis, or cybersecurity, depending on the industry.
- **Critical Thinking and Problem Solving**: Analyzing and interpreting data requires strong critical thinking skills, essential for identifying trends and making data-driven decisions.

Summary Table:

4EU+ Skills	**Future Skills**	**Explanation**
Multilingualism	Communication and Collaboration, Global Awareness, Ethical Judgment and Integrity	Multilingualism fosters better global understanding and ethical communication.
Critical Thinking	Critical Thinking and Problem Solving, Innovation and Entrepreneurial Skills, Ethical Judgment and Integrity	Critical thinkers drive innovation and ethical decision-making.
Societal Engagement	Global Awareness, Leadership and Management, Ethical Judgment and Integrity	Societal involvement requires leadership, global awareness, and ethics.
Entrepreneurship	Innovation and Entrepreneurial Skills, Adaptability and Flexibility, Leadership and Management	Entrepreneurs need innovation, adaptability, and strong leadership.
Data Literacy	Digital Literacy and Technological Proficiency, Specialized Knowledge, Critical Thinking and Problem Solving	Data literacy ties into digital skills, specialized knowledge, and problem-solving.

Analysis of the questionnaire responses

The questionnaire has been shared with the universities across 4EU+ Alliance to collect one response from each university, preferably from the central level. The questionnaire focuses on following questions:

- Which transversal skills does your university primarily focus on for student development?
- Which skills do you consider essential for your students that you have not yet fully developed? How do you plan to integrate them?
- Which skills do you perceive as essential future skills for students, and which of these does your university currently focus on?
- Are there any skills you believe are missing from the current list?
- How does your institution support students in developing these skills?
- How do you enable students to adopt transversal skills in your institution?
- Do you see any benefits to cooperating on skills development within the 4EU+ alliance? E.g., do you envisage offering any of these activities to support skills development within the 4EU+ alliance?

The dataset collected provides a comprehensive overview of how 4EU+ universities prioritize and support the development of transversal skills among their students. It includes both qualitative and quantitative data on various skill areas, spanning from foundational competencies like communication and teamwork to more specialized skills such as digital literacy and leadership. Some universities also provided additional information about plans or activities related to these skills.

The analysis work with the dataset collected from these universities:

Charles University

Heidelberg University

Sorbonne University

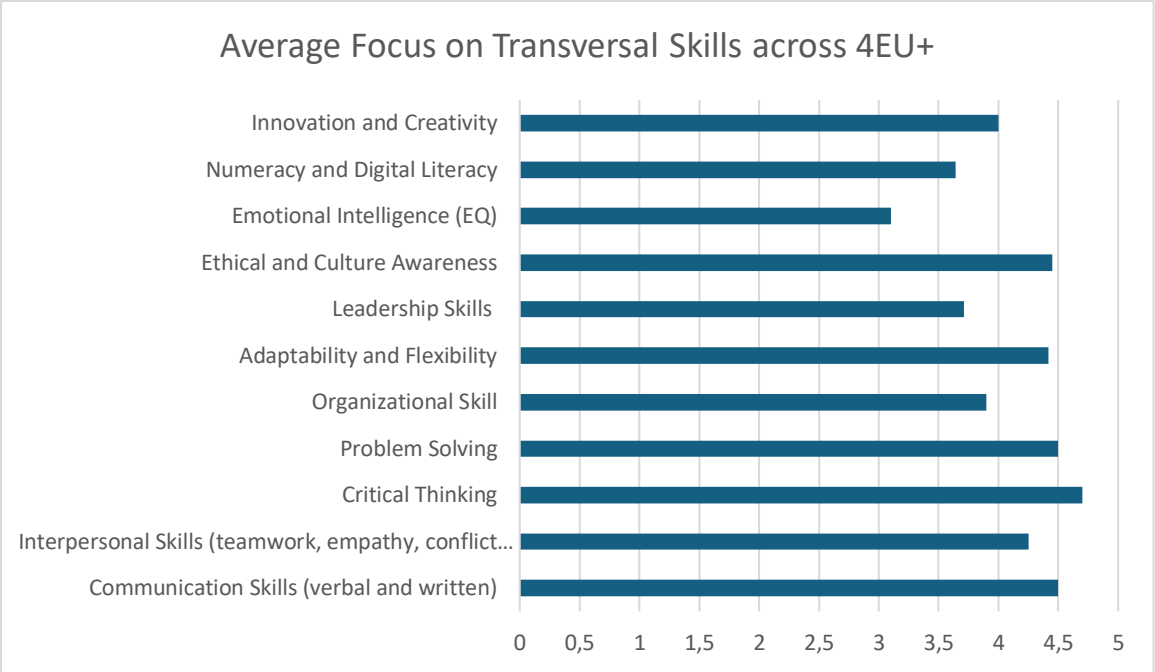
University of Copenhagen

University of Geneva

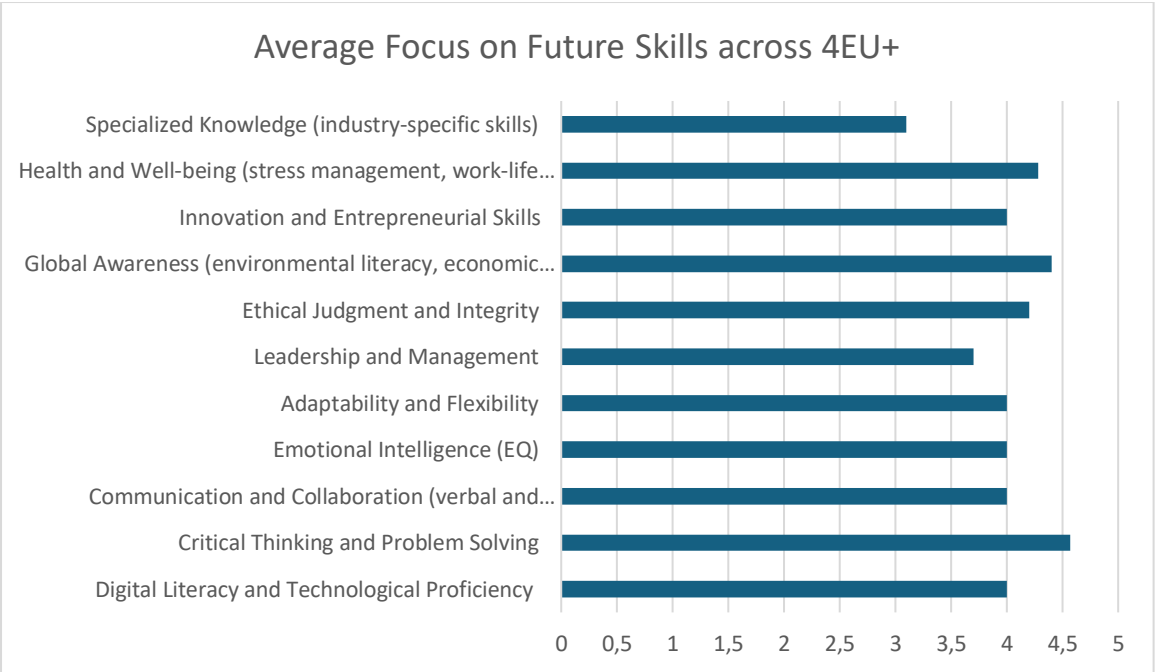
University of Milan

University of Warsaw

The analysis of the selected **transversal skills** across 4EU+ universities show the following results. The visual representation provides a clear view of these averages. **Critical Thinking**, **Communication Skills**, and **Problem Solving** are among the most emphasized skills, while **EQ**, **Leadership Skills** and **Organizational Skills** are somewhat lower in focus.



The analysis of the perception on the **future skills** for students, the chart reflects a well-rounded focus on a diverse range of future skills, with a notable emphasis on **critical thinking**, **problem-solving,** and **health and well-being**. This suggests that 4EU+ universities are preparing students not only to be effective problem-solvers but also to maintain a balanced and ethical approach to their personal and professional lives. While **leadership** and **specialized skills** receive slightly less focus, the overall approach is holistic and forward-thinking.



The qualitative responses from 4EU+ universities provide the following full list of additional essential skills that they believe are missing or need more focus:

1. **Analytics and complex thinking**
2. **Reflecting on the experience**
3. **Financial literacy** and **Resilience building**
4. **Lifelong learning**, **mediation skills**, and **Media and Information Literacy, Global Citizenship**

These skills are mentioned as critical areas where further development or new initiatives are being considered by the universities. Additionally, the shift towards broader competence frameworks, rather than long lists of skills, is a recurring theme, reflecting a strategic approach to skill development that is adaptable and future-focused.

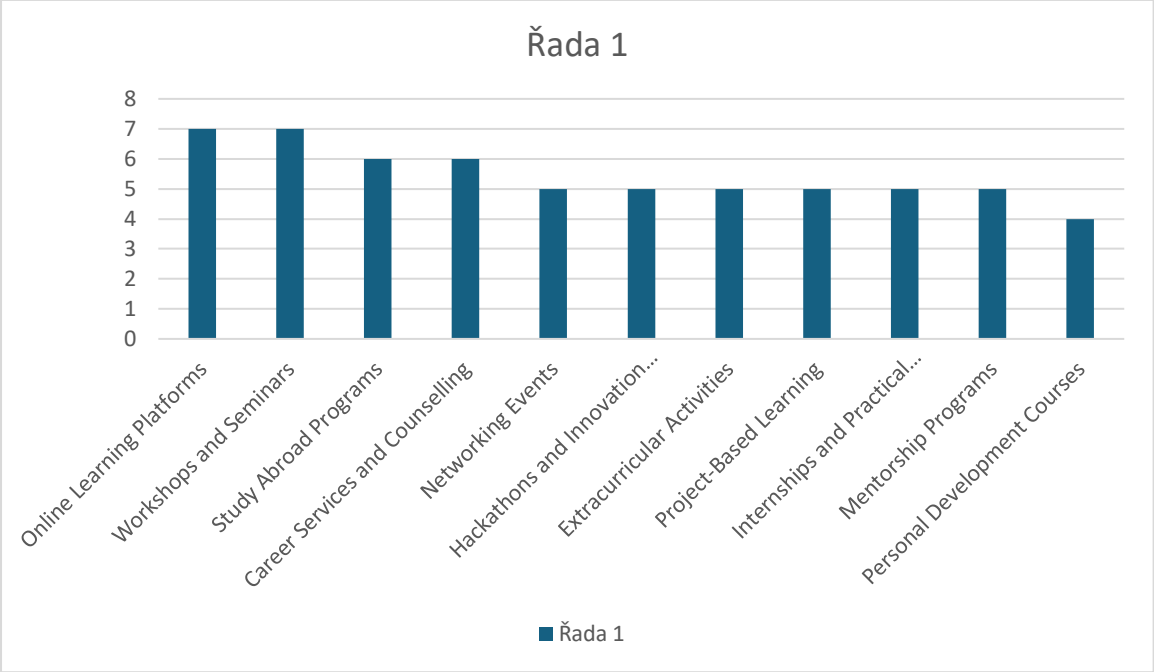
However, some of the skills appear less frequently in the current focus areas, suggesting they are emerging priorities for development. Some universities are placing particular emphasis on **management** and **leadership skills**, recognizing the importance of these competencies in their academic programs, alongside a focus on **ethical ideation** to foster responsible decision-making. For PhD students, there is a notable need to enhance **interpersonal skills** and **emotional intelligence**, as these are critical in both academic settings and collaborative research environments where teamwork and communication are essential. Furthermore, the reference to a **structured competence framework** indicates that some institutions are adopting a strategic and systematic approach to defining, tracking, and developing these essential skills, ensuring students are well-equipped for both academic and professional success.

Based on the data on the methods used by universities to support students in developing transversal skills, we can see that most used methods are **Workshops and Seminars**. This method appears repeatedly (almost all responses mention "Workshops and Seminars"). It suggests that these are the most common or popular approaches universities use for transversal skills development. Workshops and seminars likely offer flexibility for introducing various transversal skills like communication, problem-solving, and teamwork. **Less Used Methods are Networking events**, **hackathons**, **internships, and practical experiences** are less frequently mentioned, indicating that while they are valuable, they might be less integrated into transversal skill development programs across the universities surveyed.

Universities within the 4EU+ Alliance support students in skill development through a variety of mechanisms. The most frequently mentioned methods include:

1. **Online Learning Platforms** (7 universities)
2. **Workshops and Seminars** (7 universities)
3. **Study Abroad Programs** (6 universities)
4. **Career Services and Counselling** (6 universities)

5. **Networking Events**, **Hackathons and Innovation Labs**, **Extracurricular Activities**, **Project-Based Learning**, **Internships and Practical Training**, and **Mentorship Programs** (all mentioned by 5 universities)



The analysis of trends in how 4EU+ universities enable students to adopt transversal skills reveals the following patterns:

1. **Extracurricular Activities** are the most common approach across all three categories (centralized, decentralized, and both). This indicates that universities often rely on activities outside the formal curriculum to develop transversal skills.
2. **Core Curriculum Integration** is more common in decentralized and mixed approaches, where faculties or departments may embed these skills into their study programs.

Overall, there is a trend toward a flexible mix of extracurricular and curricular methods, with a slight preference for extracurricular activities.

Students´ perspective

During the recent workshop on transversal skills for students, the session began with a presentation highlighting key transversal skills essential for young people entering the job market. Following the presentation, the students were tasked with discussing three key questions:

1. Are the transversal skills identified relevant for young people entering the job market? Which skills would you prefer, and why?

2. Is there anything missing from the list of skills?
3. How should these skills be integrated into future courses?

Students worked in groups to explore these questions and later summarized their discussions with key conclusions. They emphasized that while **innovation** and **creativity** are vital, these concepts remain loosely defined. Among the preferred skills for the job market, **innovation** was considered the most critical. **Verbal communication skills**, especially in the context of dissemination and networking, were also highly valued in both professional and personal contexts.

Other important points included the significance of **storytelling**, particularly in relation to social media, as well as **global awareness**, **organizational skills**, and **resource awareness**. To integrate these skills into future courses, students recommended using guiding questions that foster an "eyes-on" approach. They also supported the idea of specific immersive short workshops to allow for deeper engagement with these skills without overloading the main curriculum.

Cooperation within the 4EU+ Alliance

With the questionnaire, we also mapped the possible engagement in the collaboration in this field across 4EU+. In the provided data, out of the responses:

- 5 universities see benefits in cooperating on skills development within the 4EU+ alliance and are open to offering activities to support these efforts.
- 2 respondents do not currently see any benefits to cooperating on skills development within the 4EU+ alliance.

Specifically, we see some specific examples:

- ✓ UniGe plans to share best practices (methodology, tools, and skills repository) once their "skills passport" project is fully operational.
- ✓ CU expressed a desire to inspire and be inspired, highlighting the importance of sharing experiences and best practices in competence development. At the same time, CU is also offering a pilot of training offer for doctoral and postdoctoral students from the 2024/2025 winter term. This educational offer includes courses on Open Science, Various Career Pathways in Research and Research Data Management.
- ✓ UHD mentioned offering a variety of online courses, such as scientific writing, critical thinking, and learning techniques. These are currently available as Open Educational Resources (OER) and could be expanded to the 4EU+ community. They also expressed interest in using flipped-classroom formats and collaborating on the development of new programs focusing on systems thinking, transdisciplinary cooperation, intercultural communication, resilience, adaptability, and data literacy.
- ✓ UW´s suggestion involved creating a joint micro-credentials offer, which would include short courses (e.g., summer or winter schools or online provision) to develop transversal skills, culminating in the award of a joint micro-credential.

Overall, the responses show varying levels of engagement, with some institutions already offering specific courses and resources and others expressing interest in future collaborations or awaiting further development in their projects.

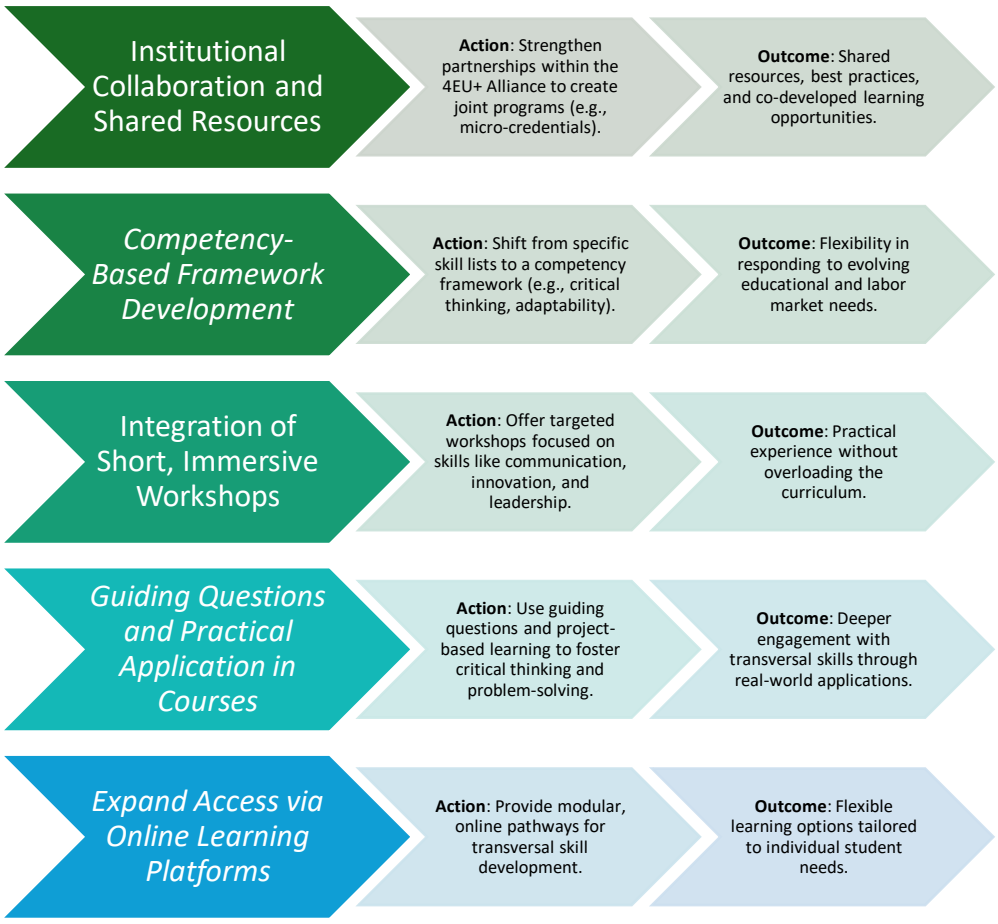
Roadmap for Developing Learning Pathways

Integrating transversal skills into research is key to developing adaptable, well-rounded researchers. In STEM, clear communication is essential, helping students present complex ideas to broader audiences. Collaboration in humanities fosters teamwork and empathy, while innovation is critical in engineering and social sciences, where creative problem-solving can address societal challenges.

Digital literacy is vital, especially in life sciences and economics, where big data and AI play a role. Global awareness and ethical responsibility guide research in fields like environmental science and business, ensuring socially conscious outcomes.

Emotional intelligence and leadership are crucial in health sciences, law, and political science, particularly in patient care, human rights, and policy-making. Finally, encouraging adaptability and lifelong learning across all fields prepares students for continuous growth and interdisciplinary collaboration.

Based on the analysis of the questionnaire findings and insights from the students' perspectives gathered during the workshop, the roadmap for developing or enriching learning pathways could be structured as follows:



Conclusion:

While all the skills mentioned (e.g., Critical Thinking, Problem Solving, Digital Literacy, etc.) are indeed areas of focus, the extent of emphasis on each skill varies depending on the discipline and study program. For instance, certain fields may prioritize **Innovation and Creativity**, while others may focus more on **Health and Well-being** or **Leadership**. Due to this variability, it can be challenging to uniformly rate the importance or development of these skills across different academic programs.

Moreover, rather than working with an exhaustive list of future skills, it is more practical to adopt a **competency-based framework**. Competence areas provide a more sustainable and adaptable foundation for student development, as they can encompass a wide range of evolving skills while remaining grounded in overarching principles. This approach mitigates the challenge of rapidly changing skill lists and offers more consistent guidelines for educational institutions to follow.

The use of frameworks like the **GreenComp** (European Sustainability Competence Framework) and **DigComp** (Digital Competence Framework) offers structured pathways for developing key competencies related to sustainability and digital proficiency, which are increasingly critical for future success. Additionally, lifelong learning (LLL), as well as **media and information literacy**, are pivotal areas that help ensure students are adaptable, critical, and informed participants in a rapidly changing world.

By focusing on these broader competence areas, universities can provide students with a robust and adaptable skill set, ensuring that graduates are not only prepared for current challenges but are also equipped to navigate future shifts in professional landscapes.

- One notable approach is providing support for teachers in integrating and evaluating transversal skills in their courses. Universities have begun implementing projects that encourage faculty members to incorporate transversal skills more systematically into the curriculum. The support includes guidance on designing courses that foster soft skills and methods for evaluating these competencies.
- Specialized platforms, such as the Doctoral Study Hub or online resources, provide courses and workshops that support transversal skill development tailored to doctoral candidates and other students. These platforms are aligned with frameworks like the European Competence Framework for Researchers, which categorizes key transferable skills (e.g., managing research, self-management, cognitive abilities).
- Several responses mention the alignment of transversal skills with national qualification frameworks or broader European frameworks. This ensures that universities' offerings are in line with standardized competence descriptors, making skills development a mandatory aspect of learning outcomes, whether at the course or program level.

Based on the students´ discussions during the workshop, several key recommendations can be drawn for the integration of transversal skills into future courses. It is important to clarify the definitions of innovation and creativity, as these concepts were considered crucial but are currently too loosely defined to be effectively applied. Verbal communication should be prioritized in both professional and personal development contexts, especially for activities like

networking and dissemination. Additionally, incorporating storytelling, particularly in relation to social media, and fostering global awareness should be integral parts of the course design.

To ensure effective integration of these skills, it is recommended to use guiding questions that actively engage students and encourage them to apply these skills in practical settings. This method would allow for the seamless inclusion of transversal skills into the course content without overwhelming the curriculum. Finally, offering short immersive workshops could provide students with practical, hands-on experience, allowing them to engage deeply with the skills in a more focused and intensive environment.