

CIRCULAR STEM

BRIDGING THE STEM SKILLS GAP: A PATH TOWARDS A COMPETITIVE, GREEN, AND INCLUSIVE EUROPE

STEM skills gap

Europe's competitiveness, environmental goals, and digital transformation are all at risk due to the growing STEM (science, technology, engineering, and mathematics) skills gap. Meeting the need for qualified personnel in STEM sectors is a major concern for the European Union. These are essential for growing strategic sectors, like digital technologies, and clean and circular technologies.

Nearly 80% of small and medium-sized businesses in the EU report difficulty finding employees with STEM skills related to emerging areas such as information and communication technology (ICT), green technologies, artificial intelligence, and sustainable design; indicating a shortage of skilled individuals to fulfil market demands (STEM Education And Training, 2025).



According to the 2023 Eurobarometer Survey, the skills shortage stands out as one of the most pressing labour market issues across the European Union. It is estimated that 18 million people will need to be reskilled for Europe to reach its climate goals by 2050 (World Economic Forum, 2023b).

The challenge of these skills gap, is that many schools still use old-fashioned teaching methods, focusing more on memorizing facts than on thinking creatively, working together, or solving real-life problems. The Circular STEM project wants to change that by helping teachers to be enablers of the twin transitions through their profession by integrating digital, circular economy and entrepreneurship skills in the school curricula.



Gender gap

Moreover, there is a notable gender gap in tech-related professions and educational pursuits, with only one in five (1/5) information and communication technology (ICT) specialists and one in three science (1/3), technology, engineering, and mathematics (STEM) graduates being women (Digital Economy and Society Index, 2022).

This gender gap in STEM is not just a social issue, it's a missed opportunity for economic growth and innovation.

Equal opportunities are necessary at all educational levels to ensure the participation of women and girls in STEM education and in STEM careers (UNICEF, 2020). Many careers in STEM, especially in male-dominated areas, are related to power and high status. Making these careers more accessible to women could not only increase female participation in STEM, but also increase the number of women in positions of power and decision-making. Therefore, in the Circular STEM project there is an underlying approach focusing on empowering girls in using digital tools and raising their interest in STEM subjects (Evagorou et al., 2024).



Redesigning teacher training

At the heart of this initiative is the development of a new methodology for STEM teacher training—one that focuses on the circular economy, entrepreneurship, and digital literacy. This shift enables educators to integrate interdisciplinary, hands-on learning into the classroom, helping students see how science and technology apply to real societal challenges like climate change and resource scarcity.

Through this approach, teachers equip students with the tools and knowledge to foster innovation and sustainability, in order to ensure that STEM education aligns with the EU's broader policy goals.

By empowering STEM teachers with the tools to deliver circular economy concepts, digital fluency, and entrepreneurial thinking –while actively working to close the gender gap—we are paving the way for a smarter, greener, and more inclusive Europe.