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# EU STEM Observatory 2024-2025

Empowering the multiple transitions through STEM skills

MAKING AN IMPACT THAT MATTERS since 1845

# Foreword

Deloitte's commitment to youth education and professional training continues with the publication of a new edition of the STEM Observatory Report. Launched in 2020 by the Deloitte Italian Foundation, and then jointly promoted by the DCM[1] Public Policy & Stakeholder Relations Centre, the study analyses the technical and scientific educational environment, while investigating trends among students, young workers and companies, and the main barriers to accessing STEM education in Europe.

This edition of the STEM Observatory comes to life in a period of radical transformation, marked by growing geopolitical tensions, the climate crisis, rapid advances in technology and artificial intelligence (AI), and demographic trends that will impact the future of work. These interconnected changes are upsetting long-established balances. However, they also give rise to unprecedented opportunities which, if approached in the right way, can lay the foundations for a just and sustainable future.

Against this backdrop, STEM disciplines (Science, Technology, Engineering and Mathematics) continue to play a vital role in global social, economic and technological development. Moreover, navigating the ongoing transformations will require interdisciplinary thinking, new skills and new ways of learning throughout the various stages of life.

With this STEM Observatory Report, Deloitte aims to join the efforts of ecosystem actors – institutions, universities, companies and the third sector – to spread awareness of STEM disciplines from an early age, promote new ways of lifelong learning, and advance social progress in our communities. By working together, we can support the education of the next generation of students and workers, remove the sociocultural barriers that still hinder access to technical-scientific fields, and thereby promote the development of skills essential for driving innovation, competitiveness, sustainability and social justice across Europe.

We hope that this report will encourage further progress and innovation in education and training for the coming generations, and we invite you to delve into its findings and join us in promoting a sustainable future for the societies in which we live.

**Fabio Pompei**
CEO
Deloitte Central Mediterranean

**Guido Borsani**
President Deloitte Italian Foundation
Deloitte Central Mediterranean
Government & Public Services Leader

[1] Deloitte Central Mediterranean geographies: Italy, Greece and Malta

*"Science holds the key to our future here in Europe. Without it, we simply cannot address today's global challenges – from health to new tech, from climate to oceans. [..] So more than ever we need to stand up for science. Science that is universal – shared by all humanity – and that is unifying."*

**EU Commission President Ursula von der Leyen**
*Choose Europe For Science', La Sorbonne, May 2025*

*"We will leave Europe a better place by doubling down on Europe's competitiveness. That keeps Europe's businesses in Europe and gives us the ability to invest in our youth, in research, in education, in culture, in our communities and in the rest of the world."*

**President of the European Parliament Roberta Metsola**
*A strong Parliament is a strong Europe', European Parliament, July 2024*

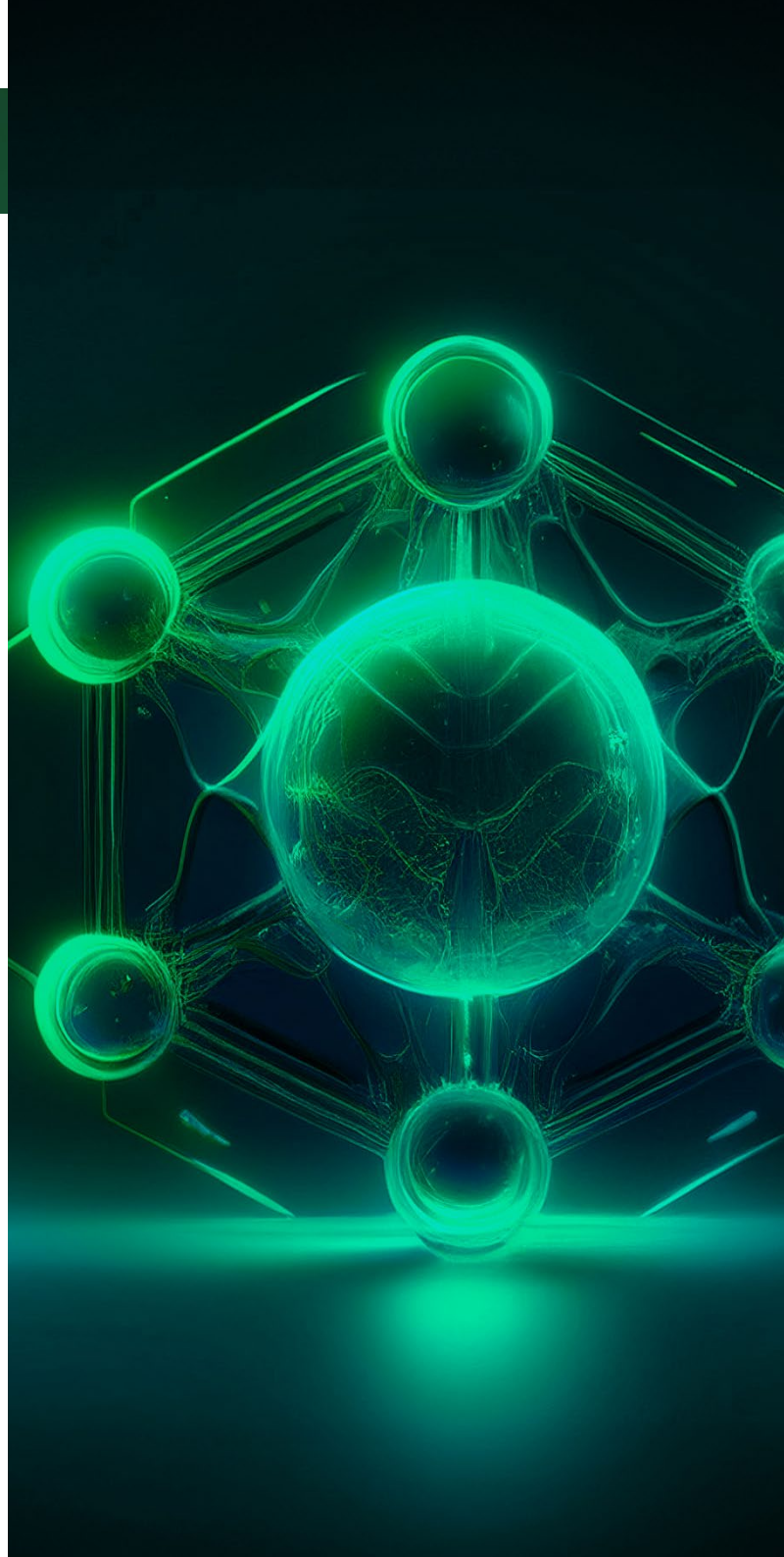
# Executive Summary

As previous editions of the STEM Observatory Report have shown, **STEM skills** (Science, Technology, Engineering and Mathematics) play a key role in providing the knowledge needed to support the **environmental, digital and demographic transitions underway**, and to promote **research** and **innovation in Europe**. However, tertiary STEM education is still undertaken by a **minority** of **European students**: 26.6% of European students are enrolled in STEM courses, of whom only 32.2% are **female**, a figure that has not risen over the past 10 years. The **least popular** STEM degree course in Europe is **Information & Communication Technology (ICT)**. Despite the vital importance of these skills for promoting **technological innovation** and **digitalisation**, only 20.6% of European STEM students opt for this specialisation, of whom only 20.6% are female.

Among school and university students[2] , 6 out of 10 are **very satisfied with their course**, particularly appreciating the quality of teaching and its coherence with their career aspirations and their **personal passions and interests**. The latter is the main driver behind their choice of a specific educational pathway, taking precedence over pragmatic considerations such as remuneration or career prospects. It is crucial for STEM students **to adopt a flexible approach** so that they can quickly adapt their educational pathway to keep abreast of the latest issues, including via **"informal" means of education**, which almost half of them deem to be a valid alternative (44%). For the vast majority of students, the **family** also plays a key role in guiding their course choice. STEM students rely on an extensive **"information ecosystem" of sources and third parties**, such as teachers, friends and influencers, to guide or support their decision, thereby overcoming **one of the main obstacles to choosing this type of courses: a lack of confidence, and the feeling that they are not particularly inclined towards a subject.**

## Research targets and countries

Expanding the geographical scope of analysis from the previous edition of the STEM Observatory Report, Deloitte conducted surveys in 2024 on three groups of interest – students, young workers and companies – in 10 European countries: Belgium, France, Germany, Greece, Italy, Malta, the Netherlands, Romania, Spain and the United Kingdom. The selected roster is a representative sample of European countries, offering comprehensive insights that are reflective of the region's multifaceted educational and professional landscape.



[2] "Students" and "young workers" means representation of the entire sample of respondents i.e. both STEM and non-STEM

Once they start to work, **young workers**[3] report a **high level of satisfaction with their study course**, which is broadly in line with the level of satisfaction (53%) reported by students. They also believe that **finding their current job was quite easy**, primarily thanks to their good school and/or university education. Another similarity with the student group regards the decisive factors in choosing their job. For young workers, being able to **express their personal talent or vocation** ranks high on the list of decisive factors, whereas **economic and career prospects** are less important. For young STEM professionals, employment **flexibility** and **versatility** are important, together with the possibility of working in a dynamic, multicultural environment, as borne out by **significant openness to international mobility**, which is deemed to be positive by 6 out of 10 young STEM workers. This degree of **dynamism** is also reflected in a marked **inclination for short-term changes in work** that encompass new activities, roles and tasks (e.g. reskilling) and a shift towards new work environments. This dynamism also evokes the issue of labour mobility, regarding which 44% of the students and young people interviewed saw collaboration between companies and institutions as vital to safeguarding their country's competitiveness and capacity for innovation.

**Gender discrimination** brought about by **cultural biases**, especially in the context of the family, continue to limit **female participation in STEM courses and careers**. In Europe, even though they comprise the majority of the university student population (55.1%), **women** account for only 32.2% of STEM students, and in the **high-tech** and **manufacturing** sectors only 22.4% of **scientists and engineers** are **female**. Approximately **two thirds of young Europeans** have **witnessed discrimination against women**, especially among those working in STEM fields, and **more than 4 out of 10 women** report having been **subjected to discrimination**, a figure that is even higher in the technical and scientific field. According to 39% of young workers, the most tangible effects of this discrimination in the workplace include differences relating to **career prospects and** the **speed of career progression**, while 36% report **pay gaps**. Among **companies** that acknowledge the existence of gender discrimination (55%), **81%** believe it has a **negative impact on their organisation**, in terms of image, attractiveness and employee satisfaction. In 2022, on average, European women earned €0.87 for every €1 earned by men. **Eliminating the gender pay gap appears to be a top priority for young people**, to be complemented by the promotion of technical and scientific disciplines via a **role model** approach.

To address **structural and deep-rooted** social issues, **young people** believe it is vital for **institutions and companies** to play an active role; whereas the latter see themselves as agents of change, they **attribute a central role to the state**, especially in supporting **parenting policies**.

Looking towards the near future, both young people and companies emphasise **the crucial importance of STEM skills in guiding the major transformations that are taking place** (from digitalisation to sustainability), to boost their **countries' competitiveness** and enhance people's **wellbeing**. Specifically referring to AI, **6 out of 10 companies** predict that **it will increase the demand for STEM staff**, a conviction that is confirmed by **4 out of 10 young people**, who are, however, more wary about this issue, partly in the light of AI's still uncertain impacts on employment. In any event, **4 out of 10 young people** believe these technologies are key to solving the complex **environmental challenges** we currently face.

Given the key role they play in **digitalisation and sustainability**, scientific and technical skills are a vital resource for transforming European countries. This change calls for a collective effort, in which all ecosystem players, including institutions and companies, work together to drive innovation in the coming years.



[3] Ibid.

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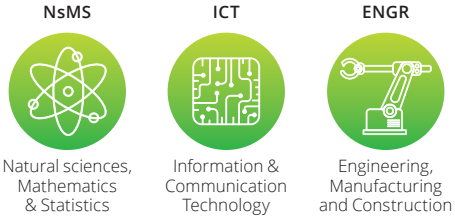
# 1 STEM education in Europe

Only 26.5% of European university students opt to study STEM subjects. 15.5% of female university students are enrolled in STEM educational programs, a figure that drops to 2.0% for the ICT field. Students investing in STEM education reported slightly higher satisfaction than those who did not take STEM courses (59% STEM, and 56% non-STEM), and, in more than half of cases (60%) students were guided in making their choice by their families. STEM workers are also more open to informal education, and in almost two thirds of cases (63%) continue to invest in their own education.

## STEM skills are increasingly important, but only a minority of tertiary students have chosen this educational pathway over the past ten years

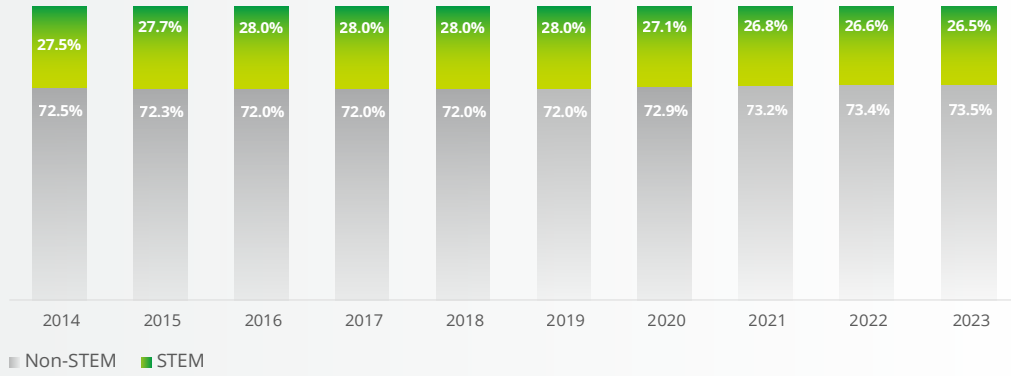
### STEM subjects in Europe

STEM tertiary courses can be divided into three categories, according to Fields of Education and Training 2013 of the UNESCO ISCED[4] :




STEM tertiary education courses are taken by a minority of European students (26.5% in 2023) (Fig. 1).[5]

Figure 1 | STEM students (M+F) out of total students | EU27+UK

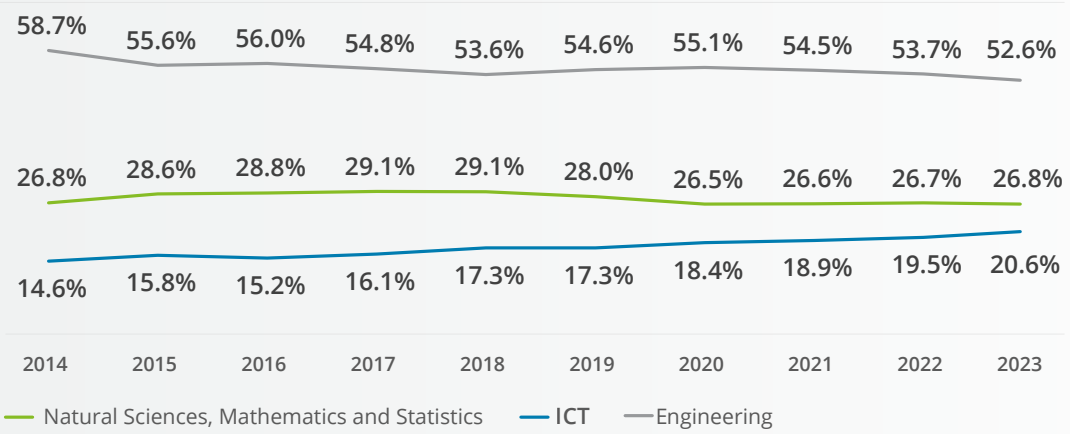



*Source: Eurostat and OECD - Data extracted in July 2025*

[4] UNESCO Institute for Statistics (2015). International Standard Classification of Education. Fields of education and training 2013 (ISCED-F 2013) – Detailed Field Descriptions. See: Field Descriptions (unesco.org)
[5] Eurostat (2025). Students enrolled in tertiary education by education level, programme orientation, sex and age. See: Statistics | Eurostat (europa.eu)

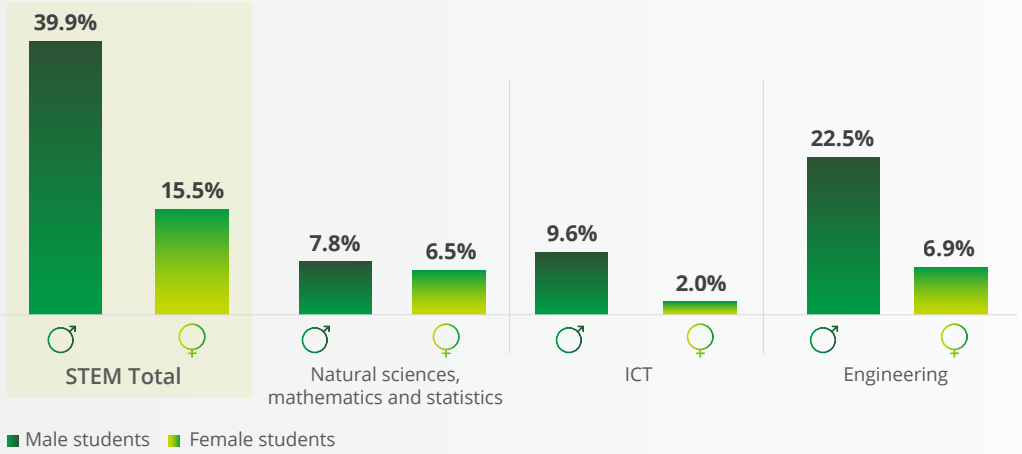
Although the STEM enrolment rate in Europe has not changed significantly over the past 10 years, different trends can be observed within the STEM subcategories (Fig. 2). **Engineering** categories are the subjects most often chosen by European students (52.6 % in 2022), followed by **Natural Sciences, Mathematics and Statistics subjects** (26.8 %). The least popular subjects are **ICT** (20.6%), particularly among female students: only 2.0% of the total number of females enrolled in tertiary education choose an **ICT** pathway. Over the past 10 years, a slight increase of 42.8% in the number of enrolments in ICT has been noted, although the overall number remains low.

Figure 2 | Segmentation by STEM group | EU27+UK




*Source: Eurostat and OECD - Data extracted in July 2025*

Figure 3 | Participation rates in STEM groups | 2023, EU27+UK




*Source: Eurostat and OECD - Data extracted in July 2025*

## 1.1 Student satisfaction

### STEM students are slightly more satisfied with their courses than non-STEM students

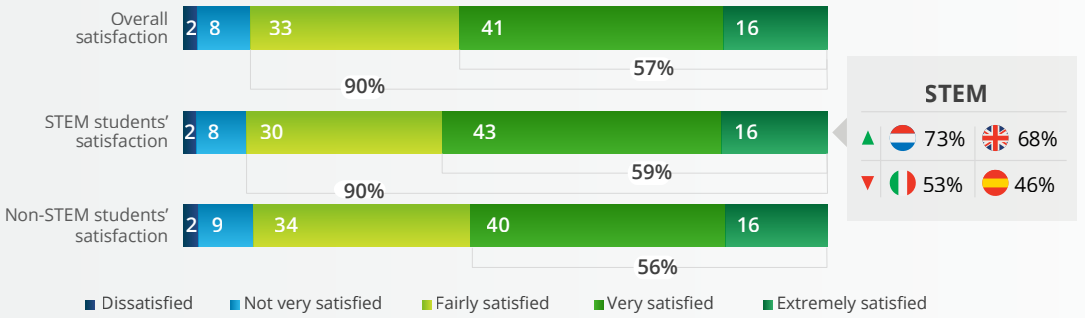
The students interviewed were **highly satisfied** with their courses.
Students opting for STEM educational pathways expressed slightly above-average levels of satisfaction, with around 60% saying they were “very” or “completely” satisfied.
What is this satisfaction due to? First of all, **coherence with professional aspirations** in terms of relevant field or sector, knowledge and skills acquired. Followed by **quality of teaching** and alignment with **personal passions and interests.**

**9 out of 10**

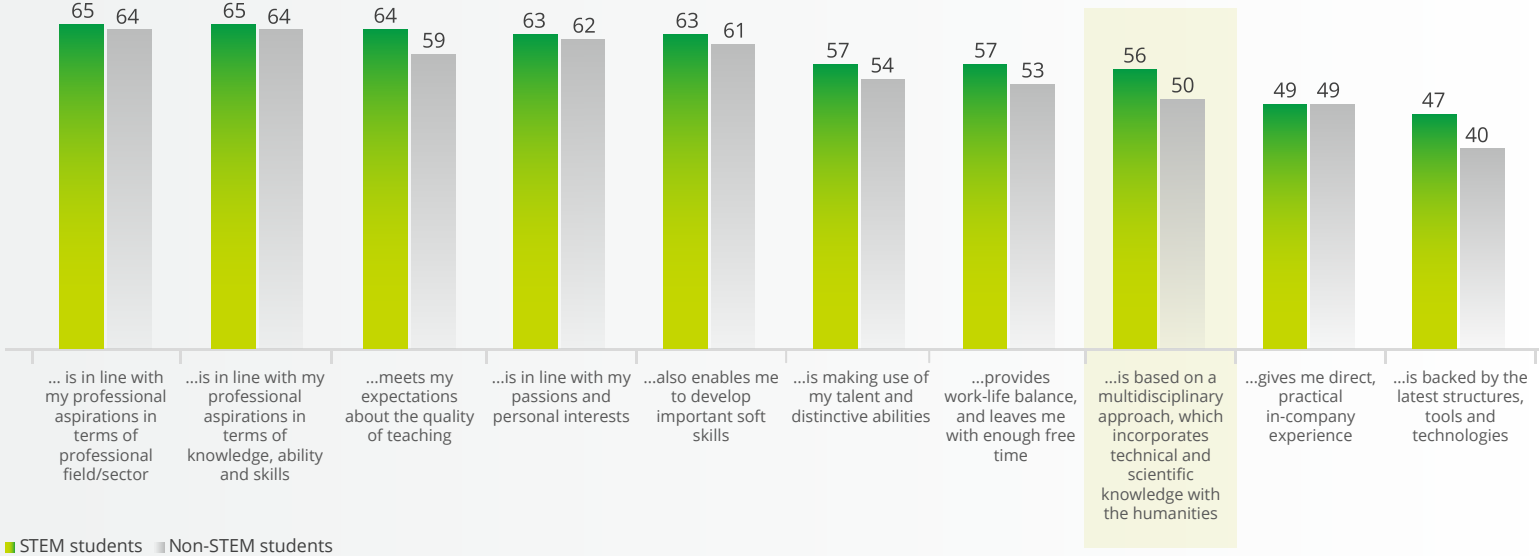
students interviewed are at least “fairly satisfied“ with their educational or training course

Figure 4 | Student's pathways: general satisfaction

**Students' level of satisfaction with their educational or training course**




**My current educational or training course** *(% values: sum of "Strongly agree" and "Completely agree")*



## 1.2 Drivers of educational choices

Passion drives students' choices, especially for non-STEM students. STEM students also value career prospects and look for flexibility in courses

In students' perception, **passion** and **personal interest** in the subjects are the **main reason** underlying their **choice of educational pathway**; this applies, in absolute terms, to both STEM fields and complementary non-STEM subjects such as the humanities.

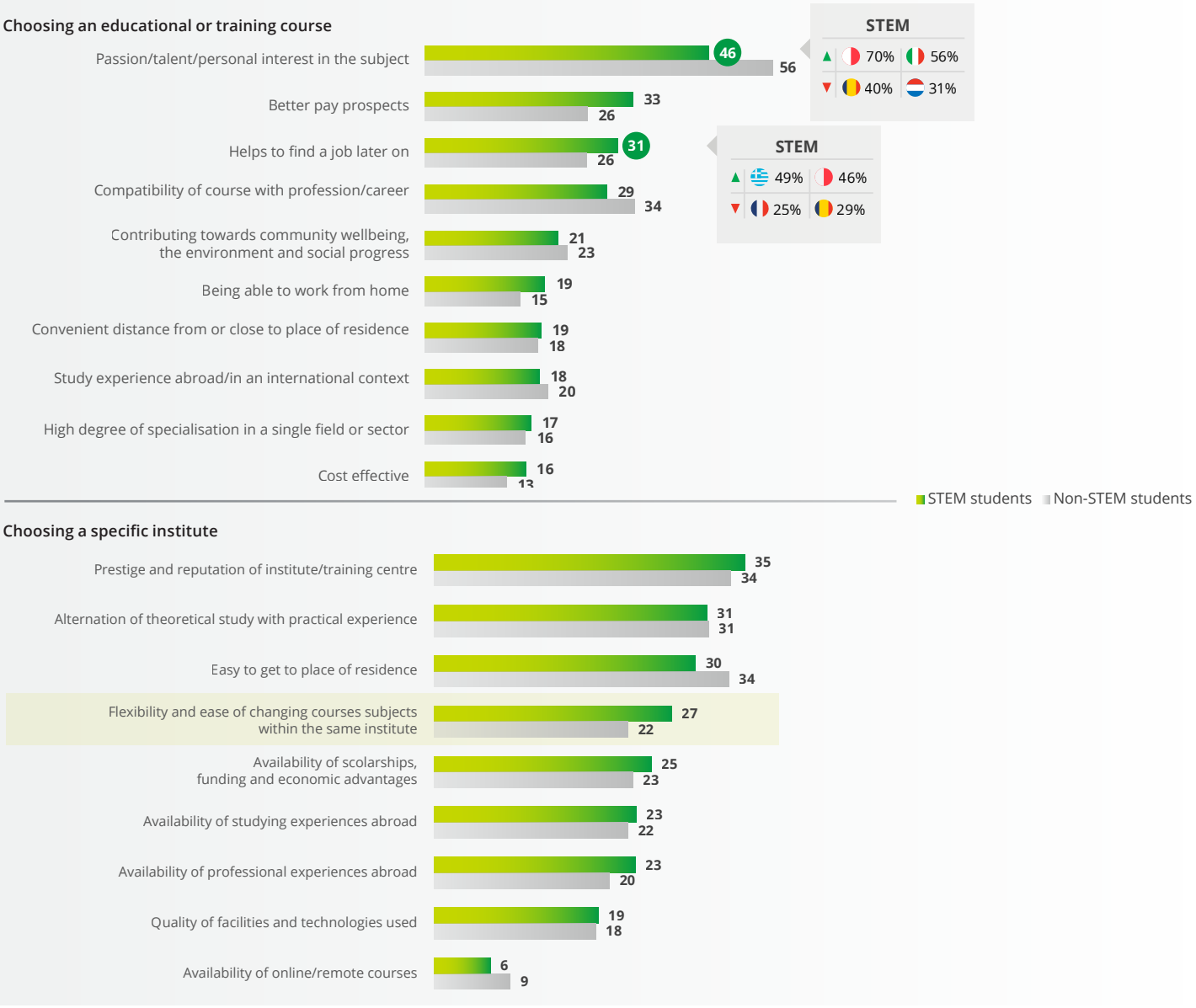
More pragmatic factors, such as **career prospects or remuneration**, rank second, especially among students who have opted for a STEM educational pathway. More than 1 in 5 respondents also stress the importance of training in subjects and courses that can contribute to the **wellbeing of the community**, the environment and **social progress**.

Finally, for more than 1 in 4 STEM students, **flexibility** was a decisive factor, especially in terms of being able to easily change courses and subjects within the same educational institution.

**46%**

of STEM students choose their course primarily on the basis of personal passion

Figure 5 | The reasons underlying choices *(Percentages)*



## 1.3 Family and social influences on choices

### Family is still the most important factor influencing student choices

In a scenario where approximately one third of students say they were strongly guided in their choice, **family members** play the most important role, especially for students opting to study STEM fields (60%). For **young workers with** a **STEM education or profession**, **this role is even more important** compared to people working in other fields (61% for the former, 31% for the latter).

Moreover, regarding students and young people employed in technical and scientific fields, higher shares in terms of the importance of third parties in guiding their choices (friends, teachers, influencers or counselling services) are reported.

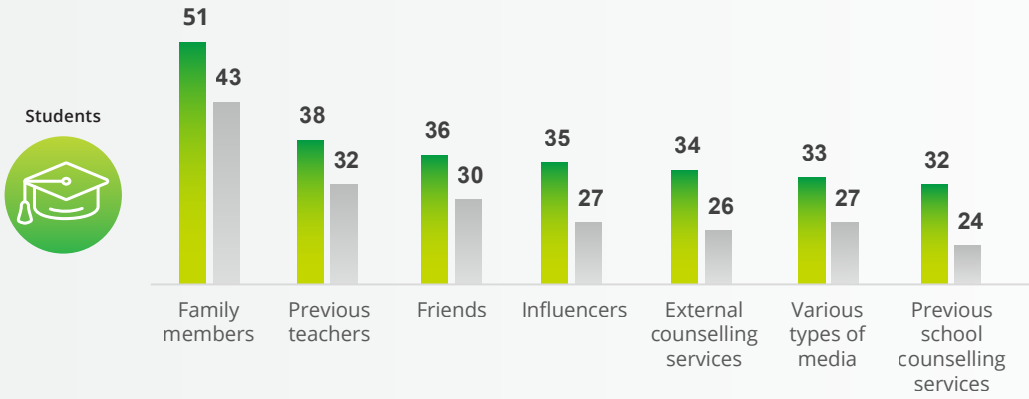
**Indeed, opting to undertake a STEM educational pathway is driven by multiple factors and an ecosystem of different information sources**.

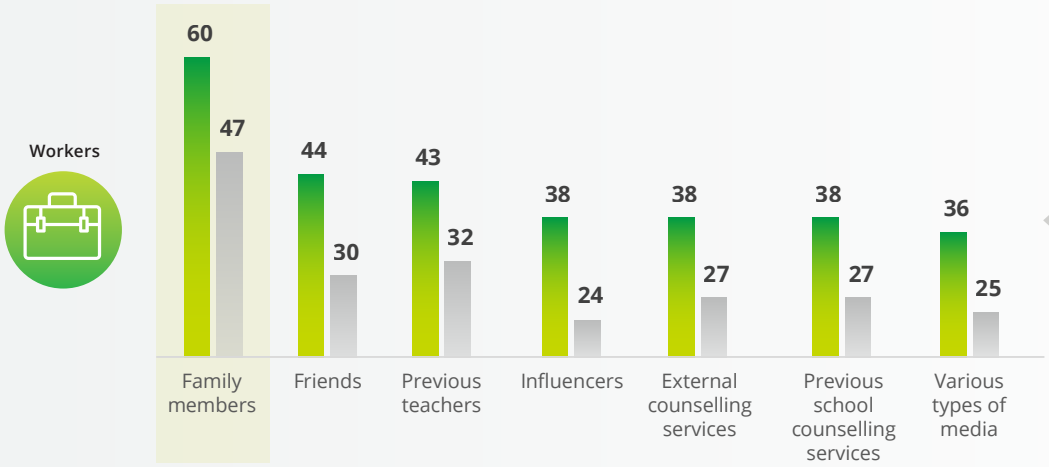
**6 out of 10**

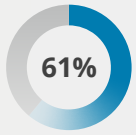
young STEM workers acknowledge the decisive role of family members in their choice

Figure 6 | Family and social influences on choices

**The influence of third parties on the choices of** *(% values: sum of "Very influential" and "Extremely influential")*

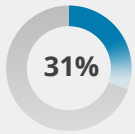



**STEM profession**

% of people recognizing the family's influence, assuming that family members have a STEM background or profession




**Non-STEM profession**

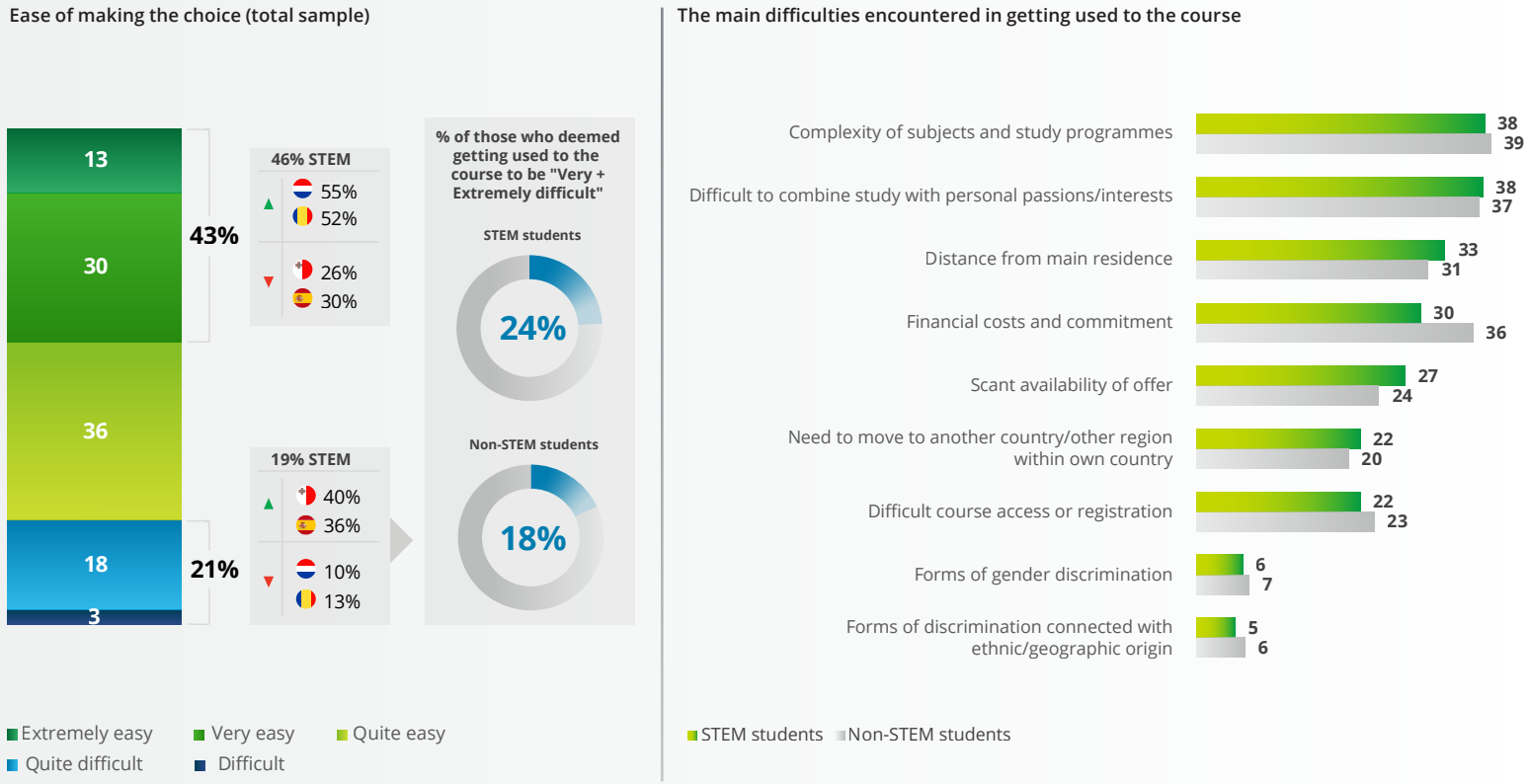
% of people recognizing the family's influence, assuming that family members have a STEM background or profession

## 1.4 Transition to higher education

### Choosing an educational pathway after high school is initially easy, but difficulties may hinder the start of university studies

Overall, 8 out of 10 respondents felt that **choosing** an educational pathway was **fairly easy**, with almost half of STEM students rating it as "very easy" or "extremely easy", given that they had a clear idea about which educational pathway to choose. However, in practice, around 1 in 5 young people (and 1 in 4 STEM students) report "great/extremely great" **difficulty in actually getting used to their course**, namely when it came to getting to grips with studying and the concrete aspects of attending school or university. In this case, the main problems can be traced back to the **complexity** of the subjects and curricula, the difficulty of **reconciling study and personal interests**, and the **economic and logistical costs** of education.

Figure 7 | Difficulties in getting used to a course




**1 in 4**

STEM students had "very much/extreme difficulty" in getting used to their course

*Among the **barriers** limiting **access to STEM pathways**, the **rigidity of educational programs**, the **high levels of selectiveness**, and the difficulty institutions face in guaranteeing the **right to education** play a crucial role. **Financial resources** represent a **significant obstacle**, particularly in **STEM fields**, where 42% of Europeans feel they cannot afford an education (3M, State of Science Index). **Investing in the right to education** is therefore essential, also to enhance the **attractiveness of STEM pathways**.*

Marina Brambilla,
Rector of the University of Milan Statale

## 1.5 Interest in and inclination towards STEM courses

### Many students give up STEM courses as they consider them to be too difficult and beyond their reach

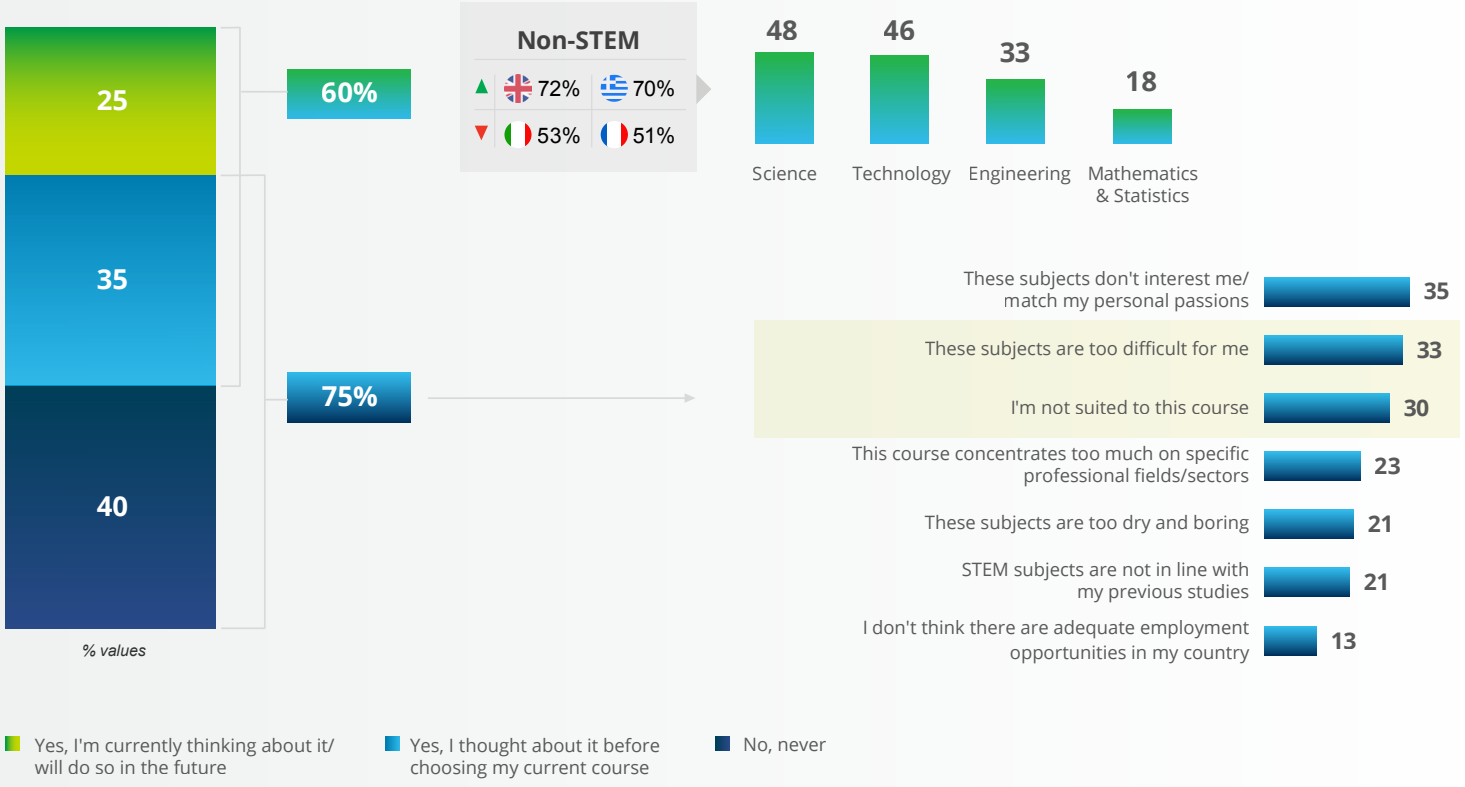
Among students not pursuing a STEM pathway, **6 out of 10 have nevertheless entertained the idea** (or would consider doing so in the future), leaning in particular towards the fields of science and technology. Among those students who chose not to pursue a STEM pathway, the reasons reflect a significant **lack of confidence and personal inclination**. As well as a lack of interest, they perceive the subjects as being too complex, and believe they are not suited for this type of course.

**60%**

of non-STEM students have considered the idea of taking a STEM course

> *For **STEM subjects the vocational element is vital**, as they require a **committed and aware choice**. Such a **vocation needs to be built up** during the earliest phases of education, by encouraging **scientific curiosity** in **childhood** through **experimentation**. **In this approach, an education that also incorporates** the humanities provides added value. **Dialogue between disciplines** gives rise to the **most innovative ideas**.*
>
> Alessandra Petrucci,
> Rector of the University of Florence

Figure 8 | Interest in and inclination towards STEM courses *(Percentages)*



## 1.6 Informal education

### Young STEM workers value informal educational paths

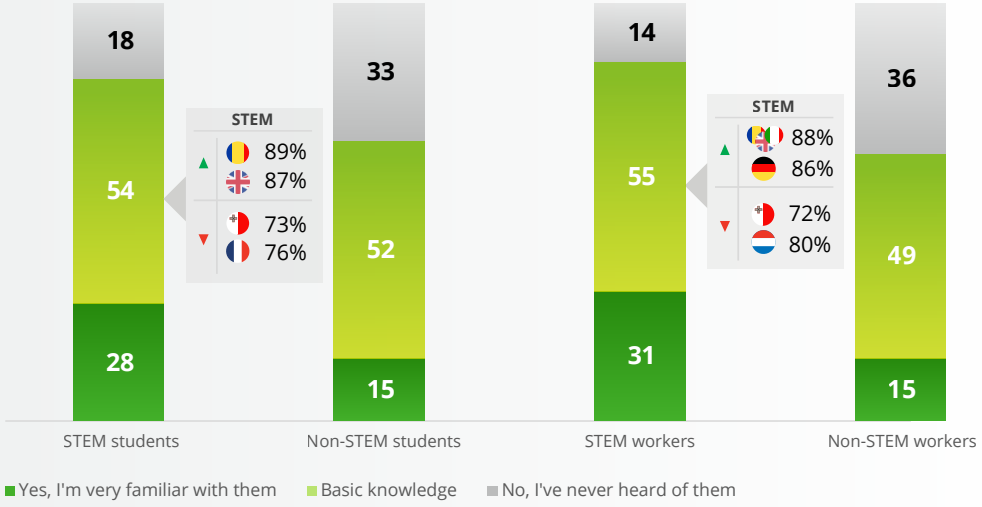
Overall, "informal" training courses – namely those offered by third-party organisations (e.g. micro-credentials, online websites and platforms, bootcamps, training providers) – are familiar to almost 8 out of 10 young workers, albeit not in depth. However, significant differences emerge, depending on the specific educational pathway undertaken, with **far greater knowledge prevalent among those with a STEM education or profession**. The latter, in particular, tend to have far more favourable opinions of informal courses, deeming them to be **more flexible and adaptable** to highly topical issues than traditional courses are, and also a **valid alternative** for acquiring advanced and specialised knowledge. Moreover, they believe, to a greater extent, that this type of education will **become increasingly widespread in the future**.

**8 out of 10**

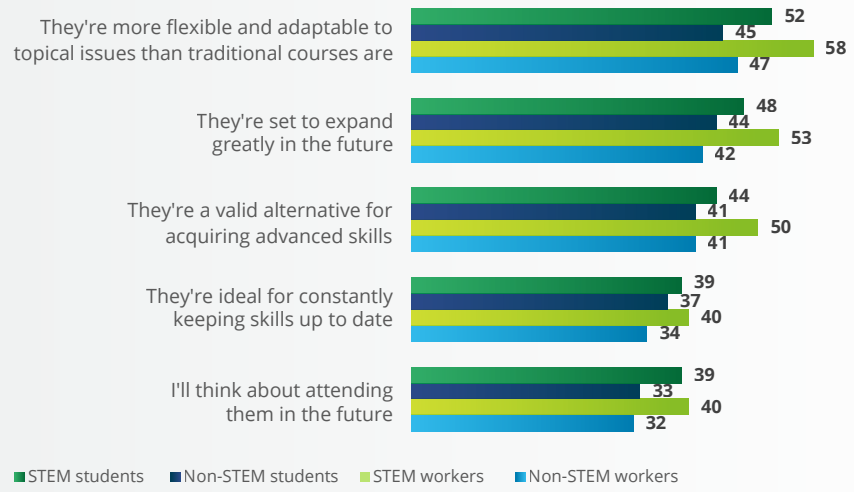
young STEM workers claim to have general or in-depth knowledge of "informal" courses

Figure 9 | Informal education

**Extent of knowledge of informal courses, by target group** *(Percentages)*




**Opinions on informal courses, by target group** *(% values: sum of "Strongly agree" and "Completely agree")*




*Any distortions in the data are due to decimal rounding*

> *Microcredentials are increasingly relevant, especially thanks to* ***collaboration between European universities****. These new training courses allow students to benefit from the experience of* ***teachers from different backgrounds****, while serving as a useful tool for increasing participation in* ***lifelong learning.***
>
> Tiziana Lippiello,
> Rector of Ca' Foscari University of Venice

## 1.7 Lifelong learning

### Young workers invest in informal education, companies value traditional pathways most

Approximately half of the young workers interviewed are convinced that, over the next 10 years, the skills and jobs required by the market will be radically different from today. This awareness recalls recent forecasts by the World Economic Forum, which predict that the next five years will see a structural change in the labour market, with the creation of new professions and the elimination of some existing ones that account for 22% of the current workforce[6]. In this context, **almost two thirds (63%) of workers with STEM education say that they constantly (or at least frequently) continue to invest in their education**, even after having begun to work, whereas in the "non-STEM" sphere this share is just under half (49%). Moreover, for 4 out of 10 STEM workers, **"informal" education** is an **ideal solution** for keeping their knowledge and skills constantly updated, especially when combined with multidisciplinary courses.

More than 6 out of 10 STEM workers have continued to invest in their education after entering the world of work

Yet, **among companies that provide training for workers, traditional methods** (courses provided by universities, professional bodies or associations, apprenticeships) are still preferred. Even in the case of reskilling[7] workers from non-STEM to STEM fields, almost half of the companies (44%) believe that informal education cannot be the main means of upskilling.

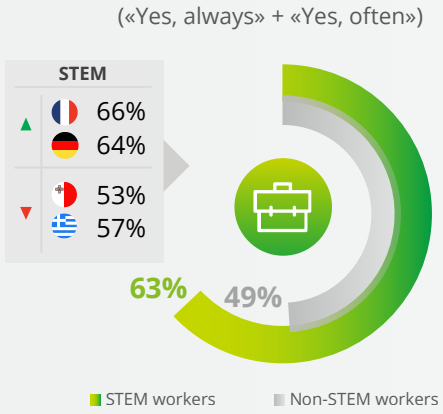


[6] WEF (2025). Future of Jobs Report. See: The Future of Jobs Report 2025 | World Economic Forum

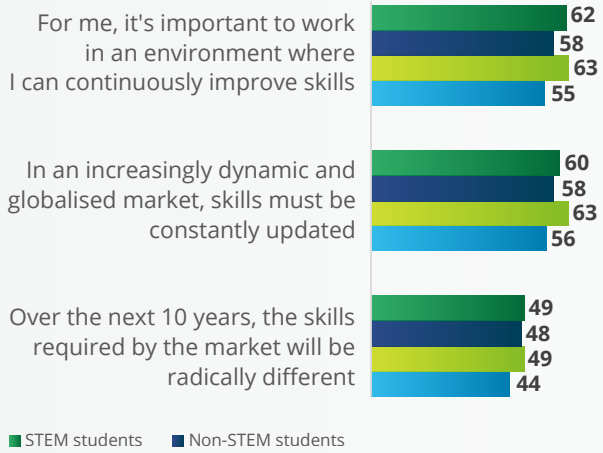
[7] Reskilling refers to the acquisition of completely new skills, often acquired with the aim of moving to a different career or sector due to changes in job demand or personal career goals

Figure 10 | Continuous education *(% values: sum of "Strongly agree" and "Completely agree")*

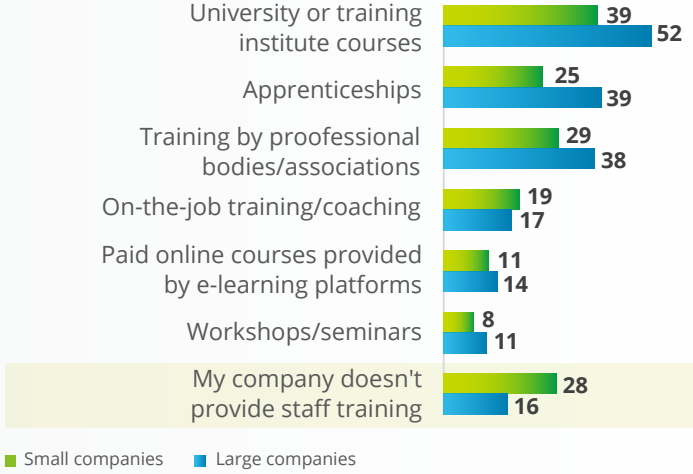
**Since you entered the labour market, how often have you continued to invest in educational/training activities?**




**Opinions on continuous education, by target group**




**The main types of training provided by companies**




*Any distortions in the data are due to decimal rounding*

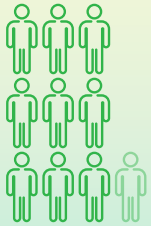
# 2 STEM skills for the future of work

People with STEM skills are more confident than average about their job and economic prospects. Such optimism is justified by the fact that the skills most sought after by European companies today are related to engineering, followed by science and technology. Aware of the constant changes in the world of work, more than 7 out of 10 respondents expect to make some kind of job change within three years (employer, job title, role, etc.), and the figure is higher for people working in STEM fields (79%). Interest in working abroad is also high, with 31% of workers interviewed considering it a likely or highly likely prospect, rising to 35% among STEM workers.

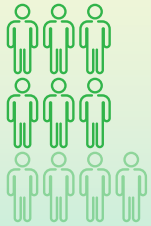
## 2.1 Job prospects for young workers and students

### Young workers are satisfied with their jobs, and STEM students feel confident about their future prospects and professional growth

More than 8 out of 10 young workers say they are quite **satisfied with their job**, once again with a significantly greater consensus reported among those working in STEM fields (almost 9 out of 10). Among students, however, a significant gap emerges when analysing future prospects. **Students with a STEM education are systematically more confident and secure**, both regarding the field and sector in which they wish to work and in terms of the ease of entering employment thanks to the skills they have acquired, the speed of career progression, and the professional role and profile they aim to develop over time.

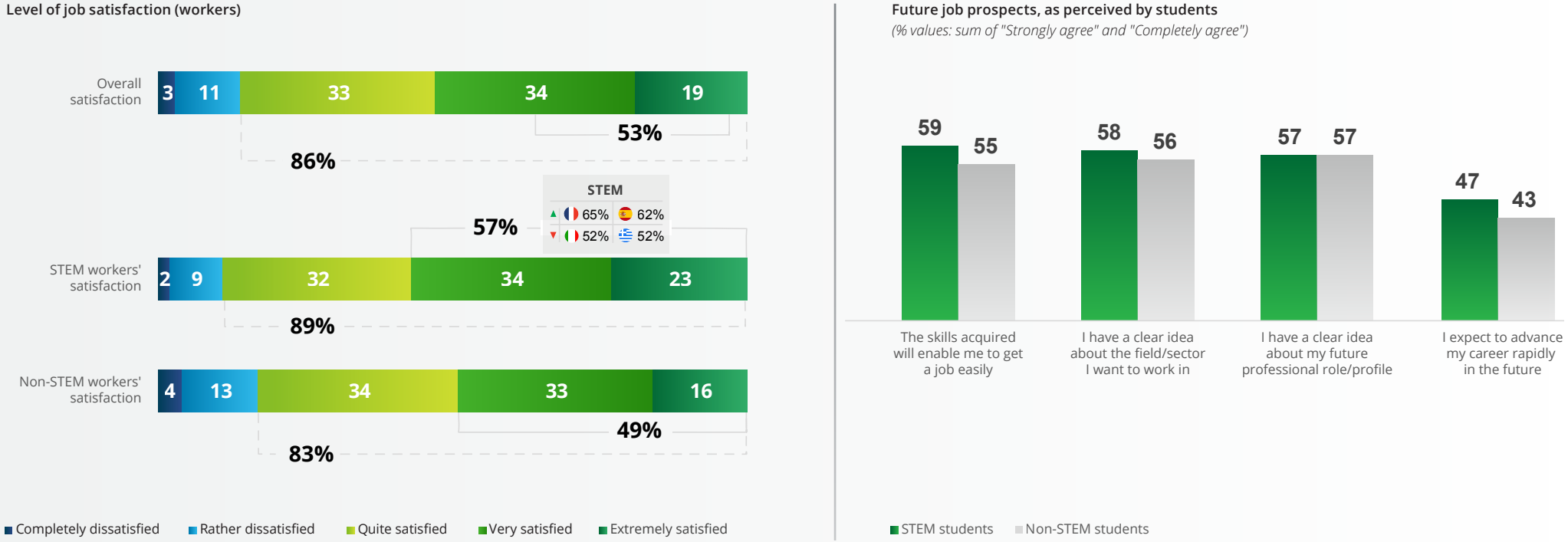


Almost 9 out of 10 STEM workers are “satisfied“ with their current job.



Almost 6 out of 10 are “very“ satisfied

Figure 11 | The job prospects of young workers and students



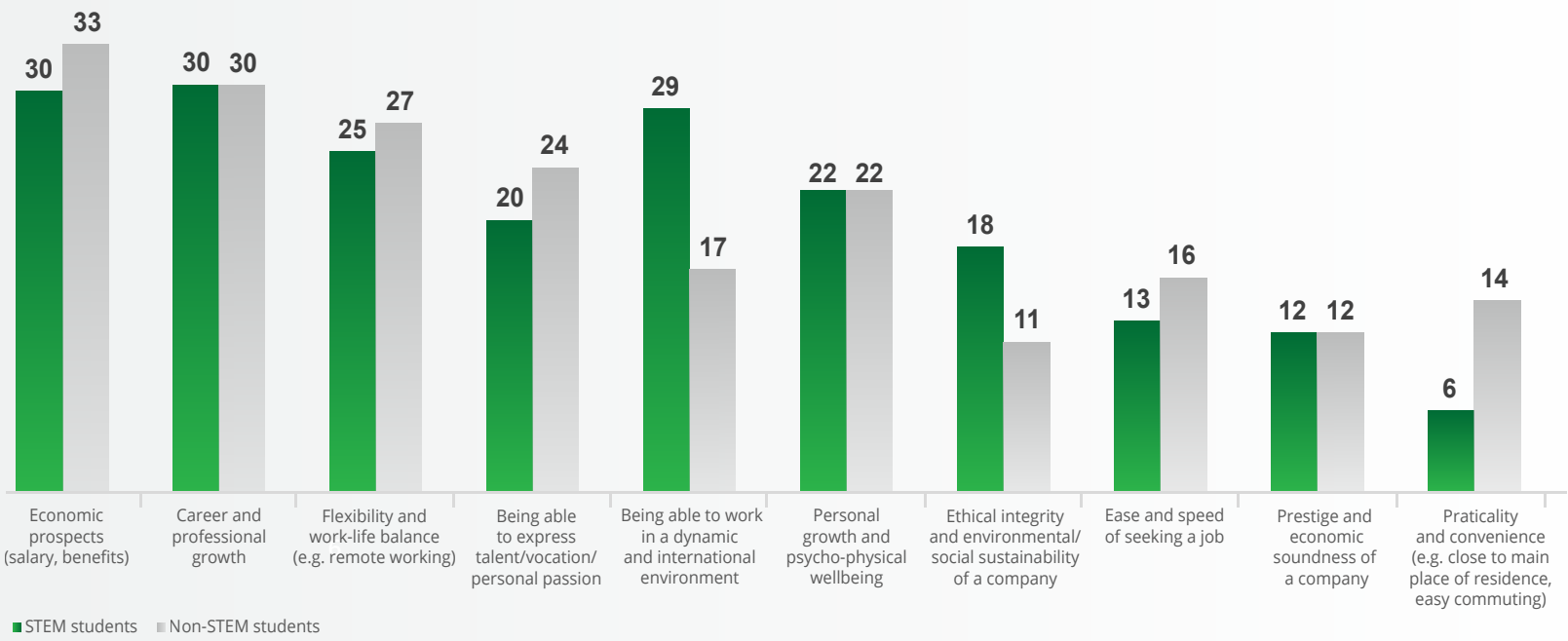
## 2.2 Drivers of employment choices

### Economic prospects and work-life balance determine career choices

For around 1 in 3 young workers, their job choice is driven by **economic and career prospects**, and greater **flexibility** and better **work-life balance**, an aspect that marks the post-pandemic scenario. Being able to **express one's talent, vocation and passion** is still also an important factor.

Moreover, among young people employed in STEM roles, the prevalence of the **"opportunity to work in an international and dynamic environment"** (e.g. assignments, projects and collaborations related to other countries), and a focus on **"a company's ethical integrity and environmental and social sustainability"**, is significantly greater.

Figure 12 | The reasons underlying job choice *(Percentages)*




**1 in 3**

young workers cite economic and career prospects as the main reasons for choosing a job

## 2.3 Main concerns and perceived difficulties

### Students are concerned about the competitiveness of entering the job market, an overly theoretical education and a lack of on-the-job training

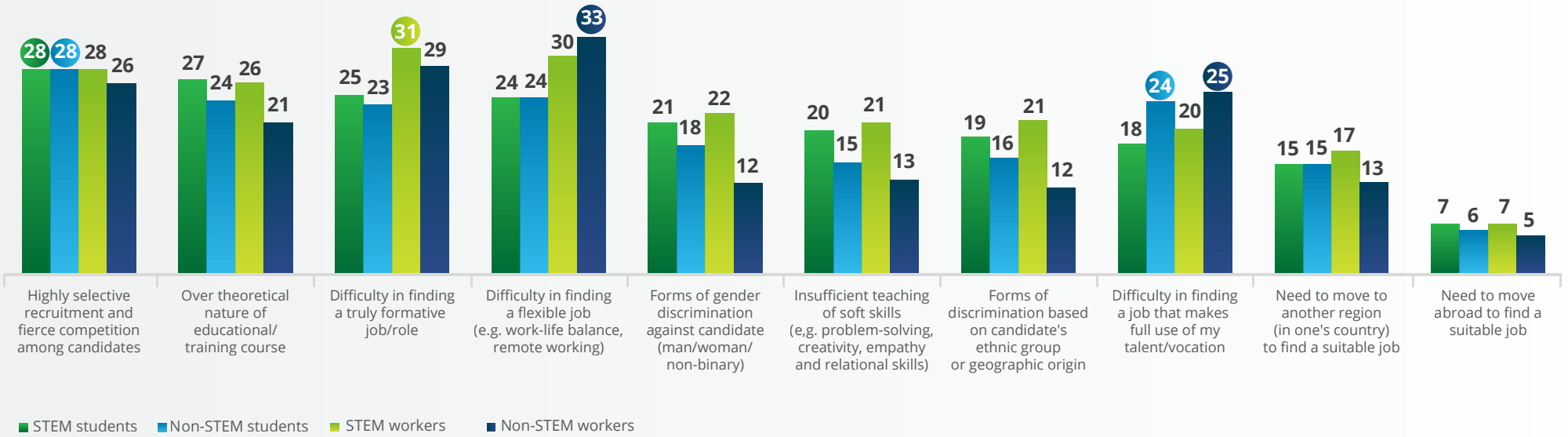
The factors that most concern students when entering into employment include: a fiercely **competitive and selective recruitment process**, followed by concern about having received an **overly theoretical education**, the difficulty of **finding a genuinely formative job**, and being able to enjoy a good **work-life balance.**

These **concerns** are confirmed by the fact that – even though most of the young workers said that finding a job had been quite easy – **the job search had not been completely problem free**. In particular, the difficulties reported by young workers are broadly in line with the concerns expressed by students, albeit ranked differently in terms of importance. The main problem was finding a flexible and genuinely formative job, followed by concerns about fierce competition among candidates, and economic difficulties associated with the early stages of career development. Finally, an **overly theoretical academic path** with respect to the requirements of the working environment, is still also a relevant issue.

Finally, STEM students and workers claim to have come across greater difficulties and concerns in transitioning into employment due to **forms of discrimination based on gender and ethnicity** than non-STEM students and workers did.

More than 7 out of 10 young STEM workers say that difficulties in finding a job are the main problem in transitioning to the world of work

Figure 13 | Main concerns (students) or difficulties encountered (workers) in transitioning to the world of work *(Percentages)*



## 2.4 Expected employment changes

### Flexibility and work: many young workers predict changes over the next three years

Professional flexibility is becoming increasingly prominent. More than 7 out of 10 respondents **expect employment changes over the next three years**, with a higher peak for those already working in STEM fields. STEM workers also have a greater **propensity for entrepreneurship**. 18% of young STEM workers plan to leave their current job to start their own business, compared with half of that number for non-STEM professionals.

Almost 1 in 5 respondents expect change to take place initially in the form of **reskilling**, namely a change in type of activity (e.g. role, duties, responsibilities) within the same organisation; a slightly lower proportion expect to change **both activity and employer**.

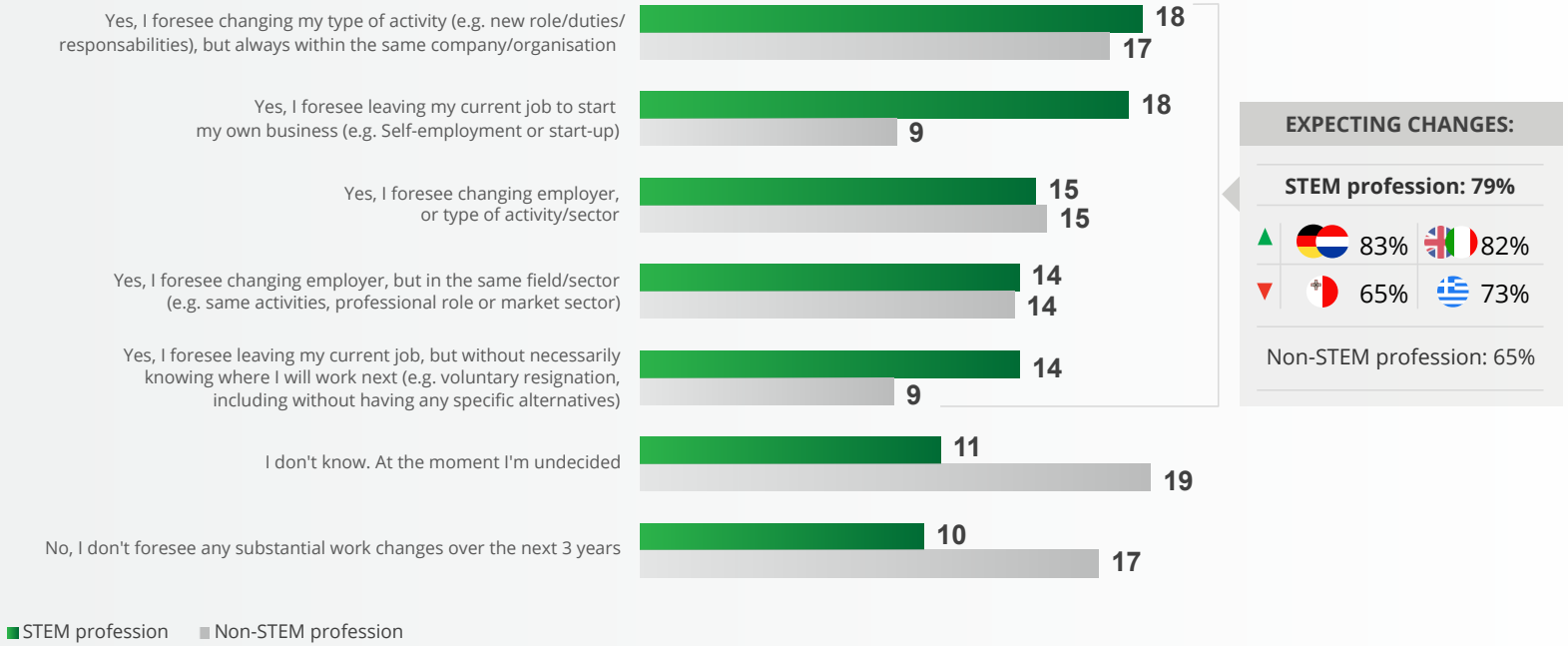
**7 out of 10**

young workers (8 out of 10 in STEM professions) expect employment changes (role, activity, company) within the next three years

*We live in **exponential** times, in which rapid and constant change calls for the **continuous updating of skills**. It is therefore essential to rethink **university education**, and guarantee **greater flexibility** via pathways that combine **study** and **work**. Only an **adaptable education** can effectively prepare students for a constantly changing society.*

Francesco Cupertino,
Rector of the Polytechnic University of Bari

Figure 14 | Employment changes expected within the next 3 years *(Percentages)*



## 2.5 International mobility

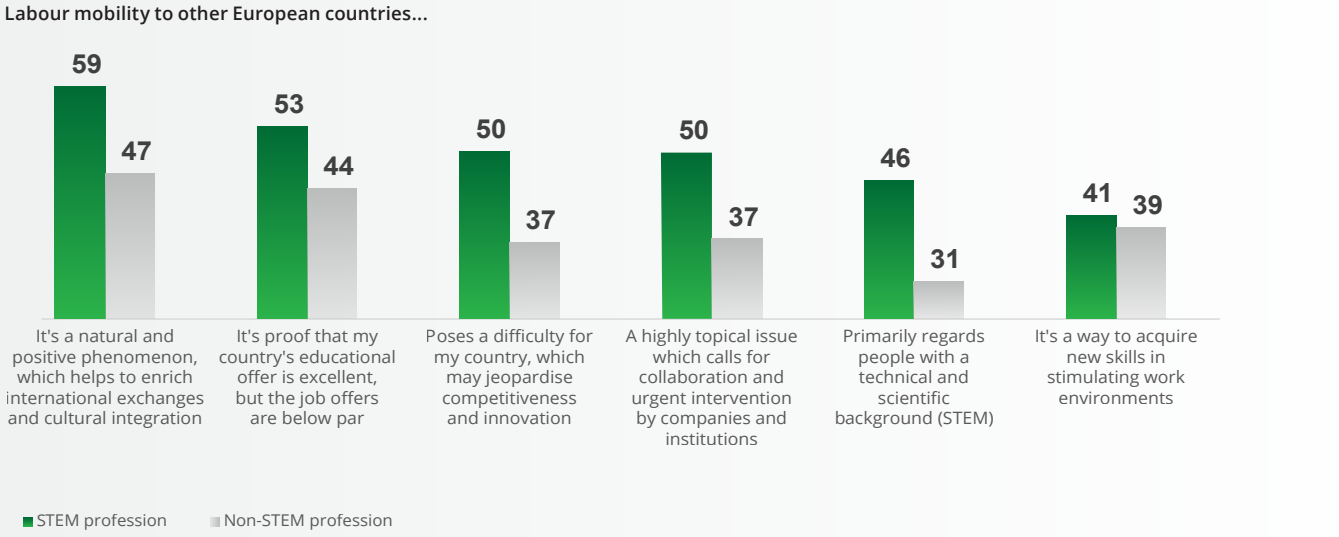
### Young people and international mobility: more than half of the young respondents view the possibility of working in another country positively

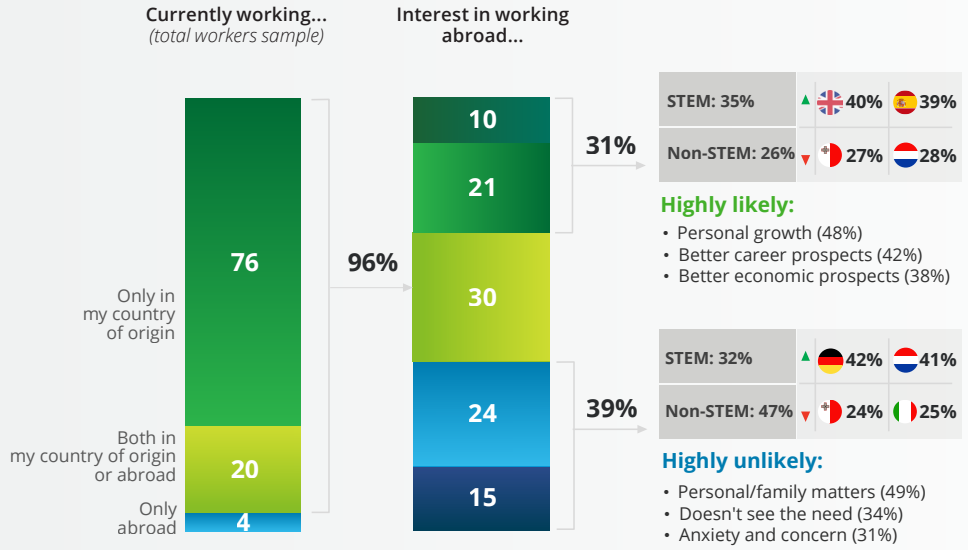
More than half of the young respondents, especially among those with a STEM education, tend to **view international job mobility positively**, regarding it as an opportunity for cultural enrichment, exchange of perspectives, and acquisition of new skills in highly dynamic contexts. At the same time, however, mobility is deemed to be a **potential critical issue in terms of the competitiveness and innovation capacity of one's own country**.

In any case, for more than 4 out of 10 young people (and 1 out of 2 STEM workers), labour mobility is a highly topical issue, regarding which **companies** and **institutions** in their countries are expected to collaborate and intervene. Approximately half of the respondents see this trend as confirming the excellence of their country's educational offerings, while job offers are inadequate. Therefore, more than 1 in 3 respondents consider it highly likely that they will **move abroad for work**.

More than 1 in 3 young STEM workers say they are "highly likely" to move abroad

Figure 15 | International mobility

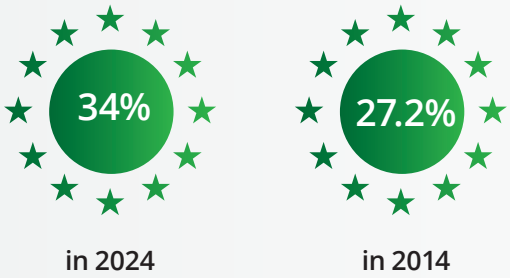


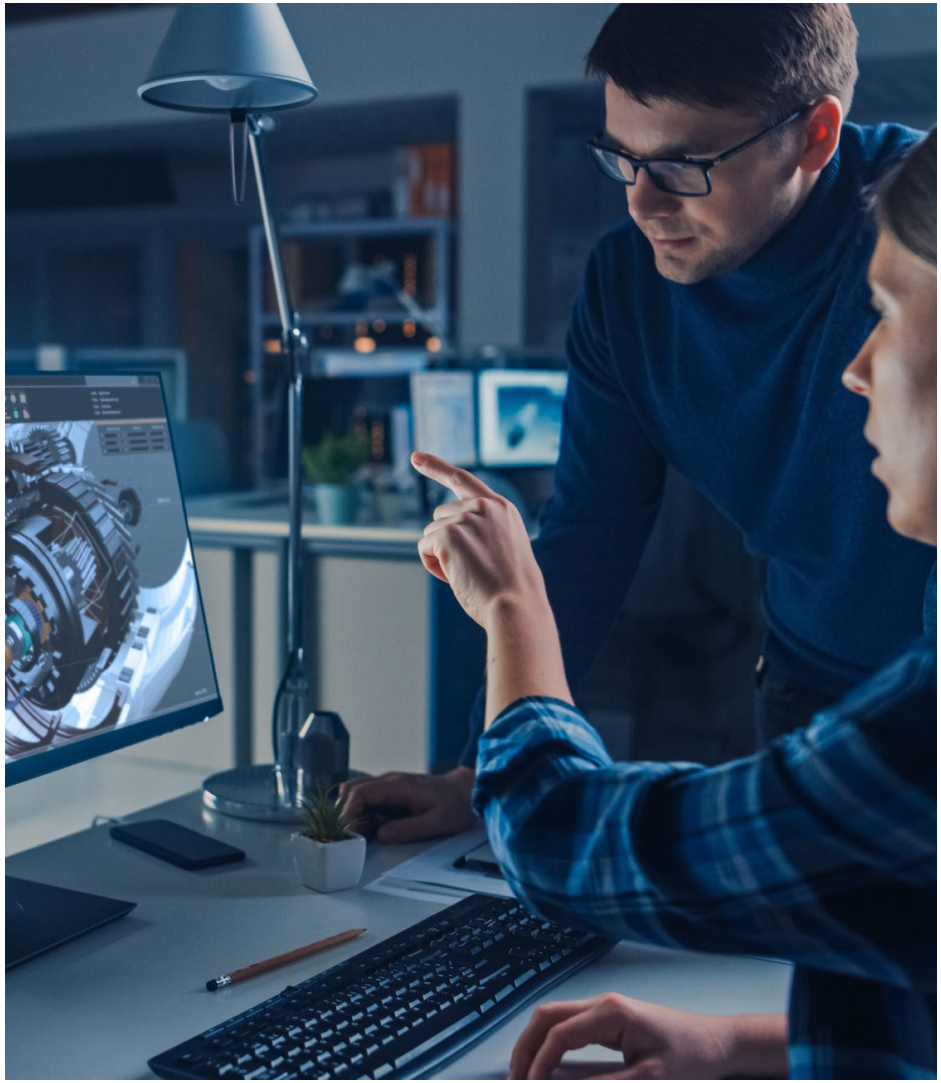



## Intra-European labour mobility

The European working-age population considered "mobile," meaning those living in an EU27 country different from their country of birth, amounted to 10.1 million in 2023[8]. The educational level of these European citizens is increasing, together with their employment in highly specialised sectors. 27.2% of mobile Europeans had a tertiary education in 2014, while in 2024 this had risen by 6.8 percentage points to 34%. Over the same period, this share increased by 25.8 percentage points in Finland, 18.3 in Italy, and 15.8 in Spain[9]. Moreover, as highlighted by the European Commission, employment of mobile Europeans in the ICT sector has risen by 47% since 2018, showing an exponential increase in demand for high-tech professionals in Europe.

**Mobile Europeans with tertiary education**



[8] EU Commission (2025). Annual report on intra-EU mobility 2024. See: Annual report on intra-EU labour mobility - Publications Office of the EU
[9] Deloitte elaboration on Eurostat data

## 2.6 Skills in demand

### STEM competencies are hard to find

The STEM skills most sought after by European companies relate to ***engineering***, followed by ***science and technology***. More than 1 in 2 companies report having **average to great difficulty in finding the STEM profiles** they needed, although large companies appear to be more confident in their ability to find the desired STEM skills (53% vs. 51%), partly due to the **greater number of channels they activate** (including recruitment from abroad).

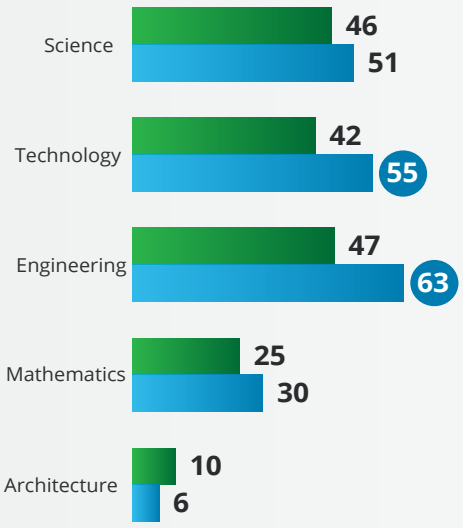
However, opening up to foreign countries is a two-way street. Around 1 in 3 companies believe that finding and retaining people with technical and scientific skills is problematic, precisely because of **international competition**, and that, in general, this difficulty **hampers their country's competitiveness**.

More than one in two companies claims to have had difficulty in finding the STEM employees they need

*The **STEM skills** most sought after by companies today include **computer programming**, **data management**, **artificial intelligence** and **environmental sustainability**. However, in addition to these technical skills, **critical thinking**, **creativity**, **problem solving** and **interpersonal skills** play a key role. In this context, universities play a crucial role in providing students with the necessary tools to develop these fundamental skills.*

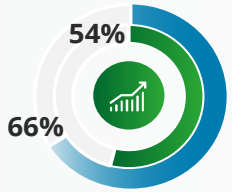
Giovanna Iannantuoni,
President of the Conference of Italian University Rectors (CRUI),
and Rector of the University of Milan Bicocca

Figure 16 | The skills companies need *(Percentages)*

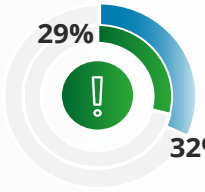



**Had average to great difficulty in finding STEM employees:**

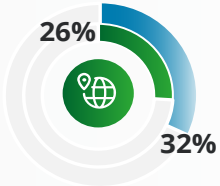
Small companies **53%**
Large companies **51%**




The demand for STEM profiles in my country will grow in the next five years




The difficulty in finding STEM talent is a barrier to the country's competitiveness

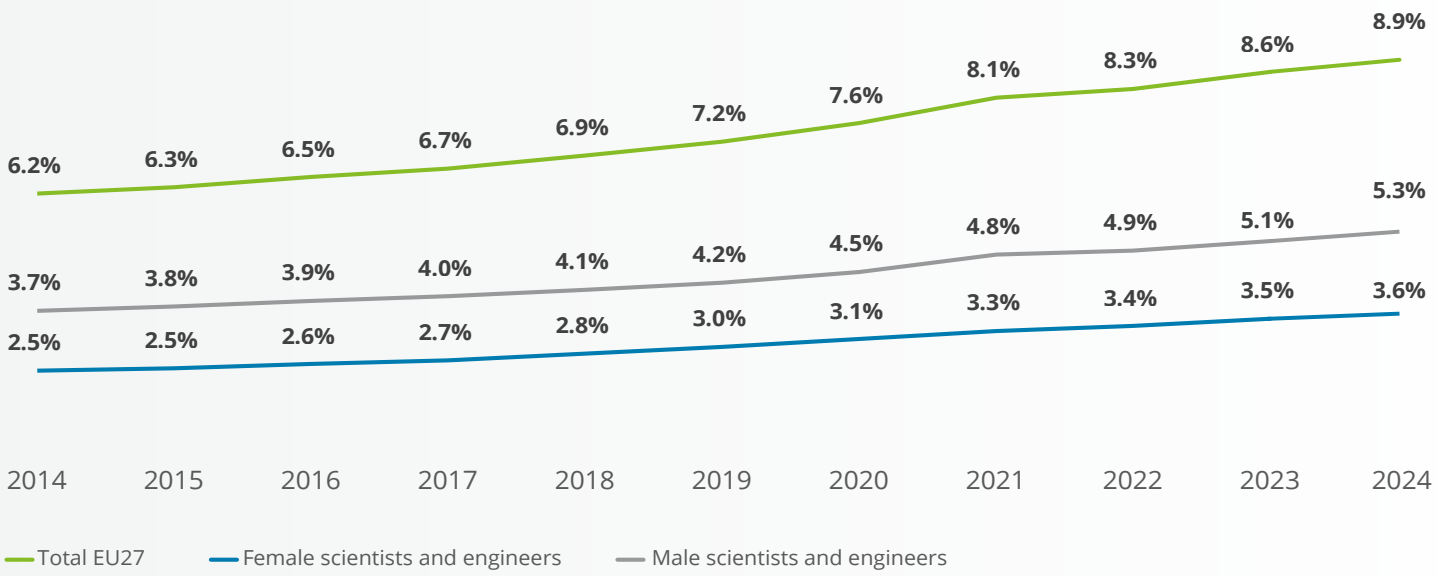



Finding and retaining STEM employees is difficult due to international competition

Top 2 ("Strongly or absolutely agree")

In recent years, the number of "scientists and engineers"[10] in Europe has grown significantly, from 6.2% (2014) to 8.9% (2024) of the total workforce. Analysis of the data by gender reveals that the number of male and female scientists and engineers rose respectively by 1.6 and 1.1 percentage points since 2014, widening the gender gap from 1.2 to 1.7 percentage points (Fig. 17). Moreover, this gap is widening in the high-tech and manufacturing sectors, where only 22.4% of scientists and engineers are women[11].

Figure 17 | Percentage of scientists and engineers in the European workforce




*Source: Eurostat - Data extracted in July 2025*

[10] "Scientists and engineers" are defined as people working in the main subgroups of the International Standard Classification of Occupations (ISCO-08): professionals in science and engineering, health, and information and communication technology

[11] Deloitte elaboration on Eurostat data

## 2.7 Corporate strategies and public policies

### According to companies, competitive salaries, training opportunities and public sector support are vital to attract key STEM workers

Given the inflationary pressures that have marked recent years, during which companies have faced various difficulties in attracting and retaining STEM talent, the vast majority of them have envisage adopting specific strategies, starting with **offering more competitive salaries**. Moreover, **large companies are more open** than small companies **to moving towards diversification of possible programmes and tools to attract STEM workers**, in addition to financial incentives.

46%

of large companies claim that collaboration with universities is a vital factor in expanding STEM employees

Over the next three years, for example, they plan to develop specific strategies, including **initial selection** for **in-house training**, enhancement of **career paths** and **collaboration with universities and research institutes**.

At the same time, public support is still vital. More than 8 out of 10 companies stress the **importance of public policies** aimed at, for example, improving the national training offer, boosting exchanges between companies and universities, and allocating dedicated funds for the acquisition and updating of specific skills (reskilling/upskilling).

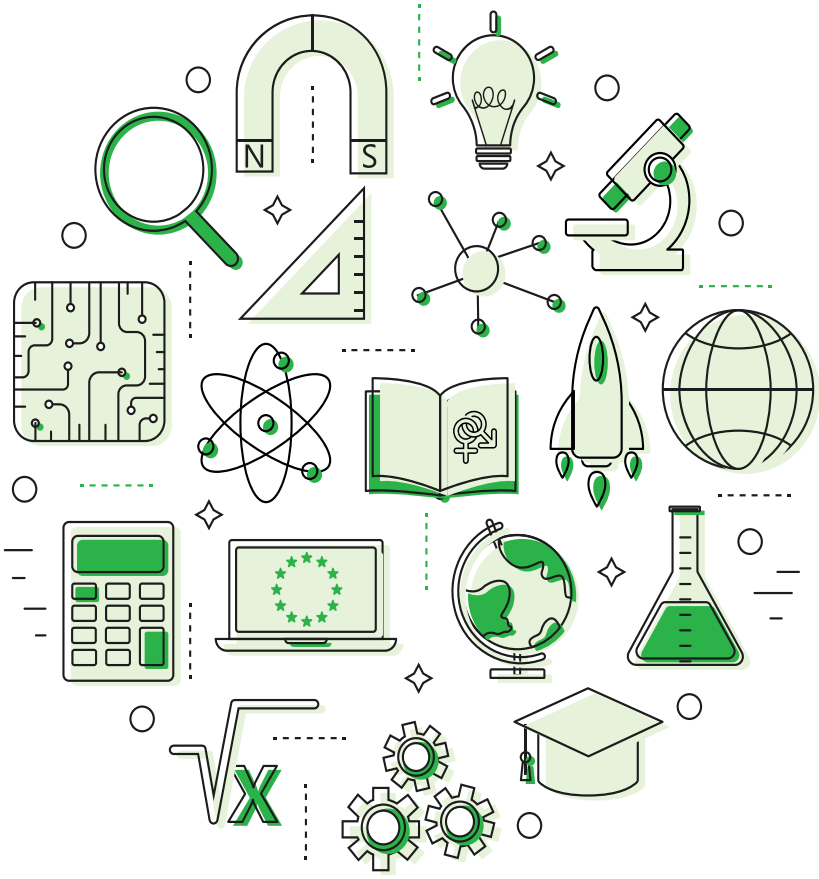
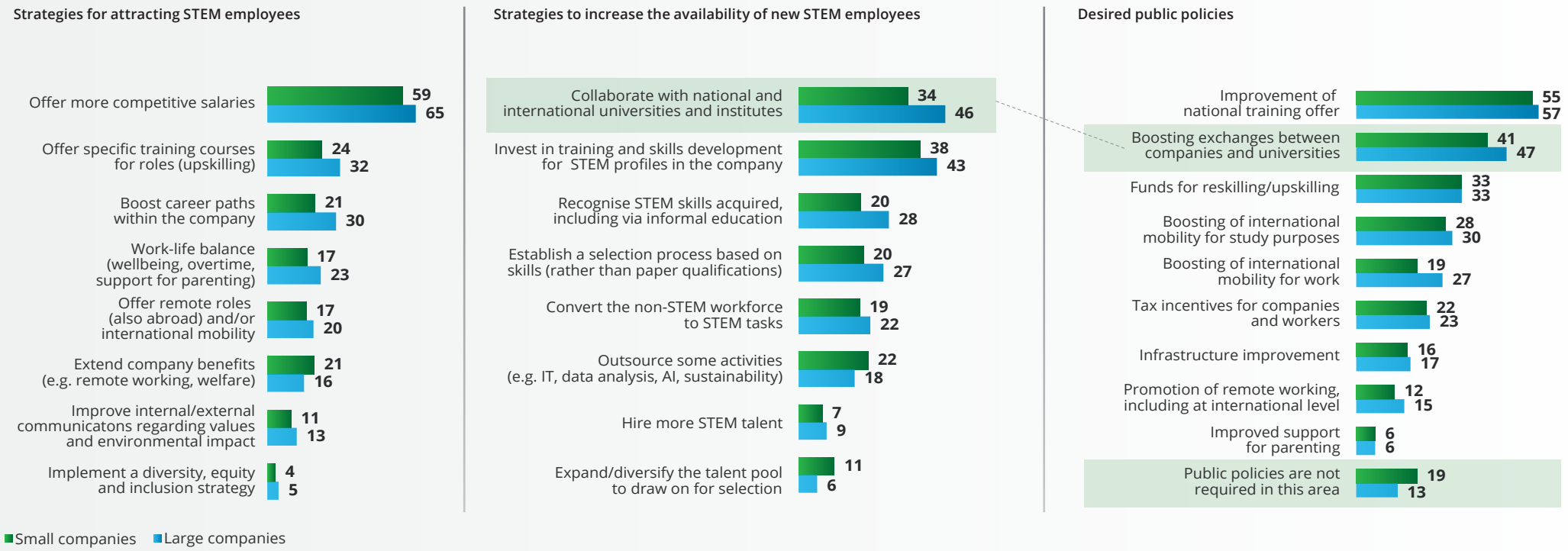


Figure 18 | Corporate strategies and public policies *(Data % excluding "no strategy")*



# 3 The STEM gender gap

Gender discrimination continues to be present in STEM fields. 69% of STEM workers report having witnessed incidents of discrimination against women, and 55% of female STEM workers claim to have been subjected to discrimination. As for the causes, 49% of STEM students and 51% of STEM workers believe that cultural biases reflected in the gender division of labour are the main reason for persistent discrimination. Meanwhile, 39% of large companies attribute the issue primarily to biases rooted in families. The exclusion of women from STEM academic and career paths negatively impacts companies' competitiveness and growth, and therefore the economy as a whole. 56% of workers believe this to be true, while the figure rises to 62% when only STEM workers are taken into account.

## 3.1 Studying and working in STEM: a gender perspective

### The STEM gender gap: two out of three young people have witnessed discrimination against women, almost half of female STEM students claim to have been subjected to discrimination

Among students and workers, **female participation** in STEM education and careers, continues to be **limited by gender stereotypes and discrimination**, which affect girls from an early age. This awareness is reinforced by **direct experience** in STEM educational and employment pathways, with a greater perception of discrimination reported in education for STEM students. This perception is even greater among STEM workers regarding both education and employment. **Approximately two thirds of young people have witnessed incidents of discrimination against women, with higher figures reported by female students (73%) and young female STEM workers (74%)**.

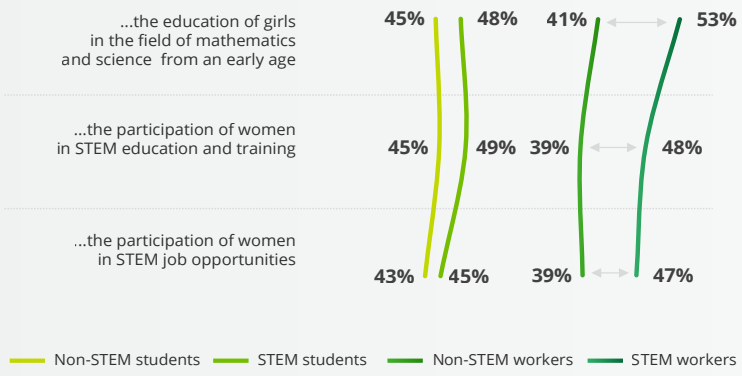
Moreover, 4 out of 10 young females believe they have been subjected to discrimination; these figures also rise if analysis is limited to the technical and scientific field (48% of female STEM students vs. 41% of female non-STEM students, and 55% of female STEM workers vs. 37% of female non-STEM workers). The perceived lack of competence, which can be traced back to deep-rooted cultural biases in society, is identified as the main reason for unfair treatment among women who claim to have experienced gender discrimination in the workplace.

**7 out of 10**

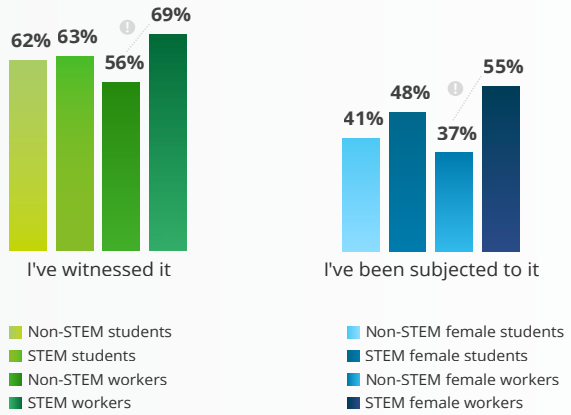
female STEM students and workers have witnessed incidents of discrimination against women

Figure 19 | Studying and working in STEM fields: a gender perspective

**There are stereotypes and forms of discrimination against women that restrict and hinder...**
*% values: sum of "Totally agree" and "Strongly agree"*



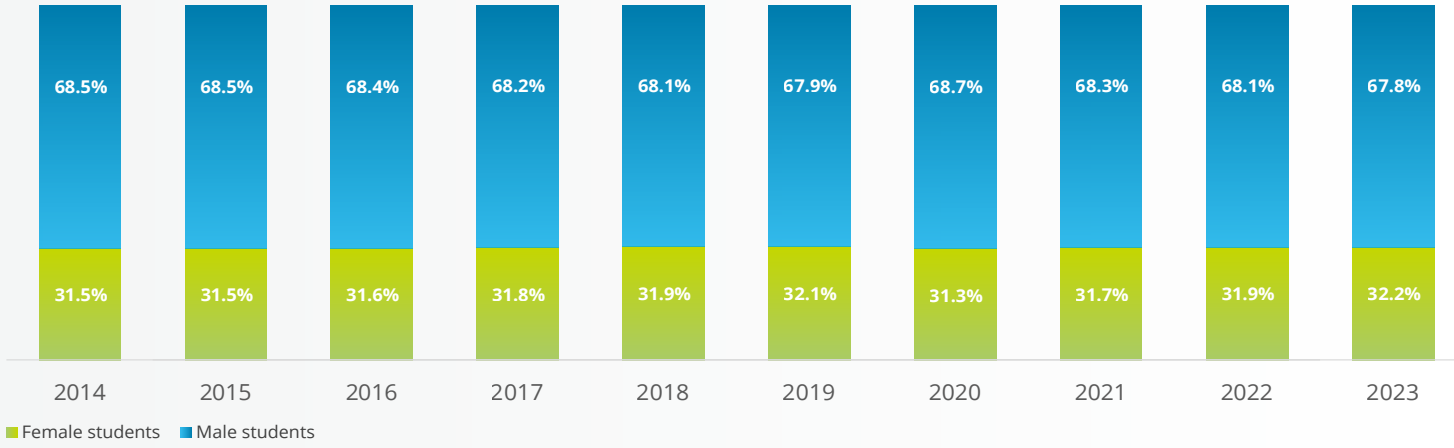

**Regarding discrimination against women, in the context of my own education or employment...**
*% values: sum of "Always, systematically", "Often" and "Sometimes, on certain occasions"*



> *The absence or under-representation of women in STEM fields is detrimental to **social, technological and scientific progress**. As well as being an equality issue, the lack of women in ICT also poses a risk. We are creating platforms that have a **huge bias**, not only in terms of **gender**, but also of **ethnicity, age and religion.***
>
> Antonio Pescapè,
> Rector's Delegate for Innovation and the Third Mission of the University of Naples Federico II

In Europe, women comprise the majority of the university student population (55.1% in 2023). However, within STEM disciplines, female students account for only 32.2% of the population, a figure that has remained substantially unchanged over the last decade (Fig. 20).

Figure 20 | Shares of male and female students taking STEM degree courses | EU27+UK

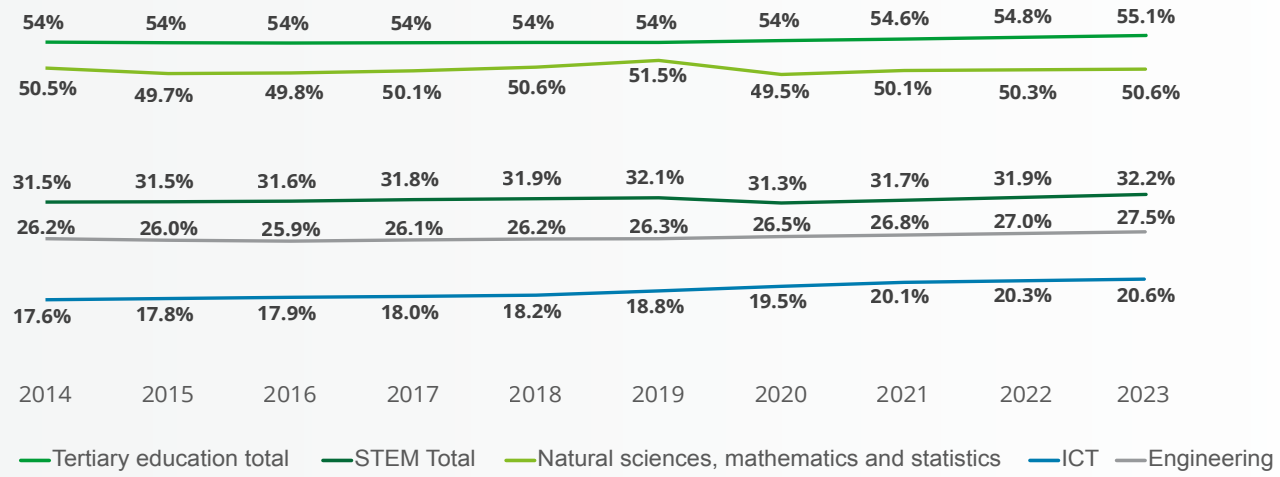



*Source: Eurostat and OECD - Data extracted in July 2025*

Among STEM disciplines, the area of **Natural Sciences, Mathematics and Statistics** is the only one to achieve gender parity (50.6% of students are female)-(Fig. 21). In **Engineering** and **ICT**, female students make up a small minority (27.5% and 20.6% respectively).

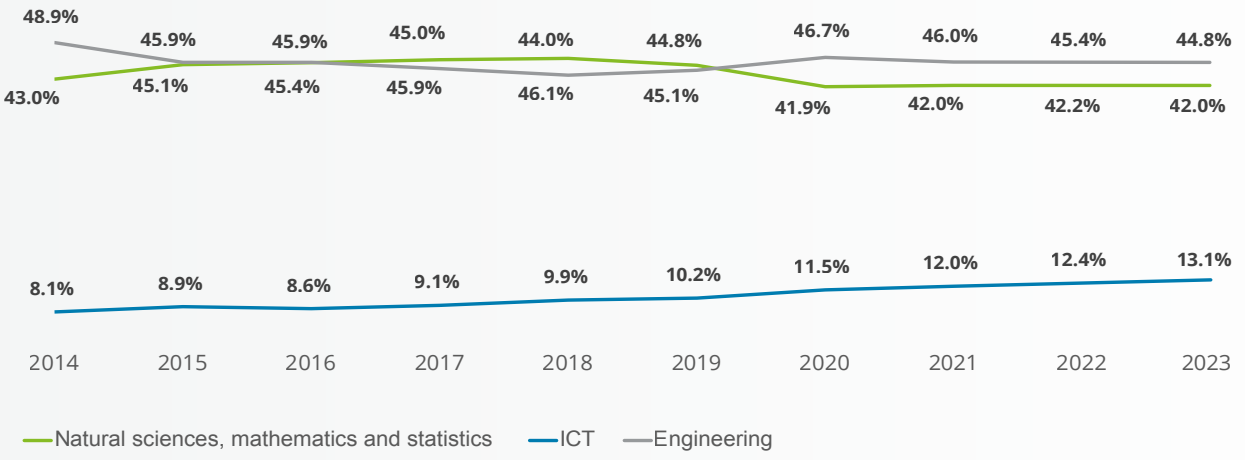
The under-representation of female students in **ICT** subjects, the most remunerative sector in 12 of the 27 EU member states according to Eurostat[12], should be read in the context of the strategic role that these disciplines play in driving change, and the risk that gender differences could become incorporated and amplified by new technologies that generate, for example, a biased AI[13].

Figure 21 | Share of female students by group (female students as % of group total) | EU27+UK




*Source: Eurostat and OECD - Data extracted in JJuly 2025*

Figure 22 |Segmentation by STEM group (% of female STEM students out of total female STEM students) | EU27+UK



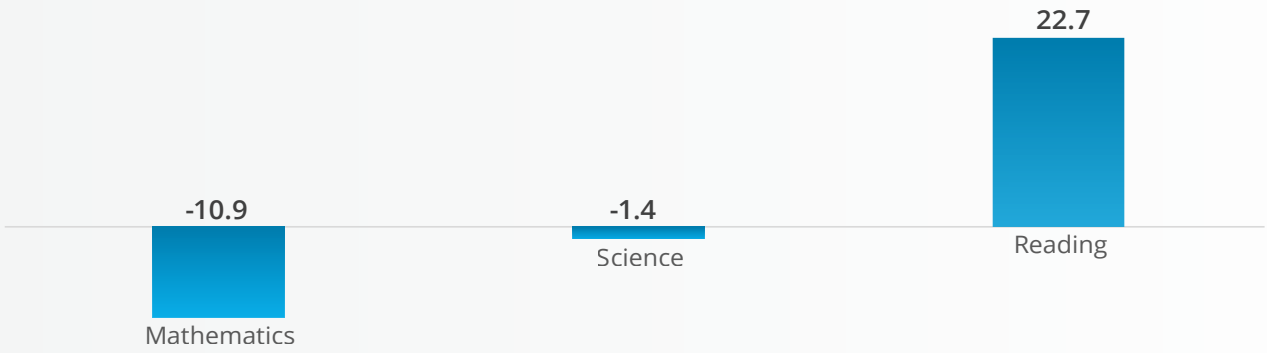

*Source: Eurostat and OECD - Data extracted in July 2025*

[12] Eurostat (2021). What are the best paying sectors in the EU? See: Eurostat (europa.eu)

[13] UNESCO (2021). Science Report. Bello, A. et al. (2021) To be smart, the digital revolution will need to be inclusive. See: UNESCO|2021

PISA[14] 2022 – the OECD programme that assesses 15-year-old students' mathematics, science and reading skills every four years – reports a significant gender gap of 10.9 percentage points in mathematical skills and a gap of 1.4 points in scientific skills to the disadvantage of female students (Fig. 23). For reading skills, the gender gap is reversed. In Europe, the score for female students is 22.7 points higher than for male students.

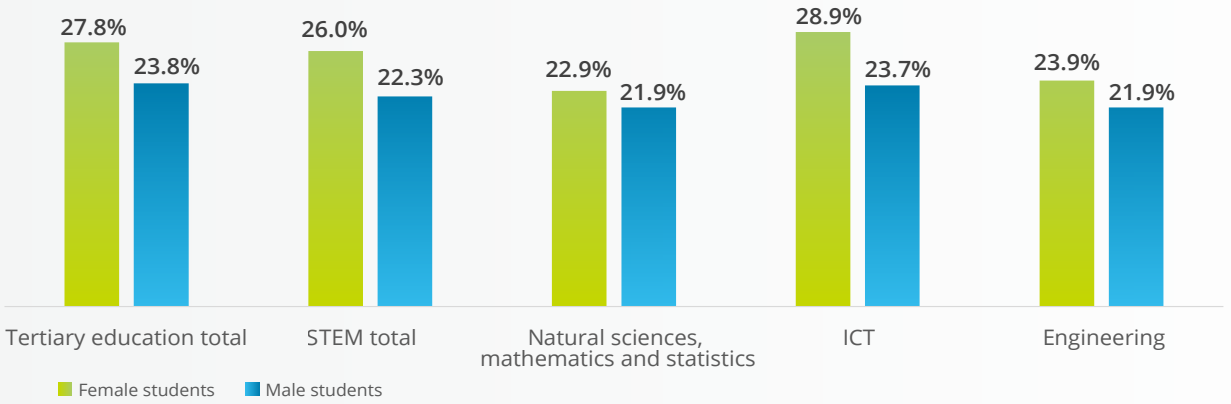
Figure 23 | Skills gap by gender for mathematics, science and reading | 2022, EU27+UK*




*Source: Deloitte elaboration on PISA (OECD) data - Data extracted in April 2024 *Excluding Luxembourg, which did not participate in the PISA 2022 survey*

Analysis of university performance reveals that female students performed better than their male counterparts from 2019 to 2023. The **conversion rate**[15] for graduates in Europe shows that **in each STEM cluster female students are the best performers**. Especially in ICT, where female students are a small minority, the success rate is 5.2 percentage points higher (Fig. 24).

Figure 24 | Conversion rate for STEM graduates (M+F)| 2023, EU27+UK




*Source: Eurostat and OECD data - Data extracted in July 2025*

[14] OECD (2022). Programme for International Student Assessment. See: PISA 2022 Results (Volume I): The State of Learning and Equity in Education | en | OECD
[15] Ratio of graduates 2023 to students 2019 (graduates over time "t" to students over time "t-4")

## 3.2 Roots of gender discrimination

### Cultural biases and lack of female role models: the causes of gender inequality in STEM careers according to students and workers

In seeking an explanation for this phenomenon, students, workers and companies identify **cultural biases** as the prime cause of the gender gap. These biases permeate the closest and most intimate sphere of the **family** – which, as we have seen, is decisive in the approach to technical and scientific subjects – as well as society, where the perception that **some subjects or professions are for men or women is still entrenched**. According to young people, there is also a lack of **female role models** in STEM fields. Going beyond direct experience, the opinions of students and young workers seem to be closely aligned, thereby encompassing the views of a generation on this issue.

Figure 25 | Roots of gender discrimination

**The top three causes of the STEM gender gap according to students, workers and companies** *(Percentages of those who "Totally agree" and "Strongly agree")*


More than **1 in 3** European companies believe that family cultural biases are the main cause of the STEM gender gap

*The **social and family background** is very important in **guiding educational choices**, which is also necessary to nurture and take advantage of talents and enable them to flourish. **Universities** have a key role to play in **dismantling** certain **cultural legacies** that may restrict women's access to higher education, and especially scientific subjects. **Women** continue to **do better at university**, in terms of their **commitment to study** and **consistent performance**: they get higher grades in a shorter time.*

Antonella Polimeni,
Rector of the Sapienza University of Rome

## 3.3 Impact of the gender gap on employment: workers' perspective

### Gender discrimination in employment: a barrier to professional growth and equal pay for women

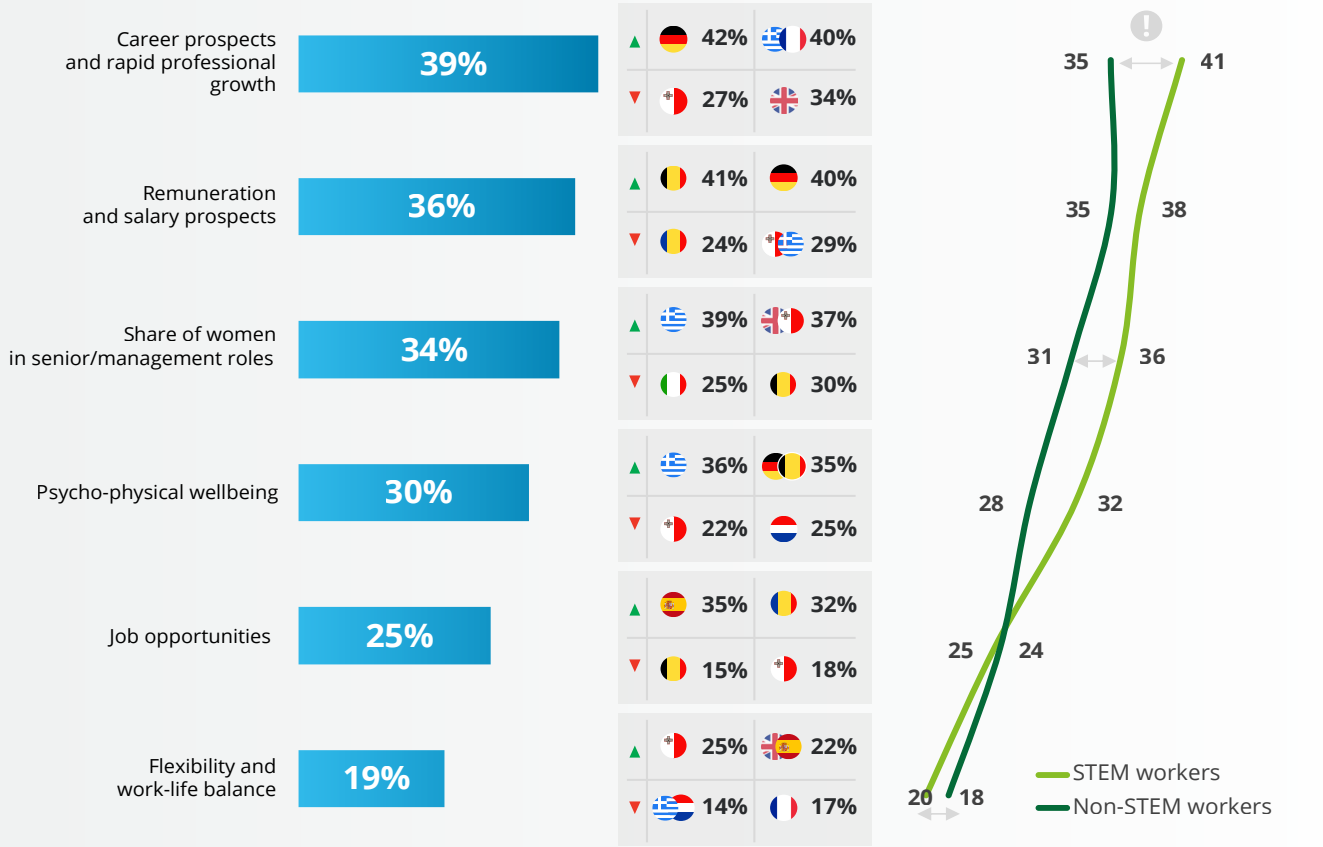
Regarding the effects of gender discrimination on employment, **career prospects and the speed of professional growth** are the first area to be impacted according to young people, especially STEM workers (41%), whose opinion differs from non-STEM workers (35%). However, inequalities also manifest in **differing pay scales**, as well as being reflected in the corporate structure – with a lower share of **women in senior roles** – and in people's **psychological and physical wellbeing**. More generally, the **lack of fairness** in the education of girls and young women in the technical and scientific sphere primarily affects the **dynamism, attractiveness and competitiveness** of a country's organisational structure, especially in the opinion of those who have followed a course in this area.

56% of workers strongly believe that gender prejudices and stereotypes hinder the dynamism, attractiveness and competitiveness of a country's organisational structure.

The figure rises to 62% among STEM workers

Figure 26 | The impact of the gender gap on employment: as workers see it

**According to young workers, gender discrimination has an impact on...**
*(Percentages)*

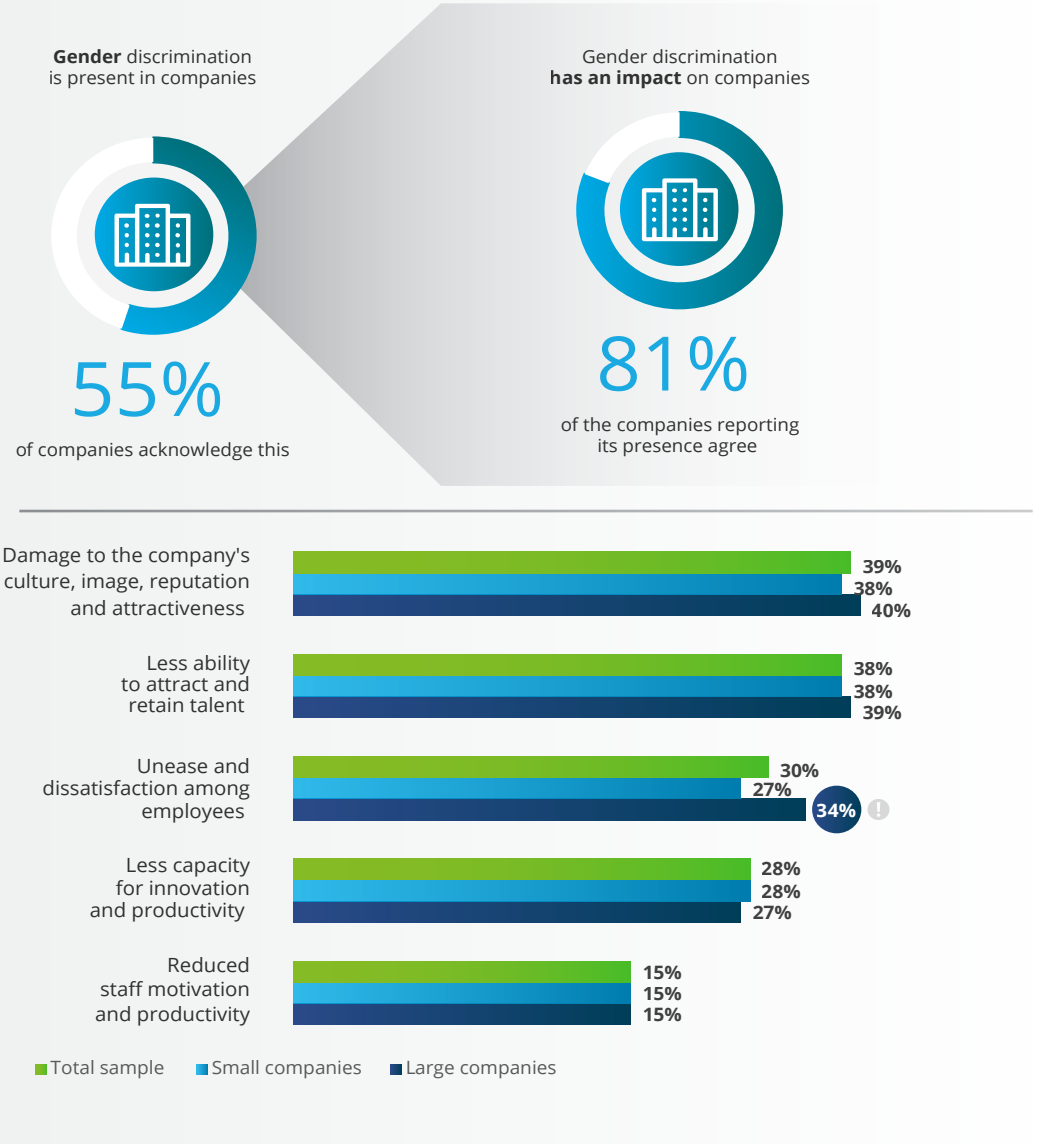


## 3.4 Gender discrimination: companies' perspective

### According to companies, gender discrimination has a negative impact on employee wellbeing, corporate reputation and the ability to attract talent

Approximately half of the companies surveyed recognise that some gender discrimination occurs in STEM fields at the professional level. According to companies, gender discrimination most frequently takes the form of **pay or performance evaluation gaps** between women and men, and therefore also in **career paths**. Among the companies that acknowledge the existence of discrimination, more than 8 out of 10 believe it has a **negative impact on the company's organisation**, starting with its corporate culture and image. It also influences the company's attractiveness and ability to retain talent, while spreading unease and dissatisfaction among workers.

Figure 27 | Presence and effects of gender discrimination within organisations



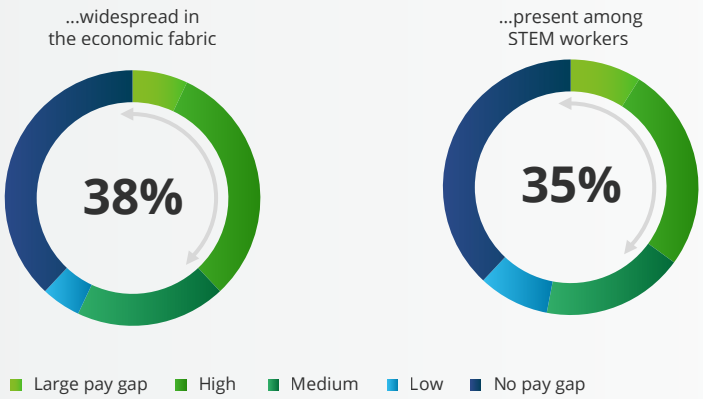
## 3.5. Gender pay gap: companies' perspective

### The gender pay gap in STEM as seen by companies: scant awareness and lack of concrete initiatives

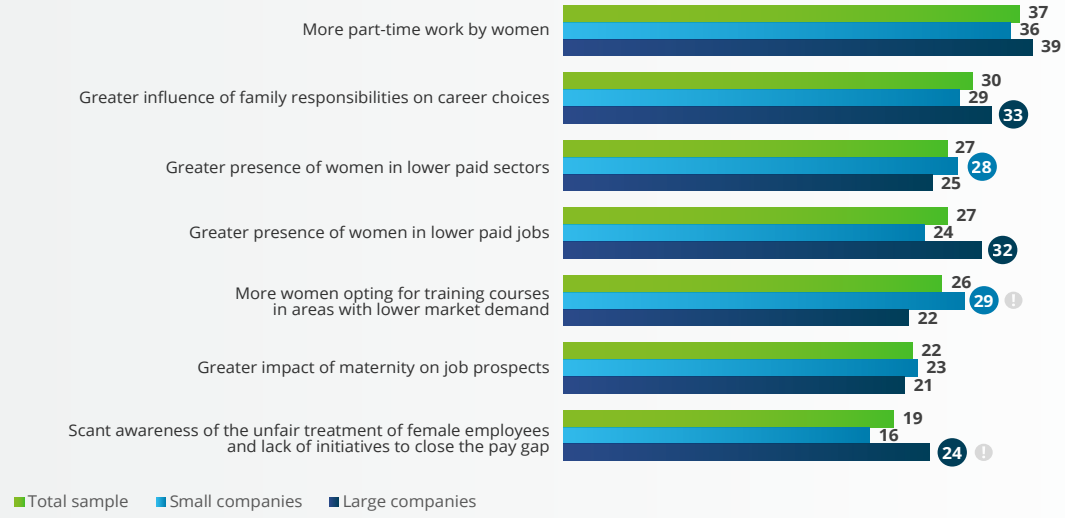
Companies believe that a **gender pay gap** exists in the economic fabric of the European countries in which they operate, albeit to a slightly lesser extent with regard to STEM jobs. Perception of this phenomenon **is greater among large companies**, which identify the **lack of awareness of the unfair treatment** of female workers and **lack of initiatives** to close this gap as being among the causes that are prolonging this unequal situation. Elements of the **structural** dimension include the spread of **part-time work** among women, and the influence of **family responsibilities** on career choices. On average, women carry out more hours of unpaid work, such as childcare or housework. This leaves them less time for paid work. According to 2020 Eurostat data, almost one third of women (28%) work part-time, compared to 8% of men[16].

Figure 28 | The impact of the gender gap on employment: as companies see it

**In their own country, the gender pay gap is...**




**The causes of the gender pay gap**

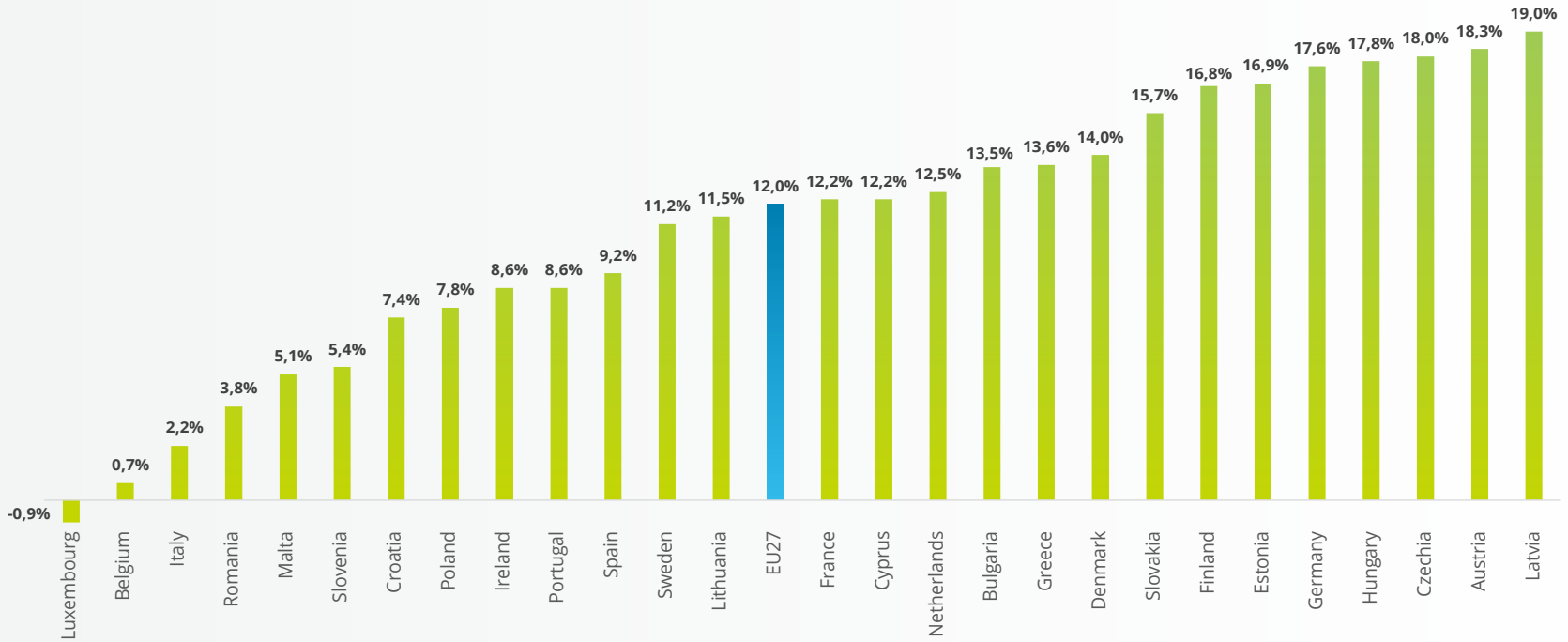



*Any distortions in the data are due to decimal rounding*

[16]Eurostat (2023). Share of women working part-time higher than men. See: Share of women working part-time higher than men - Eurostat (europa.eu)

According to Eurostat, between 2014 and 2023, the gender pay gap fell from 15.7% to 12.0% (Fig. 29)[17]. European women earn an average of 0.12 euro less than each euro earned by men. Albeit with differences between countries, this gap widens with age and throughout career progression.

Figure 29 | The gender pay gap in EU countries| 2023




*Source: Eurostat - Data extracted in September 2025*

[17] The gender pay gap represents the percentage difference between the average gross hourly wages of men and women in various European countries

## 3.6. Closing the gender gap: students' and young workers' perspective

### Young people believe female role models and remuneration policies should be promoted to overcome the gender gap

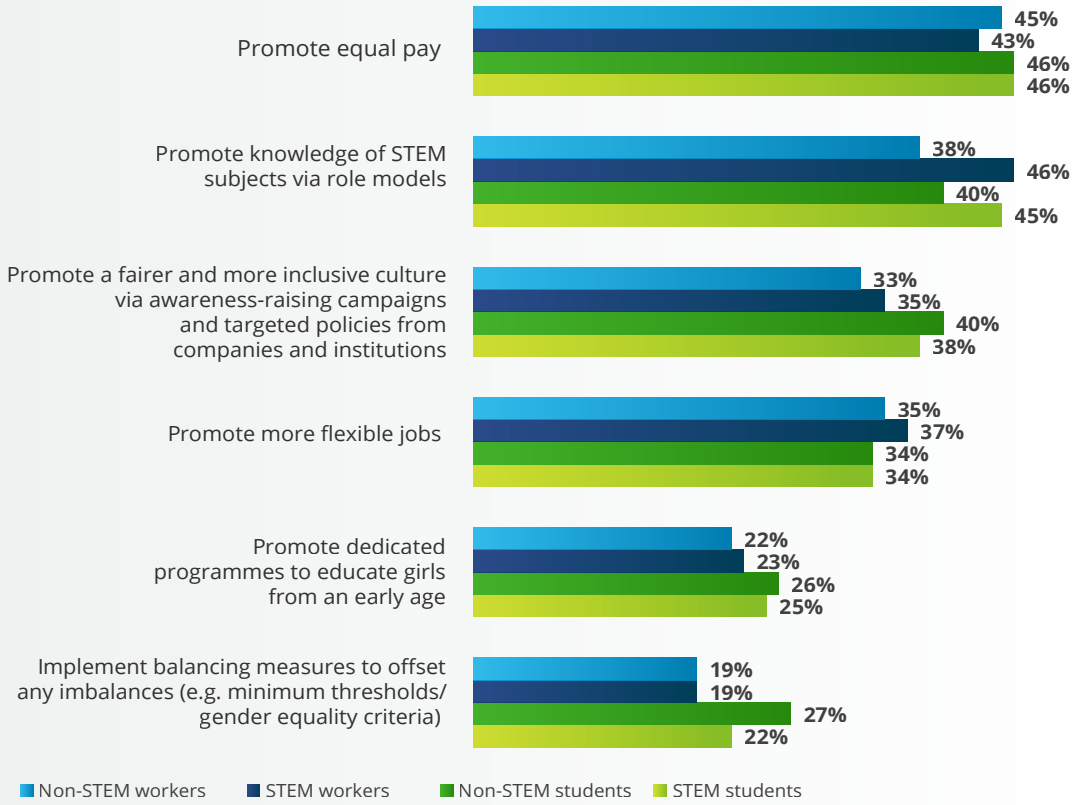
Promoting **equal pay** is the **first solution identified by young people to close the gender gap**, together with the promotion of technical and scientific subjects via influential female professionals who can inspire the younger generation as **role models**, a measure that is particularly appreciated by people with a STEM background. To tackle such a deeply rooted structural problem, young people believe that **companies and institutions should intervene**, through awareness-raising campaigns and policies aimed at promoting a fairer and more inclusive culture.

Young people attribute significant responsibility in combating gender prejudice and discrimination to companies and institutions

*Focusing on **role models** is crucial, but it is important **to take action early**. By the end of the fourth year of high school, **choices have often been established**; **young female scientists** should be presented as positive role models in primary schools and middle schools, as well as in the early years of high school. At this early stage, such examples can **motivate and encourage** girls to embark on **technical and scientific pathways**.*

Luigi Ambrosio,
Director of the Scuola Normale Superiore of Pisa

Figure 30 | Ways to solve the gender gap identified by young Europeans



## 3.7. Possible ways to solve the gender gap: what companies say

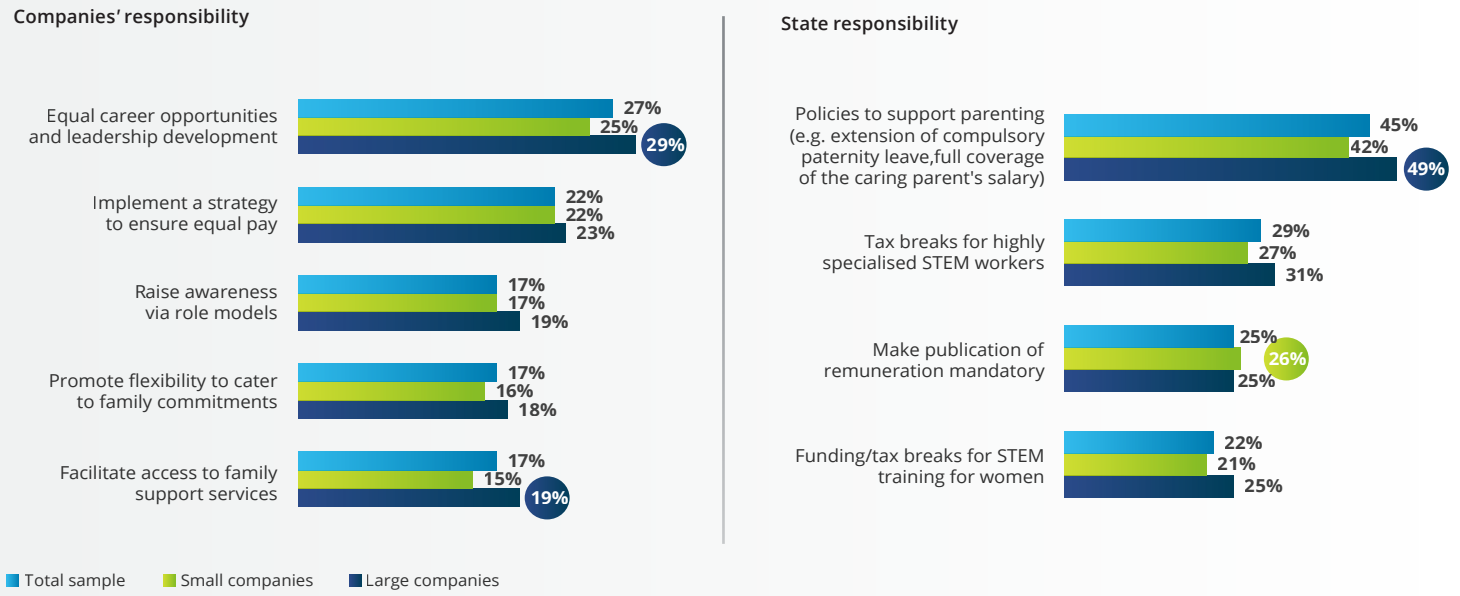
### Companies believe that public policies to support parenting are key to overcoming career and salary inequalities

Faced with the change demanded by young people in the private sector, more than **1 in 2 companies** responded by highlighting the need to develop **targeted initiatives**, especially to redress recognised discrepancies in **career and salary opportunities**. However, companies **attribute the state an even more central role** in the gender issue, with the share of those considering state intervention to be vital rising to over **7 out of 10**. The areas where companies would like to see public policies are, firstly, **support for parenting**, highlighted as a priority by half of the respondents and especially by large companies, and, secondly, **tax breaks** for highly specialised STEM workers.

**56%** of companies plan to take action on gender equality and **72%** believe state intervention is necessary

> *In **interdisciplinary pathways** that combine computer science with management, artificial intelligence with finance, and STEM with traditional subjects, the **gender gap** is significantly reduced. For example, in the ICT field, interdisciplinary courses attract 16% more female students than traditional courses, demonstrating that an **integrated education** is more appealing for girls, and also helps to **narrow the gender gap***
>
> **Paolo Boccardelli**,
> Rector of Luiss Guido Carli University

Figure 31 | Companies' solutions to the gender gap



# 4 Developing STEM skills to meet the challenges of the future

Many potential STEM students are discouraged from embarking on technical and scientific pathways, as they are deemed to be too specialised. On the other hand, promoting interdisciplinary courses could boost STEM enrolments, with benefits in terms of student satisfaction, and also for businesses, for which a multidisciplinary background is nowadays vital if they are to adapt to continual socioeconomic changes. According to 65% of companies, innovations such as AI will increase STEM demand. Moreover, 9 out of 10 young Europeans think that STEM skills will play a decisive role in driving the green transition.

## 4.1 The advantages of a multidisciplinary approach

### A multidisciplinary approach is the key factor in adapting to socioeconomic changes

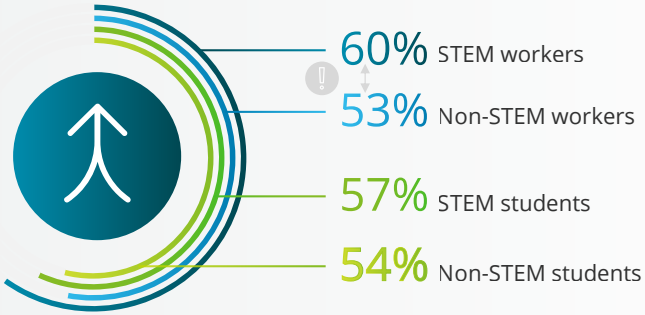
Approximately 1 in 5 young people report great difficulty in choosing an academic course, which, due to **overspecialisation**, is seen as a **limiting factor**, particularly in terms of combining studying with personal interests.
Thus, it is not surprising that almost all young Europeans interviewed were **interested in a multidisciplinary educational approach**, which is able to **combine technical and scientific subjects with the humanities**.
Part of their interest is also underpinned by the expectation that a hybrid approach will enable better and more flexible adaptation to **continual socioeconomic changes** and the evolution of ever more complex markets. STEM respondents feel this particularly strongly,

and a multidisciplinary approach is deemed by companies to be a **key factor in achieving their objectives**, especially by large companies (63% vs. 48% for small companies).

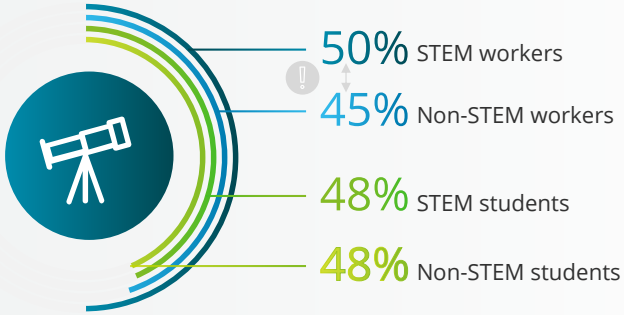
A multidisciplinary approach is vital for achieving corporate objectives according to **63%** of large companies compared with **48%** of small ones

Figure 32 | The advantages of a multidisciplinary approach
*(% values: sum of "Totally agree" and "Strongly agree")*

**Perception by young people of the overall usefulness of a multidisciplinary approach**




**A multidisciplinary approach enables adaptation to continual socioeconomic changes and the evolution of increasingly complex markets.**




*Interdisciplinary approaches forge individuals with STEM expertise and a strategic perspective on sustainability, allowing them to assess the socio-economic impact of transformations and guide their actions towards greater equity.*

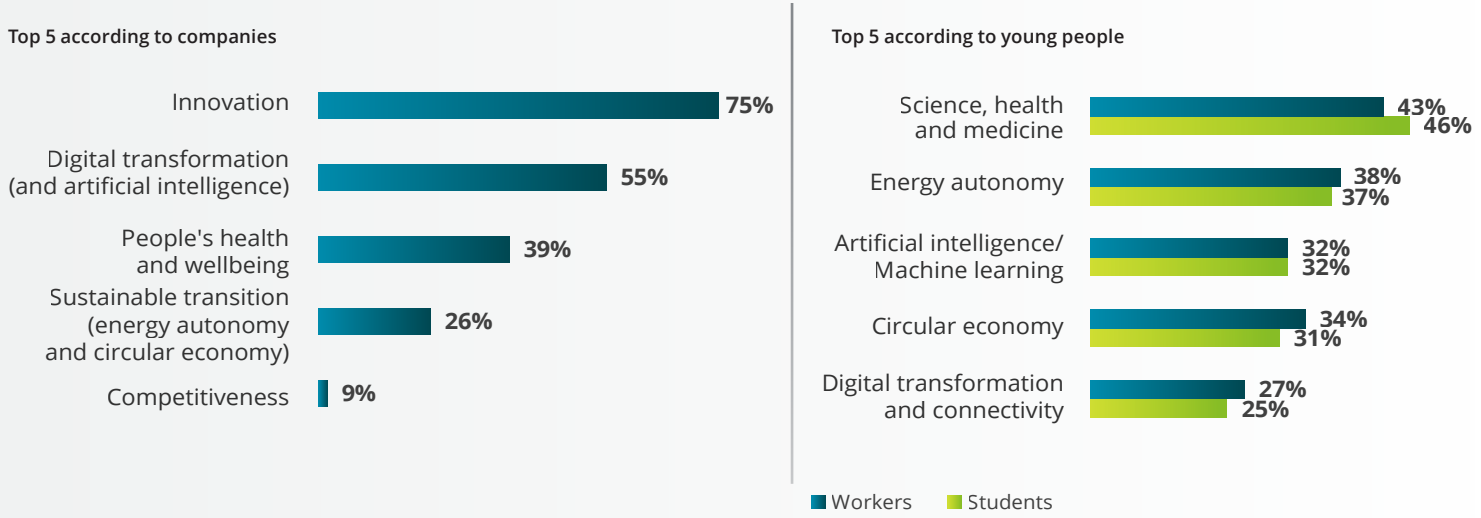
Paola Profeta,
Deputy Rector for Diversity, Inclusion and Sustainability,
Bocconi University

## 4.2 STEM education to meet the challenges of the future

### Young people put STEM skills at the heart of the digital transformation and sustainability, from AI to the circular economy

In the future, STEM skills will contribute to the competitiveness of our countries and the wellbeing of our communities. Companies believe that STEM skills will play a crucial role in ensuring **continuous innovation** to drive the **digital transformation** – partly due to the spread of AI – and in ensuring **people's health and wellbeing**. This is precisely the area that young people deem to be most relevant, appreciating the practical value of technical and scientific knowledge for **science**, **health** and **medicine**. This highlights the importance of these skills for guaranteeing the effective health systems that undergird European countries' welfare systems. According to the young people interviewed, STEM skills can make a significant contribution to **sustainability**, as well as to **circularity** and optimisation of production, consumption and reuse cycles, and as a key to **energy autonomy**, and the development of **advanced technologies**, such as AI, machine learning, quantum computing, etc.

Figure 33 | The priority areas in which STEM subjects can make a greater contribution




*The **digital transition** is crucial and we believe that **digital skills** should be acquired **across the board** by all students, from designers to mechanical engineers. Merely educating computer engineers is not enough: **digital literacy should become an integral part of all subjects**.*

Donatella Sciuto,
Rector of Milan Polytechnic University

## 4.3 STEM and artificial intelligence

### Companies anticipate that AI will increase demand for STEM workers, while young people are concerned about its impact on employment

With the spread of AI, the advancement of digitalisation and the need to meet the **requirements of people and the environment**, companies are aware of the growing importance of **integrating STEM subjects with the humanities.** With specific regard to AI, the majority of companies (65%) expect demand for STEM workers to increase. This prediction is also confirmed by young people, who are more cautious about the implications of adopting AI in the workplace. Indeed, although AI is not expected to replace people – but rather help them in performing their tasks – currently **1 in 2 young people** say they are particularly **concerned about the impact on employment** of the future evolution of AI; this concern is most strongly felt among workers with STEM education.

Notwithstanding these concerns, young people are still very interested in working in the area of **deep tech**[18]. For example, according to **more than 4 out of 10 students and young workers**, the merging of STEM and AI skills will enable them to cope more successfully with the complex nature of the **environmental challenges** that lie ahead; those with STEM profiles also view this issue positively. In general, the **acquisition of STEM knowledge** gives young people tools to actively participate in change, thereby helping to generate a **concrete and positive impact** for the future.

Figure 34 | STEM and artificial intelligence

**The expansion of artificial intelligence will increase the demand for profiles with STEM skills**

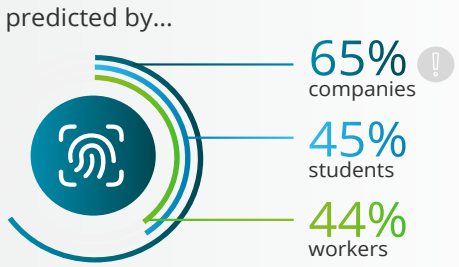
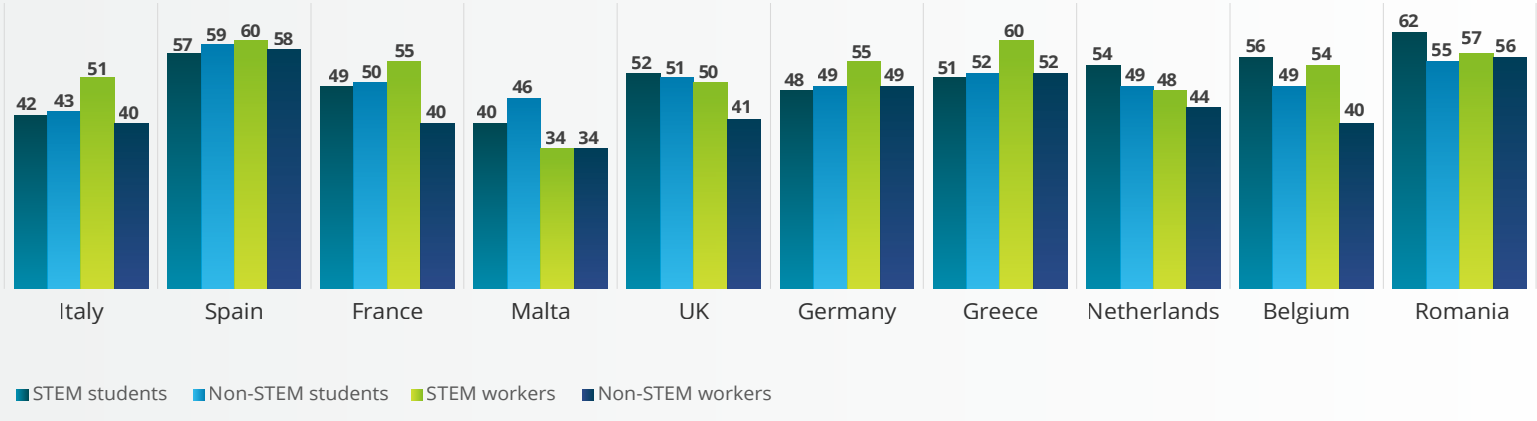



Figure 35 | Young Europeans concerned about the impact on employment of future developments in artificial intelligence technologies
*(% values: sum of "Totally agree" and "Strongly agree")*




[18] For example, advanced computing, AI, cybersecurity, robotics, biotechnology, the Internet of Things, Big Data and augmented reality

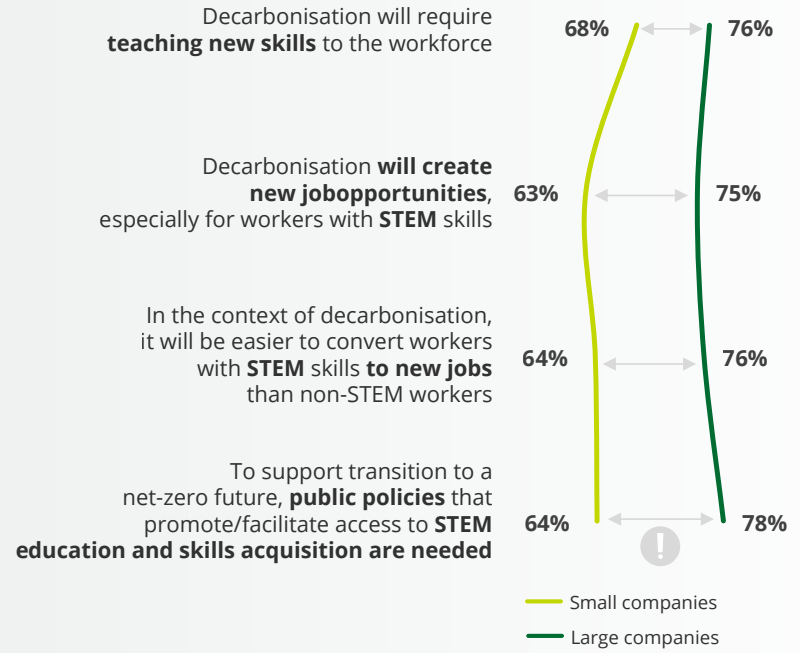
## 4.4 STEM skills for a more sustainable transition

### STEM skills are crucial for the green transition: demand for specialised professionals continues to grow

Almost 9 out of 10 young Europeans believe that STEM skills will play a decisive role in successfully driving the green transition, namely a **transition to a more sustainable and environmentally friendly economic model**. The development of sustainability requires sound technical and scientific skills, which, in the opinion of almost 8 out of 10 young people interviewed, are particularly useful if you want to work in this field. With this in mind, and also given the growing importance and urgency of the issue, almost all of those interviewed predict that the **demand for professional figures** with **technical and scientific** knowledge from institutions and companies will increase in the future, which is a view shared above all by those with STEM profiles.

As well as driving the sustainable transition, STEM skills will be particularly useful for **cushioning the possible impacts on employment** arising from the process of **decarbonisation**, which will require **new skills among the workforce**. The European companies that were interviewed strongly believe that technical and scientific knowledge will be a decisive factor in fostering **greater employability**, especially thanks to easier conversion (**reskilling**) of STEM profiles for the jobs of the future. Hence the importance of providing **public policies** that promote access to **STEM skills training and acquisition**, as was confirmed by almost all of the sample. However, in a context that is still evolving, small companies seem to be less aware of the full potential of STEM knowledge for sustainable transition than large companies (see Fig. 36).

Figure 36 | The impact of decarbonisation according to European companies
*(% values: sum of "Totally agree" and "Strongly agree")*



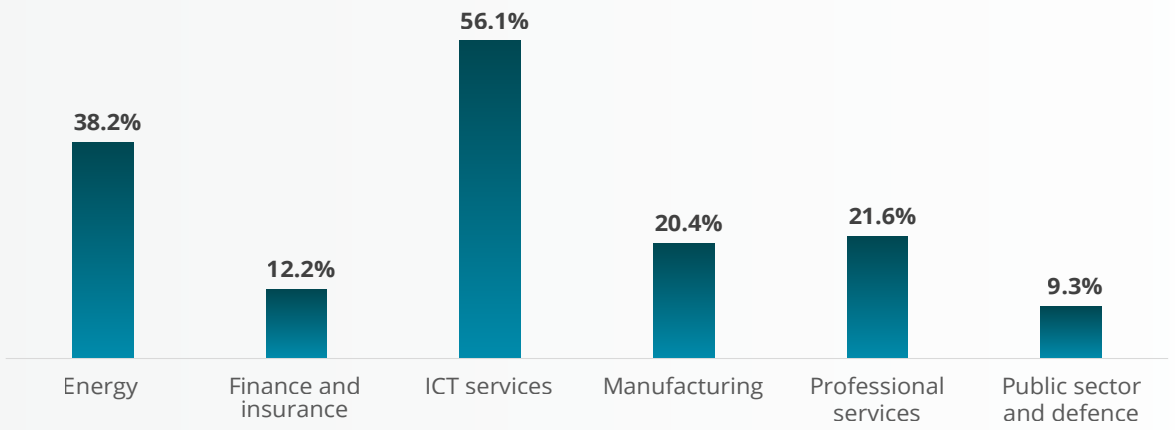

**7 out of 10**

European companies firmly believe that decarbonisation will require workers to develop new skills

> *STEM subjects are vital for the **future** and the **sustainability** of our system, as they influence crucial areas such as **decarbonisation**, the **green transition**, the **circular economy** and **resource optimisation**. Without STEM's contribution, which includes logic, problem solving and rationalisation, we won't be able to make progress. In order to effectively cope with all the **transitions**, including **digital**, it is vital to acquire robust **STEM knowledge and skills**, as they are the key drivers.*
>
> Isotta Piazza,
> Deputy Rector for the Right to Study at the University of Parma

Cedefop[19] estimates that the share of high-tech professions in total employment will reach 15% in Europe in 2035[20]. As Figure 37 shows, employment in this field will be highest in the **ICT sector** (56.1%) and in the energy sector (38.2%), highlighting the growing importance of information technology and the crucial role of advanced technologies in the field of sustainable energy. Regarding professional services, Cedefop predicts that 21.6% of those employed will work in technology roles, providing specialised skills and advice. The manufacturing sector will be able to employ 20.4% of the workforce in high-tech professions by continuing to integrate advanced technologies into production processes. In the field of finance and insurance, 12.2% of job opportunities will be technology roles, while in the public and defence sector, 9.3% of workers will be in high-tech professions, thereby contributing to technological innovations in government and security.

Figure 37 | Percentage of high-tech jobs in Europe by NACE sector[21] | 2035




*Source: Cedefop - Data extracted in May 2024*

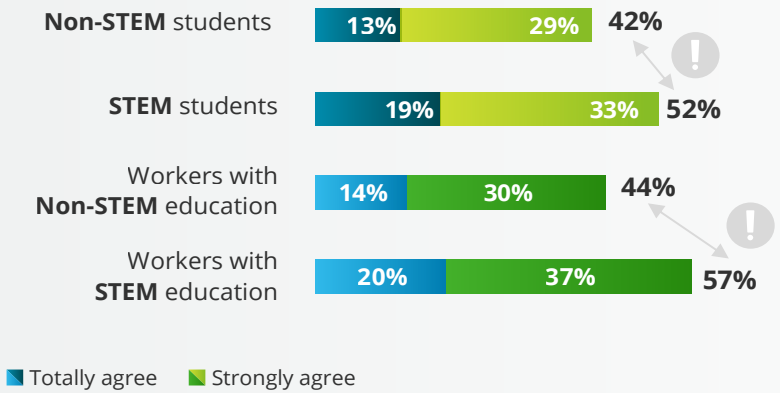
[19] The European Centre for the Development of Vocational Training (Cedefop) is an EU agency that supports the promotion, development and implementation of EU policy in the field of education and vocational training
[20] Cedefop (2020). Employment in high-tech occupations. See: Employment in high-tech occupations | CEDEFOP (europa.eu)
[21] The statistical classification of economic activities in the European Community (NACE)

## 4.5 STEM and the public sector

### The potential of STEM skills for the public sector

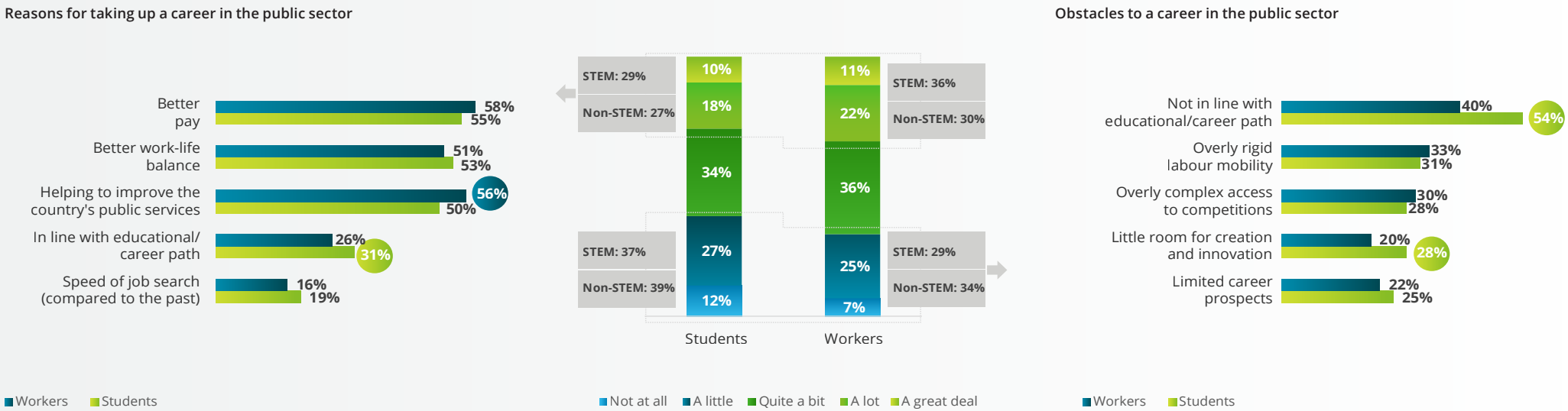
Against a backdrop of sweeping change, STEM knowledge is a valuable resource for transforming European countries, starting with the fundamental instrument for common development and wellbeing: **public sector organisations**. Public sector organisations are called upon to lead decision-making processes, and plan and implement **fundamental policies**, to ensure proper redistribution of resources while guaranteeing social equity. The implementation of strategic programmes, including those aimed at achieving **climate neutrality**, the **digital transition and** the **2030 Agenda Sustainable Development Goals**, will progressively increase the need for **talent and innovative skills**, at all levels of European states.

Figure 38 | STEM offers great potential for transforming the public sector, making it more effective and sustainable



An examination of young people's inclination to work in the public sector reveals **moderate interest**, which is slightly more pronounced among workers with STEM education, and mainly motivated by **salary prospects** and **work-life balance**, as well as the desire to **improve their country's public services**. Some people are reluctant to pursue a career in the public sector due to lack of **coherence** with their educational background, compounded by a perception that **the public sector system is rigid** with regard to internal mobility, access to public competitions and opportunities to create and innovate.

Figure 39 | Interest in working in the public sector




*Any distortions in the data are due to decimal rounding*

# Conclusions



In future years, STEM skills will play an increasingly pivotal role in supporting **the many transitions** (environmental, energy, digital, social and demographic) **we are going through**, and enabling us to rethink how we live, work, produce and consume. In a context of major structural changes in the labour market and demographic trends, **European companies and public sector organisations**, at all levels, are called upon to equip themselves with new skills and activate strategies to cope with and lead change.

Supporting the continuous education and professionalisation of **new generations of students and workers** poses a commanding challenge for the near future. In particular, **spreading knowledge of STEM subjects from an early age**, encouraging their hybridisation with other disciplines and **promoting new lifelong learning methods**, are some of the necessary elements that also provide great opportunities. The data collected in this study also aim to highlight some of the obstacles that continue to **restrict access to education, the acquisition of STEM skills**, and the training of the new professional profiles needed to support **innovation, social justice and sustainability in Europe.**

Through this STEM Observatory Report, Deloitte renews the call to institutions, companies, universities, student and parent representatives, and the third sector to collaborate in promoting **STEM education and the acquisition of STEM skills.**

Some possible drivers of change are set out for discussion below.

# 1. Promoting STEM education in Europe

STEM disciplines are perceived as difficult or disconnected from everyday life. This, combined with limited awareness of the educational and professional opportunities they offer, leads to a low personal inclination, resulting in limited enrollment in technical-scientific pathways. The survey conducted reveals possible areas for action to reverse this trend:

**Raise awareness** of STEM disciplines and professions through role modelling, counselling in schools and involvement of specialised sectors in the creation of messages, content and services primarily aimed at families and students, from an early age.

Increase **intra-European student mobility**, to encourage greater integration and dissemination of STEM skills (e.g. Erasmus, EU degrees).

Champion **interdisciplinary degree courses** that combine **STEM** subjects and the humanities.

# 2. Closing the STEM gender gap

Whilst women comprise the majority of the university student population (54.8% in 2022), within the STEM pool (namely 26.6% of the tertiary education student population) female students account for only 31.9% of the total. This under-representation is rooted in cultural biases, often passed down through families, where STEM subjects and professions are still perceived as "male-dominated". The biases have a direct impact on career prospects and the speed of professional development and pose barriers to women's access to STEM courses and careers.
To help overcome the gender gap, these measures should be implemented:

Encourage, from an early age, **female students' access** to **STEM subjects** via dedicated initiatives such as mentorship and role modelling.

Promote **action plans to ensure fairness in career prospects by eliminating unfair pay practices** and encouraging **greater transparency**.

Strengthen deployment of **public policies** which support **parenting** to make career opportunities more accessible for women.

# 3. Shaping talent for the future

New challenges in a constantly changing labour market call for new cross-cutting, hybrid skills. However, the lack of such skills, and the absence of new approaches to acquiring them, hampers the development of the emerging professions that are vital for driving the multiple transitions. Key factors in shaping the new profiles of the future include:

Integrate and expand **digital**, **AI** and **sustainability** skills in **school** and **university** curricula, as well as raise awareness about the **ethical and responsible use of AI**.

Promote **continuous education** and the adoption of **micro-credentials** to support upskilling, reskilling, the **requalification** and **re-professionalisation** of employees.

**Expand knowledge of career opportunities in Public Administration for STEM talents**, through information and communication strategies aimed at young talent in this field. **Facilitate access** to these opportunities, also by taking actions that increase their attractiveness to this type of profile, emphasizing the variety of roles and the potential for social impact and technical-scientific innovation.

# Methodology



In continuity with previous editions of the STEM Observatory Report, Deloitte conducted quantitative research with the aim of investigating the motivations, barriers and advantages related to opting for STEM education and career paths, the mismatch between STEM skills demand and supply, gender inequalities, and opportunities to contribute to the major challenges of the future via STEM knowledge. To this end, in spring 2024 surveys were conducted on three groups of interest – students, young workers and companies – in 10 European countries: Belgium, France, Germany, Greece, Italy, Malta, the Netherlands, Romania, Spain and the United Kingdom.

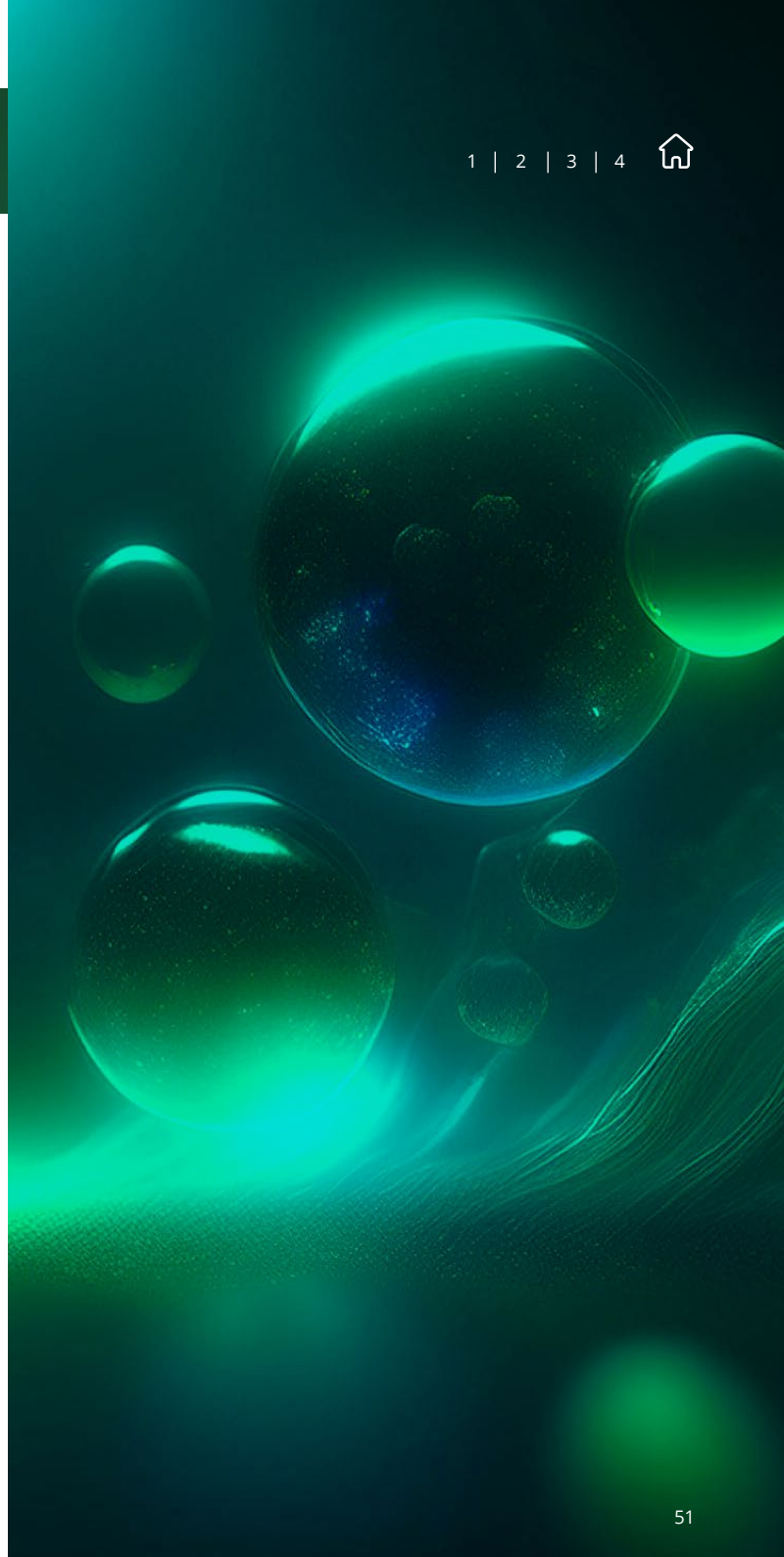
More specifically, interviews were conducted using CAWI methodology involving 5,200 students and 5,200 young workers aged between 18 and 34, taking into account quotas by gender and geographical area. For each target, 600 cases were collected in France, Germany, Italy, Romania, Spain and the United Kingdom, and 400 in Belgium, Greece, Malta and the Netherlands. The total sample data presented in this report is the result of a weighting based on the population of the countries surveyed. The research was conducted with the support of MPS, an independent company specializing in the design and execution of marketing research.

For the target companies, 660 interviews were carried out using CATI methodology, with soft quotas for small companies (<100 workers) and large companies (>100 workers*), amounting respectively to 60% and 40% of the sample. The questionnaire was submitted to senior figures (e.g. CEOs, Managing Directors), and, for large companies only, also to HR managers. 100 cases were collected for Italy, 80 for Germany, France, Spain, Romania and the UK, and 40 for Belgium, Greece, Malta and the Netherlands. The total sample data and size breakdowns (small and large companies) presented in this report are the result of a weighting based on the resident population of the countries surveyed.

For the university target, 12 in-depth interviews were conducted with representatives of the Italian academia. Questions were posed to the following Rectors of the main Italian universities:

- **Luigi Ambrosio**, Director of the Scuola Superiore Normale di Pisa
- **Paolo Boccardelli**, Rector of Luiss Guido Carlo University
- **Marina Brambilla**, Rector of the University of Milan Statale
- **Francesco Cupertino**, Rector of the Polytechnic University of Bari
- **Isotta Piazza**, Deputy Rector with Delegation for the Right to Study at the University of Parma
- **Giovanna Iannantuoni**, President of CRUI, Rector of the University of Milan Bicocca
- **Tiziana Lippiello**, Rector of Ca' Foscari University of Venice
- **Alessandra Petrucci**, Rector of the University of Florence
- **Antonio Pescapè**, Rector's Delegate for Innovation and the Third Mission at the University of Naples Federico II
- **Antonella Polimeni**, Rector of Sapienza University of Rome
- **Paola Profeta**, Deputy Rector for Diversity, Inclusion, and Sustainability at Bocconi University
- **Donatella Sciuto**, Rector of the Polytechnic University of Milan

*For Malta, companies with more than 50 workers are considered to be large companies.



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