
ESPI
TALENT IN THE EUROPEAN SPACE SECTOR
BRIDGING GAPS, BUILDING FUTURES

Europe prides itself on the world-class talent it fosters. Yet, the question of whether this talent is fully nurtured and effectively leveraged remains largely unanswered, despite its importance for closing Europe's innovation and competitiveness gaps. To shed light on talent dynamics in the space sector, ESPI conducted an independent, self-funded study between June 2024 and October 2025. This study represents a first step towards the ambition of developing a continuous talent observatory, aimed at providing insights and informed recommendations on talent development to Europe's institutions and decision-makers. ESPI is open to cooperating with external partners in these efforts.

Report:
Title: "Talent in the European Space Sector: Bridging Gaps, Building Futures"
Published: October 2025

Editor and publisher:
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Internal layout design: www.copylot.at

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Junior profiles are facing difficulties at all stages of their transition to the workforce. Concerns include:

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2. High **competition** for limited entry roles
3. Difficulties in **progressing to more senior** positions

2 INSPIRATION REMAINS THE TOP MOTIVATOR FOR PURSUING A CAREER IN THE SPACE SECTOR

That inspiration is mainly caried by a **fascination for space exploration, space science, and technology,**

but this **fascination declines** as students progress into their **early careers.**

3 SUSTAINED MARKET DEMAND AT SCALE

Nearly 3,000 job postings collected in six months from a sample of companies.

Demand is highest for **mid-level** profiles.

4 SHIFT FROM TRADITIONAL CORE SPACE ROLES TO DATA AND INFORMATION

30% of job postings **required software, data or IT skills**...

...but there seems to be an **overreliance on junior profiles** to fill those roles.

5 A SPACE BACKGROUND IS NOT A PREREQUISITE TO WORK IN THE SECTOR

- **1/3** of job postings were for **non-core space** profiles.
- Industry representatives understand the value of these profiles, but **struggle to attract candidates outside the space bubble.**

73% of job postings did not ask for a space background.

KEY STUDY ACTIVITIES

Over 500 responses to a survey for students and young professionals

Nearly 3,000 tracked job vacancies across space sector companies

Over 40 HR professionals consulted

1 TALENT IN THE EUROPEAN SPACE SECTOR

Europe is facing increasingly critical talent deficits. In 2024, the European Commission (EC) acknowledged that skills shortages and recruitment problems have been on the rise in member states for the last decade, with a deficit of skills enabling **evolving technological and green developments**, and demographic shifts given as main reasons.[1] Indeed, just last year, a Eurobarometer survey prepared for the European Year of Skills revealed that nearly four out of five small and medium-sized enterprises (SMEs) find it generally hard to find workers with the right skills, with more than half experiencing difficulties in retaining such skilled workers.[2]

> *"The European Union is facing a significant challenge in meeting the demand for skilled talent in STEM fields. These are crucial for growing strategic sectors like clean and circular technologies, digital technologies, aerospace, and defence."*
> **European Commission - DG EAC (10.6.25)**

The space sector, a key strategic enabler of innovation, economic growth, and autonomy, is no exception to such difficulties, with recent reports and studies highlighting critical talent struggles. A 2023 report by the Organisation for Economic Co-operation and Development (OECD) emphasised high competition from other high-technology sectors as a determining factor and highlighted that supply of graduates in space-related and STEM disciplines does not meet demand in several OECD countries.[3] As Europe is expected to ramp up investment in space programmes to meet pressing policy objectives, the **hiring demand for skilled professionals is on an upward curve, further exacerbating the existing talent shortfall.**[4]

For example, the UK's Space Sector Skills Survey 2023 reported that nearly every space organisation surveyed in the UK (95%) was facing skills-related challenges, with **50% expecting their skills needs to be different in three years**, and a 20% increase observed between 2020 and 2023 in believing the skills gap has a major impact on their business performance.[5] Additionally, it is understood that at least part of the European space sector is **undergoing a retirement wave**, with the European Space Agency (ESA) highlighting that more than 40% of its current workforce is due to retire between 2020 and 2032; if appropriate pipelines of talent and channels to facilitate knowledge sharing between senior and junior members are not in place, potential skills gaps will only be heightened further.[6]

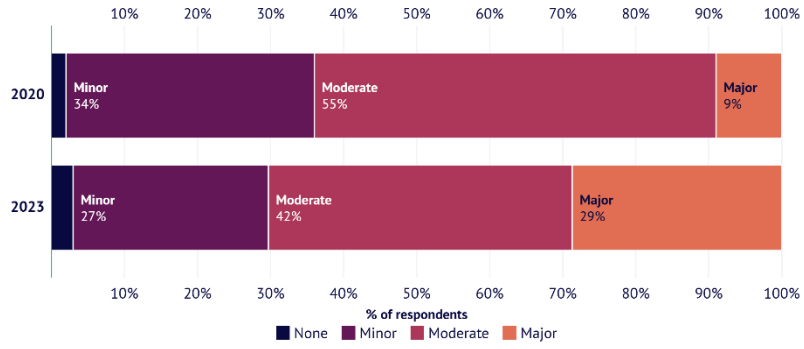


Figure 1: Severity of the space skills gap on business performance in the UK (2020-2023). Credit: Space Skills Alliance, 2023

[1] European Commission, "Commission sets out actions to tackle labour and skills shortages", 20 March 2024 (Link)
[2] Ipsos European Public Affairs for the EC Directorate-General for Employment, Social Affairs and Inclusion, Flash Eurobarometer 529 - European Year of Skills: Skills shortages, recruitment and retention strategies in small and medium-sized enterprises. EC, 2023 (Link)
[3] Organisation for Economic Co-operation and Development. OECD Competition Trends 2023. OECD Publishing, 2023 (Link)
[4] Based on European space industry employment trends. ASD Eurospace, Facts & Figures 2024 Press Release. 10 July 2024 (Link)
[5] Heidi Thiemann and Joseph Dudley (Space Skills Alliance), Will Lecky and Ewan Dallas (know.space) for the UK Space Agency. Space Sector Skills Survey 2023 Report. GOV.UK, 2023 (Link)
[6] European Space Agency (ESA). ESA recruits - and not only astronauts! ESA Career News, 2023 (Link); L. Van Der Tas, personal communication, 29 September 2025

Some efforts to address these problems are already underway for both talent acquisition and skills development. For the former, the EC's Directorate-General for Defence Industry and Space (DG DEFIS) recently launched the **Space Career Launchpad**, providing a platform bridging employers and young space talent, and offering career resources.[7] Additionally, many initiatives exist to provide pathways for young professionals to enter the sector, in particular the **ESA Graduate Trainee** and **Junior Professional** programmes, the EUMETSAT young career programme, as well as internship, apprenticeship, and graduate opportunities offered by many industry players.[8]

In terms of skills development, and as mapped by the ESPI Education report in 2022, the EC's European Universities initiative supports UNIVERSEH (the European Space University for Earth and Humanity), established in 2020 and renewed in 2023, complementing the well-established International Space University (ISU) in Strasbourg.[9] Training and upskilling courses also exist through the ESA Academy, the UK's National Space Academy, and EU-led bootcamps such as the CASSINI hackathon, to name a few.[10]

Headway has also been made through EU-funded research projects analysing differing aspects of European space sector talent dynamics, such as Stars EU, ASTRAIOS, and SpaceSUITE.[11] From a national perspective, the Space Sector Skills Survey 2023 notably provided evidence of skills gaps and workforce challenges in the UK space sector.[5]

> *"Skills shortages are acting as a barrier to innovation and technology adoption and could potentially hinder decarbonisation as well".*
> **Mario Draghi, "The future of European competitiveness", (09.24)**

Understanding supply and demand dynamics for talent in the European space ecosystem, and adapting policies, academic curricula, and upskilling programmes accordingly is critical, as **Europe's capacity to strengthen its space capabilities and pioneer innovation is strongly reliant on a highly trained and available workforce.**

The attractiveness of the European space sector is now even more relevant considering recent shifts in the US, including proposed budget cuts for science research, a move which prompted a subsequent response by the EC through a new €500 million grant scheme to incentivise non-EU talent to "Choose Europe".[12] **Europe now has a clear opportunity to attract global talent**, a vital component in addressing the continent's wider innovation and competitiveness gaps.

This work falls under ESPI's Industry/Innovation/Finance/Workforce portfolio, supporting the institute's commitment to provide European decision-makers with mid- to long-term guidance on key trends and challenges facing space talent and workforce, facilitating the adaptation of the sector to rapidly changing needs, and its ability to embed and support other sectors and policies.

[7] European Commission, Space Career Launchpad (Link)
[8] For example, Graduates: ESA Graduate Trainees (Link); EUMETSAT, Early Career Programme (Link); Airbus, Students and Graduates (Link)
[9] European Space Policy Institute, Space Education in Europe. ESPI, 2022 (Link); European Universities initiative (Link); UNIVERSEH, the European Space University for Earth and Humanity (Link); International Space University (Link)
[10] ESA Academy (Link); National Space Academy (Link); CASSINI (Link);
[11] STARS*EU (Link); Analysis of Skills, Training, Research and Innovation Opportunities in Space (ASTRAIOS), (Link); SpaceSUITE (Link)
[12] European Commission (EC). Choose Europe – Advance your research career in the EU (Link)

2 SCOPE & METHODOLOGY

This report explores the dynamics affecting talent in the European space sector based on the contrasting but complementary perspectives of students and young professionals, and industry and other relevant space sector employers in Europe. It seeks to understand primarily how the needs of industry match the needs of the next generation of the space workforce, and where the most prominent gaps may be.[13]

2.1 Report Activities

Three main activities were conducted for this report:

1. A detailed survey to students and young professionals currently working or considering working in the European space sector.
2. The collection and analysis of almost 3,000 job vacancies from a representative sample of space companies across Europe.
3. An industry consultation campaign, with over 40 HR professionals consulted.

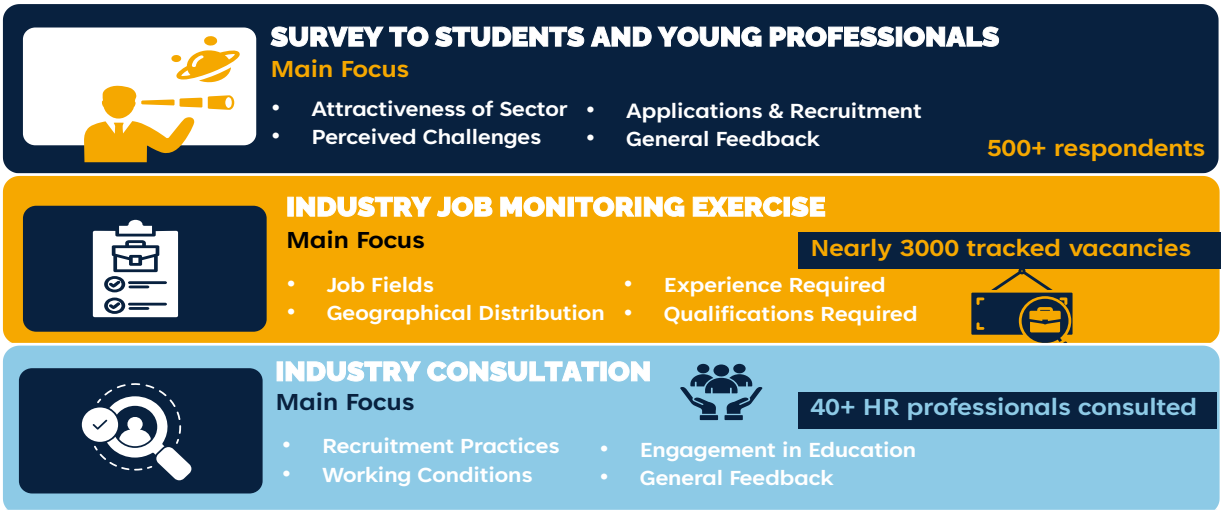


Figure 2: An overview of the main activities conducted for the report.

2.2 Data Classification

The study applies two classification systems: one for the educational backgrounds of the survey respondents, and one for job fields of the collected vacancies. Educational backgrounds were divided into STEM and non-STEM categories, with STEM further divided into "core space" and "general STEM". Core space covers engineering and scientific backgrounds directly linked to the space industry, such as aerospace engineering, while general STEM refers to backgrounds more transversal to other sectors, such as software engineering. For the job monitoring exercise, and the industry interviews, ESPI identified 19 job fields, grouped into "core space" and "support". For the job monitoring exercise, only jobs related to space companies, or a specific space department were collected, thus all STEM job fields could be considered core space job fields. Support fields are those not directly tied to space activities, such as legal and compliance or business and marketing.

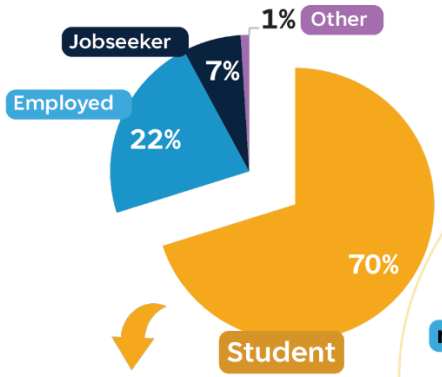
[13] Detailed methodology is available in Annex A.

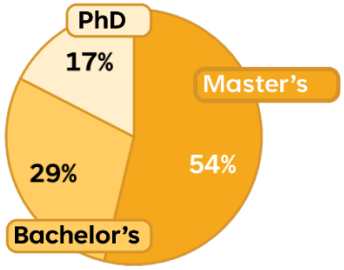
STUDENT & YOUNG PROFESSIONAL PROFILES

AT A GLANCE

OCCUPATIONS

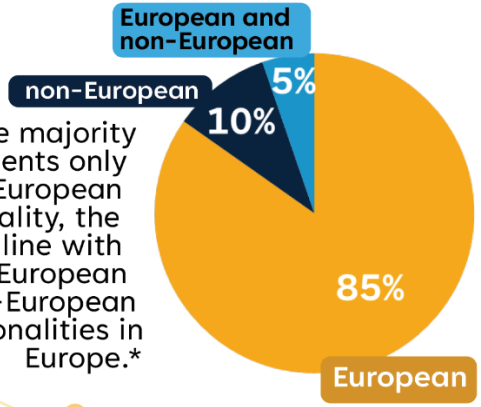
Among those Employed in the space sector, **most are currently employed in the space industry (37%) or in a space agency (14%).**



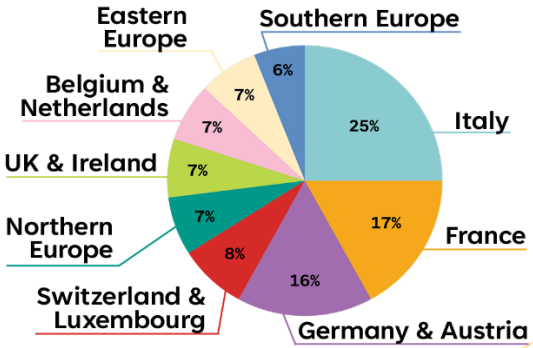


Over **500** responses

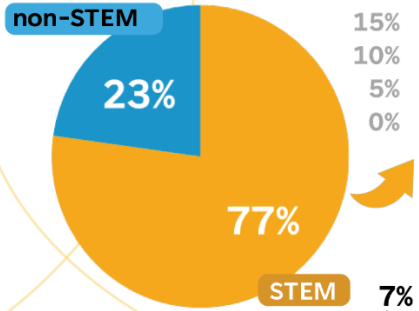
GEOGRAPHICAL DISTRIBUTION

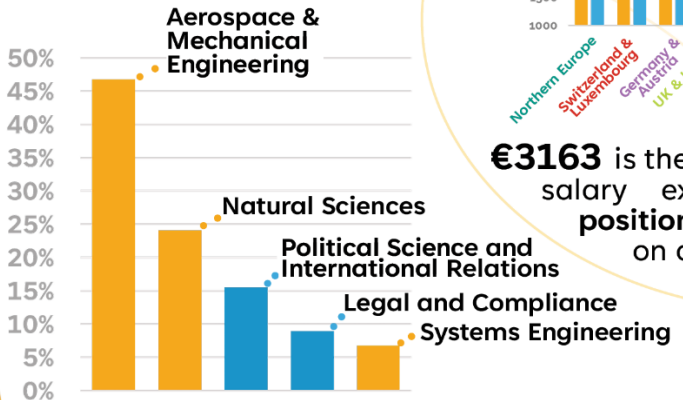


Whilst the majority of respondents only have European nationality, the survey is in line with overall European to non-European nationalities in Europe.*



EDUCATIONAL BACKGROUNDS

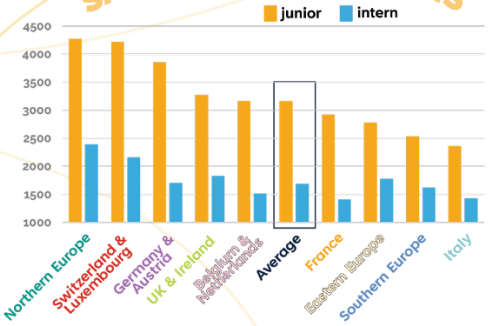




Of STEM respondents, **50% are engineers** and **19% are scientists.**

7% have a transversal background (STEM *and* Non-STEM).

SALARY EXPECTATIONS



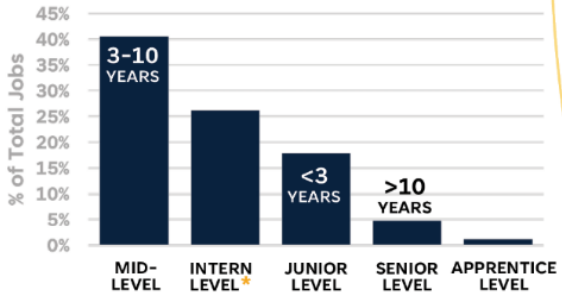
€3163 is the average gross monthly salary expectation **for junior positions.** Interns expect €1691 on average.

**Based on Eurostat data on EU population diversity by citizenship and country of birth*

INDUSTRY JOB POSTINGS

AT A GLANCE

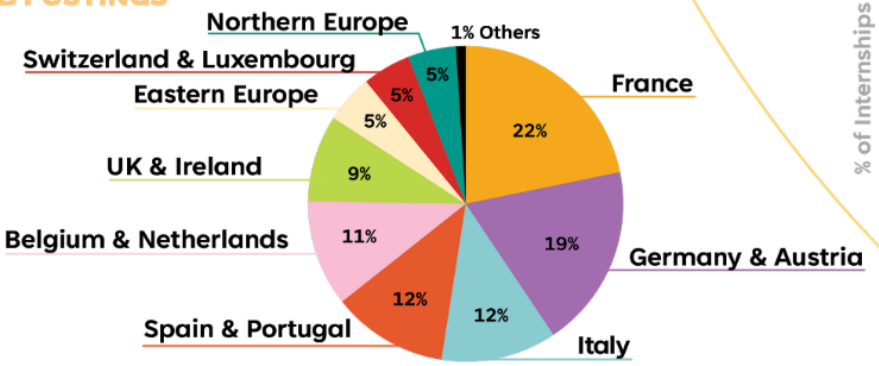
EXPERIENCE LEVEL REQUIRED



*The high level of internships is significantly influenced by the period of collection (Sept. - Feb.), as two companies with the largest number of internships, Airbus & ESA, typically release these postings during this time.

Just Under **3,000** jobs collected

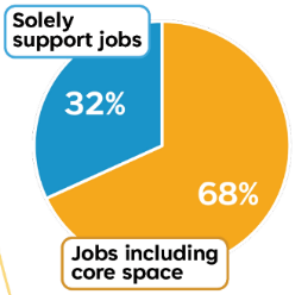
GEOGRAPHICAL DISTRIBUTION OF JOB POSTINGS

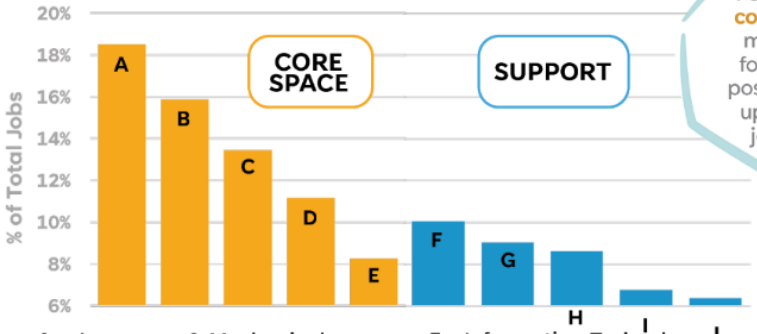


DISTRIBUTION BY FIELD AND TOP FIELDS REQUIRED BY JOB POSTING

Jobs with Project or General Management (PM or GM) or with Aerospace & Mechanical Engineering made up the highest proportion of postings (19% each).

10% of jobs included both core space & support activities.



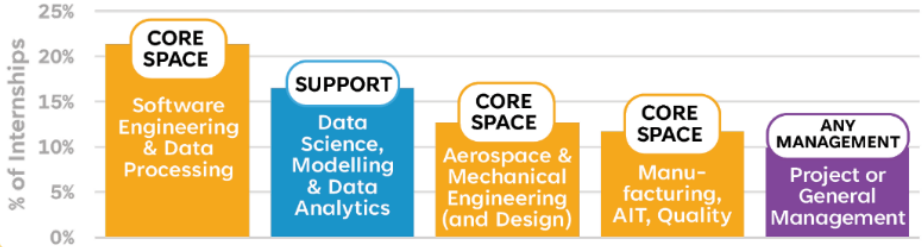


Positions with **core** space fields made up the top four proportion of postings, and made up over half of all jobs advertised **(59%)**

A - Aerospace & Mechanical Engineering
B - Manufacturing, AIT, Quality Control
C - Software Engineering & Data Processing
D - Systems Engineering
E - PM or GM - Core Space**
F - Information Technology
G - PM or GM - Support**
H - Business Development, Marketing and Market Analysis
I - Data science, Modelling and Data Analytics
J - Legal & Compliance

**Postings for PM & GM were designated to be either a Core Space or Support job based on the job description.

TOP JOB FIELDS FOR INTERNSHIPS WERE RELATED TO SOFTWARE, OR DATA MORE GENERALLY



3 KEY INSIGHTS: FROM PURPOSE TO PROGRESSION

From the extensive data collected as part of the study, the ESPI team identified several key insights, outlined in sections 3.1-3.8. These key insights can be generally clustered into six topics:

1. **Junior professionals are facing difficulties at all stages of their transition to the workforce.** From concerns about the quantity and quality of current academic programmes, and high competition for limited entry-level roles, to difficulties progressing to more senior positions.
2. The scale of the talent demand within Europe, with almost 3,000 job postings collected in six months from a sample of companies. Yet, there is an identified **bottleneck present at the mid-career stage** – 41% of vacancies were for this experience level.
3. **Inspiration remains the top motivator for pursuing a career in the space sector,** and this inspiration is mainly carried by a **fascination for space exploration, space science, and technology.** However, this fascination declines as students progress into their early careers.
4. Whilst professional development and salary remain important, young professionals consider **company purpose and career progression opportunities as top attractors** when searching for a career in the space sector.
5. There is a **shift from traditional core space roles towards data and information**, with 30% of job postings requiring software, data or IT skills. **Yet, the data shows an overreliance on junior profiles to supply these skills.**
6. A space background is not a pre-requisite to work in the sector, and in fact**,** the influx of talent from other sectors is a strategic enabler for the innovation and growth of the space sector**. Industry representatives understand this well, but struggle to attract candidates outside the space bubble.**

3.1 Evidence of Sustained Talent Demand at Scale

Despite some large industry players such as Airbus Defence & Space and Thales Alenia Space reporting layoffs or reallocation of significant numbers of staff, demand still seems to be strong across the space sector; **almost 3,000 jobs were collected in a six-month period** from a snapshot of companies within the space sector across Europe. Major news stories attribute the cuts to the challenges of remaining competitive in a rapidly evolving and unpredictable business environment (especially considering Starlink's market expansion), and mostly involve streamlining organisational structures. As such, and especially in the case of Airbus Defence and Space, job cuts will mostly target managerial and support roles, not core space roles.[14] With only 32% of jobs collected in the job monitoring exercise attributed to support roles, **entry to the space sector may become more challenging and competitive for these types of profiles in the near future.**

[14] Reuters, "French union calls for strike over space job cuts" Reuters, 11 December 2024 (Link); Alyssa Lafleur, "Airbus Defence and Space Plans 2500 Job Cuts Amid Challenging Market Conditions", Space Insider, 18 October 2024 (Link); Ryan Hogg, "Airbus is slashing 2,000 jobs as Europe's space industry struggles to keep up with Elon Musk's SpaceX", Fortune, 6 December 2024 (Link)

The aforementioned collection of job vacancies in a short timeframe suggests a **sustained demand for skilled professionals**, one that is poised to grow in step with Europe's expanding space ambitions, including German space defence and ESA ministerial figures poised to reach 35 and 20 billion euros respectively, alongside increasing private investment; ESPI's Space Venture 2024 report revealed that new space companies experienced sustained growth since 2020, and attracted €1.5 billion of capital in 2024; a 56% increase from 2023, and the greatest YoY growth increase in ten years.[15] Such economic growth should also be considered alongside Europe's evolving workforce needs. It is essential that political initiatives focus on identifying solutions that align workforce demand with the available pool of highly skilled talent and, critically, that this alignment supports the sector's long-term direction.

Key Recommendation

Consistent tracking of job collection dynamics across Europe, and integration into educational and industrial policy development at supranational and national level, facilitating new and improved space education initiatives that align and adapt with the sector's needs.

3.2 Inspiration: A Key Motivator for Pursuing a Career in the Space Sector

Employee engagement is in decline worldwide, with only 21% of workers reporting that they feel motivated in their role, amounting to an estimated loss in productivity of $438 billion in 2024 alone.[16] Disengagement not only undermines organisational performance but also erodes a sense of purpose at work, with managers, who are the key drivers of team motivation, also showing drops in engagement.[17]

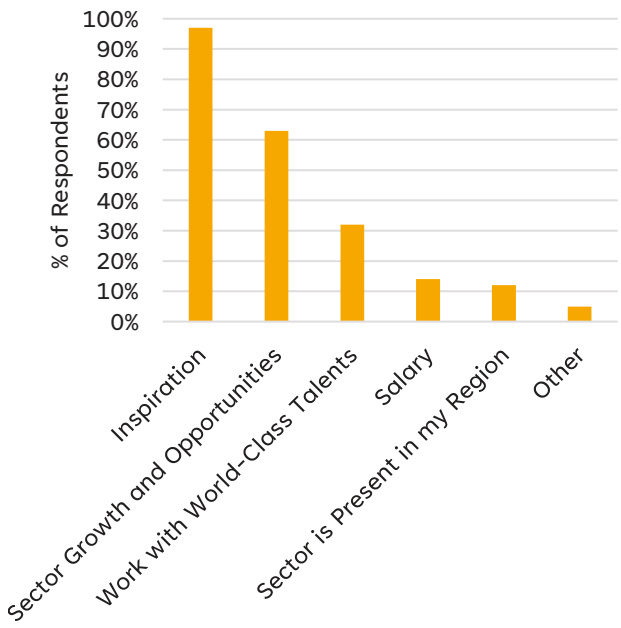


Figure 3: Top motivators of the space sector

Against this backdrop of widespread disillusionment, the space sector stands out. It attracts and sustains a uniquely inspired workforce that few other industries can match (Figure 3). In fact, **over 96% of survey respondents** cited inspiration as one of the key reasons driving their ambition to enter the field, which was also a key strength identified through industry consultations when hiring for roles in the sector.

Space exploration, space science, and a fascination for innovation & technology are the main sources of inspiration for entering the space sector (~55% of participants) (Figure 4), whilst the more concrete applications on Earth (economy, security, sustainability, and diplomacy) fare

[15] Richard Connor, "Germany updates: Berlin vows billions in space defense", DW, 9 September 2025 (Link); Peter B. De Selding, "ESA seeking least an 18% increase, to $22.3 billion, in its 3-year budget, to be approved in November", Space Intel Report, 14 May 2025 (Link); European Space Policy Institute, "Space Venture 2024: Global Investment Dynamics", ESPI 2025 (Link)
[16] Gallup Workplace. "State of the Global Workplace" (Link)
[17] Ibid.

significantly lower in comparison (~30% of participants).

The effect of inspiration has also been echoed in other recent surveys and reports, such as the results from the UK 2020 Space Census - the two key drivers for joining the space sector were identified as "a love for space" and a "desire to do interesting work" - and in the measurement of the power of inspiration during Tim Peake's mission to the International Space Station, which was supported by the UK's Principia campaign.[18] During this period, public awareness of the space sector in the UK rose to 43%, with a 6% increase among members of the public who agreed that the space industry is important for national economic growth.

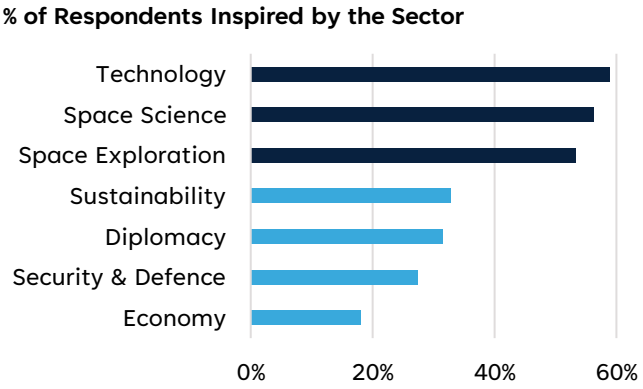


Figure 4: Motivations for pursuing a career in the space sector

Zooming further into motivations by career stage, almost 70% of Bachelor's and Master's students are inspired by exploration, science, and technology. This shrinks to 40% after graduation and between three to five years of work in the sector. Conversely, for specific applications such as economy and security & defence, initially only 30% are inspired, but this grows to 60% over the course of the educational and early career journey.

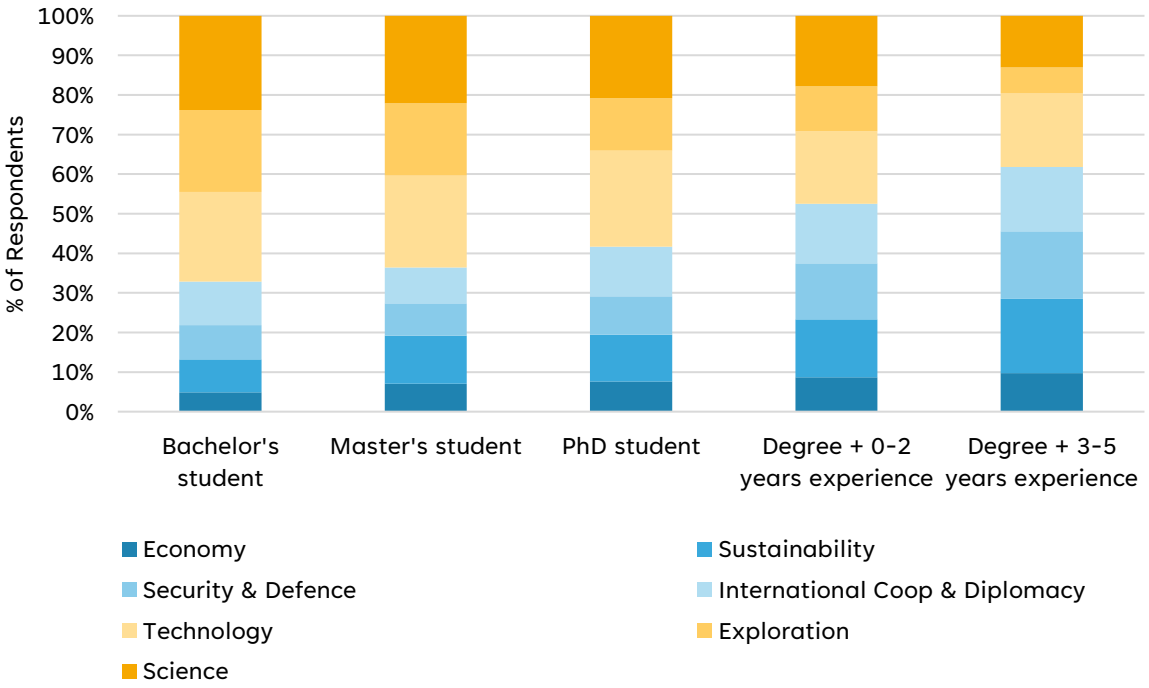


Figure 5: Inspirators by Career Stage

[18] Joseph Dudley & Heidi Thiemann, "How and why people join the UK space sector", Space Skills Alliance, 1 March 2023 (Link); UK Space Agency, "Impact Assessment: UK Space Agency Principia Campaign" (Link)

While this can be seen as people learning more about the actual applications space has on Earth throughout their journey, it can also be interpreted as Europe lacking a proper exploration & science campaign that Europe's talent (and wider public) can buy into while they are working in the sector.

3.3 Space Exploration & Space Science: Powerful Drivers of a Loyal Workforce

Students and young professionals that are inspired by space exploration and space science have high levels of intrinsic motivation and are particularly loyal to the space sector.

Those motivated by these inspirators have **the lowest salary expectations** for junior positions. This implies that for these topics, there is perhaps a stronger internal motivator for young talent to pursue a career in the space sector compared to other inspirators. This fascination, and the internal drive that deprioritises monetary gain, should be further utilised as a key selling point for why talented individuals should join the space sector, as opposed to other, similar high-technology sectors where the same or similar skills are needed.

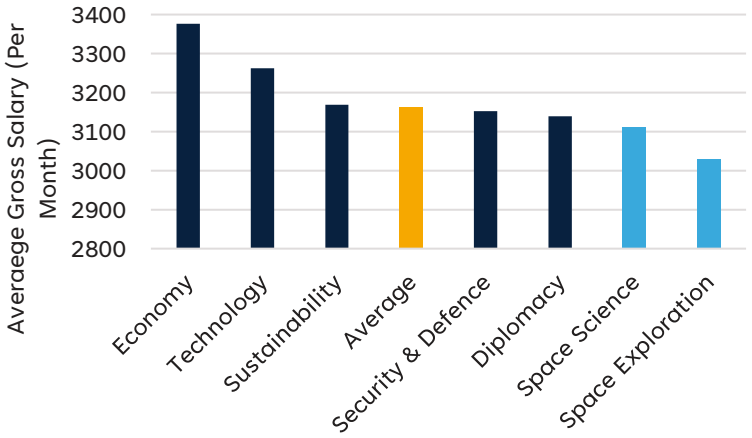


Figure 6: Average gross salary expectations per month for junior positions, based on inspirators

Additionally, **students and young professionals who are inspired by exploration and science generally seem to have a stronger connection to the space sector.** They are the least likely to consider working in other sectors compared to the overall average and to those who are drawn by other inspirators. This is further supported by the salary expectations data; those with higher salary expectations may be more likely to move to other sectors to avail of higher salary opportunities.

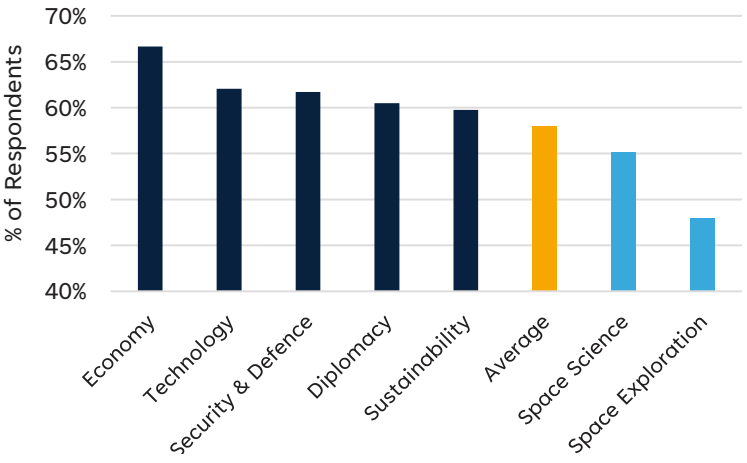


Figure 7: % of respondents who would work in other sectors, based on what inspires them

Key Recommendation

Further quantitative impact assessments of the power of inspiration in attracting the general public to the space sector, in line with the Principia mission, for both exploration and science endeavours.

3.4 Purpose and Career Growth: Top Attractors for Young Graduates

Whilst salary and professional growth opportunities are important, **a sense of purpose is top of the agenda for young professionals when searching for a job in the space sector**, and this ranking is almost identical regardless of respondent educational background (STEM/Non-STEM).

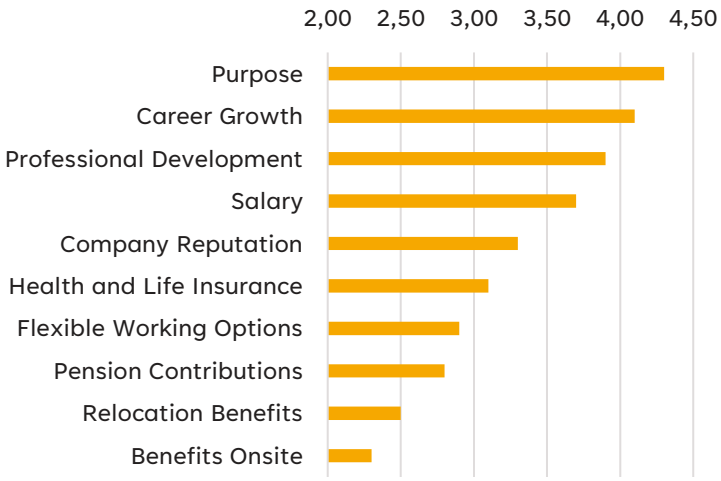


Figure 8: Top attractors (ranked from 0 to 5) when searching for a job in the space sector.

These insights are aligned with the results from the 2025 Gen Z and Millennial Survey conducted by Deloitte of 23,000+ respondents, where about nine in ten Gen Zs and millennials consider a sense of purpose to be vital to job satisfaction, but are less likely to feel this purpose if financial security and general well-being at work are not there.[19]

Our data confirmed these sentiments (Figure 8): *purpose* ranked first among the listed attractors, whilst *career growth* – despite the junior demographic – was the only other factor to exceed the overall average score of 4. Furthermore, interviews conducted with HR representatives affirmed this sentiment, and additionally indicated that **startups** are seen as particularly effective in emphasising the broader purpose and goals of their mission.

Notably, **flexible working was not a top attractor;** perhaps because many students and young professionals now see this as standard, and not a benefit offered when applying for a job. Even so, flexible working options seem to be perceived as a major attractor by industry. **Most jobs collected offered some kind of flexible working as an option** (hybrid or remote)[20], with the benefit also perceived by industry representatives to be a top attractor for students and young professionals.

3.5 Rising Concerns about Space-Related Academic Programmes

ESPI's Space Education report, which included a survey released to students and young professionals in 2021, reported a worrying statistic: 65% of respondents believed they would have difficulties finding a job within the sector. This report builds on this statistic to understand the role that current space education providers are perceived to play in this transition. **When asked if current academic programmes provide appropriate entry routes to the space sector, only 22%**

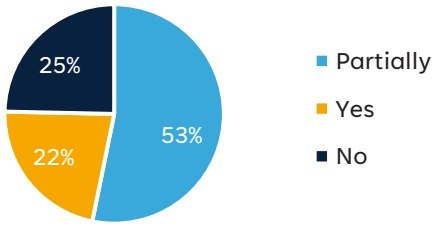


Figure 9: Do you believe academic programmes provide appropriate entry routes to the space sector?

[19] Deloitte, "2025 Gen Z and Millennial Survey" (Link)
[20] Note that this statistic is based on whether flexible working was specifically mentioned within the job posting. The ESPI team did not check the general flexible working policies of each company.

of respondents agreed. Of these respondents, **non-STEM profiles (12% agreed) are more concerned than their STEM counterparts (25% agreed).**

Of the 154 comments that were given in this respect, concerns can be split into two categories addressing the quality of, and scarcity of, current programmes. The top two concerns are related to the ability of current academic programmes to prepare students practically for the space sector (e.g. soft skills, team/project work, and work experience), and that there are not enough space specific programmes/modules available. For the latter, many comments refer to **educational programmes being too focused on the technical side of space, such as aerospace engineering, and neglecting other space components.** This is also indirectly related to the former concern – students feel that they graduate with an insufficient grasp of the practicalities or knowledge required to work in the space sector.

Survey respondents highlight **increased opportunities to gain work experience and closer ties between academia and the sector** as top resources they need to succeed.

A Sample of Survey Insights

"I feel most of the courses equip students with transferrable skills but **hardly equip students with a direct focus on space"**

"I don't think there are enough courses for **mid-level professionals** *or in* **training people in new competencies"**

"Space and the space sector have **never been mentioned during my studies in International Relations"**

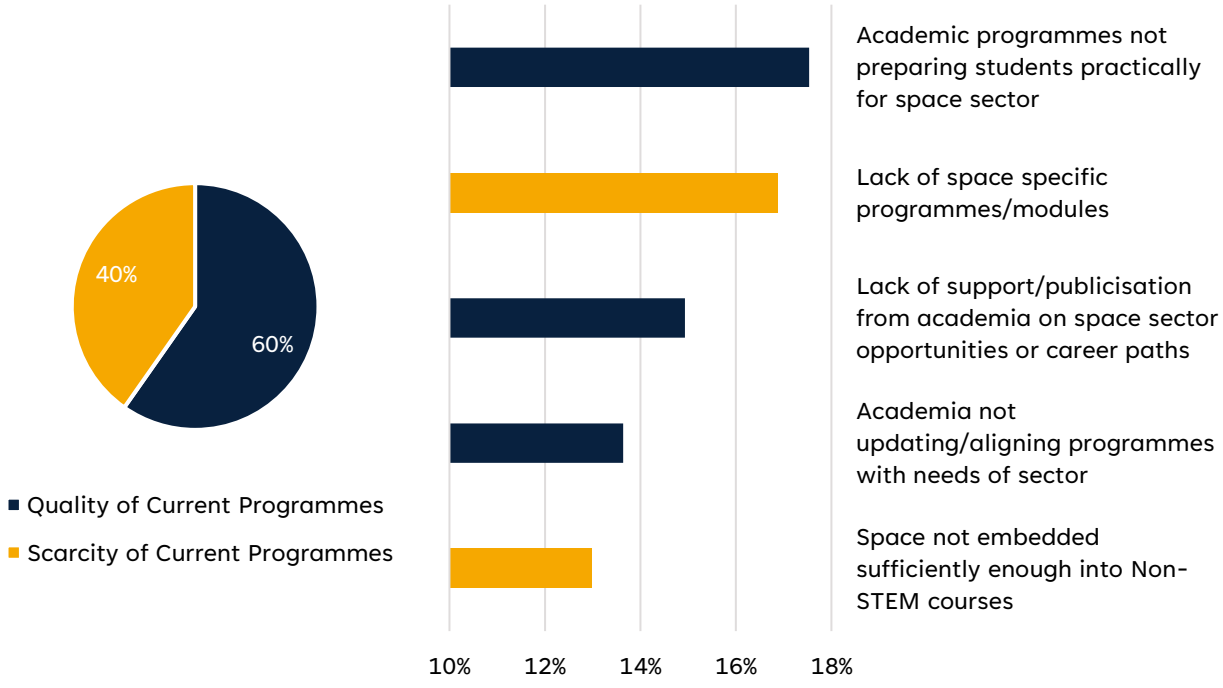


Figure 10: Concerns surrounding current academic programmes

Key Recommendation

In Europe, partnerships to develop talent pipelines between universities, industry, and space agencies, should be strengthened as a key element of a robust industrial policy. For example, public and private stakeholders in the space sector could identify current and future skill gaps and share that knowledge with academia to co-develop the appropriate curricula in the correct locations, while also getting directly involved in knowledge transfer. The efforts to fill these gaps should also not be restricted to specific universities; students wishing to upskill in a particular area should be able to enrol in modules from a wide range of potential universities.

3.6 The Vanishing Middle

There appears to be a critical career bottleneck at the mid-level, including a missing link to drive young talent up to these positions.

Of all vacancies collected, **41% were for mid-level positions** (Figure 11), followed by internships (26%), and junior roles (18%). The lowest number of jobs were for senior or executive roles (5%).[21]

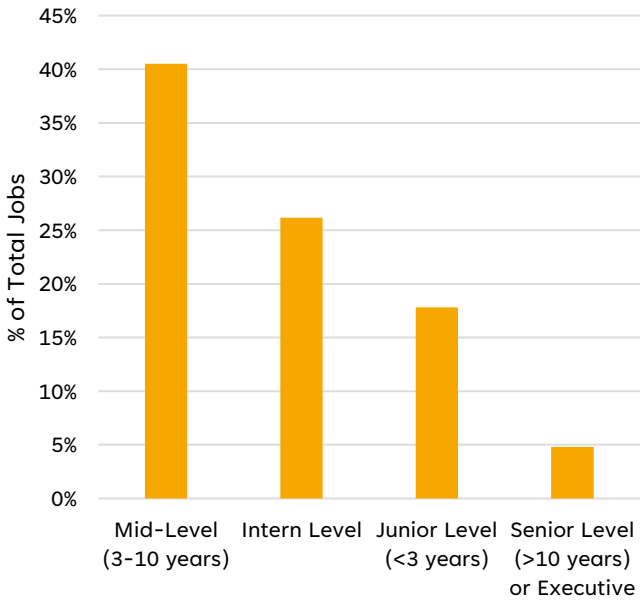


Figure 11: Experience level of job postings (when clear)

Such a high need for mid-level profiles does not seem to be an issue related to a shortage of young professionals, nor that these young professionals in any way lack flexibility, dedication, or strong initial engagement to work within the sector. In fact, students and young professionals are highly flexible and committed - **42% of respondents answered that they would not even consider working in other sectors, with 72% stating that they would be willing to move abroad to access greater opportunities within the space sector.**

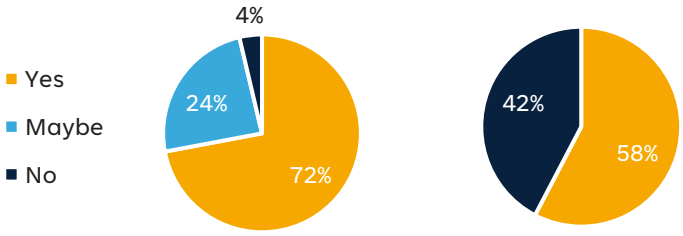


Figure 12: Would respondents consider moving abroad for a better opportunity in the space sector? (left) Would respondents consider working in other sectors? (right)

Of those who would not or maybe not consider moving abroad, the most popular reason given by far (85% of respondents) was to do with personal reasons for wanting

[21] Note that the high level of internships is significantly influenced by the period of collection (September – February), as two companies with the largest number of internships, Airbus and ESA, typically release these postings during this time.

to remain in their home country, e.g. friends, family, culture, etc.

However, **opportunities for young professionals seem to be scarce.** Unsurprisingly, with only 18% of jobs available for this demographic, **limited job opportunities and high competition were cited as top concerns by survey respondents** (Figure 13).

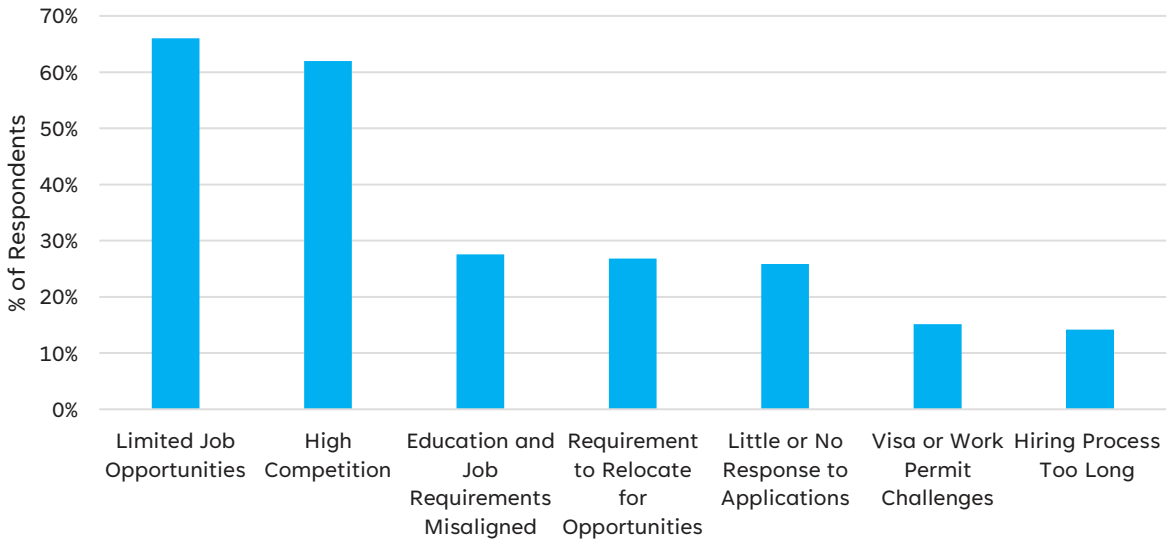


Figure 13: Top challenges faced or anticipated by young professionals when entering the space sector

In terms of the quality of junior level applicants, a sentiment that came up in industry interviews many times is that for the most part, **space sector talent in Europe is exceptional,** but that this **talent can then cluster in the locations of the academic programmes themselves,** which does not always reflect the needs of Europe's industry. These pockets can create high competition between graduates vying for the same types of jobs in the same regions.

These results imply that this mid-level bottleneck is shaped by many factors, including **insufficient processes or incentives to retain junior professionals** (including due to **competition from other high-technology sectors,** or **to recruit them in the right locations**), a **lack of profiles with the type of skills needed** at the mid-level, and the **effects of an ageing demographic** (see UK Spotlight below for a national view).

Key Recommendation

When defining new programmes and flagship initiatives, ensure ring-fenced budget lines devoted to the hiring and development of new talent, to ensure long-term programmatic continuity and a strong workforce base to last.

Spotlight on the UK: Mid-Level Bottleneck at the National Level

The UK's Space Sector Skills Survey in 2023 also demonstrates this vanishing middle.[5] When industry representatives were surveyed from 218 organisations, demand was significantly higher for mid-level professionals over a 12-month period. In fact, **58% of open vacancies were for mid-level roles,** with 22% for junior, and 18% for senior roles, and **greater difficulties encountered in filling more senior-level vacancies.** The reasons given are cited as a limited pool of experienced professionals, and constraints on advancing the capabilities of junior and mid-level professionals.

Role Seniority Level	% of Vacancies, n = 833	Median Time to Hire (Weeks)
Senior	17%	13
Mid-Level	58%	10
Junior	22%	8
Internship	1%	6
Apprenticeship	1%	4
All	100%	10

*Table 1: Proportion of Vacancies and Median Time to Hire Depending on Role Seniority Level**

High competition and limited opportunities for junior profiles are also evident in the UK, with reports of many graduate programmes being oversubscribed – commonly hundreds of applications for one position. However, the flexibility of junior applicants is also apparent, according to a 2024 survey conducted by the UK Students for the Exploration and Development of Space (UKSEDs) – **37% of UK students surveyed were highly interested in careers outside of their home country**, and highlighted more specifically Germany and France for ESA opportunities and satellite manufacturing, the US for space exploration, and India and China for their innovation and growing space programmes. Nevertheless, **significant barriers to such mobility were cited as relocation costs (32%), and personal reasons** for remaining in the UK (26%), with **the need for flexibility in the first place attributed to competitive job markets in the UK (31%), and a lack of relevant openings (14%),** aligning with ESPI's European-wide findings.

*The definition of each seniority level is not specified in the survey results

3.7 (Over?) Reliance on Juniors for Next-Generation Skills

The need for next-generation skills contributing to the digital transformation such as data analytics, cloud computing, and Artificial Intelligence (AI) are on the rise worldwide. In Europe, EuroBrussels highlight digital and technical skills as top skills employers on the continent are looking for in 2025.[22] The space sector will not be excluded from this, with for example, the UK reporting a 72% skills gap in software and data skills in 2023 (see UK spotlight below).

With **64% of data science, modelling & data analytics roles for internship positions,** the job monitoring exercise seems to reveal an over-reliance on junior profiles for these next generation skills. Top **job fields required for internships** more generally were also **related to software (21%) or data (16%) roles.**

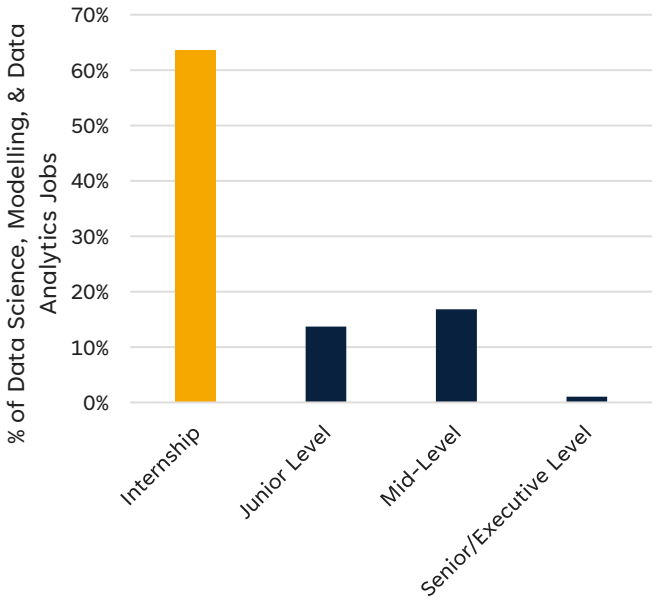


Figure 14: Internships: Experience levels required for data science, modelling, and data analytics jobs

If not monitored, it is possible that this will exacerbate the mid-level bottleneck identified in the previous section, especially if the correct pathways are not in place to retain junior profiles with those skills, and to share those skills with more senior members of teams. To avoid losing junior talent to other sectors, young graduates with these skills should be trained from the onset, and provided with clear paths for professional development.

Spotlight on the UK: Gap in Next-Generation Skills

The UK Space Sector Skills Survey 2023 revealed that roles related to **software & data** (26%), and **systems engineering** (23%) made up over half of all space vacancies. **This mirrors the 72% workforce skills gap in software & data skills reported by UK industry** and driven by the need for AI & machine learning, and data analysis and modelling skills.[5]

Furthermore, data provided by SpaceCareers.uk for the same job collection period as ESPI (September 2024 – February 2025) showed similar results. Jobs related to **computing & data analysis** (25%) and **engineering in general** (36%) made up over half of all vacancies on offer. Of all jobs offered, **84% were for direct entry positions**, with the minimum education requirements for all vacancies similar to those found by ESPI – **most looked for either an undergraduate (47%) or master's (34%) degree.**

Of all the internships collected, just under half (46%) were for engineering roles, with **computing & data analysis in second place (27%).**

[22] EuroBrussels, "Top Skills Employers are Looking for in 2025" (Link)

3.8 A Space Background is not a Prerequisite

The space sector is fairly open to profiles with diverse experience and backgrounds in other sectors. In fact, the job monitoring exercise revealed that **73% of all job postings collected did not specify prior experience in the sector as a main, or preferred, requirement.**

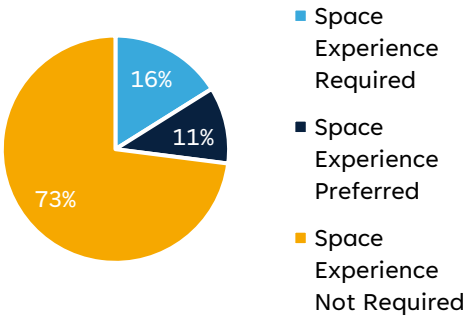


Figure 15: Prior space experience requirements in collected job postings

Unsurprisingly, when considering support jobs that are highly transversal to other sectors, this data point jumps to 87%, but decreases to 66% when core space jobs are considered. Considering core space jobs, industry interviewee perceptions were that it can be difficult to hire from other sectors as profiles in the space sector can be very specialised, requiring knowledge in specific tools only used in the space sector.

However, hiring from other sectors should be encouraged to bring fresh knowledge on industrial processes, e.g. serialisation, and business opportunities, through the integration of space towards new industry verticals.

> *"We are happily accepting applicants from different sectors such as nuclear, but sometimes we struggle to raise awareness about the space sector"*
> **Industry Representative**

Although, **space companies do generally expect more space experience from their more senior hires**, with 44% of mid-level and 49% of senior job postings requiring space experience respectively.

For jobs that **required or preferred space experience** the top job field required was **project & general management** (core space) followed by systems engineering, aerospace & mechanical engineering, telecommunications engineering, and space operations. Jobs requiring prior space experience the least were support fields, notably human resources (3%) and corporate communications (2%).

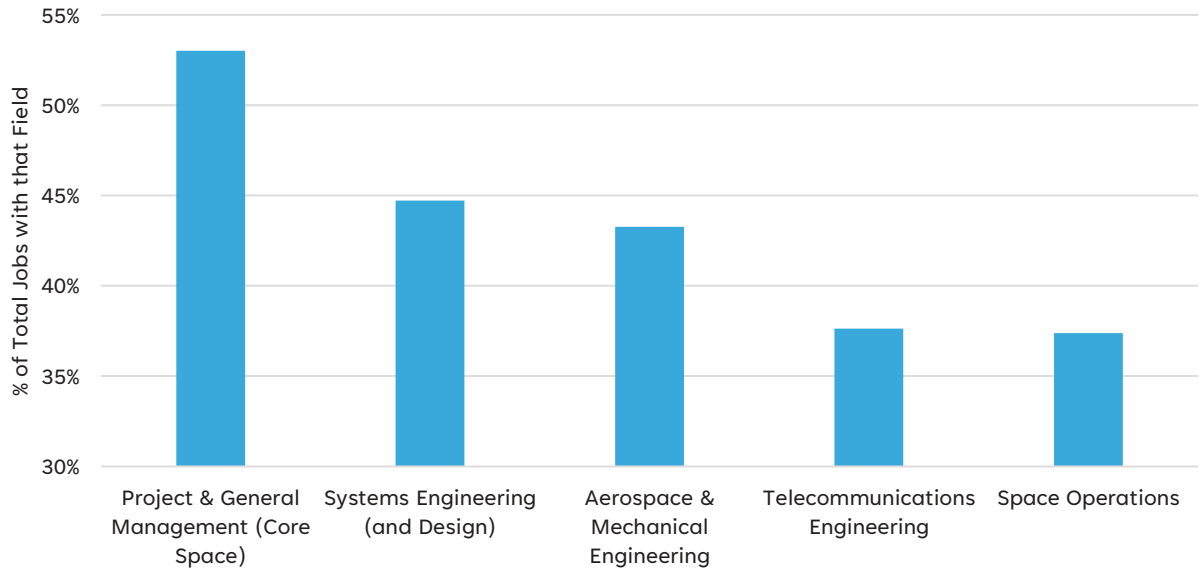


Figure 16: Top job fields requiring prior space experience

4 CONSIDERATIONS FOR THE BROADER SPACE SECTOR TALENT ECOSYSTEM IN EUROPE

This report is designed as an analytical data resource for all stakeholders involved or concerned about the future of talent in the European space sector. However, the team identified some key recommendations during the analysis, that are presented below:

1. **Consistent tracking of job collection dynamics across Europe, and integration into educational and industrial policy development at supranational and national level, facilitating new and improved space education initiatives that align and adapt with the sector's needs.**

2. **Further quantitative impact assessments of the power of inspiration in attracting the general public to the space sector, in line with the Principia mission, for both exploration and science endeavours.**

3. Strengthen partnerships to develop talent pipelines between universities, industry, and space agencies, as a key element of a robust industrial policy. These stakeholders should jointly identify current and future skill gaps and co-develop the appropriate curricula, while also getting directly involved in knowledge transfer.

   Students wishing to upskill in a particular area should also be able to enrol in modules from a wide range of education providers.

4. When defining new programmes and flagship initiatives, ensure ring-fenced budget lines devoted to the hiring and development of new talent, to ensure long-term programmatic continuity and a strong workforce base to last.

Bridging gaps and building futures for the next generation of space talent is not an isolated task, for one stakeholder community (i.e. academia, HR, executive management), but requires coordinated efforts from all stakeholders across the ecosystem, which could include the below:

The establishment of a European-wide network of HR professionals in space sector companies would enable the sharing of information, best practices and solutions to common recruitment challenges.

Establishing the barriers to progress, i.e. detailed understanding of the blocking points, and associated costs to unblock them, that prevent the formation of new practises and programmes, and cross-domain coordination. European stakeholders need a forum to discuss and find solutions to such barriers together.

ACKNOWLEDGMENTS

The authors would like to express their gratitude to the experts and officials from who agreed to be interviewed for this report under the Chatham House Rule and provided their highly appreciated opinions and perspectives. We are furthermore grateful to the experts who reviewed the draft report in their personal capacities, providing invaluable feedback and comments: Professor Chris Rapley, Nicolas Peter, Dr. Heidi Thiemann, Joseph Dudley, and Jacob Smith.

Thank you also to Dr. Heidi Thiemann and Joseph Dudley from Space Skills Alliance, and Jacob Smith from Spacecareers.uk for their valuable contributions of data and advice for the report's UK perspectives. We are also grateful to Florence Loustalot for her continued support and advice throughout, and to the whole ESPI team for constructive and fruitful exchanges, in particular Elizaveta Shashkova, Juan Galera, and ESPI's Graphic Designer, Julia Drössler.

The authors would also like to express their gratitude to anyone who kindly shared or distributed the surveys, in particular:

- Space Skills Alliance
- UK Space Agency
- Spacecareers.uk
- NEREUS
- Space Generation Advisory Council (SGAC)
- ESA HR Representatives

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ANNEX

Annex A – Methodology

Student & Young Professional Survey

To maximise response rate, the survey was conducted online using the Alchemer platform, and remained open for six weeks until 15th December 2024. The survey was promoted via external and internal communication channels, including ESPI social media, the ESPI website, and ESPI members and contacts. The ESPI research team also relied on an internal database of space education programmes collated for the ESPI "Space Education in Europe" report in 2022, to further disseminate the survey to relevant student and young professional networks.

The survey targeted eight main categories of respondents:

- Bachelor's students
- Master's students
- PhD students
- Job seekers (no work experience)
- Job seekers (less than two years of work experience)
- Job seekers (three to five years of work experience)
- Young professionals currently employed in the space sector (less than two years of work experience)
- Young professionals currently employed in the space sector (three to five years of work experience)

The survey was promoted as a survey related to the European space sector, and thus primarily targeted respondents currently working or hoping to work in the sector, but not necessarily resident in Europe. For the purpose of this study, Europe refers to all countries within the European Union, with Turkey also included. **ESPI received and analysed more than 560 answers, gathering views from young professionals and students from 45 different countries.** Note, that this study did not seek to address perceptions related to gender within the sector.

Although not entirely similar in scope, this survey received more than 50% additional answers compared to the survey conducted as part of ESPI's 2022 "Space Education Report", reflecting the increasing outreach capabilities of ESPI.

As mentioned, educational backgrounds of respondents are divided into STEM (comprised of core space and general STEM), and non-STEM (as shown in Table 2), with core space fields more directly involved in the space industry, and general STEM fields typically more transversal to other sectors.

Countries of survey respondents have been grouped together based on proximity and prevalence of replies. The Eastern Europe category includes Bulgaria, Croatia, Czechia, Estonia, Hungary, Lithuania, Poland, Romania, Serbia, Slovakia, and Ukraine. Northern Europe includes Denmark, Finland, Norway, and Sweden. Southern Europe includes Greece, Malta, Portugal, and Spain.

Core Space	General STEM	Non-STEM
Aerospace and Mechanical Engineering	Software Engineering (including UX/UI)	Political Science & International Relations
Systems Engineering	Electrical Engineering	Business & Marketing
Telecommunications Engineering	Other Engineering (Civil, Biomed, General, Management)	Procurement & Supply Chain
Natural Sciences	Project or General Management – Other STEM	Finance & Controlling
Optics & Remote Sensing	Information Technology	Legal & Compliance
Project or General Management - Core	Environmental Studies & Agriculture	Human Resources
Others (Space Studies, Space Tech & Business)	Data Science, AI, and Data Analytics	Communications & Media
	Robotics & Mechatronics	Social Science (incl. Psychology and Economics)
	Nano/Sustainable Technology	Arts & Humanities
		Teaching & Education
		Health & Medicine
		Architecture
		Project or General Management - Support
		Others (e.g. Future Studies)

Table 2: Survey Educational Backgrounds

Job Monitoring Exercise

The companies/websites included in the job monitoring exercise are shown in the table below, along with the countries they are present in. 33 organisations and one aggregator website were chosen to ensure regional distribution across all ESA member states. The companies were also chosen to ensure a good distribution of company type, i.e. their primary purpose, and size (LE, SME or Startup).

Organisation/Website	Country(/ies) of Collected Jobs
Airbus	UK, Germany, France, Italy, Netherlands, Spain, Romania, Portugal
Thales Alenia Space	France, Italy, Belgium, UK, Luxembourg, Switzerland
PLD Space	Spain
Enpulsion	Austria
ICEYE	Finland, UK, Germany, Poland, Spain, Greece
SES	Luxembourg, Romania, Belgium, Germany, Netherlands
Eutelsat	France, UK, Italy
Mbryonics	Ireland
Beyond Gravity	Switzerland, Austria, Sweden, Germany, Finland, Portugal
D-Orbit	Italy, UK, Portugal
QuadSAT	Denmark

Endurosat	Bulgaria
Golbriak Space	Estonia
Admatis	Hungary
SSC Space	Sweden, Germany, Switzerland, Italy, Netherlands
Solstorm	Norway
SwissTo12	Switzerland
TRL Space	Czechia
Spacemanic	Czechia
Nanoavionics	Lithuania, UK
Sinergise	Slovenia
Eventech	Latvia
OHB	Germany, Luxembourg
Aerospacelab	Belgium
Open Cosmos	Spain, UK, Portugal, Greece
All.Space	UK
Blackshark.ai	Austria
Exolaunch	Germany
Isar Aerospace	Germany
Latitude	France
Telespazio	Italy
Serco	Czechia, France, Germany, Italy, Netherlands, Spain, Switzerland, UK
Space Individuals	Belgium, Netherlands, Germany, Czechia, Greece, UK, Denmark, Austria, France
ESA	Netherlands, UK, Italy, Spain, Belgium, Germany, France

Table 3: Organisations and websites of the job posting collection, and the countries of their available jobs

Specific details were collected for all jobs (where available), outlined in Table 4 below:

Job Details Collected	Description
Job Field	**The field(/s) identified in the job description.** Refer to the section below for further details.
Job Category	**Full time, Part time or Maternity Leave** Assumed to be full time if unspecified
Country and Region/City of Employment	If multiple job locations were mentioned in the job description, it was assumed that it was one job (unless mentioned otherwise), with the possibility for the candidate to choose their preferred working location.
Languages Required	**Languages required to be successful in the position.** If a job posting was written in a specific language, proficiency in that language was assumed to be a requirement.

	Languages listed as a “nice to have” or “preferred” were not included
Mode of Working	**Onsite, Hybrid, Fully Remote.** Assumed to be onsite if unspecified. Note that only the job description was checked, not the overall flexible working policies of the companies
Salary Range	**Collected if available within the job posting.** All salaries were standardised by converting them to Euros.
Level of Qualification Required	• Secondary school education • Associate degree (note that this was deemed to be a qualification between secondary school education and bachelor’s) • Bachelor’s • Master’s • PhD This was the lowest level of qualification required in the job description, e.g. if the job asked for either a master’s or a PhD, master’s was chosen.
Level of Experience Required (If Applicable)	Seniority levels were determined by job titles such as "Junior" or "Senior," by explicit references to years of experience, or by the best judgement of the team. Jobs where the experience level required was unclear were marked as "unknown." Jobs could also have multiple experience levels assigned, if for example, they were open to different levels of experience.
Prior Space Experience Required	**Yes, Preferable, Unknown**.

Table 4: Job Details Collected

To further ensure the consistency of the dataset, the research team agreed upon guidelines to address potential inconsistencies in vacancies posted. Each job posting was assigned a unique identifier in the form of reference number found on the website or in the format YYYYMMDD-# (e.g., 240916-1), where the date represented the day of collection, followed by a unique identifier for each job collected on that day. To mitigate the risk of adding reposts of posted jobs, the reference number and job link were cross-referenced. If both were identical, the job was treated as a repost. In the case of companies not only operating the space sector, but e.g. companies also operating in the aerospace sector with a section of their work involved in aeronautics, care was taken in the data collection process to filter by the departments most actively involved in

the space sector. All jobs then collected were deemed to be related to the space sector, unless explicitly stated otherwise in the job title or job description.

Job Fields

The job fields used are those identified in Table 5 below. These were inspired by the fields used in the UK Space Sector Skills Survey 2023.[5]

Collected jobs were not limited to one job field, but could be assigned as many job fields as applicable. For instance, a job posting for an electrical engineer working on launch systems would be assigned the fields "Electrical Engineering" and "Space Operations". Additionally, although often a job field is directly related to the qualification type needed, e.g. to be an electrical engineer you most likely require a degree in electrical engineering, this is not strictly the case, e.g. the job may be classed as involving thermal engineering, but only requires a degree in physics. Additionally, many jobs do not directly specify the type of specific educational background required. For example, "Optics & Remote Sensing" jobs may require a background in physics and science or a type of engineering but if not specified in the posting they would not be added as job fields - only "Optics & Remote Sensing" would be selected.

Core Space Fields	Support Fields
Aerospace and Mechanical Engineering (& Design) – Including Propulsion and Thermal Engineering	Public Affairs
Systems Engineering (& Design)	Business Development & Market Analysis
Electrical Engineering (& Design)	Procurement & Supply Chain Management
Telecommunications Engineering	Finance & Controlling
Optics & Remote Sensing	Corporate Communications
Quality Control, Manufacturing, Assembly, Integration, & Test	Legal & Compliance
Space Physics & Science	Human Resources
Space Operations	Information Technology
Software Engineering & Data Processing	Data Science, Modelling, & Data Analytics
Project & General Management - Core	Project & General Management - Support

Table 5: Job Fields of Collected Postings

Assigned job fields were selected based on the best judgement of the team, and on a number of set criteria:

1. "Quality" in this case refers to quality control or assurance, with these roles also assigned "Legal & Compliance" (for the compliance component). In this case, the "Quality Control, Manufacturing, Assembly, Integration & Test" field is often transversal to "Support Fields". Customer service roles are not included here.
2. Any roles related to test and quality were always also assigned to the "Quality Control, Manufacturing, Assembly, Integration & Test" field. For example, a "Test Engineer" would be assigned to "Quality Control, Manufacturing, Assembly, Integration & Test" and "Aerospace & Mechanical Engineering", unless specifically stated that they were testing

something specific such as software. Then this role would be assigned "Quality Control, Manufacturing, Assembly, Integration & Test" and "Software Engineering & Data Processing".

3. If the job position was for a general project management position and the main activities were not clear, it was assumed that this was to manage core space activities.
4. Although not added into the table above, an Executive Management field was also used to define upper management roles such as CEO, CFO, etc. or the Heads/Directors of Departments, whose job descriptions are hard to define as they can span many different fields. **"Lead" roles, "Manager" roles or "Heads of Divisions or Sections" were assigned to one of the Project & General Management roles**, along with a second job field specific to that role, e.g. a job advertising for a Lead Systems Engineer would be assigned Project & General Management – Core, and Systems Engineering.
5. The "Public Affairs" field is deemed to refer to jobs related to an organisation's external business practises, including in forming or nurturing business or governmental relationships or contracts. This differs from "Corporate Communications" which is focussed on the external or internal media processes of the company.
6. The "Information Technology" field includes cybersecurity.
7. The "Software Engineering & Data Processing" field includes UX and UI roles
8. The "Space Operations" field includes Ground Support roles
9. The "Physics and Science" field includes quantum, and radiation engineering
10. The "Business Development & Market Analysis" field also includes sales.
11. Any jobs related to electrical propulsion were assigned both the "Aerospace & Mechanical Engineering" and "Electrical Engineering" fields.
12. Any jobs related to sales engineering were assigned both the "Aerospace & Mechanical Engineering" and "Business Development & Market Analysis" fields.
13. Any jobs related to Guidance, Navigation and Control (GNC) and the Attitude and Orbit Control Subsystem (AOCS) were deemed "Aerospace & Mechanical Engineering" roles.

Industry Interviews

Eleven interviews were conducted in total, covering three large enterprises, two medium-sized companies, two small businesses, and two start-ups, reflecting the diversity of actors within the space industry. One organisation was interviewed twice to gain deeper insights into specific areas of their operations, with one space agency also included to provide a contrasting viewpoint. Whilst the total number of interviews did not capture the industry's sentiments as a whole, those completed allowed the research team to gain an insight into some perspectives across varied organisation types. Notable viewpoints and similar sentiments observed are included in this report.

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