



NEWSLETTER #2

July 2024



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Dear Reader,

Welcome to ASTRAIOS's newsletter 2!

We kicked off the second year of ASTRAIOS at our first project review meeting in Brussels and received very positive feedback from the external expert reviewer. Most of our deliverables from the first year are now available online, and I highly encourage everyone interested in the European space sector skills acquisition and skills needs analyses to visit our [website](#).

I would like to especially highlight our database of current educational offer of space curricula in the EU and the UK, available to the public [here](#). The database allows users to search for degree programmes by country, primary language, and list of courses covering Bachelor, Master and Postgraduate levels, as well as continuing education courses. The database is being updated regularly, and the ability for users to submit degree programmes from their universities is being developed.

The first results of our analysis of the future trends and challenges of the European space sector and the future skills needs of the industry sector are also available on our website. This work is still ongoing as we approach the halfway point of the project. The second half will see the development of concrete training and outreach materials, we well as online courses for Copernicus and Galileo users in the pipeline.

The project is gathering more visibility this year, with consortium partners presenting the new results at various European space events such as the International Geoscience and Remote Sensing Symposium (IGARSS), Industry Space Days at ESTEC, COSPAR 45th Scientific Assembly, the IAC in Milan, and Space Tech Europe in Bremen.

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🕒 01.01.2023 🕒 36 months

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This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101082636



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Our Latest Progress

Status-Quo Analysis

The rapid evolution of the space sector, marked by the constant emergence of new businesses, models, and technologies, creates a complex landscape for education and training. We have designed a knowledge taxonomy, EU-TaSK, designed to make sense of the space education landscape as identified by Deliverable 1.1. EU-TaSK provides a common vocabulary and structure that makes it easier to collect, analyse, and share space education information and data, and to harmonize and compare data from different institutions and sources. It covers the upstream, midstream, downstream, and supporting areas. EU-TaSK is built on the knowledge domains and knowledge areas identified in the analysis of 140 space-related degrees across Europe, and aligned with SpaceCRAFT, EO Taxonomy, and PwC space value chain. EU-TaSK is also mapped to ESCO, and we identify that space systems engineering and other space-related engineering knowledge areas are currently missing from ESCO.

To date, much of the data on the space workforce has been collected from surveys of companies and individuals. We take a new approach to data collection, providing an overview of the European space workforce using data collected from LinkedIn's Talent Insights tool. Our report uncovers trends within this data, including the geography, educational background, skills, and flow of talent. The data presented here builds on Deliverables 1.1 and 1.2 and will be used in future work packages of the ASTRAIOS project, and can be used by the wider sector to identify emerging skills challenges, characterise the typical space career pathway, and shape curricula.



Our Latest Progress

EU-TaSK and the findings from LinkedIn Talent Insights will be used in further work packages to characterise the education and training pathways that the EU27+UK workforces have taken.

European Taxonomy of Space Knowledge (EU-TaSK)

v1.1 April 2024





Our Latest Progress

Based on the comprehensive analysis of the report on the European space workforce and the EU Space Sector Demographics Database, we are pleased to share interesting factsheets that we have put together about the EU and UK and on the specific EU27 countries and the UK.

These factsheets provide an overview of the current status on space skills and workforce in 2023, in addition to key workforce trends including workforce growth, the largest employers, skills and education, and gender diversity.

EU and UK Fact Sheet

on Space Skills & Workforce in 2023



171,852

people in the space workforce

3.3%

growth in the space workforce in the last 12 months

17%

employees changed jobs in the last 12 months

Very high

demand for space talent

top places for space talent

- United Kingdom
- France
- Germany

top space functions

- Engineering
- Information Technology
- Operations

top universities

- Universidad Politécnica de Madrid
- Sapienza Università di Roma
- Delft University of Technology

top companies for space talent

- Airbus Defence & Space / Airbus
- Thales Alenia Space / Thales
- Leonardo

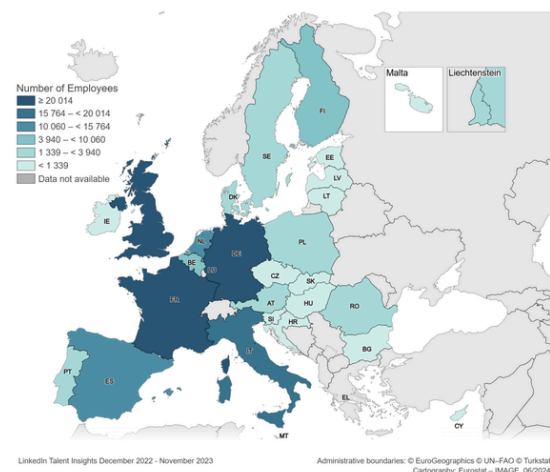
top skills

- Engineering
- MATLAB
- Telecommunications

top degrees

- Electrical & Electronics Engineering
- Physics
- Mechanical Engineering

Employees in the EU and UK space sector by country



College **1%**
Bachelor **22%**
Master **55%**
PhD **13%**

male **73%** female **27%**



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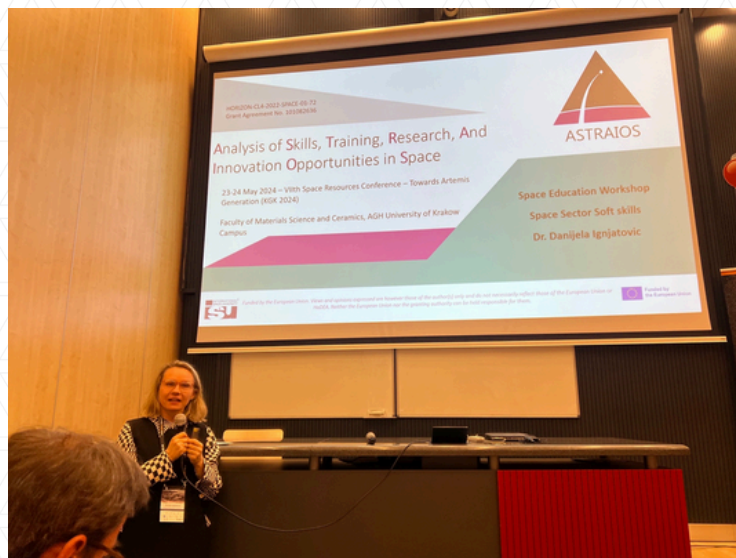




Our Latest Progress

Trends and Challenges

Tasks on oft skills and Equality, Diversity, and Inclusion (EDI) are progressing smoothly! Some of the main actions completed throughout the last six months include the soft skills workshop during the conference at AGH University in Krakow, Poland on the 23rd May 2024, with a survey on soft skills and student mobility.



This interactive workshop was moderated by ISU consortium members and provided the results of soft skills analysis in the space sector and spotted gaps in space education curricula. Participants were guided through the survey dedicated to soft skills and students' mobility. Preliminary results taken from this workshop exchanges between participants, survey results, and moderators explicitly underline that soft skills are missing in the most of their educational paths. This exercise showed interest and motivation of the participants to support the initiative of implementing soft skills as part of educational training in the early stage of university studies. Main and joint conclusion from participants is that soft skills have equal importance as hard/technical skills, and we cannot ignore them through educational programmes also during the professional working career. The follow-up plan is to reorganize similar workshop at any accessible conference/symposium/space events.



Our Latest Progress

Moreover, our dedicated task that addresses EDI commenced, and specifically a connection with the SGAC-EDI group was established for further collaboration on the gathered data and experiences. Additionally, an ASTRAIOS participation in the WIA Symposium dedicated to the EDI experiences that took place in May 2024.

Preliminary actions on the accommodation of the Boot Camp at ISU are ongoing and details will be announced soon on the ASTRAIOS official website and social media accounts.

The ASTRAIOS project is also running a survey that aims to assess the current state and forecast future trends of the EU-27 space industry's workforce. By gathering detailed data on workforce demographics, skills, and mobility, the survey seeks to align education with industry needs, identify skill gaps, and enhance strategic workforce planning across the European space sector. If you come from the space industry workforce, you may take this [quick survey](#) and help us analyse the current and future trends.



Simultaneously, the implementation of our task on the Environmental, Social and Governance (ESG) best practices in the space sector is evolving as planned with the completed organisation of the 2nd P2P Online Learning Workshop on 25 April 2024 with the presence of 18 participants and 9 companies.



Our Latest Progress

This time, the workshop targeted more mature companies experienced in ESG practices as the first workshop brought a higher number of companies with less experience in ESG. The promotion of the workshop resulted in a higher number of participating companies and stronger engagement during the event. The high level of engagement brought relevant discussions around new trends that participants are foreseeing or anticipating based on their experience, in addition to identifying challenges, opportunities and the current and future impact of the diverse actions implemented. The team is collecting the first main conclusions obtained during the event, as well as the follow-up with selected participants across the year.



The results of the first (2023), second (2024) and third Workshop (to be organised in 2025) will be collected and analysed in order to bring the main conclusions of the ESG 'modus operandi' and capture the findings in a book in the form of storylines on how industrial needs and ESG practices within the entire value chain of the EU space sector can be rendered to foster innovation, sustainability and increase EU competitiveness in the Space curricula. In addition, the team will drive P2P customised interviews with selected participants as well as participants that cancel their participation last minute.

The next and last Workshop will be organised in 2025.



Our Latest Progress

Gap Analysis and Recommendations

The consortium is examining the perceived and experienced gaps in skills between the workforce, the work (employing) sector, and the education and training providers, and examines research trends and R&D roadmaps to predict future skills demands, looking for changes in required and desired skills across the sector.

ASTRAIOS partner, Space Skills Alliance (SSA), has extracted and is working on the analysis of much of the data that underpins this task, including creating EU-TaSK, extracting trends from CVs and job adverts (ongoing), and data from LinkedIn Talent Insights such as workforce migration and educational background. SSA has also extracted and summarised data from previous skills surveys and industry surveys, such as the Space Sector Skills Survey, EARSC Industry Survey, and Eurospace Facts & Figures. These will be useful for comparison to other findings in the gap analysis and the formation of recommendations.

Based on the analysis performed in previous tasks, this task will prepare a mapping of the geographical distribution of the offered curricula around the 27 EU countries. The activity aims to identify whether specific countries (or regions) are under or non-represented in the European space education regime. SSA has used LinkedIn Talent Insights and CVs to identify the countries in which people studied for their qualifications, and where they have migrated to.

Several events were exploited to collect information and data related to student mobility, specifically polls were created during this year's Women in Aerospace Europe Symposium, EU Space Networks monthly teleconference, in addition to including questions related to this topic in the questionnaire distributed during the soft skills workshop organized at the VII Space Resources Conference – Towards Artemis Generation (KGK 2024) conference. Further, a list of needed data points was prepared by EASN-TIS and shared with involved partners, so as to accumulate the needed data for the respective analysis on student mobility and geographical gaps.



Our Latest Progress

Outreach and Development of New Educational Materials

In recent months, the ASTRAIOS project has focused on the establishment of a strong and appealing outreach visual identity and dedicated materials promoting space jobs and careers through bachelor's and master's courses.

To engage students and young professionals, ASTRAIOS developed visually appealing outreach materials, including a trifold leaflet, a poster, and a space career checklist. These materials introduce the space sector, highlight growth areas, and outline career paths. Additionally, EASN-TIS created an outreach section on the ASTRAIOS website, providing detailed and interactive information about space careers. This initiative aims to attract the next generation of space researchers and professionals.





Our Latest Progress

Outreach and Development of New Educational Materials

We will design new training courses/education material: webinars, courses, tutorials, and practical sessions that will be part of the MOOCs for EO-related applications and PNT.

In the effort towards preparing new educational materials, the ASTRAIOS project has identified key skills and gaps in the space sector through extensive research and surveys. While the quantity of different types of training and educational material depends on the gaps identified, the MOOC on EO-related applications and PNT will address at least three identified gaps. The initial list of proposed MOOCs include:

1. Digging into PNT Essentials
2. GNSS Applications Portfolio
3. PNT Data Analytics

Moreover, a framework was developed for educational materials to address these gaps, including webinars, online tutorials, and MOOCs. The framework outlines course objectives, module designs, and assessment strategies.

These initiatives aim to equip learners with the necessary skills for the evolving space industry.



News and Events



ASTRAIOS was highlighted in two news articles published in the EASN's periodic newsletters in 2024. You may find here the [January 2024](#) and [May 2024](#) articles.



The ASTRAIOS team participated in this year's Women in Aerospace Europe annual Symposium with consortium partners acting as speakers and session moderators in different sessions representing ASTRAIOS and collecting data related to student mobility and space career via live polls during the Symposium (13-17 May, 2024).



ASTRAIOS partners spread the news about the project at the opening ceremony of the VIIth Space Resources Conference which was held on 23 and 24 May 2024 at AGH University in Krakow, Poland.



The ASTRAIOS team gave a special presentation at the European Space Networks' monthly teleconference on May 14, 2024.



The project consortium has secured an accepted abstract at the IEEE International Geoscience and Remote Sensing Symposium which will take place 7-12 July in Athens, Greece with a poster presentation on the paper "Analysis of the Space related education programs and their courses at the Bachelor, MSc, PhD and Continuous Education levels".



The ASTRAIOS abstract "The Role of First Degrees in Encouraging Students to Enter the Space Sector" has been accepted for an interactive presentation at the 75th International Astronautical Congress which will take place 14-18 October in Milano, Italy.



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36 months



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