

Cyprus Space Strategy 2025-2030

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List of Abbreviations

AM	Associate Membership
CERES	Cyprus Space SectoR dEvelopment Study
COPUOS	Committee on the Peaceful Uses of Outer Space of UN
CUT	Cyprus University of Technology
DEC	Department of Electronic Communications
EC	European Commission
ECS	European Cooperating State
EGNOS	European Geostationary Navigation Overlay Service
EO	Earth Observation
ESA	European Space Agency
ESA BIC	European Space Agency Business Incubation Center
EU	European Union
EUSPA	European Union Agency for the Space Programme
EUTELSAT	European Telecommunications Satellite Organization
CoE	Center of Excellence
GNSS	Global Navigation Satellite System
GOVSATCOM	Governmental Satellite Communications
ITAR	International Traffic in Arms Regulations
ITTs	Invitations-To-Tender
MS	Member State
PECS	Plan for European Cooperating State
TRL	Technology Readiness Level

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EXECUTIVE SUMMARY



The Government, through its pursuit of an economic smart specialization strategy, is now focusing on the next phase of Cyprus's economic development, taking into consideration the need to be prepared for the jobs of the future which will deliver sustainable economic growth and employment.

Space Strategy for Cyprus 2025-2030 is an update of the Cyprus Space Strategy 2022-2027 Document, an operational document that was collectively developed by the Department of Electronic Communications of the Deputy Ministry of Research, Innovation and Digital Policy. Its aim is to structure and coordinate the Space policy

related matters in Cyprus, as well as to demonstrate the willingness of the stakeholders to work together for the strengthening of the national Space ecosystem.

Nowadays, the Space ecosystem plays a fundamental role in our everyday lives. Many of the services we use, particularly in relation to communication, observation, and navigation, rely on data derived from Space.

Recognizing its significance, governments across the globe have stepped up their efforts to further understand how Space research, technology and applications can improve the economy and the wellbeing of the society. Cyprus also perceives the dynamic prospects of Space and is committed to support the development of Space related capabilities and the growth of a thriving Space sector.

The vision of Cyprus is to become a Society of Information based on modern technologies, skills, and infrastructure, in the context of the national objective to be established as a regional digital hub. To achieve this ambitious goal, the State promotes ICT and Space technologies at all levels of the country's life.

The use of Space technologies, alongside with a structured strategy, is a high priority in the political agenda of Cyprus, as these technologies can play a key role in promoting research and innovation, an inclusive society, achieving smart and sustainable economy, as well as the wider development of excellence.

Cyprus' priorities in Space are focused on the sectors of satellite communications, earth observation application, climate and atmosphere research, Space engineering, Space navigation, and the enhancement of relations with International Organizations of which ESA is considered as a key enabler.

First of all, the Space Strategy of Cyprus 2025-2030 sets out to create a robust, sustainable, and vibrant Industrial Space Ecosystem able to tackle all the new challenges and position itself in the international Space map. As part of our Action Plan, among others goals, is the establishment of a Space Business Incubation and

Advice Centre (BIC), and the creation of a local Space Cluster (SC) (including the establishment of synergies with existing local initiatives). This is well addressed in section 8.2.3 of the strategy. In addition, Cyprus must leverage the investments coming from the EU, related to Earth Observation (EO) applications (Centres of Excellence (CoE)) and effectively commercialize the research performed and exploit the EO data produced.

Since Earth observation sector is an extremely important priority for Cyprus and having in mind that Cyprus has one of the best climate conditions for earth observation, we can secure funds and attract investments in this sector. Of course, it is very important that expertise gained from academia and Research is transferred to industry for the commercial development of related services.

Through this strategy a great focus is given on developing mature recurring products and services that can be commercially exploited since this is of outmost importance in social prosperity of the citizens. This also implies applying the relevant ECSS (European Cooperation for Space Standardization) standards and exploiting research performed by Academia. In addition to the above, this strategy sets to generate a 'home' market for EO applications both within the government (and its associated agencies) and in the agriculture sector, via policies at government level. Therefore, a start-up culture should be nurtured with support and encouragement from those Institutes and cooperation with already successful local start-up mechanisms should be established. To facilitate this, the Cypriot Government will act in order to improve the legal environment to support spin-offs from universities, and foster start-ups. This is well addressed in section 8.3.2 of the strategy.

In addition, through targeting implementing actions the strategy will try to increase the number of industrial entities, active in Cyprus, in the areas of Telecommunications and Navigation applications.

Furthermore, the increase in international cooperation between Cypriot entities and entities in ESA member states and other EU countries is extremely important to help

build to Cyprus's aspirations in becoming a regional digital hub. This, also, will help to increase the chances of being included in EU funding bids as well as preparing for success in ESA optional programmes in the future. This is well addressed in section 8.2.4 of the strategy.

Another important pillar of this strategy is education and skill development. Cyprus' higher education institutions need to ensure the development of an adequate base of world class trained engineers to be able to support Cypriot Space industry. Therefore, a sufficient number of new suitably skilled and Space-educated Cypriot workers must be made available for employment in the Cypriot Space sector. This may be achieved by combining the above with a National Trainee scheme that will also include summer placements, stagers, and trainees from academia to local industry. This is well addressed in section 8.1 of the strategy.

In addition, Space technology awareness is of paramount importance and this strategy aims to boost awareness. All parties involved in Space must introduce activities that promote awareness to companies, scientific personnel, citizens, and government entities. This will be achieved through dedicated events, workshops and conferences and the information will be disseminated through all available communication channels.

Moreover, an assessment of the infrastructure available in Cyprus, needs and gaps, is considered especially important due to the island status of Cyprus along with the expenses barrier in accessing infrastructure (manufacturing and testing) in other countries. Such an assessment is performed within this strategy, in section 8.2.2.

To keep up pace with the upcoming technology advancements regarding Space sector it is more than critical to leverage the existing Cypriot infrastructures and develop new ones when this is necessary. To make it feasible, focused, and efficient, dedicated funding schemes are necessary, preferably supported by ESA. The European Space Agency (ESA), when guided by national needs, is undoubtedly able to support the

definition of the technology requirements and specifications, provide the know-how on the development procedures and recommend a realistic national roadmap without wasting time in useless efforts.

Furthermore, the strategy is set to establish an Optical Gateway to take into advantage the developments in Space Based Secured Connectivity programme which will be based on GOVSATCOM (Governmental Satellite Communications) systems and EuroQCI (European Quantum Communications Infrastructure) networks. Given that, the only option for Cyprus to connect to the rest of the European network is through a terrestrial optical satellite station (Optical Gateway), who's creation is a top priority. Through this, Cyprus will strengthen its strategic goal to become a regional digital hub.

In addition, Cyprus is a country that hosts companies exhibiting portfolios with satellite communications services already therein. This is rather significant for the country itself and the Eastern Europe, and is considered as a big advantage to further boost the telecommunications network infrastructure at the region. However, to keep up pace with the upcoming technology advancements it is more than critical to leverage the existing Cypriot infrastructure and develop new one when this is necessary. Through this Cyprus' goal to become a regional digital hub and to be in line with EU goal to become a world-class data hub where data is stored, shared, and processed in a secure way, will be materialized.

Furthermore, part of the vision set out by this strategy is for Cyprus to become an attractive destination for Astronomers and therefore, the development of appropriate infrastructure is targeted.

Also, a goal is to educate and create a cross disciplinary experience in a cross generational audience with emphasis on education of primary and secondary school students as well as young graduates. It is important to note that we will strongly support the participation in relevant International Organizations.

Finally, a major goal of this strategy, is for Cyprus to become an ESA Associate member. The Deputy Ministry of Research, Innovation and Digital Policy of Cyprus

considers Cyprus' accession to ESA as an urgent and paramount need from a broad strategic perspective. Accession of Cyprus in ESA Membership will provide for a balanced growth and ensure the competitiveness of the Cypriot Space ecosystem.

Specifically, Cyprus continued interest in commencing, at the earliest possible opportunity, the formal process toward becoming an Associate Member of ESA, and in aligning with the process with Cyprus' Presidency of the Council of the European Union in the first half of 2026 has been communicated to ESA. To this end, a formal request for Cyprus to become an ESA Associate Member was submitted to ESA in February 2025.

Furthermore, Cyprus reaffirms that the annual contribution is expected to increase further over time and reach the abovementioned target for AM future Accession. Cyprus has increased its annual contribution to 3.2 million euros for 2025. Taking into consideration ESA's recommendations included in Cyprus' Midterm Review, concluded in June 2024, Cyprus has formulated a Medium-Term Action Plan for Space Development, and secured a subscription amount of 4.5 million euros for each of the consecutive years 2026, 2027 and 2028 in the preparation for its eventual Associate Membership.

Of course, Cyprus is fully aware that the greater the subscription to ESA, the greater the participation of the local Space ecosystem in ESA's optional programmes. Therefore, at the 2028 ESA Ministerial Council, the increase of this subscription will be considered, based on the actual performance of the Cypriot Space ecosystem to absorb funds from the ESA optional programmes to which Cyprus is subscribed.

To achieve the above, the Cypriot government has acknowledged the importance of Space Technologies in the everyday lives of its citizens as a top priority and has secured relevant governance, personnel, and funds in order to materialize the goals set out on this strategy. To this end, the Department of Electronic Communications has been formally established as the Cyprus Space Office, according to a Decision of the Council

of Ministers. The Space Office will act as the national delegation to ESA and the main interface to the EU for Space-related matters. In addition, the creation of a Space Policy Advisory Group (SPAG) is foreseen to improve Cyprus Space Governance and achieve the strategy goals. This is well addressed in section 5.4.1 of the strategy. The relevant Action Plan is presented in Annex III, and showcases how all the targets set in this strategy will be achieved. Furthermore, the use of public-private partnerships (PPP), wherever possible, would greatly facilitate the implementation of these strategy. Finally, the importance of Space technologies is included and highlighted also in the updated Smart Specialization Strategy of Cyprus, thus synergies with this strategy can be developed.

1 INTRODUCTION

The Space sector is undergoing a rapid transformation due to an increasing demand for Space-based services alongside the emergence of New Space. The sector is evolving and growing in strategic importance, exemplified by increased private sector investments and interactions. Space is no longer a prerogative of a handful of countries.

In addition, the Space sector is creating and exploring new markets in Europe and worldwide, derived from new technology developments and market approaches centred on cost reduction, and higher flexibility and agility, while safeguarding the continuity of observations and the quality and security of ground technologies and Space systems. These dynamics are fostered by spin-in innovation, greater cross-fertilization of non-Space sectors to Space technologies and applications, and the emergence of new applications and services profiting from the rapid development of digital technologies and data processing systems integration from the open data of Copernicus, among other components.

Space is a critical sector, enabling public policies and European engagement worldwide and creating new business opportunities that support economic growth, quality of life and sustainable development. The capacity to use and access Space is indispensable for Europe in tackling global challenges, such as technology revolutions, shifts in geopolitical power or humanitarian crises, safety and security or Space originated threats such as asteroid impacts. The use of Space for future generations needs to be promoted and preserved, taking into consideration that no single European country or organization can face the current challenges or fully grasp all emerging opportunities alone.

Furthermore, there is a great importance of Space as an enabler for social and economic benefits, for expanding the frontiers of knowledge, particularly in science, technology and applications, and for supporting decision and policy makers in developing, implementing and monitoring a number of sectoral policies, inter alia

energy, public health, environment, climate change, the 2030 Agenda and its Sustainable Development Goals and targets, industry, transport, maritime, agriculture, cultural heritage, rural development, forestry and fishery, digitalization, security and defence.

Cyprus wants to be part of the Space development and to benefit from the Space systems that are today essential for the wellbeing and security of the European citizens. We believe, the Space sector together with the ICT sector, can be a driver for growth and regional cooperation.

The strategy takes into account:

- The new EU Space Regulation, EU Space Strategy, and EU Council Conclusions in particular those titled "Orientations on the European contribution in establishing key principles for the global Space economy", “Space for a sustainable Europe”, Space as an enabler”, “New Space for People”, “Space for People in European coastal areas” , “Space for Everyone”, “Fair and sustainable use of Space”, “Strengthening Europe’s competitiveness through Space”, “reinforcing European competencies in the Space sector”, ”on the interim evaluation of the European Union’s Space Programme” and “the use of Earth Observation data from constellations for civil protection and crisis management”,
- EU Secure Connectivity Programme called IRIS^2 (Infrastructure for Resilience, Interconnectivity and Security by Satellite),
- The ESA principles, initiatives, and programmes,
- The United Nations Committee on Peaceful Uses of Outer Space guidelines for the Long-term Sustainability of Outer Space Activities, especially those related to the promotion and facilitation of international cooperation, the sharing of experience related to the long-term sustainability of outer Space activities, the promotion and support of capacity-building and to raise awareness of Space activities,

- Parts from the PECS study titled, “Cyprus Space sectoR dEvelopment Study (CERES)”. The study was used as a “Takeaway” of ideas and was not adopted as a complete document,
- The ESA ‘’End of Period Report’’ recommendations, regarding the first ECS/PECS Agreement (2017-2022), the ESA “Mid Term Report” recommendations, regarding the second ECS/PECS Agreement (2022-2027) and the Final Country Report recommendations, regarding the second ECS/PECS Agreement (2022-2027),
- The national particularities, needs, and priorities.

2 CYPRUS VISION AND OBJECTIVES IN SPACE

2.1 Vision

Cyprus is positioned geographically at a strategic location in the Eastern Mediterranean at the crossroads of Europe, Asia, and Africa. Our vision is Cyprus to become a Society of Information based on modern Space technologies, skills, and infrastructure, in the context of the national objective to be established as a regional digital hub in the area of Easter Mediterranean.

2.2 Objectives

Cyprus[1] has the objective to diversify from traditional sectors of its economy (tourism, agriculture, and shipping) and to open up to new areas. Space technologies, data and services have the potential to help achieve this strategic objective of diversification and to harness the resources of the country to create added value and inspire innovation while at the same time helping to improve the efficiency and the products of traditional Cypriot industries. Bearing these goals in mind, the Government of the Republic of Cyprus has verified its political will and commitment for the development of the Space technology sector in Cyprus.

The Space sector, together with the ICT sector, is further considered by the Cypriot government to also be a key driver of regional cooperation that can promote collaboration with neighbouring countries in both governmental and civil areas.

Cyprus has a strategic geographical location between 3 continents (Europe, Asia, and Africa) which gives the potential to become a regional digital hub in the Eastern Mediterranean. Cypriot cooperation with and integration into international organizations, such as ESA, is considered by the government to be the cornerstone to the achievement of this vision. Specifically, for Space applications, Cyprus has a

[1] Cyprus PECS end of period report

climatic condition highly conducive to both earth observation and ground to Space communication. Together with the strategic location, the national infrastructure and expertise, it is envisaged to leverage these aspects to develop innovative Space technology services.

Cyprus underlines that the most important outcome of the ECS Agreement is the formation of a 'Space culture' nationally and the preparation of Cyprus in the most efficient manner for future closer cooperation with ESA, i.e., Associate Membership.

The main results expected by Cyprus from this strategy achievements on Space technologies are in the promotion of innovation and research, improvement of the education of young engineers and scientists and the creation of new jobs as well as creating the critical mass needed for Cypriot universities and industry to be more competitive and secure more EU funds in Space applications. Key to achieving these, is ensuring the development of niche products and services, building strong links to entities in existing member states and improving the Cypriot visibility and reputation worldwide in the areas of Space Technology, Space Communication service, Earth Observation, Space education and Space science such that a sustainable Cyprus Space Cluster (with synergies with existing local initiatives) can emerge and long-term international cooperation is forged.

2.3 Smart Specialization Strategy and synergies with other National Strategies

The first Smart Specialization Strategy of Cyprus was developed in 2015. Since then, the economic and technological landscape in Cyprus significantly changed during the recovery from the financial crisis and the impact of the subsequent Covid pandemic. Also, new technological trends emerged, bringing new opportunities to light and therefore Space technologies are now included and highlighted in the updated Smart Specialization Strategy of Cyprus.

As mention and in the previous section, Cyprus will need to adapt its growth model and diversify the economy into new, more complex activities and technological areas related to existing technological and business capabilities. By moving towards more complex activities, Cyprus will upgrade its economy and bring higher economic benefits.

At the same time, the improvement of the population's health and environment status, act as enablers for the Cyprus Space Strategy as well as Smart Specialization Strategy success. Among many reasons, the environment and health are essential for societies due to their impact on the economy. Most of the economic activities in Cyprus, including tourism, construction, energy, agriculture, transport, etc., are directly linked to the environment and natural resources. Similarly, the productivity and creativity of human resources are related to their state of health. Thus, investments in R&I for reducing air, water, and soil pollution, preventing diseases, or finding new cures save costs for healthcare, lost workdays, damages to the food chain, and deterioration of buildings.

The use of Space technologies is a high priority in the political agenda of the Republic of Cyprus, since these technologies can play a fundamental role in promoting research and innovation, an inclusive society, achieving smart and sustainable economy, as well as the wider development of excellence.

With the development of the National Space Strategy, Cyprus has set as its primary goal the sustainable development and promotion of the Space sector. However, in order to achieve this ambitious goal, the appropriate financing mechanisms must be found and all the necessary steps must be taken for Cyprus to move forward and exploiting its capabilities towards the further strengthening of its Space ecosystem.

Therefore, considering the above it is clear that with the inclusion of Space technologies in Smart Specialization Strategy many other synergies with Cyprus Space strategy can be developed. Also, other synergies can be developed with other national

strategies and actions such as the Digital Strategy, the National Strategy for Research and Innovation, the Blue Growth Strategy, and the Green Development Strategy.

3 GLOBAL SPACE TRENDS AND SPACE ECONOMY

3.1 The Space economy

Recent years[2] have seen a growing dynamic in the development of the Space sector, in Europe and globally. More than ever before, the sector is internationally connected and there are several increasing interdependencies, both in the global Space economy as well as in terms of operational activities in orbit and on the ground. Autonomous capabilities are highly recognized as important in view of the role of Space as an economic factor and a critical infrastructure. Additional players, public and private, are entering the scene and the volume of Space activities continues to rise.

Services and products of the Space economy are more and more part of an expanding international trade network. Global value chains are emerging and markets for technologies and services are growing based on an increasing trend toward commercialization. In the context of the “New Space” dynamic, there are new business models characterized by higher private-sector investment. The global Space economy is worth more than 447 billion US dollars per year with additional products and services that leverage satellites for developing non-Space business. Before the Covid-19 crisis, the economy was expected to grow to 1 trillion US dollars in 2040. Developing foreign markets for European Space products also serves as an important contribution for post-Covid-19 recovery of the European Space economy.

Europe has well advanced in consolidating its world-class European Space programmes in the European Union (newly established EU Space Programme) and in the European Space Agency (at the occasion of the Ministerial Council Space19+). It is now equally important to widen the perspective beyond the public Space programmes. As the global Space markets develop, turning Space into a viable market, business opportunities in upstream and downstream sectors become an increasingly

[2] Council conclusions on "Orientations on the European contribution in establishing key principles for the global Space economy" 11/2020

important factor for European industry. The growth of the market will become the driving factor for the growth of the sector.

Space[3] is not encapsulated as a category in international standards of industrial classification. Therefore, worldwide market sizing studies differ in definition, coverage and methodology. This makes it difficult to compare the results in global estimates.

The boundaries between Space and non-Space activities are often blurred, leading to different ways of assessing the overall Space economy. This is specifically critical when setting the boundary between the downstream Space industry and end-user economy: as the analysis moves down the value chain, the assessment of the direct causal relationship (called paternity) between the Space industry and the benefits brought to end-users become complex to isolate and accurately measured. Indeed, benefits derived from Space tend to only represent a tiny part of the value created for end-users.

3.2 Trends

3.2.1 Macro Trends in Space sector

3.2.1.1 Digital Technologies- Space 4.0

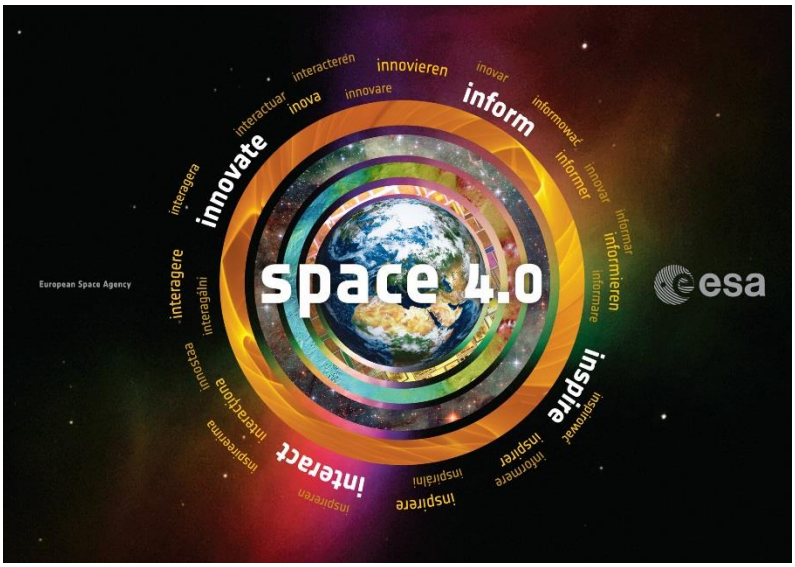
Space 4.0[3] is similar to the concept of Industry 4.0, highlighting the impact of the so-called "fourth industrial revolution" of manufacturing and services. Companies that are combining multiple digital technologies such as Cloud, Machine Learning, and Blockchain are developing a strong competitive advantage in the sector, impacting both upstream and downstream parts of the Space value-chain.

These technologies give rise to more scalable and innovative business models that are democratizing access to the Space sector. Users are seeking effortless access to

[3] PWC report on Main Trends & Challenges in the Space Sector-2ndEdition-December 2020

insightful outcomes from Space data and diversification of business models is allowing for a more customer-oriented approach.

Research indicates that the top 19% of companies in the aerospace and defence sector that have significant investments in digital technologies consequently achieve higher than average returns on these.



3.2.1.2 New Business Models

3.2.1.2.1 NewSpace

Space[4] is one of the central enablers of digital economy. Over the past few years, a new operating model, the “NewSpace” economic model, has emerged alongside the traditional, institutionally led, Space industry. The NewSpace economy refers to commercialization of the Space sector to businesses using small satellites to deploy systems which offer commercial services and utilize Space data and applications. Further, the NewSpace economy enables easier and cheaper access to Space than ever before. The traditional Space industry and the NewSpace economy complement one another and constitute a market-oriented continuum for work in the Space sector, which was formerly only publicly funded at national level. The shrinking of satellite

[4] Council Conclusions on "New Space for People" - 05/2021

sizes associated with NewSpace is creating opportunities for new market entrants. Spacecraft development has historically been dominated by Large System Integrators such as Airbus and Thales Alenia. Components for small satellites, however, are mostly produced by small enterprises founded in the last 10 years.



3.2.1.2.2 Ground Segment as a Service (GSaaS)

Ground segment[3] activities have significant investment prerequisites since Ground segment activities require expertise, infrastructure, and resources, both human and financial and it is difficult for satellite operators to invest in a wholly dedicated network. Furthermore, regulation aspects require time and effort for example:

- Licensing needed to build and operate a ground station
- Complex procedures to follow (i.e., lack of clarity/transparency), fees, etc.
- Can cause delays in satellite operators' business development

In addition, ground segment services were not adapted to New Space operators because they are costly and complex premium solutions from incumbents adapted for satellite operators with demanding requirements and New Space satellite operators have different needs (e.g., smaller satellites).



By mutualising ground infrastructure (e.g., ground stations, data storage), GSaaS enables different satellite operators access a single network of ground stations, together with benefits including:

•Flexibility: possibility to have on demand or reserved contacts

•Cost-effectiveness: pay as you use or subscribe on a monthly/yearly basis

•Simplicity: easy-to-use API and interfaces.

3.2.1.2.3 Institutional Trends

While always strongly tied to defense[3], Space witnesses its relevance growing as a component of defence programmes, with Space sovereignty key for an increasing number of nations.

Space assets play a key role in Security and Defense Activities

Space assets are an essential component of the infrastructure and backbone enabling Security and Defense Activities activities and operations. Prime examples include the use of satellites to allow secured communications, the collection of earth observation to perform intelligence activities, and the support from satellite navigation to conduct drones' operations.

The Space environment is targeted by increasing malicious threats

From an overall perspective, there are signs that the development of offensive Space assets designed to eavesdrop, jam or disrupt satellites capabilities is increasing. In response to these increasing threats, nations are developing capabilities to observe, prevent, and counteract these attacks. These countermeasures are materialized by increased Space observation capabilities and the development of more resilient Space systems (e.g., quantum communication).

Space militarization is used as a sovereignty demonstration tool

In 2007, China conducted an anti-satellite test using a kinetic kill vehicle on its own satellite Fengyun-1C. More recently, in 2020, India conducted a similar test targeting a LEO satellite. So far, only a few nations (USA, Russia, China, and India) have demonstrated the capability to potentially neutralize a foreign Spacecraft. Nevertheless, other nations are expected to acquire this capability to prevent such scenarios from occurring, and to establish ways to counterattack.

3.2.1.2.4 The European Green Deal initiative

The European Green Deal initiative is expected to stimulate the demand for advanced satellite-based applications in the EU Member States for the next decade.

The European Green Deal sets Europe's roadmap towards a pan-European climate resilient economy, driving incentives to turn climate and environmental challenges into policy and business opportunities. This new EU's "climate action plan" will be mobilizing EUR 1,000 billion for the EU economy over the next ten-year period.

The utilization of satellite data & information (e.g., satellite imagery, GNSS signal, meteorological data, etc.) fused with in-situ data and other sources of data offers a unique capability to monitor the state and change of the environment on a global scale, allowing the creation of a digital library of Earth's evolution. Such continuous

monitoring of planet Earth is allowing to observe and forecast the impacts of human activities on soil, air, and water quality.

Also, if the European Climate Law goes forward, it will be transforming EU's Member States political commitment into a legal obligation. Advanced satellite-based products & services, more specifically for EO-based applications, would then become highly critical as support-evidence, opening a major field of activities for certification and standardization. Therefore, Governments and organizations can ensure compliance to environmental regulations.

Finally, the Space sector is opting for green propellants for cleaner launch, Space debris removal and regulation, in-orbit servicing missions to extend satellite lifetime, and implementing more sustainable models in system engineering and Space system design. Consequently, this offers the Space industry an opportunity to re-evaluate its practices to become a more sustainable industry, both on Earth and in Space.

Satellite data can play a critical role in the achievement of the goals of the EU Green Deal. A significant part of the budget of the Green Deal investment plans is expected to support the Space industry, especially related to the development of advanced satellite-based products and services.



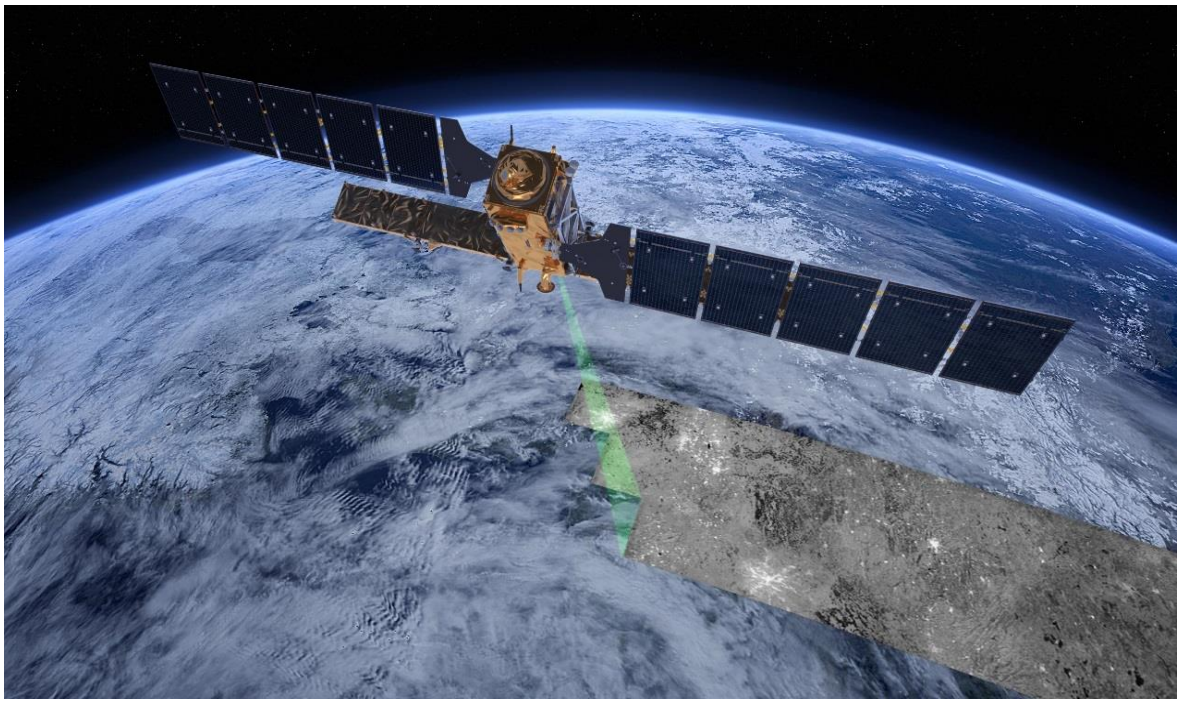
3.2.2 Earth Observation

The Earth Observation market is rapidly growing with rise in both supply of imagery through NewSpace constellations as well as in demand.

The market has been growing over the last year thanks to a global increasing interest from institutional and commercial players in buying EO satellites and a democratization of the use of satellite data leading to an increase in demand from end-users.

Moreover, the rising number of new entrants with vertical integrated business model on the commercial EO market aiming at building EO small satellite constellation and the strong pressure on EO data price and push for diversification is leading to a strong increase in competition.

Finally, the access to low cloud-storage & computing and an increasing volume of satellite imagery at low cost is allowing the emergence of a new type of EO market based on Big Data analytics & services, unlocking new business cases for the next decade.



3.2.2.1 Earth Observation Trends

Recent trends are stimulating the demand for EO data while strongly impacting the price of such data, allowing a steady growth for EO-based products & services. Such trends are:

- **The Increasing availability of EO data** which in turn is leading to Vertical integration of traditional actors (e.g., Airbus, Maxar, etc.) aiming at building synergies between upstream and downstream activities. Also, the new entrants in the field are focusing on large-scale constellation of small satellites or focusing on the analytics side of the activities, attracting very large private investments.

- **The Democratization of the use of EO** which in turn is leading to new developments in cloud and computing power, new delivery models, based on API (i.e., APIfication), which are being developed by the entire market. Also, new delivery models are responding to client needs to facilitate access to data, data discovery and to offer access capacity to very large volumes of data at low cost (i.e., for EO BDA companies). Finally, new models enable the switch to subscription and volume-based business models

- **The Advancements in data fusion capabilities** which in turn is leading to the strong and rapid progress in capabilities to fuse large volume of heterogeneous data sources (i.e., data with different format), including satellite data with other sources of data (e.g., mobile data, social media data, images, video, text, statistics, financial data, etc.) and also to the explosion of large Big Data Analytics (BDA) market, on which EO data offer an interesting additional source of data.

- **The New emerging analytics markets** which in turn is leading to low-cost imagery, cloud storage and cloud computing that stimulate the emergence of

a fast-growing EO Big Data Analytics (BDA) market and attracting large private capital.

The growth of such a market will stimulate demand in EO data, driving prices down, notably for long archives of EO data to perform change detection over time for very specific region, especially for Medium Resolution (MR) and High Resolution (H) and continuous monitoring of very specific AOIs.

- **The changing market dynamics** which in turn is leading to large volumes of EO data freely available from open-source programmes such as Copernicus or Landsat. Additionally, we have development of large scale EO small satellite constellations and growing interest from governments to build their own EO capacities. Finally, Ground Segment as a Service (GSaaS) offers turnkey solutions to EO satellite operators that wish to avoid investing in dedicated infrastructure, while benefiting from fast and secure data download and processing.

- **The new delivery models** which in turn are leading to access to low-cost cloud storage capabilities and powerful low-cost computing power through cloud services (AWS, Microsoft Azure, Google Cloud, etc.). Further, this new delivery models provide availability of open-source tools & analytics facilitating experimentation and utilization by non-technical users. Finally, they lead to important public investments, especially in Europe by the EU and ESA, to support dissemination of EO knowledge (e.g., online free trainings, universities classes, etc.).

- **The new distribution channels** which in turn are leading to the switch from direct distribution channel (i.e., selling EO data directly to end-users for expert communities/analysts and/or EO downstream actors) to vertical specialist Value-Added Services (VAS). In addition, these new channels cause rising interest from end-users to access diversified sources of data into one stop-shop digital marketplaces bringing together different datasets (EO and non-

EO), but also sometime VAS and computational capacity, under one subscription (e.g., SkyWatch, UP42, Arlula, etc.).

Finally, regarding EO the Copernicus Programme from the European Union provides various economic, social, environmental and strategic benefits.

3.2.3 Satellite communications

Satcoms are critical to a wide range of businesses, governmental and leisure activities. Compared to terrestrial infrastructures, Satcoms provide an unmatched level of availability, coverage, confidentiality and resilience.

The dot com billionaires have heavily invested in the satcom market, and are redefining the satcom architecture from GEO centric to LEO centric. There are 4-5 prominent NewSpace LEO operators (e.g. SpaceX, Oneweb, Amazon and Telesat, etc.) that are cumulatively expected to launch thousands of satellites in the coming years.

New markets such as M2M/IoT enabled by 5G, in-flight connectivity, connected cars, and maritime security, are expected to sustain and grow the Satcom market.

In general, USD 153 Bn is the estimated size of the global market for satcom services and around 900+ SpaceX and Oneweb satellites currently in orbit.

3.2.3.1 Satcom Trends (demand and supply)

Demand Trends

The demand for satcom enabled applications is on the rise especially for mobility markets and markets that shall be enabled by the advent of 5G.
Specifically, these demand trends are:

- **The new business models** focused on moving away from traditional GEO Large satellite constellation (10's of satellites) towards LEO small satellites constellation (100's of 1000's of satellites) and also moving towards a vertically integrated business model (example: OneWeb, Starlink, etc).

- **Safety, reliability and entertainment drive demand in mobility**. Safety and reliability are the key demand drivers for connectivity within the maritime (offshore and merchant vessels) and land mobility (firetrucks, ambulances and surveillance vehicles) markets. Moreover, the demand for aero connectivity in broad terms is generated for entertainment purposes in flight. For example, Inmarsat's 2018 survey suggests that about 67% of the passengers are likely to rebook with an airline if inflight Wi-Fi were available.

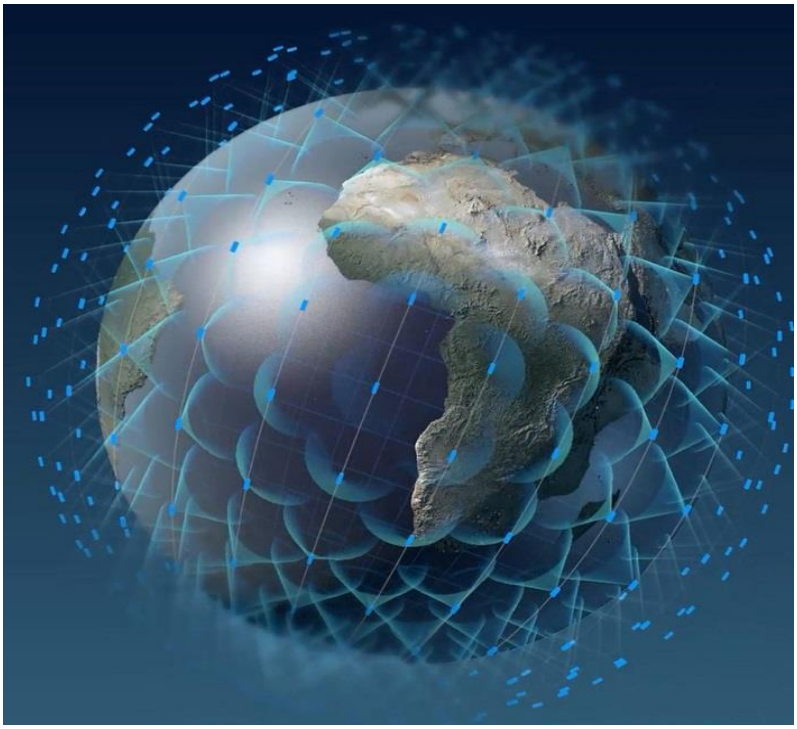
- **Low latency and high throughput applications.** End-users demand low latency and high throughput systems for internet connectivity, especially for 5G applications. Also, IoT/M2M are expected to be the demand pillars for the satcom market. Finally, the satellite IoT market is expected to reach healthy profits and achieve growing revenues in the coming five years with a market forecast reaching USD 5.9B in 2025.

Supply Trends

LEO mega constellations are expected to drive the momentum within this market in the upcoming years, by supplying approximately 85% of the capacity by 2024. Specifically, these supply trends are:

- **Mega-constellations** are expected to supply approximately 65 to 70 Tbps of capacity to the market between 2019 and 2024, with LEO mega-constellations accounting for 85% to 86% of this capacity. In particular, OneWeb and Starlink have cumulatively launched more than 800 satellites. These Mega-constellations projects have strong anchor customers, mainly institutional (USAF, FCC for Starlink, UK government for OneWeb, Canadian government for

Telesat) or linked to GAFA business (Amazon for Kuiper, Facebook with its own constellation project).



- **Increased GEO capacity.** GEO High Throughput Satellites (HTS) operators are expected to contribute an additional 10-12 Tbps of capacity, accounting for 13-16%of the total capacity supplied between 2019 and 2024. Also, in 2020, Intelsat and SES cumulatively ordered 13 C-band satellites as a part of US C-band repurposing for 5G.

- **Diversified distribution partnerships.** Operators are partnering with local distributors and gaining access to these niche regional markets. For example, OneWeb partners with Airtel in India, Viasat in USA, and Eutelsat and Avanti in Europe for its distribution network over these regions. Other mega constellation operators are expected to follow that trend.

3.2.3.2 Quantum Communications

Various quantum technologies initiatives in Europe are ongoing to form the European Quantum Communication Infrastructure.

What is EuroQCI?

The recent developments pertaining quantum computers threaten current cybersecurity systems and algorithms with obsolescence in the coming years. In terms of guaranteeing the security of current and future data exchanges, disruptive strategies are envisaged, among which is the use of quantum technologies.

In this context, the European Commission laid out its ambition for a European Quantum Communication Infrastructure (EuroQCI) acting as a secure communication shield across the EU. This network, based on a combination of a terrestrial infrastructure and Space infrastructure, should secure sensitive communications and digital transactions both at EU scale and globally. In the longer term, EuroQCI would be a step towards the quantum internet.



The role of Space in EuroQCI

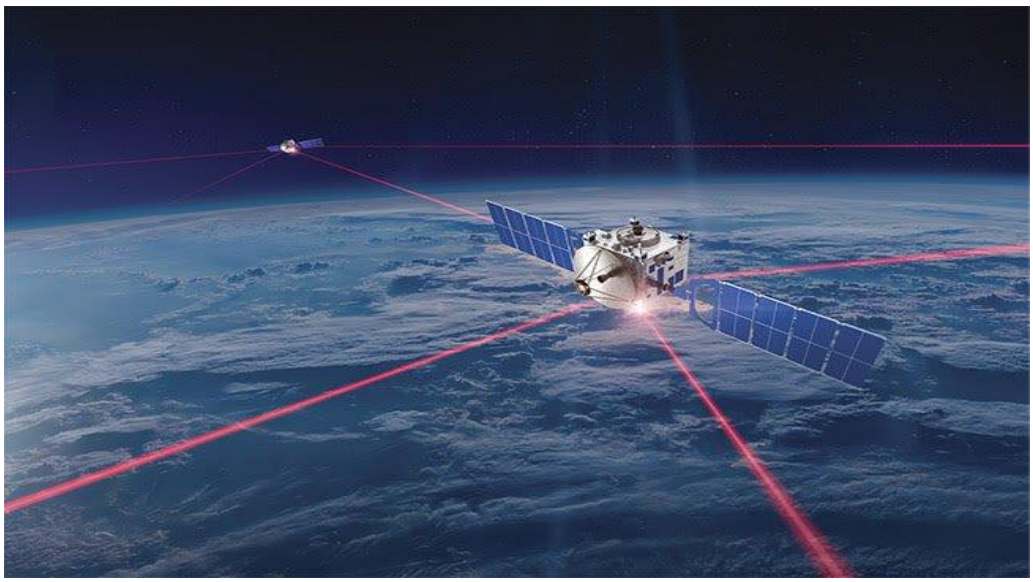
During their transportation through optic fiber links, quantum signals are attenuated with the distance, and require relays to be re-amplified every 100 to 200 km. Such relays, also called “trusted nodes,” represent security weaknesses in the network, and greatly affect the relevance of a QCI over large distances.

Satellite-based links enable a limitation of the number of nodes when communicating at large scale, increasing the level of security for communications across Europe, or at global scale.

Various quantum initiatives and projects exist within EU Member States, supporting the development of quantum technologies and testbeds, in particular around QKD. On top of the national initiatives, 27 EU Member States have also signed a declaration of cooperation to work jointly on the establishment of a EuroQCI.

3.2.3.3 Satellite Optical Communications

Optical satellite communication[5] already is complementing satellite communications based on radio frequencies (RF). Although high throughput is a very prominent advantage, also the advantage of low-power, low interference and high security for optical wavelengths, e.g., 1064 or 1550 nm is to be considered also. These advantages serve several business opportunities, such large-scale communication via satellites and quantum key distribution (QKD) channels. Since optical communications technology has been proven to be a technical viable solution, the road has been paved for broad applications.



[5] https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11180/111800K/Optical-satellite-communication-Space-terminal-technology-at-TNO/10.1117/12.2535939.full?SSO=1

This technology is able to establish intersatellite links, e.g., LEO-LEO and LEO-GEO, but also satellite to ground communication. The work that has been done to persistently perform optical communication links, brought the confidence that optical satellite communications could be used for other business cases. Other attractive business opportunities serve the communication between people, for instance to transfer confidential data, or encryption keys. The inherent security of optical links, due to the limited beam divergence provide the confidence in such business applications. To enable wide usage of optical satellite communication, e.g., to provide massive LEO constellations with optical terminals, work has still to be done, to provide commercially attractive laser communication terminals. Furthermore, there is also a clear trend towards smaller and smaller satellites for various earth observation and science tasks.



ESA ScyLight

Within the ARTES 4.0 programme[6], ESA implemented a dedicated element for optical communications, photonics and quantum communication, called ScyLight (SeCure and Laser communication Technology, pronounced "skylight"). ScyLight is one of the 3

[6] https://artes.esa.int/strategic-programme-line/optical-quantum communications#:~:text=Within%20the%20ARTES%204.0%20programme,%2C%20pronounced%20%22skylight%22).

Strategic Programme Lines that ESAs Member states have setup to put particular focus on areas like Optical Communications (ScyLight), 4S and Space for 5G.

The objectives of ARTES ScyLight are:

i. to address the development, demonstration, and utilization of innovative optical technologies for satellite communication as well as preparing for new market opportunities.

ii. to support industry to develop/extend its manufacturing capabilities and seize related market opportunities.

iii. In pursuit of these high-level objectives, ESA performs system studies, market analyses, initiates developments of technologies defined in the ScyLight Workplan and ESA maintains an “always open call” to provide support to activities initiated by industry on their own ideas and developments plans.

ScyLight is also the home for designing and demonstrating the elements of a “Fibre in the Sky” system – the world first High Throughput Optical Network, called HydRON, aiming for Terabit throughput interconnecting Space assets to seamlessly integrate them with terrestrial fibre networks.

3.2.4 Satellite navigation

Navigation satellites provide positioning and timing data to an ever-expanding user base. Today, global navigation systems furnish information about positions, routes, speed, and timing, and are used by an extremely wide range of users in every economic sector. Navigation signals are freely emitted by public entities, and their exploitation drives significant economic activity.

The development of multi-constellation receivers (compatible with multiple GNSS signals) is expected to result in greater uptake by end users and enhance performance in terms of accuracy and integrity. In addition, navigation signals will have to resist jamming and spoofing threats.

The expansion of GNSS constellations and augmentation systems and the associated increase of new signals are driving the receiver market to develop multi-frequency features for their devices.

There are six (6) GNSS constellations providing global signals. These are GPS, Glonass, Galileo, Beidou, Navic and QZSS satellites. It is estimated that the projected global navigation market revenues in 2029 will be EUR 324.4 Bn.



3.2.4.1 Navigation Trends

Interests in global and regional navigation systems remains in high priority for most faring and emerging Space nations, especially for augmentation systems. Some Infrastructure development initiatives are:

- **The Galileo renewal.** Specifically, in its proposal for 2021 –2027 spending programmes, the Commission acknowledged the importance of ensuring the operational and service provision continuity of the EGNSS programme through the deployment of Galileo second generation (G2G). The first batch of G2G is expected to be launched around 2024 in transition with the end-of-life phase of the first Galileo generation. ESA is examining a complement possibility to the Galileo system, dubbed GNSSEvo.

- **The development of regional augmentation systems.** Driven by the need to increase navigation data integrity and accuracy, several nations are developing their regional Satellite-Based Augmentation System (SBAS). Australia and New Zealand are jointly developing an SBAS, expected to allow the economies of both countries to generate USD 7.5 Bn across their industries. Also, the Agency for Air Navigation Safety in Africa and Madagascar (ASECNA) has recently validated the system architecture and geographic coverage of its SBAS, initially planned to begin in 2022.

- **The UK is exploring options for independent GNSS.** Following the implications of Brexit, the UK is examining different alternatives to replace its reliance on the Galileo system. Based on possibilities emanating from different orbits and technologies, the UK Space-Based Positioning Navigation and Timing Programme (SBPP) is exploring different satellite systems configurations. The UK is developing its strategy towards the adoption of the OneWeb constellation, recently acquired by the UK government with India's Bharti Global Ltd, as a complement to GPS.

Galileo is Europe's GNSS civil programme, providing a highly accurate, guaranteed, global positioning service. The aim of the Galileo programme is to provide the first global navigation satellite system under civil control, for the public and private use of European and global entities. The Galileo programme was created to answer Europe's strategic need of a reliable European satellite navigation signal, and to foster the development of economic and societal benefits.

4 THE EU SPACE PROGRAMMES

In the 1990s[7], the European Union became involved in the development of Space programmes. The initial reason for this initiative was to provide satellite-based radio navigational support to the Trans-European transport networks. In addition, there was a need for a global satellite-based Earth observation system to provide information on the environment, to understand and to mitigate the effects of climate change, and to ensure civil security.

Currently, the EU has three flagship Space programmes:

- **Galileo** is a civil global navigation satellite system (GNSS). Started in 1999, the programme aims at providing very precise navigation and time signals independent from other existing systems. Currently, there are 26 satellites in orbit. Since 2016, Galileo provides initial services: an open signal for high-volume satellite radio navigation applications such as motor vehicle navigation or mobile telephone services, a "public regulated service" (PRS) for governmental users in the area of security and defence, and a search and rescue service, which helps to faster locate and save people in emergency situations. More services are planned to be available in the next few years; a second generation of Galileo with new features is under active development, and the first satellites are currently expected to be launched in 2026 – 2027, marking a slight delay from earlier forecasts.

- **EGNOS,** the European Geostationary Navigation Overlay Service, provides, since 2009, navigation services to aviation, maritime, and land-based users by enhancing the accuracy of data from the American Global Positioning System (GPS). EGNOS consists of three geostationary satellites and 40 ground stations.

[7] European Court of Auditors' Special Report 07/2021 "EU Space programmes Galileo and Copernicus: services launched, but the uptake needs a further boost"

- **Copernicus** aims to provide accurate and reliable Earth observation information in the field of the environment, agriculture, climate, security, maritime surveillance, and other EU policies. It is the world's largest programme of its kind and is the EU's contribution to the Global Earth Observation System of Systems (GEOSS). Copernicus became operational with the launch of its first satellite in 2014. Currently, it has eight satellites ("Sentinels") in orbit, with additional Sentinels to be launched in the future.

The deployment and the operation of the EU satellite systems entails significant and long-term costs for the EU budget. From the start of the programmes until the end of 2020, total EU expenditure amounted to more than 18 billion euros. Galileo and EGNOS are fully financed from the EU budget. The Copernicus programme is financed approximately two thirds by the EU budget, with the European Space Agency (ESA) and other third parties contributing the remainder of its costs.

The operation of the satellite systems and the deployment of new satellites will also entail significant costs for the EU budget in the future. The new single Space programme starting in 2021, which accommodates the existing flagship programmes, will entail a budget of more than 14 billion euros for financing the operations of Galileo, EGNOS and Copernicus and their further evolution up to 2027.

4.1 Management and Implementation

The Commission, the ESA, and various other EU and non-EU entities share the management of the EU Space programmes in cooperation with Member States.

The role of the Commission

The Commission has the overall responsibility for the EU Space programmes. It supervises their implementation and prepares the annual Galileo and Copernicus work programmes. It also manages directly some of the actions supporting the uptake of Galileo and Copernicus services.

For both programmes, the Commission chairs a committee composed of Member State representatives and delegates from the entities directly involved in the programmes, to ensure their coordination. For Copernicus, a specific working group (the "User Forum") assists the Committee in identifying user requirements, verifying service compliance and coordinating public sector users.

The role of the European Space Agency

The ESA is an intergovernmental organisation established in 1975 with extensive expertise in the Space domain. While it is not an EU body, it plays a fundamental role in EU programmes, providing expertise in the technical coordination of the programmes and the design, development, procurement, and operation of satellite systems. In parallel, the ESA has its own programmes that support the development of positioning, navigation and timing technologies that use signals from GNSS and that promote the use of Earth observation in science or business applications.

The European Union Agency for the Space Programme (EUSPA)

The European Union Agency for the Space Programme (EUSPA) provides safe and secure European satellite navigation services, promotes the commercialization of Galileo, EGNOS, and Copernicus data and services and coordinates the EU's forthcoming governmental satellite communications programmes GOVSATCOM and IRIS^2, SSA/SST and STM Programme. EUSPA is responsible for the security accreditation of all the EU Space Programme components. By fostering the development of an innovative and competitive Space sector and engaging with the entire EU Space community, EUSPA contributes to the European Green Deal and digital transition, the safety and security of the Union and its citizens, while reinforcing its autonomy and resilience.

5 NATIONAL SPACE ACTIVITIES AND GOVERNANCE

5.1 Ecosystem

In Cyprus[1], Space activities started in the late 70's, aiming initially at receiving meteorology satellite data as well as at telecommunications. From 1980 the "Makarios" Teleport has been in operation from Cyta. Later, Cyprus became a member of INTELSAT, INMARSAT and EUTELSAT.

Since then, several telecommunications satellite operators have established their headquarters in Cyprus. In May 2004, the Republic of Cyprus joined the European Union which gave the opportunity to Cypriot stakeholders to actively participate in the EU research and Space related programmes (i.e. FP6, FP7, H2020, HORIZON EUROPE, Galileo/EGNOS and Copernicus, GOVSATCOM, IRIS[2] , SSA/SST and STM)).

5.2 Priorities and achievements

Cyprus' priorities in Space are focused on the sectors of satellite communications/Navigation, earth observation applications in various domains, climate and atmosphere research, Space navigation, as well as the enhancement of relations with International Organizations of which ESA is considered of high significance.

Satellite communications:

Cyprus has seen major developments in satellite communications infrastructure. Important gateway facilities and monitoring stations have been deployed in Cyprus serving major European satellite operators and in Cyprus we have the operation of two (2) such Teleports. These facilities are now expanding to support new satellites that are scheduled for launch in the coming years.

In addition, six (6) licenses have been granted to organizations in order to launch telecommunication satellites in orbit, using Cypriot assets.

Cyprus offers an ideal geographical location, since it facilitates establishing links with satellites flying over Asia, Africa, and Europe. This significantly supports Cyprus' goal to become a regional hub in the field of electronic communications.

Following the EU Ministerial Declaration titled "European Data Gateways as a key element of the EU's Digital Decade", Cyprus plans to bring together all the responsible stakeholders/operators (satellite, terrestrial and mobile comms) to formulate a specific Action plan in order to materialize Cyprus' goal to become a regional hub and to be in line with EU goal to become a world-class data hub where data is stored, shared and processed in a secure way.

Satellite Navigation:

Regarding satellite navigation, relevant infrastructure which is a part of the Search and Rescue service of Galileo System was deployed in Cyprus. This infrastructure is a receiving earth station, capable for detecting and locating emergency beacons named MEOLUT, and Cyprus is one of the four (4) Hosting Countries of such infrastructure.

Moreover, EUSPA, has very recently taken the decision to deploy two RIM stations in Cyprus for the operation of EGNOS System.

Earth Observation water and atmospheric research

The earth observation (EO) sector is another important priority for Cyprus. Having in mind that Cyprus has ideal climate conditions for earth observation, the country can secure funds and attract investments in this sector to set up pilots for certain use-cases that will test and prove hypotheses with applicability then EU-wide and internationally.

In this respect, it is extremely important to achieve effective transfer of research intellectual property and knowledge, being generated in academia and high-profile research institutions, to the industry, for the subsequent commercial development

and exploitation of related products/services, towards sustainability of the Cyprus position in EO applications.

Moreover, it is worth to mention that water domain EO applications are of high interest. Delivering water of good quality is a crucial societal function. Problems can occur, for instance, due to pathogen contamination, accidental injections of sewage water or industrial chemicals, infiltrating contamination agents naturally or maliciously into a drinking water system, e.g., from polluted rivers and other water sources, at treatment plants, at water tanks, etc.

Satellite EO data are a very significant source of information related to the monitoring of inland water sources (e.g., lakes, rivers, dams, etc.), from where water utilities collect the 'water we drink'.

Therefore, Earth Observation plays a key role in the Cyprus Space Strategy, which includes the stated aspiration and strategic goal for Cyprus to become a "regional digital hub". The strategy clearly mentions, in Chapter 8.8, the need to generate and support a domestic market for Earth Observation applications in Cyprus, and to leverage existing Cypriot EO infrastructures and develop new ones. In this framework, the public sector is expected to act as an anchor customer and a reliable stakeholder for Space services. Strengthening its role in Space-related services, infrastructures and data is therefore considered essential. This was also highlighted in the recent Space Summit 2023 Joint EU-ESA declaration.

Following the above, a dedicated ESA PECS call was released with the aim of gaining a more detailed and accurate understanding of the EO capabilities and needs in the country and identifying a set of adequate and high-priority EO solutions to be created, either by leveraging existing resources or by developing new ones. For the latter, it is equally essential to develop capabilities that integrate EO-based information in synergy with a range of other environmental and socioeconomic data sources. The results of this study will be available by the end of October 2025 and are expected to guide future activities in the field of Earth Observation and Downstream Applications.

Therefore, local Centres of Excellence (CoE's) and the private sector will play a pivotal role in exploiting this field. Further to that a EO Ground Station is planned to be deployed (Q4 of 2025) and will be capable of NRT data reception from EO satellites. This will be the only system in Cyprus with such capability.

Enhancement of relations with International Organizations:

Regional cooperation is a matter of utmost importance and Cyprus strongly supports the participation in Space related International Organizations. Cyprus is a member of the United Nations Committee on Peaceful uses of Outer Space (known as COPUOS), a member of the EURISY, as well as a member of the Satellite Memorandum of Understanding within CEPT. In addition, Cyprus signed Joint Declaration concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes with the State of Israel and an MoU with Greece and Israel on Cooperation in the field of Space Technologies, Satellite Applications and Operations. Additionally, Cyprus applied to be a Member to International Aeronautical Federation (IAF) and is a member of the International Astronomical Union (IAU) and the international Committee on Space Research (COSPAR). Within this context, the enhancement of cooperation with the European Space Agency (ESA) is a key enabler.

Additionally, International cooperation in Space activities is crucial as it enables countries to pool resources, share costs (e.g. collaboration between Cypriot companies and international partners like ESA testing facilities for component validation and testing purposes), and combine expertise to undertake ambitious projects that no single entity could achieve by itself. It also enables the strengthening of Europe overall by reducing duplication. In a progression of Cyprus to Associate Membership, having an international network is also considered key to being included in bidding consortia and securing the geo-return.

Finally, over the last years bilateral meetings also occurred between Cyprus Space Office and Large Space Integrators (LSI) such as Thales, Airbus, and OHB, as well as with the EUMETSAT organisation, to discuss Cyprus' current and potential capabilities,

and potential for inclusion in the LSI value chain in the future. In addition, bilateral meetings with the UK Space Agency as well as a dedicated UK-Cyprus industry event to initiate and facilitate strategic and industrial cooperation between the two countries took place.

Finally, is very important to note that in October 2024, Cyprus has joined the Artemis Accords, and became the 46th nation to commit to the principles of peaceful and sustainable space exploration. The Accords, established by NASA, aim to guide international cooperation in space exploration, particularly in Lunar and Mars missions. Cyprus's participation in the Artemis Accords signifies its commitment to collaborating with other nations in the peaceful and responsible exploration of space. The Accords emphasize principles such as transparency, safety, and sustainability in space activities, ensuring that space exploration benefits all of humanity.

5.3 Major programmes

While the Republic of Cyprus participates in the ESA PECS to gain experience and familiarity with ESA programmes and procedures, as this is explained in chapter 5, it also participates in EU related research (HORIZON 2020 and HORIZON EUROPE) and Space programmes (e.g., Galileo/EGNOS, Copernicus, GOVSATCOM, IRIS^2, SSA/SST and STM)).

HORIZON 2020, HORIZON Europe Programme and National research Funding Program ''RESTART''

Regarding Cyprus participation in HORIZON EUROPE, 22 Proposals have been already been submitted in category “SPACE”, of which 5 are funded (success rate 22.7%).
In addition, concerning HORIZON 2020, 78 Proposals were submitted in category “SPACE”, of which 13 were funded (success rate 16.7%).

The national RESTART 2016-2020 Programmes (https://www.research.org.cy/en/rifs-riprogrammes/restart-2016-2020/) constitute a multiannual framework of Programmes for Research, Technological Development, and Innovation (RTDI) Support in Cyprus, co-funded by national and European funds. In the framework of the RESTART, 155 Proposals were submitted in Space related categories, of which 29 were funded and another 5 are in the contract preparation stage (success rate 21.9%).

5.4 Governance

With regards to Space activities in Cyprus, major developments have been undertaken, based on a decision by the Council of Ministers in 2008. In this framework, the relevant Ministry (Mistry of Transport Communications and Works) was assigned with the responsibility of the Space policy sector and its Department of Electronic Communications (DEC) has been appointed as the responsible authority for the implementation of the ESA-Cyprus Agreement.

In March 2020, the responsibility for digital technologies, research, and innovation policy, in Cyprus, has been moved to the newly formed Deputy Ministry of Research, Innovation and Digital Policy, and consequently the Department of Electronic Communications transferred from the Ministry of Transport, Communications and Works to the newly formed Deputy Ministry of Research, Innovation and Digital Policy.

In addition, the responsibility for research policy implementation lies with the Research and Innovation Foundation, which is a private sector venture receiving its funding directly from the Government.

Initially, during the first period that Space policy responsibilities were assigned to the relevant Ministry, an Advisory Committee was initially set up, composed of representatives from the Cypriot academia and industry, in order to advise the Minister on Space policy related issues. An evolution of this committee is foreseen (as explained in the following chapters) and will be named the ''Cypriot Space Policy Advisory Group''. Consequently, this group will consist of several members

(representatives of ministries, a cluster representing the private sector and scientific institutions). The main task of the working group will be the coordination and governance of Space-related programmes and activities at a national and international level.

Furthermore, for more efficient Space Governance the creation of a Cyprus Space office through the strengthening of the Department of Electronic Communications was established by a Decision of the Council of Ministers dated 5/2/2025 and this is presented in the following chapter. It consists of competent government professionals to support Cypriot entities to secure funding from ESA and EU programmes to develop strategic Space technologies and implement the current strategy.

Moreover, Cyprus has published in October 2023 the national regulatory framework (Cyprus Space Law) for outer Space activities in order to authorize and supervise national Space activities and enhance the practice of registering Space objects.

As mentioned above, the Department of Electronic Communications has also been appointed as the responsible authority for the implementation of the ESA-Cyprus Agreement. The Cooperation Agreement[1] between the Republic of Cyprus and ESA was signed in August 2009 and the European Cooperation State (ECS) Agreement was signed in July 2016. This Agreement ended in July 2022. In November 2021, Cyprus and ESA signed the new ECS+ Agreement that entered into force in May 2022 and has a duration of 5 Years. More details about Cyprus - ESA Relations will be presented in Chapter 6

Regarding EU Space matters, Cyprus (represented by DEC), in the framework of the new EU Space Regulation, has the obligation to participate in the Space Program Committee (Comitology), which will meet in the following configurations, in about 20 meetings per year:

- Horizontal Configuration
- Galileo / EGNOS Configuration

• Security Configuration

• GOVSATCOM/IRIS^2 (Governmental Secure Satellite Communications) Configuration

• SSA (Space Situational Awareness, i.e., Space surveillance and tracking, Space weather, Near-earth objects) Configuration

• STM (Space Traffic Management)

• Copernicus Configuration

• Space Policy Expert Group

Subject matter experts on any of the above topics can be part of the Cyprus Representation in order to strengthen Cyprus's positions.

The new Space Regulation also sets up a new Authority, EUSPA (Space Authority for the European Space Program), which in cooperation with the other 2 institutional partners (Commission, ESA) will play a key role in promoting the "market uptake" of the European Space programs Copernicus, Galileo/EGNOS, GOVSATCOM, IRIS^2, SSA/SST and STM, so that European investments in Space technologies will reflect significant improvements and benefits in the quality of life of citizens. Cyprus (represented by DEC) also has the obligation to participate in the activities of this Organization.

The development of the Space technologies sector is in full alignment with our broader vision "to make Cyprus a knowledge society, based on modern technologies and innovations, with the aim of achieving the strategic goal of establishing the country as a regional digital hub in the region of the Eastern Mediterranean». To achieve this ambitious goal, in this rapidly evolving sector where States and Enterprises are now active, Cyprus must break free from the traditional branches of the economy and invest in new areas, such as applications using Space technologies which create added value and innovation, and at the same time upgrade the products of traditional industries.

In this context, and in view of the very important developments that we presented in the current Chapter, The Deputy Ministry of Research, Innovation and Digital Policy

considers that Cyprus must secure relevant governance, personnel, and funds and invest in this sector in order for its responsible Department to be able to satisfactorily meet the requirements of the new European environment as well as the upgraded prospects of the domestic market.

5.4.1 Establishment of Cyprus Space Office and Space Policy Advisory Group

In Cyprus, the Space governance now lies on the Deputy Ministry of research, Innovation and Digital Policy and its Department of Electronic Communications.

According to a Decision of the Council of Ministers dated 05/02/2025, the Department of Electronic Communications has been established as the Cyprus Space Office. The Space Office will act as the national delegation to ESA and serve as the main interface to the EU for Space-related matters.

To achieve this, Cyprus Government has secured relevant personnel, and funds and invest in this sector in order for Department of Electronic Communications (DEC) and the Cyprus Space Office to be able to satisfactorily meet the requirements of the new European and Global environment as well as the upgraded prospects of the domestic market.

In general, the functions of the Cypriot Space office are:

(i) to coordinate the Cypriot delegation in ESA;
(ii) to coordinate the participation of Cyprus in Copernicus, Galileo/EGNOS, GOVSATCOM, IRIS^2, SSA/SST and STM Space programmes and exploit all the opportunities offered;
(iii) to administer the participation in ESA optional programmes (when Cyprus ascends to Associate Membership) and to provide comprehensive support to Cypriot entities related to the ESA procurement system;
(iv) to work on operational measures concerning the implementation of this strategy;

(v) to facilitate international collaboration and to promote the Cypriot Space industry worldwide;
(vi) implement the current strategy;
(vii) to develop, expand and strengthen the National Space Ecosystem (Industry, Research, Academia)

Moreover, the establishment of a Cypriot Space Policy Advisory Group should be considered by binging back to use the Advisory Committee that has been set up in 2008 composed of representatives from the Cypriot academia and industry, in order to advise DEC on Space policy related issues.

The members of the **Cypriot Space Policy Advisory Group** shall be appointed by the Deputy Minister of the Deputy Ministry of Research, Innovation and Digital Policy, after consultation with the Department of Electronic Communications (which is the designated Cyprus Space Office, from here on called DEC) and other relevant Space Stakeholders.

A close relationship between DEC and the industrial and academic community in Cyprus is an essential element for the Cypriot government's objectives. The SPAG will be the main channel for ensuring such a relationship, and will be considered as the main interpreter of the views and needs of the Cypriot industrial and academic community with respect to space-related matters. The main task of this working group will therefore be to advise DEC on all Space-related activities at a national and international level.

The Terms of Reference of the Space Policy Advisory Group will include but not be limited:

(i) to provide recommendations on the cooperation among Cyprus and ESA, and advice possible investment directions for ESA's optional programmes;
(ii) to provide recommendations on the uptake of Space Related applications related to technologies relative to EU Space programmes, i.e., Copernicus, Galileo/EGNOS, GOVSATCOM, IRIS^2 and SSA/SST, for the effective

implementation in the management of public administration and economic activity in Cyprus;

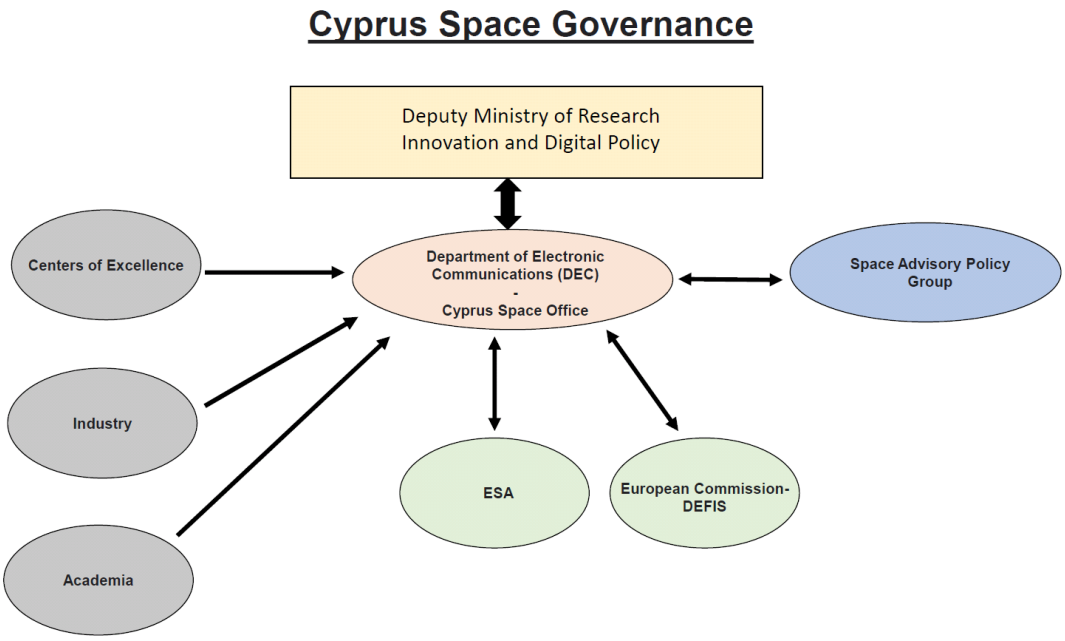
(iii) to provide recommendations to DEC concerning on Cyprus's involvement in international organization structures related to Space;

(iv) to provide recommendation and advise on the inclusion of appropriate Space activities in the smart specialization strategy and synergies with the investment directions of several related Funds."

SPAG will meet at least two times per year at dates and locations jointly agreed between the Chair and DEC. SPAG will provide advice and/or will make recommendations on items referred to it by DEC.

Decisions *of the Cypriot Space Policy Advisory Group will be recommendatory, and the group will have an advisory function.*

Therefore, the proposed Cyprus Space Governance is shown below and also in Annex VI in more detail.



6 ESA-CYPRUS RELATIONSHIP

ESA is an intergovernmental organisation established in 1975 with extensive expertise in the Space domain. While it is not an EU body, it plays a fundamental role in EU programmes, providing expertise in the technical coordination of the programmes and the design, development, procurement, and operation of satellite systems. In parallel, the ESA has its own programmes that support the development of positioning, navigation and timing technologies that use signals from GNSS and that promote the use of Earth observation in science or business applications.

6.1 ESA-Cyprus Cooperation Agreement

The Cooperation Agreement[1] between the Republic of Cyprus and ESA was signed in August 2009 and the European Cooperation State (ECS) Agreement was signed in July 2016. This Agreement ended in May 2022.In November 2021, Cyprus and ESA signed the new ECS+ Agreement. This new ECS+ Agreement gives the opportunity of a mid-term review in the third year in order to assess our potential readiness to transition earlier to associate membership along with many other improvements. The agreement entered into force in May 2022 and has a duration of 5 Years. Cyprus subscription to PECS has been continuously increasing and reached 3.2 million euros in 2025. This shows the political commitment and will of Cyprus to advance in ESA Convention.



In the last 7 years, the Cypriot Government, in collaboration with the European Space Agency (ESA), has announced 10 ESA PECS Calls and has financed the implementation of approximately 60 projects with a total cost of 13.15 million euros.

Until now, approximately 70 organizations of the private and public sector as well as academic institutions, are active in the field of Space in Cyprus. (The extensive catalogue can be found in DEC Webpage).

The large number of already successful projects shows that there is great potential in Space Technologies and Applications. Cyprus considers that the most important outcome of the ECS Agreement is the formation of a "Space culture" nationally and the preparation of Cyprus in the most efficient manner for future closer cooperation with ESA, as an Associate Member.

Cyprus' interface with ESA is through a delegation from The Department of Electronic Communications (Cyprus Space Office) of the Deputy Ministry of Research, Innovation and Digital Policy, which has been represented at all related PECS meetings (e.g., PECS Committee meetings, PECS Annual Reviews, ITT Debriefs & Activity Selections, etc.) and a number of additional ESA official meetings to which they were invited (e.g., Council and IRC meetings).

6.2 "End of period report" and "Mid Term Review" assessment by ESA

Having in mind that the first Cyprus ESA/PECS Program was about to end in May 2022, the next step of cooperation with ESA was considered based on the ''Feasibility Study on Space Sector in Cyprus'' and on the assessment and recommendations by ESA based on the relevant ''End of Period Report'' that was submitted to Cyprus by ESA in July 2021. By receiving these two (2) inputs Cyprus evaluated and decided (jointly with ESA) our next steps. After an intense and fruitful consultation with ESA a second, enhanced Period of PECS (now called ECS+ Agreement) was considered to represent a less risky and more cost-effective way to address the recommendations and identified risks. An enhanced period of PECS would offer a more rapid way to increase the

number of entities involved in Space and to further the TRLs and broaden the product portfolios of those entities currently already active such that an eventual AM application could result in successful participation in at least 3 ESA optional programmes.

As mentioned before, this new ECS+ Agreement gave the opportunity of a “mid-term review” in the third year in order to assess our potential readiness to transition earlier to associate membership along with many other improvements. This “mid-term review” took place in July 2024 and it showed that the work carried out thus far within the PECS Period 2 has followed the recommendations of “End of PECS Period 1 report” and showed significant and rapid further progress as a result. Of particular note in terms of improvements were the following:

a) The Government of Cyprus has shown very good progress with regard to the organisation and management of the development of the Space industry with a good inter-ministerial cooperation as well as a national strategy for Space and a Space law. The responsible team has been increased in size, has established good connections with industry and participates actively in ESA events and meetings.

b) Cyprus has demonstrated a continuously increasing economic commitment to advancing its Space industry. The increase in financial commitment from the Government together with the spend rate gives a good indication as to the readiness and willingness of the Cypriot government to take the next step in its cooperation with ESA. The Republic of Cyprus has stated that it has already secured funding for potential contributions to ESA, increasing beyond the current 3 million euros per year PECS contribution for the coming years. It is noted that this contribution is already above the minimum for Associate Members.

c) Cyprus has made notable efforts to increase the international collaboration. The Cypriot delegation and entities have played an active role in ESA's

networking and partnership-building initiatives. This has resulted in multiple collaborative contractual actions with Cypriot entities and those of Croatia, Malta, Slovakia, Bulgaria, Estonia, Hungary, Greece, Spain, France, Germany, UK and Slovenia. A continuation of this international cooperation and strategic efforts will be essential for Cyprus to maximise its potential in the Space sector.

6.3 Way forward

Cyprus has reaffirmed its strong commitment to becoming an ESA Associate Member, as emphasized in the current National Space Strategy (and demonstrated by its progress in PECS Period 2 (ECS+ Agreement). Furthermore, a government action plan has been prepared and submitted to ESA that secures the long-term funding envelope and the funding, actions, roles and responsibilities and staffing of the Space office in support of its Space Strategy - providing a strong and clear message to the Cypriot Space industry and enable and encourage private investment.

Cyprus has confirmed to ESA Cyprus' continued interest in commencing, at the earliest possible opportunity, the formal process toward becoming an Associate Membership of ESA, and in aligning the process with Cyprus' Presidency of the Council of the European Union in the first half of 2026.
To this end, a formal request for Cyprus to become an ESA Associate Member was submitted to ESA in February 2025 and a final approval will take place in ESA Council in October 2025.

ESA Associate Membership would grant Cyprus access to a wider range of ESA programmes, including optional programmes currently unavailable under its existing status, aligning with national priorities.

7 ASSESSMENT OF CYPRUS KEY COMPETENCES

The key existing competences in Cyprus can be summarized as:

- Materials (specifically CFRP, Carbon Fiber Reinforced Polymers)
- Substrate Integrated Waveguide (SIW) technology (specifically for antenna subelements)
- Ionospheric monitoring and GNSS performance
- Earth-Space-Earth communication links
- Earth observation data exploitation (including the use of Advance AI Models in e.g. ground movement, agriculture, disaster risk management)

However, when it comes to the latter, it shall be noted that due to the island status of Cyprus, downstream applications focussing on maritime issues lend themselves as obvious focus area (e.g., monitoring of shipping movements, illegal activities such as fishing, immigrants, fouling, pollution, coastal monitoring etc). Many of these can and should be done via cooperation with entities in other Mediterranean countries and this shall be pursued and be more fully exploited in the future.

Furthermore, Cyprus has Space-related competences that are still in need of nurturing and maturing in the areas of:

- photonic oscillators ,payloads, LIDAR
- telecommunications, teleport, digital datahubs, optical communications and QKD

Moreover, through our participation to PECS programme it can be observed that the three main application domains of the awarded Cypriot PECS projects so far are:

- Generic Technologies and Techniques which amounts to almost 50% (47,6%)
- Earth Observation which reaches 28,7% and
- Telecommunications sector with 11,1 %

Earth-Space-Earth communication links (SatComms and Navigation)[8]

Cyprus is a country that hosts companies exhibiting portfolios with satellite communications services already therein. This is rather significant for the country itself and the Eastern Europe, and is considered as a big advantage to further boost the telecommunications network infrastructure at the region. However, to keep up pace with the upcoming technology advancements it is more than critical to leverage the existing Cypriot infrastructures and develop new ones when this is necessary. To make it feasible, focused, and efficient, dedicate funding schemes are necessary, preferably supported by ESA. The Agency, when guided by national needs, is undoubtedly able to support the definition of the technology requirements and specifications, provide the know-how on the development procedures and recommend a realistic national roadmap without wasting time in useless efforts.

In addition, Cyprus managed to secure relevant infrastructure which is needed for the Search and Rescue service of Galileo. This infrastructure is a receiving station on the ground responsible for detecting and locating emergency beacons, and forwarding the appropriate information to its associated Mission Controlled Centre. Cyprus has been elected to be one of the three Hosting Countries of such infrastructure, thus enhancing its strategic role in the area.

Moreover, GOVSATCOM and IRIS^2 has been identified by ESA as a key initiative to support the European Space and satellite communication industry, and in particular this proposed activity addresses a significant issue in the region since areas close to the EU borders and in troubled regions like Cyprus would benefit from the system that could eventually evolve from this project. Cyprus seeks active participation in the EU's IRIS^2 Programme for secure satellite communications - engagement in ARTES activities would enable Cypriot companies to participate in and contribute to key advancements in satellite broadband, security, and connectivity solutions.

[8] Feasibility Study of Cyprus Space Sector Development - 06/2021

It can be concluded that Cyprus has a clear potential to participate in the ESA Optional ARTES Telecom programme but further development work is needed for each of the potential players, either to increase the TRL and competence level, to get used to dealing with ESA or to build international connections. The ability to collaborate with partners to be for ESA contracts in the area Telecommunications is considered essential component for Cypriot Space strategy.

Consequently, a closer collaboration with ESA will help the country to (i) leverage the exploitation of the existing Satellite Communication infrastructures and address current needs, as well as to (ii) enhance the infrastructures and (iii) develop new capacities for merging needs.

Earth Observation

During the last decades, earth observation has become more sophisticated with the development of remote-sensing satellites and the ever-increasing high-tech instruments (e.g. floating buoys for monitoring ocean currents, temperature and seismic and GPS stations). Now, more than ever, this sector is very important, due to the impact that human civilization has on the environment. Earth observation is not only for photographs and images, but also about water and soil analysis, processed information (e.g. maps, forecasts, etc.), measurements by seismograph, etc. All data and meta-data stemming from EO have led till today to services such as tracking wildlife trends; land-use change; managing energy sources, freshwater supplies, and agriculture; facing diseases; predicting and mitigating climate change; etc. Therefore, the benefits that EO can provide to the people are straightforward.

On the one hand, Cyprus is located among three continents (Europa, Asia, Africa) hence it is more vulnerable to natural disasters (e.g. earthquakes). On the other hand, it has an advantageous position as it is easier for the country to establish strategic synergies with the neighbouring countries as a countermeasure against e.g. military crisis. Having said this, Cyprus should rely on the respective Space assets for several

reasons, e.g., security against invasions, protection against natural crisis, environmental (land and water changes) and physical resources (energy resources) sustainability.

Cyprus participates in Copernicus Programme Committee and Copernicus User Forum along with all 27 EU Member states and follows all the developments of the program. Of course, it is very important that the expertise gained from the academia and the research to be transferred to the industry for the commercial development of related services.

One key competence area for Earth Observation, as identified by ESA, is in the field of soil subsidence and instability with related services. It is considered that there is a good potential to launch a commercial service first within Cyprus, and thereafter in Europe through teaming up with other companies in Europe. This is an area of interest in ESA Member States who have similar capabilities.

International cooperation and/or collaboration is therefore to be strongly encouraged. Such cooperation is best achieved in the context of an ESA optional programme such as Future EO.

The second main competence area being developed is in the field of using satellite data to optimize the agriculture. Further development and commercialization/ links to industry is needed. This can be done within an ESA optional programme such as Future EO. As with telecommunication ESA optional programmers, the only way to participate is with the accession of Cyprus to AM Membership.

Consequently, it is important to maintain and further enhance the EO existing capacities, as well as even develop new ones. Considering this, Cyprus enhanced collaboration with ESA will help the country towards this direction.

7.1 Potential ESA optional programmes matching Cyprus's competences

Based on the assessment of Cypriot competences, the key ESA optional programmes currently best matching these competences are identified below:

- **General Support Technology Programme (GSTP)**: supports a very wide array of generic technology developments up to and including in-flight demonstrations. For the specific case of Cyprus, GSTP could enable the further future development of flight hardware and new materials, in order to move them towards use on ESA missions.
- **Future Earth Observation Programme (Future EO)**: The Future Earth Observation Programme provides the backbone of ESA activities in the field of Earth observation and downstream applications. Thanks to its envelope approach and regional and thematic initiatives, Future EO offers clear opportunities for a number capabilities in Cyprus in an easily manageable manner and hence securing the geo-return into the future is not considered to pose any issues. Due to its geographical location, Cyprus could also play a leading role in regional / mediterranian Space initiatives, collaborating with other ESA Member States to address common challenges through Space-based solutions.
- **Connectivity and Secure Communications programme:** ESA's Connectivity and Secure Communications Programme aims to enhance Europe's satellite communication capabilities, ensuring secure and resilient connectivity for both governmental and commercial purposes. Elements of this programme with high relevance to Cyprus are:
    - ARTES 4.0 (Advanced Research in Telecommunications Systems), which enables European industry to explore, through research and development activities, innovative concepts to produce leading-edge satcom products and services. ARTES offers varying degrees of support to projects with different levels of operational and commercial

maturity, encouraging local companies and startups to engage in cutting-edge research and development, and

- Space for Optical & Quantum Communications: optical and quantum technologies are the next revolution for connectivity and for an ultra-fast and secure data exchange.

Through participation in the above programme, Cypriot entities could enhance the telecommunications infrastructure and services across the island. Additionally, ARTES is considered to be able to drive innovation within Cyprus's telecommunication and satellite operating sectors and is likely to be key to achieving the Cypriot goal of becoming a regional hub.

- **Associate Membership "Requesting Party Activities" Scheme:** This national capability preparatory scheme is based on targeted calls for proposals and the provision of training to improve proposal writing skills. The activity types of each call being jointly decided by a RPA Board composed of representatives from the state and from ESA. The scheme plays a key role in helping positioning industry to achieve geographical return, in preparing capabilities to a level whereby it is sensible to subscribe to additional ESA optional programmes and also as an ESA and Space entry point for new companies, start-ups and spin in from existing companies in Cyprus. In this regard it is fitting very well to the Cyprus National Space Strategy. Considering that the Space industry in Cyprus is still expanding, this scheme could be used to ensure a continued growth of the industrial base and pave the way for Cyprus's subscription to additional ESA optional programmes. The scheme is a mandatory part of Associate Membership.

8 PILLARS, GOALS AND NEXT STEPS

The Ministry of Research, Innovation and Digital Policy of Cyprus considers the accession of Cyprus to the ESA and participation in all EU Space programmes, as an urgent and paramount need, which is recognized by all other EU Member States. Stressing the important role that Space, through its use of data, services, and applications, play in many different sectors such as mobility, connectivity, agriculture, energy, finance, or health, it is in the interest of Cyprus to strengthen its relationship with ESA and thus to foster its' participation in Space projects along with different stakeholders from all the Member States.

Nowadays, the world is facing many global challenges, such as climate change, biodiversity loss, security issues and the Covid-19 pandemic. Space is an enabler tool that contributes to their monitoring and mitigation measures increasing society's resilience and capacity to recover from crises. In other words, Space technologies serve as a generator of development and innovation capable of dealing with challenges and crises in a global level.

8.1 Education, skills, and awareness



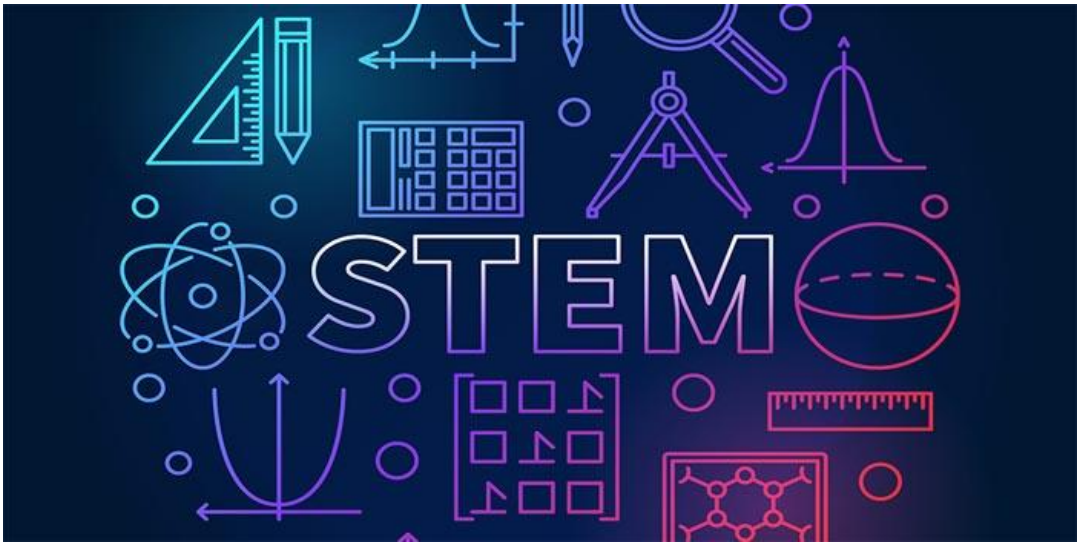
Regarding this pillar the vision is that Cyprus higher education institutions will ensure the development of an adequate base of world class trained engineers to be able to support Cypriot Space industry.

Current status and potential: A knowledge-based society requires well-trained scientists and technical experts, which makes it even more important to stimulate the enthusiasm of young people for science and technology at an early stage.

Despite Cyprus having highly valued Scientific Institutes and Universities, the students lack Space application opportunities or relevant Space-based degree courses such as Space engineering, astrodynamics, astrophysics etc. Further to the above, hands-on experience is the best method to build on the inspirational factor, which is naturally provided by Space themed trainings.

The basic conditions to be fulfilled for a Science, Technology, Engineering, and Mathematics (STEM) training are an appropriate educational system, activities with real-world applications, and motivated professionals, of which the Space sector can make positive contributions due to its multi-disciplinary nature.

To use the human potential effectively, support measures and attractive training opportunities are necessary to lead young people to the Space science and engineering. There is a need to develop initiatives, facilities and networks for the purpose of raising interest in research, innovation and technology with Space as the stimulus. The challenge is to support increased cross-linking and cooperation between organizations and networks that are engaged in attracting young talents in STEM education.



The strategic actions proposed under this pillar aim to continue developing a skilled workforce to meet the Space sector's needs and enable the growth of this industry in Cyprus. In this regard, Government's vision is to nurture a local pool of talent which is readily accessible by innovative businesses and researchers to support Space-related activities, therefore ensuring the long-term sustainability and competitiveness of a local Space industry. In terms of developing the necessary human capital and facilitating access to the range of multidisciplinary skills required, Government will adopt a two-pronged approach through (a) building relevant educational programmes across the educational spectrum and (b) industry upskilling.

Finally, Space awareness is of paramount importance and should be considered as a top priority to achieve this strategy goals. Therefore, we will strongly support the participation in relevant International Organizations.

8.1.1 Identifying education and training opportunities to meet industry needs

It is essential that the Cypriot Government determines whether current education pathways meet the needs of the Space Industry. In this sense, there is a need for the identification of areas where education and training meet or fall short of the industry needs. Identifying skills shortages is important to ensure that all skills gaps are met in the future. Government should work with industry and educational and vocational training providers to establish the currency of existing Space education and training pathways while also identifying opportunities to enhance them. Going forward it is crucial that continuous assessments of the industry are carried out to ensure that industry developments, including emerging technologies, are monitored to attract new workers to emerging roles.

8.1.2 Nurture a stream of graduates and post-grads to support the Space sector

It is imperative that Cyprus continues to foster interest in Science, Technology, Engineering and Maths (STEM) subject areas and specialized education programmes to provide a pipeline of talented graduates to progress Cyprus's future Space and

related capabilities. A practical way of achieving this is by investing in Space related education programmes at all levels, including taught and research graduate levels, to ensure the economy has the necessary availability of skilled people to take advantage of the growing opportunities presented by the emerging Space sector.

8.1.3 Boost awareness

To raise awareness of the Space Sector in primary, middle, secondary, and post-secondary schools, Cyprus can be supported by the ESA to pursue a Space Education Programme that supports local schools to participate in ESA related activities.

As it stands, primary educators may have limited scientific backgrounds, which may limit the effectiveness of STEM education to younger students. It is important that teachers are provided with the appropriate CPD (Continuing Professional Development), tools and training to ensure that interest in STEM subjects, including Space, is promoted, and taught at a junior level. Likewise, it is important that international agencies and local facilities and initiatives coordinate with kindergarten and primary educators to ensure that knowledge gaps in the STEM field are filled so that young students are given every opportunity to explore these subjects later in their academic and professional careers.

To this end a dedicated top-down activity called CARES was appointed to a specific entity through ESA PECS Programme in order to boost awareness and enhance education.

Increasing Awareness of Opportunities and Career Prospects

Cyprus Government highlights the importance of supporting theoretical content with practical experience, particularly to enable and facilitate transition from theory to applications which can generate tangible benefits. As such, Cyprus Government commits to work together with the private sector to create additional training and education programmes which merge academic and practical aspects, thereby giving

students further opportunities to gain experience as they study, and allowing the private sector to benefit from the enthusiasm and creativity of a young workforce. Apart from investing in additional programmes, increasing awareness of such opportunities and promoting career prospects through all levels of education are also of crucial importance in increasing the uptake of such education programmes.

Alongside this initiative is the Copernicus Academy network which Government can connect with in the short-term as membership is available to non-ESA countries. The Copernicus Academy connects research and academic institutions with the private sector to facilitate collaborative research and develop educational material for consumption by students, researchers, and entrepreneurs. The Academy aims to develop suitable skill sets which are required to utilize Copernicus data while raising awareness of the associated downstream applications, a sector which Cyprus is already active in, to a certain extent.

Concluding Cyprus's future success in the Space market will be underpinned by the capabilities of our graduates. As such it shall be important to raise awareness of Space related education and careers in order to develop the required skills in Cyprus's graduates and future workforce.

8.1.4 Enable upskilling to support industry demands of Space enterprises

For the purposes of meeting skills needs of the Space sector, the Ministry for Education and the Ministry of Labour and Social Insurance will consult with industry to agree on skills shortages and develop a detailed Skills Needs Assessment (SNA). The SNA will support the development of Space-focused courses and programmes (such as Space engineering, astrodynamics, astrophysics etc) by relevant training and education providers. On the other hand, this exercise will also serve to highlight the areas in which Cyprus is strong (such as software development, engineering, etc.) with a view to attract Space sector businesses to Cyprus.

Cyprus Government realizes that people are at the heart of every industry, and that success in development a Space industry in Cyprus is dependent upon supporting the training and development of the labour force. In this light, the Government is committed to addressing the skills gaps which surface through the SNA exercise by:

- Continuing investment in existing traineeships such as the ESA Young trainees Programme. This programme provides opportunities for applied training in Space-related areas at the Agency's various establishments;

- Investment in new tailored programmes which offer funded opportunities for students and academics to undertake post-graduate or post-doctorate research in collaboration with industry partners. These tailored programmes may also take the form of student placements, giving candidates the opportunity to develop a career in Space through applied learning and industry exposure; and

- Leveraging existing upskilling programmes and associated awareness campaigns made available to Cyprus through ESA membership and Copernicus Academy network involvement to support the development of a local pool of talent. These structures would open the door to various upskilling opportunities which involve tailored skills programmes, industry partnerships, internships, and applied training courses.

Further to actions to address skills gaps identified through the SNA exercise, Cyprus Government shall also encourage the private sector to invest in further training and education for their staff. This will be achieved through measures such as grants, scholarships, or fiscal incentives aimed at alleviating the financial burden associated with training and education. In the case of promoting training and education in specific areas deemed to be of exceptional priority, Government will also consider measures which result in a net financial gain for eligible participants.

8.1.5 Development of schemes for attracting skilled human capital to Cyprus

Cyprus can attract highly skilled talent for Space active and related industries by facilitating pathways to the Cypriot Space sector through financial incentives and work permits/visas for highly skilled labour. Attracting foreign talent is of great importance for Cyprus's Space Strategy as it will enable the emerging Space Industry to benefit from increased collaboration and research opportunities as well as technology transfers emanating from experienced Space professionals who come to Cyprus. Given that Cyprus's Space Sector is in its infancy, attracting foreign talent is also essential to meet labour shortfalls in the field while the industry grows.

Attracting major international players from the Space Sector to Cyprus would play a major role in attracting highly skilled labour. Such a case would help solidify Cyprus as a legitimate hub for Space enterprises. This can be achieved by offering fiscal incentives such as tax credits and subsidies to established foreign companies. Encouraging innovative and forward-thinking companies to set up in Cyprus will subsequently attract highly skilled labour from abroad.

Cyprus can give further support by offering highly skilled Space sector professionals' specialized work permits/visas that streamline the administrative process. Having said this, Cyprus can consider offering relocation expenses for top researchers, engineers, astrophysicists, and astronomers provided they agree to participate in local projects or provide some amount of lecturing time.

Finally, we need to enable Cypriot companies to offer competitive renumeration packages to these skilled workers. Cyprus already has a lot of benefits compared to other European countries, but unfortunately companies lack the resources to compete in the European Space. As an example, tax credits could also be extended to local companies in the sector.

Strategic Actions and Activities	Goals by 2030
EDUCATION: Nurture a stream of graduates and post-grads to support the Space sector Universities in collaboration with local industrial partners and active Space-related non-profit organizations must develop: • hands-on training activities • higher-education Space related courses and • lifelong learning programmes in order to help secure sufficient local highly qualified workforce	Create a critical mass of sufficient new young employees available to the Cypriot Space sector that already possess expertise in the fields of interest for the Space sector. These employees should have gained a high-quality education in Cyprus (or worldwide) in the areas of Space environment, Space engineering, satellite telecommunications, satellite navigation and EO/remote sensing and being aware of the relevant standards (e.g. ECSS).
TRAINEESHIPS/SECODMENTS: The Ministry of Labour and Social Insurance must create a National Trainee scheme that also includes summer placements, stagers, and trainees from academia to local Space industry. The Ministry of Labour and Social Insurance in collaboration with ESA must create practical trainings/secondments opportunities at ESA technological Centres (ESTEC, ESRIN, ESOC, etc.).	-At least 6 PhD Space-related theses and 20 MSc Space-related theses until 2030 (**KPI 1.1)** -At least 3 Young Graduate trainees and International Research fellows at ESA until 2030 (**KPI 1.2**) -At least 6 new or improved Space-related modules (courses such as Space engineering, astrodynamics, astrophysics etc) offered by Cypriot universities until 2030 (**KPI 1.3)** -At least 6 trainee placements in Cypriot Space companies until 2030 **(KPI 1.4)**
TRAINING: Identify education and training opportunities to meet industry needs. The Ministry of Research, Innovation and Digital Policy in collaboration with ESA must organize relevant training courses for various Space disciplines in Cyprus, delivered by ESA experts (e.g. engineering, standardization, EO/remote sensing, Space communications, Space Situational Awareness, climate science, etc.).	Organization of no less than 30 Trainings throughout the period of 2022-2030 **(KPI 1.6)**
AWARENESS: Boost awareness**.** All parties involved in Space must introduce activities that promote the awareness to companies, scientific representatives, and the public about cooperation with ESA, as well as Cyprus's potential and experience in the development of Space and related technologies, the importance of these technologies and their possible applications.	Introduce Space activities that promote the Space awareness through a Number of Conferences (8), Trainings (12), Seminars (12) and School Visits (8) throughout the period of 2022-2030 **(KPI 1.7)**

Strategic Actions and Activities	Goals by 2030
INCENTIVES: Development of schemes for attracting skilled human capital. Cyprus can attract highly skilled talent for Space active and related industries by facilitating pathways to the Cypriot Space sector through financial incentives and work permits/visas for highly skilled labour.	Attract a Number of highly skilled talent (10) for local Space related industries by the end of 2030 **(KPI 1.8)**
SKILLS: Enable upskilling to support industry demands of Space enterprises	Consult with industry to agree on skills shortages and develop a detailed Skills Needs Assessment (SNA) by end of 2028 **(KPI 1.5)**

8.2 Entering in the Space supply chain and international impact



Regarding this pillar the vision is that Cyprus businesses and research organizations will eventually collaborate with the key players in the global Space industry to deliver world-class Space activities in close cooperation with EU and ESA, with the goal to develop recurring products and services that have high export potential.

Current status and potential: Companies in the Space sector face high costs of qualification of technologies and processes, as well as long investment cycles, which create barriers to entry into the industry. Both the financial and the technological risks in the Space sector are significant. To overcome these challenges, Cyprus should capitalize on the expansion of specific actions in the areas of research and development and help encourage and nurture start-ups. Cooperation, between the industry and research, should be expanded as it is characterized to be beneficial to all. Concentration of expertise, a strong focus on specialization is desirable. Assistance is needed to industry to obtain ready access to component testing and qualification laboratories and equipment, in Cyprus or conveniently nearby region, therefore is good to consider establishing a specialized facility for testing and validation purposes of space related components/modules/subsystems/equipment etc. Facilities can be shared among companies, institutes, government entities, or with cooperating laboratories in neighbouring nations.

Adding to the above, the focus shall be on development of recurring products. Furthermore, the international network and visibility of Cyprus Space industry should be further developed and promoted with a specific view to enabling international co-operations and facilitating international customers for Cypriot products and services. The legal and regulatory environment for Space activities should be modern and favourable. Another important task is to penetrate commercial Space markets and facilitate successful technology transfer to the non-Space economy.

The Ministry of Research, Innovation and Digital Policy of Cyprus considers the accession of Cyprus to the ESA and participation in all EU Space programmes, as an urgent and paramount need from an overall perspective, accession of Cyprus in ESA Membership will provide for a balanced growth and ensure the competitiveness of the Cypriot Space ecosystem.

To keep up pace with the upcoming technology advancements regarding Space sector it is more than critical to leverage the existing Cypriot infrastructures and develop new ones when this is necessary. To make it feasible, focused, and efficient, dedicate funding schemes are necessary, preferably supported by ESA. The Agency, when guided by national needs, is undoubtedly able to support the definition of the technology requirements and specifications, provide the know-how on the development procedures and recommend a realistic national roadmap without wasting time in useless efforts.

Strategic Actions which fall under this Pillar aim to provide Government-led strategic investments with a view to advance and foster a resilient and sustainable Space ecosystem and industry in Cyprus. Fundamentally, Cyprus's investment in Space is to support innovative businesses and researchers to develop skills enabling the exploitation and use of data generated from Space-based infrastructures and the use of downstream applications, leading to increased exports, sales, and quality employment. These contributing factors are expected to create a favourable ecosystem in Cyprus capable of attracting Space activity.

8.2.1 Explore the feasibility of a Space Technology Park

The Space industry is an industry which thrives on collaboration between academia and business, particularly because, just like other industries within the knowledge economy, it is heavily driven by research and the generation of intellectual capital.

To this extent, Cyprus Government believes that a setup which brings together industry, the research community, and the public sector under one 'roof' should be explored and assessed. This setup, which can take many forms, may have the following objectives:

- It would act as a business incubator – these are specialized workspaces aimed at supporting start-up businesses, spin-offs, and SMEs through the provision of facilities, external expert advisors, entrepreneurial and administrative support, and other assistance.
- It would seek to accelerate growth through the formation of a Space Cluster (including the establishment of synergies with existing local initiatives) where ideas and Space-related technologies are shared with the wider industry
- It would provide a platform for the development of state-of-the-art facilities to aid research carried out by both academia and the business community. Subsidized access to these facilities could be provided as a means of supporting the sector.
- It would act as a single port of call for the dissemination and promotion of the Space sector, providing information on funding opportunities, collaborative and internationalization opportunities, vacancies within the industry, and other general information which could enhance national capabilities or be of interest to operators in this field.
- It would take an active role in bringing together various players from private sector, public sector and academia, through the organization of networking events, seminars, hackathons, and upskilling courses, amongst other initiatives.

A Space Technology Park can take many forms. For example, it can be a dedicated physical workspace where the Space community can come together to work

independently and collaboratively or it can be an extension of an existing incubation centre or technology hub, with entities within the Space industry umbrella forming part of the wider business community. It can also exist virtually, with the Space industry community being linked via a dedicated web-based portal providing information on upcoming networking events, courses, funding opportunities, collaboration avenues, with possibilities of virtual interaction (such as through discussion forums). The Space Park can also provide support by offering data processing service activities and dedicated training workshops which can assist Cyprus's Institutions and researchers to collate and process freely accessible Space data.

From an entrepreneurial perspective, the Space Park can offer support to start-ups, other enterprises, and researchers by keeping them well informed of innovative funding solutions. It could also help link local businesses and academia with external experts able to share experience and knowledge both with regard to Space-related activities, and also other areas such as business development.

In terms of Space-dedicated research, the Space Park can potentially be oriented towards a few key research areas to ensure that specialization is built around Cyprus's unique selling points, and that such specialization is nurtured and developed. In this respect, the Park can be used to support ongoing Space research in Cyprus, and create synergies with potential Space research endeavours, particularly as the scope of research would likely widen due to increasing international public and private interest, as well as potential incrementing investments by emerging private players in the Space industry.

A potential Space Park could act as a point of liaison where many industries can come together and build partnerships with the common goal of sharing knowledge and improving efficiencies. Such a setup would encourage a vibrant and dynamic Space ecosystem that facilitates technology transfer from Space sector to non-Space sectors. It would also provide opportunities for synergies between the Space sector and wider industry (technology, agriculture, robotics, transportation, communication etc). Allowing businesses to access the Space Park at subsidized rates would drive innovation by offering technological capabilities that might otherwise be unavailable

to them due to costs or physical Space restrictions. Enabling firms' access to high-end equipment like HPCs (within the Space Park or other local Innovation Hubs) could have a multitude of benefits for the Space Sector and other related activities. Finally, this Space Park could also be used to showcase Cypriot capabilities to attract international investors and businesses.

Before investing to such a Space Park, Cyprus Government will analyse the potential demand for its use and carry out an assessment of the overall financial and economic feasibility of a dedicated Space Park. The detailed demand analysis will shed light on the extent and type of use of the Space Park, including greater insight into the specialized Space-related areas in which this park will used for.

The feasibility study in relation to the Space Park must also look at and consider different mechanisms of attracting venture capitalists to form a fundamental part of the operation such a Space Park, such as by making participation in the Space Park a key requirement to qualifying for incentives and benefits or through providing direct access to academics and homegrown talent. The Space Park must ultimately be positioned to giving them the opportunity to identify new opportunities within the industry while at the same time giving businesses seeking funding a curated list of venture capitalists who are already familiar with the sector.

8.2.2 Cyprus Space Website

Cyprus will develop and maintain a dedicated website which will act as a single point of reference for any entity (private or public) that intends to understand the level of Space engagement across industry, research, and the skills domains in Cyprus.

The dedicated website will make opportunities, schemes and initiatives related to Space increasingly visible to the public and industry. It will clearly map out the Space governance structure in Cyprus, providing information on commercial activity, signposting supports available to industry and researchers, amongst others.

The website will further provide up to date information in connection with international opportunities such as EU Horizon Europe calls, EU Space Programmes

and ESA open calls. It will also point to financing support available for Space initiatives and industry, including for example the Research Innovation Foundation funds.

In targeting the international Space sector, it is of utmost importance that national and international stakeholders can access this information with ease. Further, increasing the profile of Space nationally will support the objective of growing awareness of Cypriot engagement in Space and its potential nationally.

In addition, in the website as part of the Cyprus Space business promotion and networking an online directory i.e a Space Database of private and public Cyprus entities will be included (This directory is already included in the Department of Electronic Communications webpage)

Moreover, an assessment of the infrastructure available in Cyprus, needs and gaps, was already performed since it is considered especially important due to the island status of Cyprus and the difficulty and expense in accessing infrastructure (manufacturing and testing) in other countries. the results are already available in the Department of Electronic Communications webpage and will be also available in Cyprus Space website.

8.2.3 Support start-ups, spin-offs, and SME's (BIC and Space Cluster)

Start-ups, spin-offs, and SMEs in Space-related fields will be supported through various initiatives, such as dedicated funding and schemes.

Through its various bodies, Government will explore launching new schemes aimed at supporting the establishment and growth of Space-related enterprises. This funding will support entrepreneurs in their journey to establish a business, secure financing, and build a presence in both local and international markets.

Furthermore, a start-up culture should be nurtured with support and encouragement from those Institutes and cooperation with already successful local startup mechanisms should be established. To facilitate this, the Cypriot Government will act with in order to improve the legal environment to support spin-offs from universities, and foster start-ups.

As part of our Action Plan in order to achieve the above, is the establishment of a Space Business Incubation Center (BIC) and the creation of a local Space Cluster (SC)(including the establishment of synergies with existing local initiatives). Specifically, a business incubator is a specialized workspace aimed at supporting start-up businesses, spin-offs, and SMEs through the provision of facilities, external expert advisors, entrepreneurial and administrative support, and other assistance. Currently Cyprus government has signed an agreement for the establishment of a Space BIC and Advice Centre.

Finally, to accelerate growth, we may proceed with the formation of a Space Cluster where ideas and Space-related technologies are shared with the wider industry. The Space Cluster will be materialized through collaboration with Ministry of Energy, Commerce, and Industry (exploiting also synergies with existing local initiatives)

8.2.4 International cooperation

It is of paramount importance to increase the international cooperation between Cypriot entities and entities in ESA member states and other EU countries to help build to Cyprus's ambitions as a regional digital hub. This will also help to increase the chances of being included in EU funding bids as well as preparing for success in ESA optional programmes in the future. Therefore, a specific scheme must be developed to nurture the increase in international cooperation between Cypriot entities and entities in ESA member states and other EU countries.

International cooperation in Space activities is crucial as it enables countries to pool resources, share costs, and combine expertise to undertake ambitious projects that no single entity could achieve by itself. It also enables the strengthening of Europe overall by reducing duplication.

An obvious way to help to become a regional digital hub would be a focus on shipping movements and illegal activities (fishing/ immigrants/ fouling/ pollution, etc.), water quality, wave conditions, coastal monitoring, and tourism. Many of these could and probably should be done in some form of cooperation with other countries who either

share an interest in eastern Mediterranean or in the observation topic for other areas (e.g., Baltics). Croatia, Malta, Greece, and Italy seem clear candidates. Cyprus has a unique location for monitoring and performing ground truth measurements for this region, but this seems not fully exploited yet.

To this end, Cyprus has made notable efforts to increase the international collaboration. The Cypriot delegation and entities have played an active role in ESA's networking and partnership-building initiatives. This has resulted in multiple collaborative contractual actions with Cypriot entities and those of Croatia, Malta, Slovakia, Estonia, Bulgaria, Hungary, Greece, Spain, France, Germany, UK and Slovenia. A continuation of this international cooperation and strategic efforts will be essential for Cyprus to maximise its potential in the Space sector.

Finally, when it comes to strengthening / fostering international cooperation activities, we may consider bilateral agreements at government level on corporations in Space, focusing on industrial visits and introductions and perhaps joint projects in the areas of interest as well as organization of thematic Industry days.

Strategic Actions and Activities	Goals by 2030
MARKETING: All ministries, agencies, enterprises, and research organizations involved in the Cypriot Space sector must collaborate to market the country's achievements and potential and promote its visibility internationally.	Cyprus to be represented by competent individuals in the most important international bodies and expert groups and the Space activities of the EU (Space programme + research programme) and ESA by the end of 2030. Cyprus Space Office and the Space Policy Advisory Group must coordinate the positions of Cyprus.
SUPPORT. The Deputy Ministry of Research, Innovation and Digital Policy must collaborate with all parties involved in the implementation of this Strategy to create a support framework for the Cypriot industry in all matters related to ESA and other EU Space programmes and build up the industrial capacity in the field of Space activities.	
TRADE EVENTS: The Ministry of Energy, Commerce, and Industry and the Deputy Ministry of Research, Innovation and Digital Policy must provide support to Cypriot companies to participate at international Space-related events focusing on the local community's integration in the global Space supply chains.	Local community's integration in the global Space supply chains by the end of 2030.
START-UPS: The Ministry of Energy, Commerce, and Industry and the Deputy Ministry of Research, Innovation and Digital Policy must create favourable conditions for foundation of new start-ups in the Space sector, especially considering creating a Space Business Incubation Centre in Cyprus. This Space BIC (Space Business Incubation and Advice Center) could be considered to be set up, with links to a future PECS or RPA programme as a stepping stone to prepare for an eventual ESA BIC that the EU funding requests. Also, the Deputy Ministry of Research, Innovation and Digital Policy could asses the feasibility of a dedicated Space Technology Park to boost the Space Ecosystem. The feasibility of such a Park should be carried out through PECS Progamme.	New Space sector companies including start-ups have been established or reoriented in Cyprus and benefit from the ESA engagement. -At least 5 new companies benefit from the ESA engagement (Through PECS+ or Associate Membership) until 2030 (**KPI 2)** -Establish a Space BIC (Space Business Incubation and Advice Center) (later to be an ESA BIC) in Cyprus by 2025. **(KPI 3.1)** -At least 10 (if Space BIC (Space Business Incubation and Advice Center) established) start-up or spin-off companies created and benefit from the ESA engagement, in terms of contracts won, loans or technical support that impact their product development and IPR until 2030. **(KPI 3.2)** -Feasibility Study of a dedicated Space Technology Park by 2030. **(KPI 3.3)**

Strategic Actions and Activities	Goals by 2027
ENABLING. The Deputy Ministry of Research, Innovation and Digital Policy provide must support instruments and measures to innovative Space companies. Thus it must identify and facilitate the international opportunities to utilize Cypriot Space solutions and Space data and facilitates investments in Cyprus. It is of paramount importance to increase the international cooperation between Cypriot entities and entities in ESA member states and other EU countries in order to help build to Cyprus's ambitions as a regional digital hub.	Cypriot entities have commercial Space contracts won outside ESA and EU programmes and have products in the supply chain of the Large-Scale Integrators. -At least 3 commercial Space contracts won by Cypriot entities outside the ESA and EU programmes until 2030 **(KPI 4)** . -At least 4 Cypriot companies which have products in the supply chain of the Large System Integrators until 2030 **(KPI 5).**
LEGISLATION. The responsible authorities must review Cyprus regulatory framework for licensing the use of radiofrequency spectrum for satellite communication purposes. The laws, regulations and policies will be analysed and amendments suggested so as to create an environment that encourages the development of the Space sector, including the private use of satellite spectrum, while safeguarding the interests of Cyprus.	The needs for amendments to national legislation have been analysed from the viewpoint of business support for the Space sector by 2028.
ESA PROGRAMMES. The Deputy Ministry of Research, Innovation and Digital Policy must put focus on pushing Cyprus to become an ESA Associate member. If this is achieved, together with ESA, experts Cyprus can explore possibilities for increased support in terms of training, organization of events and advice with a view to achieve a successful integration of Cyprus in ESA to ensure further development of sustainable and competitive industrial capabilities, and their integration in the Space supply chain.	

Strategic Actions and Activities	Goals by 2027
ONLINE DIRECTORY / CYPRUS SPACE WEBSITE: The Deputy Ministry of Research, Innovation and Digital Policy must develop the online Cyprus Space directory and Cyprus Space Website to promote the Cypriot Space industry capabilities to the global Space market and must create a dedicate Cyprus Space Website. Moreover, an assessment of the infrastructure available in Cyprus, needs and gaps, is considered especially important due to the island status of Cyprus and the difficulty and expense in accessing infrastructure (manufacturing and testing) in other countries.	Create Online Directory and Cyprus Space Website by the end of 2027 (**KPI 7.1)** Have an assessment of the infrastructure available in Cyprus, needs and gaps and include it Cyprus Space Website by the end of 2027 (**KPI 7.2)**

8.3 Research and product commercialization



Regarding this pillar the vision is that Research organizations and universities operating in Cyprus will participate in the leading Space projects and generate excellence and world-class knowledge in Space and related science disciplines.

Current status and potential: The Space industry supports fundamental scientific research through the availability of direct experimental measurements in Space. In addition to the expertise created through the exploration of the universe and the Earth, satellite-based Space science drives research, science and industry to technological excellence and innovation.

Today, several Cypriot research institutions are significantly involved in international development and research activities in this high-technology field through relevant projects by creating their CoE's (Centres of Excellence). Therefore, there is a great potential to increase Cyprus visibility and reputation in the international arena by publishing in scientific journals, being associated with major scientific missions, specializing in a particular branch, and generating capable engineers.

Finally, a mechanism for leveraging the investments coming from the EU related to Space applications to different research institutes must be set up. Also, to effectively

commercialize the research performed and exploit the data generated, a start-up culture should be nurtured with support and encouragement from the Institutes and cooperation with already successful local startup mechanisms should be established.

Strategic Actions which fall under this pillar aim to (a) support development of Space-related R&I activities being undertaken by academic institutions and other entities such as CoE's in both the public and private sector and (b) support the creation of a sustainable Space ecosystem. The ultimate objective of such support is to facilitate the development of upstream, downstream, and Space-derived activities using several instruments and funding opportunities. In turn, this will contribute towards the creation and development of innovative businesses and commercial applications in and around the Space sector.

8.3.1 Support Space R&D and CoE

Commercial applications of Space-related technologies are the result of close cooperation between business interests and cutting-edge research. Upholding this in mind, supporting the growth of a Cypriot Space industry requires not only supporting research and business interests separately, but also providing mechanisms to facilitate cooperation of such interests. For that reason, a great support should be given to CoE's (Centres of Excellence) in order to produce technological excellence and innovation.

Boosting existing Government programmes which may have an impact on Cypriot's Space industry is crucial for Cyprus to achieve its strategic goals. As it stands, funding instruments such as Research & Innovation Foundation ''Restart Programme'' have been driving opportunities for Space research in Cyprus. It is essential that Cyprus continues to build and develop these funds to ensure that start-ups and SMEs continue to have access to local funding. These funds give Cypriot businesses and institutions the opportunities to explore different technologies and innovations whether it's through funding business plans, financing feasibility projects or providing consultancy services.

8.3.2 Focus on product commercialization

Further to this, Government shall also launch initiatives aimed at supporting collaboration between academia and private enterprise within the Space sector. Such support shall take the form of grants and funding schemes administered by the Research & Innovation Foundation and with the aim of promoting research beyond those areas already funded through existing Space Research funds. Through such a scheme, the Government hopes to bring together entrepreneurs and academics and develop new commercial applications for Space-related technologies.

Following the above a great focus should be given developing mature recurring products and services that can be commercially exploited. This also implies applying the relevant ECSS (European Cooperation for Space Standardization) standards and exploiting research performed by Academia. To achieve this there are 3 main elements here that need to be addressed:

- Getting sufficient level of recurring products and services either on the market or to beyond TRL5. This is key to having a sustainable business.
- Getting ECSS used and integrated into the Space industry in Cyprus. We start with the training course, but we need to stress this in the next ESA PECS calls and start to find suitable wording per activity type as to the level of ECSS usage, i.e., we need to start forcing it.
- Exploiting Academia research. This is also partially linked to the BIC, etc

Specifically, the European Cooperation for Space Standardization (ECSS)[9] is a collaboration between the European Space Agency (ESA), the European Space industry represented by EuroSpace, and several Space agencies, to develop and maintain a coherent, single set of user-friendly standards for use in all European Space activities.

The "ECSS Standardization objectives, policies and organization" document defines the objectives of the ECSS efforts. The main interests are the improvement of project

[9] https://en.wikipedia.org/wiki/European_Cooperation_for_Space_Standardization

cost efficiency, the assurance of product quality and safety, the expansion of interoperability, and the harmonization of the European Space sector. All these interests serve to improve the competitiveness of the European Space sector. The ECSS maintains its liaisons with various standardization organizations, contributing to standardization, as well as adopting pertinent existing standards into the ECSS system.

For that reason, through ECS+ agreement a specific training on ECSS Standards for our Space ecosystem was given to our Space Ecosystem in 2022.

Strategic Actions and Activities	Goals by 2030
EU SPACE PROGRAMME: All ministries, agencies, enterprises, and research organizations working together to actively influence the success of the Cypriot participants in the EU Space programme in order to win new projects, develop innovations and create new business opportunities in Cyprus.	Cypriot companies and research organizations which are Horizon Europe participants, will double the number of above the threshold evaluated project proposals in Space topics in the cluster "Digital industry and Space" in comparison to Horizon 2020. -At least 15 project proposals evaluated above the threshold through the EU Horizon Europe programme in Space-related activities (from years 2021 to 2027) **(KPI 8.1)** -At least 15 project proposals financed through Research Promotion Foundation's RESTART Programme or equal national scheme (from years 2022 to 2027) **(KPI 8.2)**
NETWORKS: The Deputy Ministry of Research, Innovation and Digital Policy will strengthen the participation in international Space and related research partnerships and networks.	
STANDARDIZATION: a great focus should be given developing mature recurring products and services that can be commercially exploited. This also implies applying the relevant ECSS (European Cooperation for Space Standardization) standards and exploiting research performed by Academia	Through ECS+ agreement a specific training on ECSS Standards for our Space ecosystem took place in 2022.
SUPPORT Space R&D and CoE. Commercial applications of Space-related technologies are the result of close cooperation between business interests and cutting-edge research. Upholding this in mind, supporting the growth of a Cypriot Space industry requires not only supporting research and business interests separately, but also providing mechanisms to facilitate cooperation of such interests.	Special support should be given to CoE's (Centres of Excellence) in order to produce technological excellence and innovation.

Strategic Actions and Activities	Goals by 2030
NATIONAL PROGRAMMES BOOSTING: Boosting existing Government programmes which may have an impact on Cypriot's Space industry are crucial for Cyprus to achieve its strategic goals. It is essential that Cyprus continues to build and develop these funds to ensure that start-ups and SMEs continue to have access to local funding. These funds give Cypriot businesses and institutions the opportunities to explore different technologies and innovations whether it's through funding business plans, financing feasibility projects or providing consultancy services.	Government shall launch initiatives aimed at supporting collaboration between academia and private enterprise within the Space sector in order to have Commercial applications. Therefore, Cyprus Government shall build and develop new Space funds to ensure that start-ups and SMEs continue to have access to local funding by 2027. **(KPI 8.3)**
COMMERCIALIZATION: Support shall take the form of grants and funding schemes administered by the Research & Innovation Foundation and with the aim of promoting research beyond those areas already funded through existing Space Research funds. Through such a scheme, the Government hopes to bring together entrepreneurs and academics and develop new commercial applications for Space-related technologies.	At least 4 Cypriot companies operating in non-Space markets to have integrated Space-based capabilities into their commercial service portfolio (e.g. civil/geotechnical engineering, consulting engineering, health services, transport services, infrastructure providers, and financial services) by 2028 **(KPI 8.4)**

8.4 Governmental services for National Security and Socioeconomic Sustainability



Regarding this pillar the vision is that based on Cyprus social, economic, security and environmental needs, satellite-based services and applications will be developed and built in Cyprus and these will increasingly integrate within the public sector at local and national level.

Current status and potential: Space technologies and its applications in the public sector provide valuable contributions to meeting the social needs of our time with a toolbox of innovative technologies, mainly through information on security, emergency and disaster management and resilience, search and rescue, land use and other delivered both independently and jointly by Copernicus (Earth Observation) and Galileo (navigation). Copernicus and Galileo data and information can be used free of charge, but some of this information (e.g., information provided by the Copernicus Emergency Management Service and Copernicus Security Service or Galileo Public Regulated Service, GOVSATCOM and IRIS^2) are restricted to authorized governmental users.

These services are of enormous economic and security-related strategic interest and should increase the safety of citizens, facilitate decision-making in certain policy areas

(such as land use, forestry, energy, land and marine environment management and protection and safety and defence, green economy, etc.) and improve methods and procedures when integrated with other technologies contributing to citizens social prosperity.

Moreover, through the EU Space Programme (i.e., Galileo/EGNOS, Copernicus, GOVSATCOM, IRIS^2 and SSA/SST), services could be developed in the areas of navigation (fleet management, transport, agriculture, tourism, search and rescue), climate and climate change forecasts, atmosphere monitoring, marine environment, land cover and land use, security, emergency, etc.

Concluding, the national use of Space technologies can increase Cyprus's political influence and image since Space is the new frontier and therefore being seen as a Spacefaring nation increases the national image. Furthermore, this will attract more cooperation and closer ties with other countries (at political and economic level) and will increase Country's visibility in the international arena.

Strategic Actions which fall under this pillar aim to integrate Space technologies and its applications in the public sector to provide valuable contributions to meet the social, security and economic needs by using Copernicus (Earth Observation) Galileo (navigation) and other EU Space Programmes (GOVSATCOM and the new Secure Connectivity Programme called IRIS^2).

8.4.1 Cypriot Government to become an early adopter and Public Sector to be the anchor customer of Space applications

The Cypriot Government will undertake a review of the various responsibilities of public sector organizations to determine which entities could potentially benefit from the application of Space-related services.

Moreover, the Public Sector are the frontline for the exploitation of Space technologies to benefit from their use in fulfilling their missions in a more efficient way and to offer a new range of quality services to citizens. For the above reasons, the Government agencies must have an active role in this effort to promote and exploit

Space applications and act as a first customer (anchor customer) of such services, to further develop as a Space fairing nation and fulfil our National Goals.

In this way, Government hopes to improve the overall effectiveness of certain public sector functions, while also being an early driver of demand for the local Space industry. Such areas where Space-based technology can help facilitate Government's responsibilities are:

- The EU's Earth observation programme Copernicus which can provide a vast array of freely available data and measurements to service providers and public authorities. The Cypriot Government anticipates being able to utilize this data to:
    - Monitor air quality and climate trends, thereby enabling more informed environmental and public health decision making;
    - Monitor marine data to enable better protection of marine resources and the provision of more effective marine safety services; and
    - Monitor trends in land coverage and usage, allow for more informed decisions related to the natural and built environments, as well as better utilization of Cyprus's limited natural resources.

- The EU's Galileo system provides accurate satellite-based navigation information. Such information can be utilized by public officials such as civil protection and customs officials to effectively carry out their duties. This data may also serve to strengthen Cyprus's search and rescue capabilities, aid Government's response to other emergencies or crises, and engage in better border and maritime surveillance.

- The upcoming Union Secure connectivity programme called IRIS^2 will ensure the provision of worldwide secure, flexible, and resilient satellite communication services to the Union and Member States governmental entities/delegations, as a primary goal, and to EU commercial users, in duly justified cases.

The proposed infrastructure builds on the European Quantum Communication Infrastructure (EuroQCI), that aims at developing future-proof cryptographic systems, to offer unprecedented levels of secure communications and to defend us against future quantum computing attacks.

Furthermore, it builds on the newly launch GOVSATCOM initiative, whose aim is to optimize the use of existing satellite communication capacity for governmental users, based on pooling and sharing of available national and private EU satellite communication resources.

Therefore this programme is of strategic importance since countries like Cyprus that are in the borders of EU this system will be ideal to deal with hybrid threats and other challenges, such as in areas where terrestrial communication networks are either absent (e.g. oceans, during flights, or in remote locations / islands with no cellular or broadband coverage), or, have been destroyed (e.g. during flooding events, or forest fires), or cannot be trusted (in crisis situations, or for diplomatic services in third countries or for sensitive governmental operations).

Finally, ESA can help with some funding and even top-down activities, but the first push needs to come from Cypriot government. ESA can arrange information dissemination session for other government Ministries (i.e., 'potential use of Space downstream applications in government').

8.4.2 Establish an Optical Gateway

Furthermore, the strategy is set to establish an Optical Gateway to take advantage the developments in Space Based Secured Connectivity programme (IRIS^2) which will be based on GOVSATCOM (Governmental Satellite Communications) systems and EuroQCI (European Quantum Communications Infrastructure) networks. Given that, the only option for Cyprus to connect to the rest of the European network is through

a terrestrial optical satellite station (Optical Gateway) its creation is a top priority. Through this, Cyprus will strengthen its strategic goal to become a regional digital hub. Very recently Cyprus through a dedicated ESA PECS Call awarded a contract for a Feasibility study for the establishment of an Optical Ground Station in Cyprus. Thus, this I major step for the materialization of this goal.

Strategic Actions and Activities	Goals by 2030
CY GOVERNMENT TO BECOME AN EARLY ADOPTER OF SPACE APPS AND SERVICES: All ministries, agencies, and public service organizations (where appropriate) must foresee the use of Earth Observation and Navigation based services in the respective legislative acts and integrate them in the public sector based on added-value and competitiveness and for the prosperity of the citizens. To achieve that CY must make use of Centres of Excellence to generate a 'home' market for EO and NAV applications in the government (and its associated agencies) via policies at government level.	Generate 5 sustainable Earth Observation and navigation services that are based on advanced data analytics capabilities which will be developed by Cyprus Industry, Academia, and Centres of Excellence for the public sector in various governmental fields**.** by 2030 **(KPI 9)**
EMERGING TECHNOLOGIES: Use new telecommunication technologies in order for Cyprus to strengthen its strategic goal to become a regional digital hub	Establish an Optical Gateway in Cyprus in order to interconnect with EuroQCI and the upcoming Space Based Secured Connectivity Initiative by 2030. **(KPI 10)**
AWARENESS: All responsible ministries must raise awareness of the potential of Space applications in the public sector for various governmental fields through the provision of trainings for different governmental level specialists and key decision-makers.	Organization of a Number of Trainings (20) throughout the period of 2025-2030 **(KPI 16)**
COOPERATION: All ministries, agencies and public services involved shall assess the need to set up collaboration with other Eastern Mediterranean National Entities (i.e Greece and Israel) in the areas of common interest, e.g. – sea border monitoring, water quality monitoring, fire detection, Search, and rescue, etc.	Sign a Number MoU (8) throughout the period of 2025-2030 **(KPI 17)**
EU REGULATIONS. All ministries, agencies and public services involved must analyse the need of satellite-based services in implementation of the EU regulations (e.g. water quality, land use, etc.)	For optimizing Space Governance: -Establish a Space Policy Advisory Group in Cyprus by 2027 **(KPI 11)** -Establish the Cyprus Space Office by 2025 **(KPI 12)**

8.5 ESA Associate Member



Our major goal is Cyprus to become an ESA Associate member and eventually a Full Member. The Deputy Ministry of Research, Innovation and Digital Policy of Cyprus considers the accession of Cyprus to the ESA as an urgent and paramount need from an overall perspective.

Current status and potential:

The Cooperation Agreement between the Republic of Cyprus and ESA was signed in August 2009 and the European Cooperation State (ECS) Agreement was signed in July 2016. This Agreement ended in May 2022.In November 2021, Cyprus and ESA signed the new ECS+ Agreement. This new ECS+ Agreement gives the opportunity of a mid-term review in the third year in order to assess our potential readiness to transition earlier to Associate Membership along with many other improvements. The agreement which entered into force in May 2022 and has a duration of 5 Years. Cyprus subscription to PECS has been continuously increasing and reached 3.2 million euros in 2025. This shows the political commitment and will of Cyprus to advance in ESA Convention.

In the last 7 years, the Cypriot Government, in collaboration with the European Space Agency (ESA), has announced 10 ESA PECS Calls and has financed the implementation of approximately 60 projects with a total cost of 13.15 million euros.

Until now, approximately 70 organizations of the private and public sector as well as academic institutions, are active in the field of Space in Cyprus. (The extensive catalogue can be found in our Department's Webpage).

The large number of already successful projects show that there is great potential in Space Technologies and Applications. Cyprus considers that the most important outcome of the ECS Agreement is the formation of a "Space culture" nationally and the preparation of Cyprus in the most efficient manner for future closer cooperation with ESA, as an Associate Member.

Cyprus' interface with ESA is through a delegation from The Department of Electronic Communications (Cyprus Space Office) of the Deputy Ministry of Research, Innovation and Digital Policy, which has been represented at all related PECS meetings (e.g., PECS Committee meetings, PECS Annual Reviews, ITT Debriefs & Activity Selections, etc.) and a number of additional ESA official meetings to which they were invited (e.g. Council and IRC meetings).

Cyprus has reaffirmed its strong commitment to becoming an ESA Associate Member, as emphasized in the current National Space Strategy (and demonstrated by its progress in PECS Period 2 (ECS+ Agreement). Furthermore, a government action plan has been prepared and submitted to ESA that secures the long-term funding envelope and the funding, actions, roles and responsibilities and staffing of the Space office in support of its Space Strategy - providing a strong and clear message to the Cypriot Space industry and enable and encourage private investment.

Cyprus has confirmed to ESA Cyprus' continued interest in commencing, at the earliest possible opportunity, the formal process toward becoming an Associate Member to ESA, and in aligning the process with Cyprus' Presidency of the Council of the European Union in the first half of 2026.

To this end, a formal request for Cyprus to become an ESA Associate Member was submitted to ESA in February 2025 and a final approval will take place in ESA Council in October 2025.

ESA Associate Membership would grant Cyprus access to a wider range of ESA programmes, including optional programmes currently unavailable under its existing status, aligning with national priorities.

Furthermore, the Accession of Cyprus in ESA Associate Membership will provide for a balanced growth and ensure the competitiveness of the Cypriot Space ecosystem.

Industrial coordination is considered very important to help maximize the return on ESA investments and becomes more important as the budgets of and the number of programmes subscribed to increases.

Strategic Actions and Activities	Goals by 2030
ESA RELATIONSHIP. The Deputy Ministry of Research, Innovation and Digital Policy must put focus on pushing Cyprus to become an ESA Associate member. If this is achieved, together with ESA, experts Cyprus can explore possibilities for increased support in terms of training, organization of events and advice with a view to achieve a successful integration of Cyprus in ESA to ensure further development of sustainable and competitive industrial capabilities, and their integration in the Space supply chain.	-Become an ESA Associate member by 2026, **(KPI 6)**

8.6 Satellite Communications



Regarding this pillar the vision is to materialize Cyprus' goal to become a regional digital hub and to be in line with EU goal to become a world-class data hub where data is stored, shared, and processed in a secure way.

Current status and potential: Cyprus have seen major developments in satellite communications infrastructure. Important gateway facilities and monitoring stations have been deployed in Cyprus serving major European satellite operators. These facilities are now expanding to support new satellites that are scheduled for launch in the coming years.

The Cypriot Telecom ecosystem encompasses strong brands and Academia that exhibit a strong national and international presence in the R&D domain, Satellite Communications and Telecommunications overall. Hence, R&D and Satellite Communication Services are the key stepping stones to enter not only the 5G-and-beyond era, but also the Space business segments. The most important thing is that the Cypriot Telecom capacities can result solutions, which are competitive, feasible, viable, profitable and can be exploited by several communities.

Telecommunications affect the way people communicate on a global scale and have become the foundation for industry, governments, academia, and citizens to seamlessly, reliably, and timely connect and share information. Telecommunications not only deal with emailing, searching the internet, making phone calls, etc., but also with other aspects. They are also considered to be as a critical infrastructure for protection against natural disasters, military threats, intellectual properties threats, etc. Remote regions, once unable to access vital resources, now can procure goods and services via ships or air vehicles and in this way systemize development activities; growth and development of society is feasible. Overall, telecommunications industry is worldwide prevalent because encompasses sectors such as: (i) cable distribution; (ii) telephony and VoIP; (iii) satellite communications. These are basically the sectors that employ people and provide average hourly earnings. Moreover, access to long-distance or remote education opportunities outside traditional ways have led a further leveraging for telecommunications. Indeed, this has been well-justified during the COVID era. As for the industry, companies are now relying even more than ever on telecommunications to foster operational efficiency and stimulate steady growth.

Motivated by the needs outlined above; to jointly address them all at country level it is important to exploit available telecommunication infrastructures and wisely orchestrate them. The latter implies that Space-assets **ensuring satellite communications** should also join this effort either by leasing them or developing them.

Cyprus is a country that hosts companies exhibiting portfolios with satellite communications services already therein. This is rather significant for the country itself and the Eastern Europe, and is considered as a big advantage to further boost the telecommunications network infrastructure at the region. However, to keep up pace with the upcoming technology advancements **it is more than critical to leverage the existing Cypriot infrastructures and develop new ones when this is necessary.** To make it feasible, **focused, and efficient, dedicate funding schemes** are necessary either from the government either from ESA. Further to that it is essential for Cyprus government to create specific initiatives to strengthen the sector. Strategic Actions which fall under this pillar aim to succeed the above.

8.6.1 Leverage the existing Cypriot infrastructures and develop new ones

As mentioned before, in ordered to keep up pace with the upcoming technology advancements we must leverage the existing Cypriot infrastructures and develop new ones and in order to make it feasible, focused, and efficient, dedicate funding schemes are necessary either from the government either from ESA. Regarding the latter, the Agency -when guided by national needs- is undoubtedly able to support the definition of the technology requirements and specifications, provide the know-how on the development procedures and recommend a realistic national roadmap. Consequently, a closer collaboration with ESA, especially as an Associate Member will help Cyprus to:

(i) leverage the exploitation of the existing Satellite Communication infrastructures and address current needs,
(ii) enhance the infrastructures
(iii) develop new capacities for merging needs

8.6.2 Develop national Initiatives to strengthen the sector and attract new companies

The attraction of satellite operators to Cyprus will benefits the State Budget through authorization fees therefore is of outmost importance to develop government initiatives to facilitate this. As an example, Cyprus should keep a clear and simple tax regime, i.e. without imposing tax conditions on premiums and develop or improve legislation on Space and satellite registers.

Also, since Cyprus is an island, that its economy specializes in the sector of services (legal, accounting and insurance services), this companies should have developed significant know-how, specializing in the satellite industry, strengthening the island's ability to enter and operate successfully in satellite cutting-edge sectors.

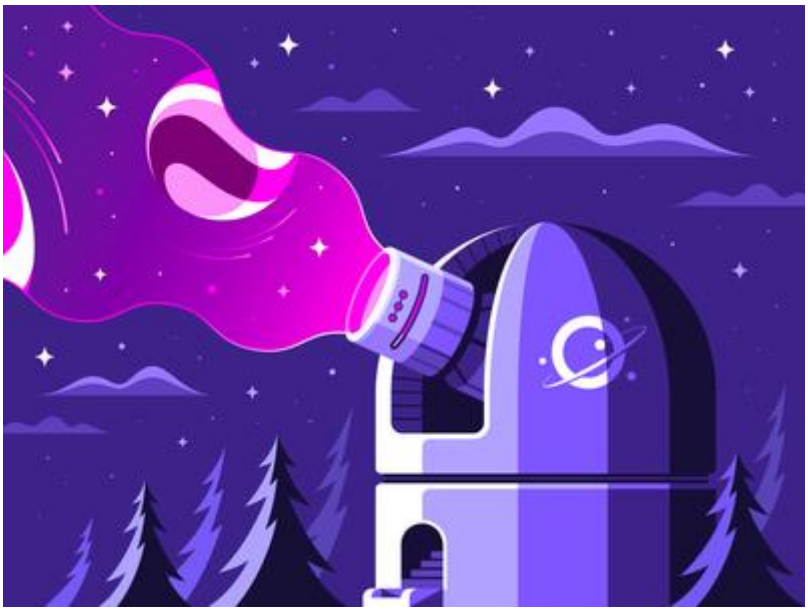
8.6.3 Improve Satellite Coordination procedures

Satellite coordination is of outmost importance. The coordination is based on set of rules by ITU and following specific procedures. The coordination procedure is quite complex and requires trained and competent personnel in the fields of Satellite Communications as well as a set of clear procedures. Until now, satellite coordination is performed by the Department of Electronic Communications with the support of the licensed operators in terms of technical information. Hence a large administrative burden falls on the department.

Therefore, for the procedure to be more efficient and executed in the correct and timely manner the Government must invest in terms of human resources by hiring well trained professionals in the field of satellite communications or outsourcing the whole procedure to Companies specialized in such field.

Strategic Actions and Activities	Goals by 2030
INFRASTRUCTURES: The Deputy Ministry of Research, Innovation and Digital Policy to keep up pace with the upcoming technology advancements must leverage the existing Cypriot infrastructures and develop new ones. In order to make it feasible, focused and efficient, dedicate funding schemes are necessary either from the government either from ESA.	-a Number of new Satellite Communications infrastructures will be created by 2030 **(KPI 13)**
ESA RELATIONSHIP: Enhance collaboration with ESA, especially as an Associate Member since this will help Cyprus to: (i) leverage the exploitation of the existing Satellite Communication infrastructures and address current needs, (ii) enhance the infrastructures (iii) develop new capacities for merging needs	-Become an ESA Associate member by 2026, **(KPI 6)**
SATELLITE COORDINATION: Satellite coordination is of outmost importance. The coordination is based on set of rules by ITU and following specific procedures. The coordination procedure is quite complex and requires trained and competent personnel in the fields of Satellite Communications as well as a set of clear procedures. Therefore, in order for the procedure to be more efficient and executed in the correct time manner the Government must invest in terms of human resources	Hire 3 (three) well trained professionals in the field of satellite communications or outsource the whole procedure to Companies specialized in such field by 2027 **(KPI 14)**
INITIATIVES: The attraction of satellite operators to Cyprus will benefits the State Budget through authorization fees therefore is of outmost importance to develop government initiatives to facilitate this.	Keep a clear and simple tax regime, ie without imposing tax conditions on premiums and develop or improve legislation on Space and satellite registers by 2030 **(KPI 15)**

8.7 Astronomy



Regarding this pillar, our vision is Cyprus to become an attractive destination for Astronomers and develop the appropriate infrastructures for that reason. Also, part of that vision is to educate and create a cross disciplinary experience for a cross generational audience with emphasis on education of primary and secondary school students as well and young graduates.

Current status and potential: It is widely acknowledged that Astronomy can play a very important role in inspiring young people to pursue a career in Science and Engineering. This is due to the fascinating nature of the subject but also since Astronomy is usually in the news because of the frequent discoveries being made with the world's largest telescopes. It is worth noting that in the last 10 years, 4 of the Nobel prizes in Physics were awarded for discoveries in Astronomy (2020 on black holes, 2019 on exoplanets and cosmology, 2017 for gravitational waves, 2011 for the accelerated expansion of the Universe). The potential for discovery is still huge and there are several big multi-national astronomy projects in progress or in the planning phase. Hence supporting professional astronomy is very important.

For the last 20 years several private organizations and associations have been organizing Astronomy events on their own quite successfully but without collaborating with each other. This resulted in preparation of the society to love astronomy and participate in large numbers but without structured continuation. Collaboration is of outmost importance and the links between the astronomy organizations must strengthen. There are different organizations with different strengths and weaknesses and it is key to identify which of these organizations are actually active in the outreach sector and of course which ones do it well. Ultimately, there should be support and funding available to them.

In addition, Cyprus has PhD graduates in Astrophysics and Astronomy that are currently working in irrelevant to their studies jobs. These people could be the critical mass for the upgrade of Astronomy and Space research in Cyprus.

Furthermore, there are already many highly skilled Astronomy educators that offer regular courses during events. Educators from public and private schools can be trained and include Astronomy in their curriculum. It is important to note that Physics teachers already have the necessary knowledge and skills to teach introductory astronomy and astrophysics courses.

8.7.1 Introduce Astronomy education in Schools

As most scientific research has shown, students who are exposed to astronomy education and experience, are more willing to follow science related professions. In Cyprus nowadays there is a big gap in science professions and if this continues Cyprus will stay behind in this highly competitive international environment. In combination with STEAM education students will explore their curiosity and potential.

Also, we must investigate whether there are ways to encourage universities to offer more astronomy and aero-Space related courses. Of course, one way would be to increase demand for them (and hence the need for astronomy education before university)

Space related technologies, research and investments are on the rise and Cyprus sets its priority to enter and catch up with international demands and needs at 3 levels such as:

[i] School and student (primary and secondary) education, by introducing astronomy in both gymnasiums and lyceums. Regarding this It's also very important that the Ministry of Education and Culture is also involved in this discussion.

[ii] young graduates training and entrepreneurs /startups and

[iii] Experiential education in Astronomy which is the first step of questioning and understanding.

In general, by emphasizing in Astronomy educational experience will result in gaining skills in a wide range of fields including physics, math, computer science, critical thinking, and problem solving. For this reason, astronomy and physics majors are prepared for many careers, both inside and outside the physical sciences.

Finally, through Astronomy, Cyprus can attract young people to study science and engineering, and can increase public interest and understanding of science and technology – both of which are important in all countries, both developed and developing.

8.7.2 Support Professional Astronomy

It is very important to underline the role that can be played by professional astronomers who are better able to convey to audiences of all ages the new fascinating discoveries that are being made in the subject. Therefore, is very important to strengthen and enlarge the scientific community which is related to Astronomy in Cyprus which in turn can support the activities mentioned in the current strategy.

Therefore, thought this strategy we will introduce mechanisms to increase the number of permanent faculty level positions in Astronomy/Astrophysics at Public and Private Universities and possibly other organizations such as a National Observatory. This will lead to the

development of Research Centres or groups at Universities with PhD students and other early-stage researchers. These Centres will also be able to give the opportunity to undergraduate and postgraduate students at universities to carry out projects related to Astronomy. Many students who decide to pursue research in Astronomy have been inspired by carrying out such projects during their undergraduate studies.

Moreover, Professional astronomers can engage in the following activities:

• Basic research in Astronomy/Astrophysics which leads to high impact publications which can in turn boost the rankings of universities. All highly ranked Universities in the world have strong Astrophysics groups.

• Training of students in data-intensive science, computing, Artificial Intelligence. As in other countries with developed Space ecosystems, the majority of these students will not follow a career in Astronomy but can have very successful careers as data analysts, computer scientists etc.

• Carry out outreach activities which can stir up the interest of the young generation to study a STEM subject

8.7.3 Leverage existing Infrastructures and Programs

Regarding Astronomy related infrastructure are described below and all the opportunities that arise from them should be exploited:

- **Troodos Observatory**: It is expected to be operational in June 2025. The Troodos Observatory, funded with 1.77 million euros is located in the Troodos mountains, it aims to attract visitors to areas increasingly affected by urbanization and broaden the depth of celestial knowledge. The observatory is equipped with a 20-inch reflective telescope, under a rotating 5.6m wide dome and a solar telescope beneath a hydraulic roof.
- **Cyprus Planetarium at Tamasos**: Operated in June 2023 and is one of the most technologically advanced Planetariums in Europe with a large Dome of 20m. It is a multi-million project and it will offer educational programs for all ages, present immersive films about the universe and the earth and will offer VR

experiences within its premises. It will be finishing by the end of this year as well.

To fully exploit this infrastructure, we need to improve the quality of the night sky that it has been deteriorating rapidly due to light pollution. For astronomy activities to continue, we must ensure there are appropriate measures to protect dark sky locations and make sure that light pollution in general is kept to a minimum.

Strategic Actions and Activities	Goals by 2030
EDUCATION: Nurture a stream of graduates and post-grads to support the Astronomy sector. Firstly, Primary and Secondary Schools and Secondly Universities, in collaboration with local industrial partners and active Space-related non-profit organizations must develop: • hands-on training activities • primary and secondary education courses • higher-education Astronomy related courses and • lifelong learning programmes in order to emphasize in Astronomy educational experience. This will result for gaining skills in a wide range of fields including physics, math, computer science, critical thinking, and problem solving.	Create a critical mass of sufficient new young Astronomers available to the Cypriot Space ecosystem. These could be Amateur Astronomers or Highly Qualified Researchers and Professionals by 2030.
AWARENESS: Boost awareness in Astronomy**.** All parties involved in Space must introduce activities that promote the awareness to companies, scientific representatives and the public about Astronomy and its benefits.	Introduce Astronomy activities that promote the Astronomy awareness through a Number of Conferences (4), Trainings (4), Seminars (4) and School Visits (8) throughout the period of 2025-2030 with the help of Local Astronomy Organizations and Institutes **(KPI 18)**
INFRASTRUCTURES: The Deputy Ministry of Research, Innovation and Digital Policy to keep up pace with the upcoming technology advancements must leverage the use of the existing Cypriot Astronomy infrastructures such as the Troodos Observatory and Tamaso's Planetarium.	Get the Telescopes involved in Optical Communications, EuroQCI and SSA/SST EU Programme by 2030 **(KPI 19)**

8.8 Earth Observation



Regarding this pillar, the earth observation sector is a very important priority for Cyprus. Having in mind that Cyprus has one of the best climate conditions for earth observation, we can secure funds and attract investments in this sector. Of course, it is very important that the expertise gained from the academia and the research to be transferred to the industry for the commercial development of related services.

Current status and potential:

Earth observation along with the telecoms are the technologies that are largely developed in Cyprus. Especially EO has a broad network in Cyprus and many of the entities have developed cutting edge technologies. A bright example is the newly established Centres of Excellences that specialized in the field of EO.

During the last decades, earth observation has become more sophisticated with the development of remote-sensing satellites and the ever-increasing high-tech instruments (e.g. floating buoys for monitoring ocean currents, temperature; seismic and GPS stations). Now, more than ever, this sector is very important, due to the

impact that human civilization has on the environment. Earth observation is not only for photographs and images, but also about water and soil analysis, processed information (e.g., maps, forecasts, etc.), measurements by seismograph, etc. All data and meta-data stemming from EO have led till today to services such as tracking wildlife trends; land-use change; managing energy sources, freshwater supplies and agriculture; facing diseases; predicting and mitigating climate change; etc. Therefore, the benefits that EO can provide the humans with, are straightforward.

Cyprus hosts a few entities that operate in the EO sector; and this is no coincidence. Indeed, the country due to its geographical location is rich in physical resources. On the one hand Cyprus is located among three continents (Europa, Asia, Africa); hence it is more vulnerable to natural disasters (e.g. earthquakes), on the other hand has an advantageous position as it is easier for the country to establish strategic synergies with the neighbouring countries as a countermeasure against e.g. military crisis.

Therefore, Cyprus should rely on the respective Space assets for several reasons, e.g., security against invasions, protection against natural crisis, environmental (land and water changes) and physical resources (energy resources) sustainability.

Consequently, it is important to maintain and further enhance the EO existing capacities, as well as even develop new ones. Considering this, Cyprus's collaboration with ESA will help the country towards this direction.

8.8.1 Cypriot Government to exploit EO applications

As already mention in previous chapter, the Cypriot Government will undertake a review of the various responsibilities of public sector organizations to determine which entities could potentially benefit from the application of Space-related EO services. In this way, Government hopes to improve the overall effectiveness of certain public sector functions, while also being an early driver of demand for the local

Space industry. Such area where Space-based technology can help facilitate Government's responsibilities is Copernicus programme.

The EU's Earth observation programme Copernicus can provide a vast array of freely available data and measurements to service providers and public authorities. The Cypriot Government anticipates being able to utilize this data to:

- Monitor air quality and climate trends, thereby enabling more informed environmental and public health decision making;
- Monitor marine data to enable better protection of marine resources and the provision of more effective marine safety services; and
- Monitor trends in land coverage and usage, allow for more informed decisions related to the natural and built environments, as well as better utilization of Cyprus's limited natural resources.

To achieve that CY must make use of Centres of Excellence (along with industry and academia) to generate a 'home' market for EO applications in the government (and its associated agencies) via policies at government level.

Following the above, a dedicated ESA PECS call was released with the aim of gaining a more detailed and accurate picture of the EO capabilities and needs in the country and identifying a set of adequate and high-priority EO solutions to be created, either by taking stock of existing resources, or by developing new ones. For the latter, it is equally essential to develop capabilities that leverage EO-based information in synergy with a range of other environmental and socioeconomic sources of data. Results from this study will be available by the end of October 2025 and are expected to guide future activities in the area of Earth Observation and Downstream Applications.

8.8.2 Leverage the existing Cypriot EO infrastructures and develop new ones

in ordered to keep up pace with the upcoming technology advancements we must leverage the existing Cypriot EO infrastructures and develop new ones and to make it feasible, focused, and efficient, dedicate funding schemes are necessary either from

the government either from ESA. Regarding the latter, the Agency -when guided by national needs- is undoubtedly able to support the definition of the technology requirements and specifications, provide the know-how on the development procedures and recommend a realistic national roadmap. Consequently, a closer collaboration with ESA, especially as an Associate Member will help Cyprus to:

(iv) leverage the exploitation of the existing EO infrastructures and address current needs,
(v) enhance the EO infrastructures
(vi) develop new capacities for merging needs

Therefore, local Centres of Excellence (CoE's) and the private sector will play a pivotal role in exploiting this field. Further to that a EO Ground Station is planned to be deployed (Q4 of 2025) and will be capable of NRT data reception from EO satellites. This will be the only system in Cyprus with such capability.

Strategic Actions and Activities	Goals by 2030
CY TO EXPLOIT EO APLICATIONS: All ministries, agencies, and public service organizations (where appropriate) must foresee the use of Earth Observation based services in the respective legislative acts and integrate them in the public sector based on added-value and competitiveness and for the prosperity of the citizens. To achieve that CY must make use of Centres of Excellence (along with Industry and Academia) to generate a 'home' market for EO applications in the government (and its associated agencies) via policies at government level.	Generate 5 sustainable Earth Observation and navigation services that are based on advanced data analytics capabilities which will be developed by Cyprus Industry, Academia, and Centres of Excellence for the public sector in various governmental fields**.** by 2030 **(KPI 9)**
EMERGING TECHNOLOGIES: Use new EO technologies/services in order for Cyprus to strengthen its strategic goal to become a regional digital hub	
AWARENESS: All responsible ministries must raise awareness of the potential of EO applications in the public sector for various governmental fields through the provision of trainings for different governmental level specialists and key decision-makers.	Organization of a Number of Trainings (20) throughout the period of 2025-2030 **(KPI 16)**
INFRASTRUCTURES: The Deputy Ministry of Research, Innovation and Digital Policy to keep up pace with the upcoming technology advancements must leverage the existing Cypriot EO infrastructures and develop new ones. In order to make it feasible, focused and efficient, dedicate funding schemes are necessary either from the government either from ESA.	-a Number of new EO infrastructures will be created by 2030 **(KPI 20)**

9 FUNDING

Implementation of this strategy will be mainly funded from the following sources:

- Cyprus annual contributions to the RPA programme
- Cyprus annual Subscription for ESA Associate Membership to specific ESA Optional Programmes
- Through participation in the EU Horizon Europe, Digital Europe, CEF2 and EDF programmes
- Through relevant national support programmes of the Research & Innovation Foundation
- EU Structural Funds programmes for research, innovation and start-ups (eg. CASSINI Initiative, EIB etc)
- Through the allocated national budget of the involved ministries.

This strategy will be updated every three years to ensure that the information and measures to be taken are up to date and to ensure that the Cypriot contributions to ESA keep pace with the development of Cypriot industry. The next update will be in 2029.

Annex I Performance measurement of strategy implementation (KPI's)

Cyprus Space Policy Advisory Group will review performance of the Space Strategy of Cyprus 2025-2030 in achieving its results against related Key Performance Indicators (KPIs).

Cyprus Space Policy Advisory Group will provide a report to the Deputy Minister of Research, Innovation and Digital Policy every year, reporting on the performance of the strategy and recommending changes to the strategy, including suggested new KPIs for improved measurement.

Outcome 1: Sufficient numbers of Cypriot-educated and suitably skilled new workers are available for employment in the Cypriot Space Sector.

KPIs:

[1.1] Number of PhD and Master's students with Space-related theses - at least 6 PhD theses and 20 MSc theses until 2030

[1.2] Number of Young Graduate trainees and International Research fellows at ESA – at least 3 Young Graduate trainees and International Research fellows at ESA until 2030

[1.3] Number of Space-related modules (courses) offered by Cypriot universities – at least 6 new or improved Space-related modules (courses such as Space engineering, astrodynamics, astrophysics etc) offered by Cypriot universities until 2030

[1.4] Number of trainee placements in Cypriot Space companies – at least 6 until 2030.

[1.5] Develop a detailed Skills Needs Assessment (SNA) by end of 2028.

[1.6] Number of Trainings throughout the period of 2022-2030 at least 30 until 2027

[1.7] Introduce Space activities that promote the Space awareness - Number of Conferences (8), Trainings (12), Seminars (12) and School Visits (8) throughout the period of 2022-2030

[1.8] Attract a Number of highly skilled talent (10) for local Space related industries by the end of 2030 (KPI 1.8)

Outcome 2: At least 5 new companies benefit from the ESA engagement (Through PECS+ or Associate Membership)

KPI:

[2] Number of New Cypriot companies or research institutions, which won a contract in any ESA programme (Through PECS+ or Associate Membership) – at least 5 until 2030

Outcome 3: Establish a Space BIC (Space Business Incubation and Advice Center) (later to be an ESA BIC) in Cyprus by 2025. At least 10 (if Space BIC (Space Business Incubation and Advice Center) established) new start-up or spin-off companies created and benefit from the ESA engagement. Also, assess the feasibility of a dedicated Space Technology Park to boost the Space Ecosystem

KPI:

[3.1] Establish a Space BIC (Space Business Incubation and Advice Center) (later to be an ESA BIC) in Cyprus by 2025.

[3.2] Number start-up or spin-off companies created and benefit from the ESA engagement, in terms of contracts won, loans or technical support that impact their product development and IPR – at least 10 (if Space BIC (Space Business Incubation and Advice Center) established) until 2030.

[3.3] Feasibility Study of a dedicated Space Technology Park by 2030.

Outcome 4: At least 3 commercial Space contracts won by Cypriot entities outside the ESA and EU programmes.

KPI:

[4] Number of commercial Space contracts won by Cypriot entities outside the ESA and EU programmes – at least 3 until 2030

Outcome 5: Cypriot companies have products in the supply chain of the Large System Integrators.

KPI:

[5] Number of Cypriot companies which have products in the supply chain of the Large System Integrators – at least 4 until 2030.

Outcome 6: Become an ESA Associate Member.

KPI:

[6] become an ESA Associate Member by 2026

Outcome 7: Create Cyprus Space Website and an assessment of the infrastructure available in Cyprus, needs and gaps by 2027

KPI:

[7.1] Create Online Directory and Cyprus Space Website by the end of 2027

[7.2] Have an assessment of the infrastructure available in Cyprus, needs and gaps and include it Cyprus Space Website by the end of 2027

Outcome 8: The number of above the threshold evaluated project proposals through the EU Horizon Europe programmes in Space-related activities are doubled (from years 2022 to 2027). Also Boosting existing Government programmes and launch initiatives aimed at supporting collaboration between academia and private enterprise within the Space sector in order to have Commercial applications.

KPI:

[8.1] Number of project proposals evaluated above the threshold through the EU Horizon Europe programme in Space-related activities (from years 2021 to 2027) – at least 15.

[8.2] Number of project proposals financed through Research Promotion Foundation's RESTART Programme or equal national scheme (from years 2022 to 2027) – at least 15.

[8.3] Build and develop new Space funds to ensure that start-ups and SMEs continue to have access to local funding by 2027. **(KPI 8.3)**

[8.4] Number of Cypriot companies operating in non-Space markets to have integrated Space-based capabilities into their commercial service portfolio (e.g. civil/geotechnical engineering, consulting engineering, health services, transport services, infrastructure providers, and financial services) by 2028 –at least 4

Outcome 9: At least five new sustainable Earth Observation or navigation services (applications) that are based on advanced data analytics capabilities of Space data are developed and integrated into the public or private sector

KPI:

[9] Number of Earth Observation or navigation services (applications) that are based on advanced data analytics capabilities of Space data developed and integrated in the public or private sector – at least 5 until 2030.

Outcome 10: Establish an Optical Gateway in Cyprus in order to interconnect with EuroQCI and the upcoming Space Based Secured Connectivity Initiative

KPI:

[10] Establish an Optical Gateway in Cyprus by 2030.

Outcome 11: Establish a Space Policy Advisory group

KPI:

[11] Establish a Space Policy Advisory Group in Cyprus by 2027.

Outcome 12: Establish Cyprus Space Office

KPI:

[12] Establish the Cyprus Space Office, within DEC

, by 2025

Outcome 13: New Satellite communications infrastructures

KPI:

[13] A Number of new Satellite Communications infrastructures will be created by 2030

Outcome 14: Improve Satellite coordination section

KPI:

[14] Hire 3 (three) well trained professionals in the field of satellite communications or outsource the whole procedure to Companies specialized in such field by 2027

Outcome 15: Develop government initiatives to attract sat comms companies

KPI:

[15] Keep a clear and simple tax regime, and improve legislation on Space and satellite registers by 2030

Outcome 16: All responsible ministries must raise awareness of the potential of Space applications in the public sector for various governmental fields through the provision of trainings for different governmental level specialists and key decision-makers.

KPI:

[16] Organization of a Number of Trainings (20) throughout the period of 2025-2030

Outcome 17: All ministries, agencies and public services involved shall assess the need to set up collaboration with other Eastern Mediterranean National Entities (i.e Greece and Israel) in the areas of common interest, e.g. – sea border monitoring, water quality monitoring, fire detection, Search and rescue, etc.

KPI:

[17] Sign a Number MoU (8) throughout the period of 2025-2030

Outcome 18: Introduce Astronomy activities that promote the Astronomy awareness

KPI:

[18] Introduce Astronomy activities that promote the Astronomy awareness through a Number of Conferences (4), Trainings (4), Seminars (4) and School Visits (8) throughout the period of 2025-2030 with the help of Local Astronomy Organizations and Institutes

Outcome 19: Leverage the Use of National Infrastructure in EU Programs

KPI:

[19] Get the National Telescopes involved in Optical Communications, EuroQCI and SSA/SST EU Programme by 2030.

Outcome 20: New Earth Observation infrastructures

KPI:

[20] A Number of new Earth Observation infrastructures will be created by 2030

Annex II Image References

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Annex III ACTION PLAN

Pillar 1: Education, Skills and Awareness

Key Actions	Goals and Completion date	Ownership/Responsibility	Stakeholders
EDUCATION: Nurture a stream of graduates and post-grads to support the Space sector. Universities in collaboration with local industrial partners and active Space-related non-profit organizations must develop: • hands-on training activities • higher-education Space related courses and • lifelong learning programmes in order to help secure sufficient local highly qualified workforce.	-At least 6 PhD Space-related theses and 20 MSc Space-related theses until 2030 (**KPI 1.1)** -At least 6 new or improved Space-related modules (courses) offered by Cypriot universities until 2030 (**KPI 1.3)**	Universities in collaboration with local industrial partners and active Space-related non-profit organizations	Wider Public/Postgrads and Undergrads
SKILLS: Enable upskilling to support industry demands of Space enterprises	Consult with industry to agree on skills shortages and develop a detailed Skills Needs Assessment (SNA) by end of 2028 (**KPI 1.5)**	Ministry for Education/ Ministry of Labour and Social Insurance	Industry

Key Actions	Goals and Completion date	Ownership/Responsibility	Stakeholders
TRAINEESHIPS/SECODMENTS: Create a National Trainee scheme that also includes summer placements, stagers, and trainees from academia to local Space industry. Also, in collaboration with ESA must create practical trainings/secondments opportunities at ESA technological Centres (ESTEC, ESRIN, ESOC, etc.).	-At least 3 Young Graduate trainees and International Research fellows at ESA until 2030 (**KPI 1.2**) -At least 6 trainee placements in Cypriot Space companies until 2030 **(KPI 1.4)**	Ministry of Labour and Social Insurance	Wider Public/Postgrads and Undergrads
TRAINING: Identify education and training opportunities to meet industry needs. Then Organize relevant training courses for various Space disciplines in Cyprus, delivered by ESA experts (e.g. engineering, standardization, EO/remote sensing, Space communications, Space Situational Awareness, climate science, etc.).	Organization of Number of Trainings (no less than 30) throughout the period of 2022-2030**(KPI 1.6)**	Deputy Ministry of Research, Innovation and Digital Policy /ESA/Centres of EXCELLENCE/Universities	Public Sector/Industry/Wider Public/Postgrads and Undergrads

Key Actions	Goals and Completion date	Ownership/Responsibility	Stakeholders
AWARENESS: Boost awareness**.** All parties involved in Space must introduce activities that promote the awareness to companies, scientific representatives, and the public about cooperation with ESA, as well as Cyprus's potential and experience in the development of Space and related technologies, the importance of these technologies and their possible applications.	Introduce Space activities that promote the Space awareness through a Number of Conferences (8), Trainings (12), Seminars (12) and School Visits (8) throughout the period of 2022-2030**(KPI 1.7)**	Deputy Ministry of Research, Innovation and Digital Policy /ESA/Centres of EXCELLENCE/Universities/Industry/ Ministries	Public Sector/Industry/ Wider Public/Primary Education/Secondary Education/Postgrads and Undergrads
INCENTIVES: Development of schemes for attracting skilled human capital. Cyprus can attract highly skilled talent for Space active and related industries by facilitating pathways to the Cypriot Space sector through financial incentives and work permits/visas for highly skilled labor.	Attract a Number of highly skilled talent (10) for local Space related industries by the end of 2030 **(KPI 1.8)**	Ministry of Finance/Ministry of Foreign affairs/ Ministry of Labour and Social Insurance	International Space Stakeholders

Pillar 2: Entering in the Space supply chain and international impact

Key Actions	Goals and Completion date	Ownership/Responsibility	Stakeholders
MARKETING: All ministries, agencies, enterprises, and research organizations involved in the Cypriot Space sector must collaborate to market the country's achievements and potential and promote its visibility internationally.	Cyprus to be represented by competent individuals in the most important international bodies and expert groups and the Space activities of the EU (Space programme + research programme) and ESA by the end of 2029 Cyprus Space Office and the Space Policy Advisory Group must coordinate the positions of Cyprus.	Cyprus Space Office/The Space Policy Advisory Group	All Space Ecosystem
SUPPORT. The Deputy Ministry of Research, Innovation and Digital Policy must collaborate with all parties involved in the implementation of this Strategy to create a support framework for the Cypriot industry in all matters related to ESA and other EU Space programmes and build up the industrial capacity in the field of Space activities.			
TRADE EVENTS: The Ministry of Energy, Commerce, and Industry and the Deputy Ministry of Research, Innovation and Digital Policy must provide support to Cypriot companies to participate at international Space-related events focusing on the local community's integration in the global Space supply chains.	Local community's integration in the global Space supply chains by the end of 2028	Ministry of Energy, Commerce, and Industry Deputy/ Ministry of Research, Innovation and Digital Policy	Industry

Key Actions	Goals and Completion date	Ownership/Responsibility	Stakeholders
START-UPS: The Ministry Trade and the Deputy Ministry of Research, Innovation and Digital Policy must create favourable conditions for foundation of new start-ups in the Space sector, especially considering creating a Space Business Incubation Centre in Cyprus. This Space BIC (Space Business Incubation and Advice Center) could be set up, with links to a future PECS or RPA programme as a stepping stone to prepare for an eventual ESA BIC that the EU funding requests. Also, The Deputy Ministry of Research, Innovation and Digital Policy could asses the feasibility of a dedicated Space Technology Park to boost the Space Ecosystem. The feasibility should be carried out through PECS Progamme.	New Space sector companies including start-ups have been established or reoriented in Cyprus and benefit from the ESA engagement. -At least 5 new companies benefit from the ESA engagement (Through PECS+ or Associate Membership) until 2030 (**KPI 2)** -At least 10 (if Space BIC (Space Business Incubation and Advice Center) established) start-up or spin-off companies created and benefit from the ESA engagement, in terms of contracts won, loans or technical support that impact their product development and IPR until 2030. **(KPI 3.2**)	Ministry of Energy, Commerce, and Industry/ Deputy Ministry of Research innovation and digital Policy	Industry/ Academia/Wider Public
	-Establish a Space BIC (Space Business Incubation and Advice Center) (later to be an ESA BIC) in Cyprus by 2025. **(KPI 3.1)**	Deputy Ministry of Research innovation and digital Policy/ ECoE	
	-Feasibility Study of a dedicated Space Technology Park by 2030. **(KPI 3.3)**	ESA/ Deputy Ministry of Research innovation and digital Policy	

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
LEGISLATION. The responsible authorities must review Cyprus regulatory framework for licensing the use of radiofrequency spectrum for satellite communication purposes. The laws, regulations and policies will be analysed and amendments suggested so as to create an environment that encourages the development of the Space sector, including the private use of satellite spectrum, while safeguarding the interests of Cyprus.	The needs for amendments to national legislation have been analysed from the viewpoint of business support for the Space sector by 2028.	Deputy Ministry of Research innovation and digital Policy	Industry/ Academia/Wider Public
ESA PROGRAMMES. The Deputy Ministry of Research, Innovation and Digital Policy must put focus on pushing Cyprus to become an ESA Associate member. If this is achieved, together with ESA, experts Cyprus can explore possibilities for increased support in terms of training, organization of events and advice with a view to achieve a successful integration of Cyprus in ESA to ensure further development of sustainable and competitive industrial capabilities, and their integration in the Space supply chain.		ESA/ Deputy Ministry of Research innovation and digital Policy	Industry/ Academia/Wider Public

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
ENABLING. The Deputy Ministry of Research, Innovation and Digital Policy provide must support instruments and measures to innovative Space companies. Thus, it must identify and facilitate the international opportunities to utilize Cypriot Space solutions and Space data and facilitates investments in Cyprus. It is of paramount importance to increase the international cooperation between Cypriot entities and entities in ESA member states and other EU countries in order to help build to Cyprus's ambitions as a regional digital hub.	Cypriot entities have commercial Space contracts won outside ESA and EU programmes and have products in the supply chain of the Large-Scale Integrators. -At least 3 commercial Space contracts won by Cypriot entities outside the ESA and EU programmes until 2030 **(KPI 4)** -At least 4 Cypriot companies which have products in the supply chain of the Large System Integrators until 2030 **(KPI 5)**	Deputy Ministry of Research, Innovation and Digital Policy	Industry/ Academia/Wider Public

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
ONLINE DIRECTORY / CYPRUS SPACE WEBSITE: The Deputy Ministry of Research, Innovation and Digital Policy must develop the online Cyprus Space directory and Cyprus Space Website to promote the Cypriot Space industry capabilities to the global Space market and must create a dedicate Cyprus Space Website Moreover, an assessment of the infrastructure available in Cyprus, needs and gaps, is considered especially important due to the island status of Cyprus and the difficulty and expense in accessing infrastructure (manufacturing and testing) in other countries.	Create Online Directory and Cyprus Space Website by the end of 2027 **(KPI 7.1)** Have an assessment of the infrastructure available in Cyprus, needs and gaps include it Cyprus Space Website by the end of 2027 (**KPI 7.2)**	ESA/ Deputy Ministry of Research innovation and digital Policy	All Space Ecosystem

Pillar 3: Research and product commercialization

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
EU SPACE PROGRAMME: All ministries, agencies, enterprises, and research organizations working together to actively influence the success of the Cypriot participants in the EU Space programme in order to win new projects, develop innovations and create new business opportunities in Cyprus. **NETWORKS:** The Deputy Ministry of Research, Innovation and Digital Policy will strengthen the participation in international Space and related research partnerships and networks.	Cypriot companies and research organizations which are Horizon Europe participants, will double the number of above the threshold evaluated project proposals in Space topics in the cluster "Digital industry and Space" in comparison to Horizon 2020. -At least 15 project proposals evaluated above the threshold through the EU Horizon Europe programme in Space-related activities (from years 2021 to 2027) **(KPI 8.1)** -At least 15 project proposals financed through Research Promotion Foundation's RESTART Programme or equal national scheme (from years 2022 to 2027) **(KPI 8.2)**	Deputy Ministry of Research Innovation and Digital Policy/Research & Innovation Foundation	Industry/ Academia

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
STANDARDIZATION: a great focus should be given developing mature recurring products and services that can be commercially exploited. This also implies applying the relevant ECSS (European Cooperation for Space Standardization) standards and exploiting research performed by Academia	Through ECS+ agreement a specific training on ECSS Standards for our Space ecosystem was performed in 2022.	Deputy Ministry of Research Innovation and Digital Policy/ Cyprus Standards Organization/ ESA	Industry/ Academia
SUPPORT Space R&D and CoE. Commercial applications of Space-related technologies are the result of close cooperation between business interests and cutting-edge research. Upholding this in mind, supporting the growth of a Cypriot Space industry requires not only supporting research and business interests separately, but also providing mechanisms to facilitate cooperation of such interests.	Special support should be given to CoE's (Centres of Excellence) in order to produce technological excellence and innovation by 2030	Deputy Ministry of Research Innovation and Digital Policy/ Ministry of Economics	Industry/ Academia
NATIONAL PROGRAMMES BOOSTING: Boosting existing Government programmes which may have an impact on Cypriot's Space industry are crucial for Cyprus to achieve its strategic goals. It is essential that Cyprus continues to build and develop these funds to ensure that start-ups and SMEs continue to have access to local funding. These funds give Cypriot businesses and institutions the opportunities to explore different technologies and innovations whether it is through funding business plans, financing feasibility projects or providing consultancy services.	Government shall also launch initiatives aimed at supporting collaboration between academia and private enterprise within the Space sector in order to have Commercial applications. Therefore, Cyprus Government shall build and develop new Space funds to ensure that start-ups and SMEs continue to have access to local funding by 2027. **(KPI 8.3)**	Deputy Ministry of Research Innovation and Digital Policy/ Ministry of Economics/ **The Research and Innovation Foundation (RIF**)	Industry/ Academia

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
COMMERCIALIZATION: Support shall take the form of grants and funding schemes administered by the Research & Innovation Foundation and with the aim of promoting research beyond those areas already funded through existing Space Research funds. Through such a scheme, the Government hopes to bring together entrepreneurs and academics and develop new commercial applications for Space-related technologies.	At least 4 Cypriot companies operating in non-Space markets to have integrated Space-based capabilities into their commercial service portfolio (e.g., civil/geotechnical engineering, consulting engineering, health services, transport services, infrastructure providers, and financial services) by 2028 **(KPI 8.4)**	Deputy Ministry of Research Innovation and Digital Policy/ Ministry of Economics	Industry/ Academia

Pillar 4: Governmental services for National Security and Socioeconomic Sustainability

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
CY GOVERNMENT TO BECOME AN EARLY ADOPTER OF SPACE APPS AND SERVICES: All ministries, agencies, and public service organizations (where appropriate) must foresee the use of Earth Observation and Navigation based services in the respective legislative acts and integrate them in the public sector based on added-value and competitiveness and for the prosperity of the citizens. To achieve that CY must make use of Centres of Excellence to generate a 'home' market for EO and NAV applications in the government (and its associated agencies) via policies at government level.	Generate 5 sustainable Earth Observation and navigation services that are based on advanced data analytics capabilities which will be developed by Cyprus Industry, Academia, and Centres of Excellence for the public sector in various governmental fields by 2030 **(KPI 9)**	Deputy Ministry of Research Innovation and Digital Policy/ CoE's	Industry/ Academia/Public Sector

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
EMERGING TECHNOLOGIES: Use new telecommunication technologies in order for Cyprus to strengthen its strategic goal to become a regional digital hub	Establish an Optical Gateway in Cyprus in order to interconnect with EuroQCI and the upcoming Space Based Secured Connectivity Initiative by 2030. **(KPI 10)**	Deputy Ministry of Research Innovation and Digital Policy	Industry/ Academia/Public Sector
AWARENESS: All responsible ministries must raise awareness of the potential of Space applications in the public sector for various governmental fields through the provision of trainings for different governmental level specialists and key decision-makers.	Organization of a Number of Trainings (20) throughout the period of 2025-2030 **(KPI 16)**	Deputy Ministry of Research Innovation and Digital Policy	Public Sector
COOPERATION: All ministries, agencies and public services involved shall assess the need to set up collaboration with other Eastern Mediterranean National Entities (i.e Greece and Israel) in the areas of common interest, e.g. – sea border monitoring, water quality monitoring, fire detection, Search and rescue, etc.	Sign a Number MoU (8) throughout the period of 2025-2030 **(KPI 17)**	Deputy Ministry of Research Innovation and Digital Policy/Ministry of Foreign Affairs	Public Sector

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
GOVERNANCE: The strengthening of the Department of Electronic Communications in order to act as the Cyprus Space Office should be envisaged To achieve this, Cyprus Government must secure relevant personnel, and funds and invest in this sector in order for Department of electronic communications (DEC) to be able to satisfactorily meet the requirements of the new European environment as well as the upgraded prospects of the domestic market. Moreover, the establishment of a Cypriot Space Policy Advisory Group should be considered by binging back to use the Advisory Committee that has been set up in 2008 composed of representatives from the Cypriot academia and industry, in order to advise the Minister on Space policy related issues. Consequently, this Cypriot Space Policy Advisory Group will be chaired by the Deputy Minister of research Innovation and Digital policy (Ex officio Chairman) and the Executive Arm of the Space Advisory Group will be the Department of Electronic Communications. Other member of the group shall be appointed by the Council of Ministers	For optimizing Space Governance: -Establish a Space Policy Advisory Group in Cyprus by 2027 **(KPI 11)** -Establish the Cyprus Space Office by 2025 **(KPI 12)**	Deputy Ministry of Research Innovation and Digital Policy/Ministry of Finance	All Space Ecosystem

Pillar 5: ESA Associate Member

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
ESA RELATIONSHIP: The Deputy Ministry of Research, Innovation and Digital Policy must put focus on pushing Cyprus to become an ESA Associate member. If this is achieved, together with ESA, experts Cyprus can explore possibilities for increased support in terms of training, organization of events and advice with a view to achieve a successful integration of Cyprus in ESA to ensure further development of sustainable and competitive industrial capabilities, and their integration in the Space supply chain.	-Become an ESA Associate member by 2026 **(KPI 6)**	Deputy Ministry of Research Innovation and Digital Policy	All Space Ecosystem

Pillar 6: Satellite Communications

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
INFRASTRUCTURES: The Deputy Ministry of Research, Innovation and Digital Policy to keep up pace with the upcoming technology advancements must leverage the existing Cypriot infrastructures and develop new ones. In order to make it feasible, focused, and efficient, dedicate funding schemes are necessary either from the government either from ESA.	-a Number of new Satellite Communications infrastructures will be created by 20230 **(KPI 13)**	Deputy Ministry of Research Innovation and Digital Policy	Industry/ Academia/Public Sector
ESA RELATIONSHIP: Enhance collaboration with ESA, especially as an Associate Member since this will help Cyprus to: (iv) leverage the exploitation of the existing Satellite Communication infrastructures and address current needs, (v) enhance the infrastructures (vi) develop new capacities for merging needs	-Become an ESA Associate member by 2026 **(KPI 6)**	Deputy Ministry of Research Innovation and Digital Policy	All Space Ecosystem

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
SATELLITE COORDINATION: Satellite coordination is of outmost importance. The coordination is based on set of rules by ITU and following specific procedures. The coordination procedure is quite complex and requires trained and competent personnel in the fields of Satellite Communications as well as a set of clear procedures. Therefore, in order for the procedure to be more efficient and executed in the correct time manner the Government must invest in terms of human resources	Hire 3 (three) well trained professionals in the field of satellite communications or outsource the whole procedure to Companies specialized in such field by 2027 **(KPI 14)**	Deputy Ministry of Research Innovation and Digital Policy/Ministry of Finance	Industry
INITIATIVES: The attraction of satellite operators to Cyprus will benefits the State Budget through authorization fees therefore is of outmost importance to develop government initiatives to facilitate this.	Keep a clear and simple tax regime, i.e. without imposing tax conditions on premiums and develop or improve legislation on Space and satellite registers by 2030 **(KPI 15)**	Deputy Ministry of Research Innovation and Digital Policy/Ministry of Finance	Industry

Pillar 7: Astronomy

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
EDUCATION: Nurture a stream of graduates and post-grads to support the Astronomy sector. Firstly, Primary and Secondary Schools and Secondly Universities, in collaboration with local industrial partners and active Space-related non-profit organizations must develop: • hands-on training activities • primary and secondary education courses courses • higher-education Astronomy related courses and • lifelong learning programmes in order to emphasize in Astronomy educational experience. This will result for gaining skills in a wide range of fields including physics, math, computer science, critical thinking, and problem solving.	Create a critical mass of sufficient new young Astronomers available to the Cypriot Space ecosystem. These could be Amateur Astronomers or Highly Qualified Researchers and Professionals by 2030.	Ministry of Education/Universities in collaboration with local industrial partners and active Space-related non-profit organizations/Local Astronomy Institutes and Organizations	Wider Public/Postgrads and Undergrads
AWARENESS: Boost awareness in Astronomy**.** All parties involved in Space must introduce activities that promote the awareness to companies, scientific representatives and the public about Astronomy and its benefits	Introduce Astronomy activities that promote the Astronomy awareness through a Number of Conferences (4), Trainings (4), Seminars (4) and School Visits (8) throughout the period of 2025-2030 with the help of Local Astronomy Organizations and Institutes **(KPI 18)**	Deputy Ministry of Research, Innovation and Digital Policy /ESA/Universities/Industry/ Ministries/ Local Astronomy Institutes and Organizations	Public Sector/Industry/ Wider Public/Primary Education/Secondary Education/Postgrads and Undergrads

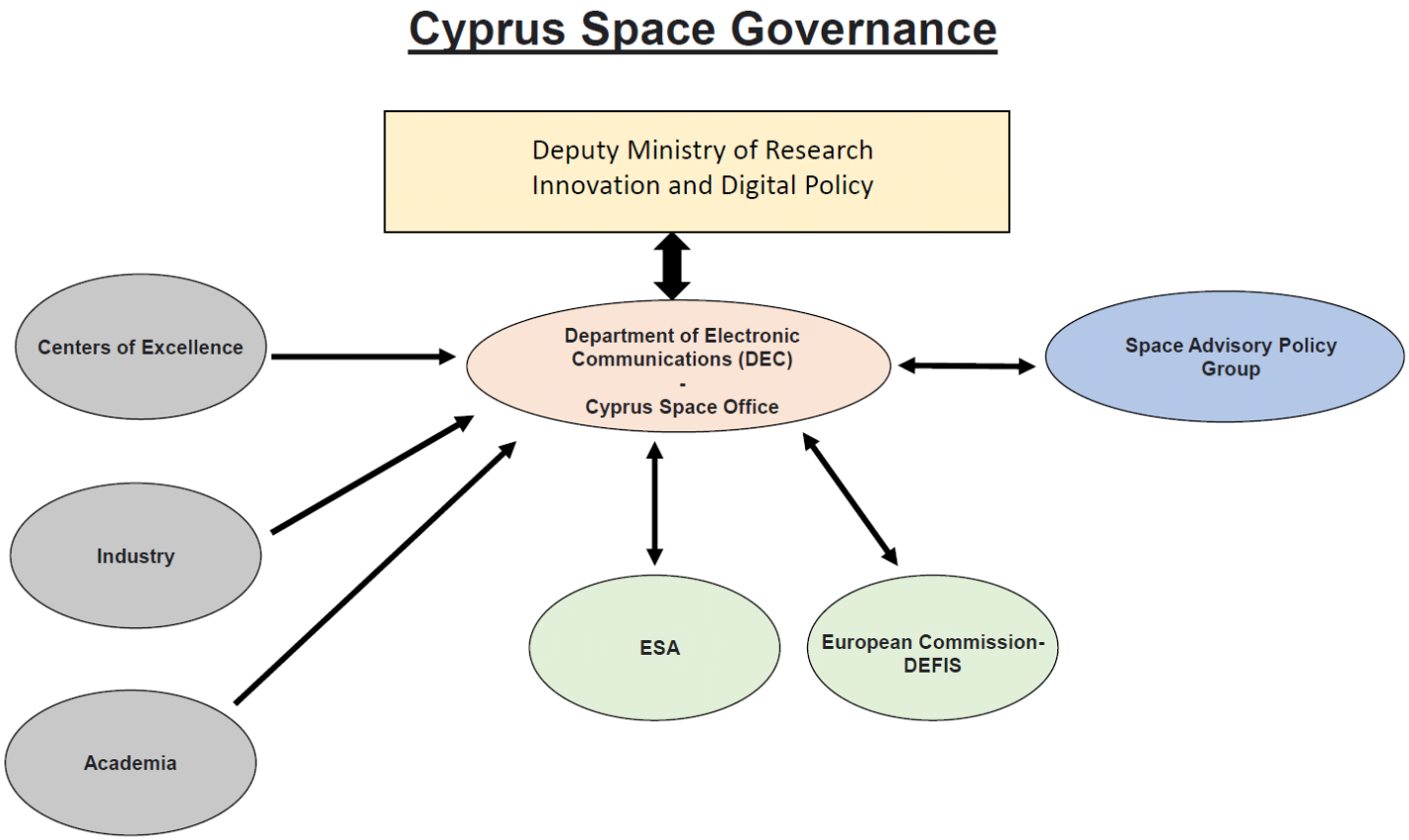
Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
INFRASTRUCTURES: The Deputy Ministry of Research, Innovation and Digital Policy to keep up pace with the upcoming technology advancements must leverage the use of the existing Cypriot Astronomy infrastructures such as the Troodos Observatory and Tamaso's Planetarium.	Get the Telescopes involved in Optical Communications, EuroQCI and SSA/SST EU Programme by 2030 **(KPI 19)**.	Deputy Ministry of Research, Innovation and Digital Policy /ESA/Local Astronomy Institutes and Organizations	Public Sector/Industry/ Postgrads and Undergrads

Pillar 8: Earth Observation

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
CY TO EXPLOIT EO APLICATIONS: All ministries, agencies, and public service organizations (where appropriate) must foresee the use of Earth Observation based services in the respective legislative acts and integrate them in the public sector based on added-value and competitiveness and for the prosperity of the citizens. To achieve that CY must make use of Centres of Excellence (Along with Industry and Academia) to generate a 'home' market for EO applications in the government (and its associated agencies) via policies at government level.	Generate 5 sustainable Earth Observation and navigation services that are based on advanced data analytics capabilities which will be developed by Cyprus Industry, Academia, and Centres of Excellence for the public sector in various governmental fields**.** by 2030 **(KPI 9)**	Deputy Ministry of Research Innovation and Digital Policy/ CoE's	Industry/ Academia/Public Sector
EMERGING TECHNOLOGIES: Use new EO technologies/services in order for Cyprus to strengthen its strategic goal to become a regional digital hub		Deputy Ministry of Research Innovation and Digital Policy	Industry/ Academia/Public Sector
AWARENESS: All responsible ministries must raise awareness of the potential of EO applications in the public sector for various governmental fields through the provision of trainings for different governmental level specialists and key decision-makers.	Organization of a Number of Trainings (20) throughout the period of 2025-2030 **(KPI 16)**	Deputy Ministry of Research Innovation and Digital Policy	Public Sector

Key Actions	Goals and Completion date	Ownership/ Responsibility	Stakeholders
INFRASTRUCTURES: The Deputy Ministry of Research, Innovation and Digital Policy to keep up pace with the upcoming technology advancements must leverage the existing Cypriot EO infrastructures and develop new ones. In order to make it feasible, focused, and efficient, dedicate funding schemes are necessary either from the government either from ESA.	-a Number of new EO infrastructures will be created by 2030 **(KPI 20)**	Deputy Ministry of Research Innovation and Digital Policy/CoE's	Industry/ Academia/Public Sector

Annex IV Cyprus Space Governance



Note: For more detailed analysis see chapter 5.4.1