National Space Agencies Facing New European Competences and Policies

Augusto Cramarossa
Italian Space Agency - ASI
Head of the ASI President Technical Cabinet

EUSPACE
European Union in Space
JEAN MONNET MODULE

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Agenzia Spaziale Italiana – ASI

The Italian Space Agency was founded in 1988. Its purpose was to coordinate all of Italy's efforts and investments in the space sector that had begun in the 1960s.

EUSPACE
European Union in Space
JEAN MONNET MODULE

ASI Mission (1)

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

- ASI is a public Agency, controlled by the Italian Ministry of Education, University and Research (MIUR) which main aims are:
  - Elaboration of national space strategies through the drafting of the National Space Plan
  - Promotion and financing of Scientific and Technological Space Research
  - Support of Space Education and Training of students and young professionals
  - Promotion and support of national aerospace industry
  - promotion, coordination and development of the scientific and technological research applied to space activities, which are implemented by the national research entities working in the space field;

EUSPACE
European Union in Space
JEAN MONNET MODULE

ASI Mission (2)

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Under the coordination of the Ministry of Foreign Affairs and International Cooperation (MAECI), the Agency:

- Coordinates the Italian participation in ESA programs and activities;
- Supports the Italian participation in European Union programs for the promotion of space research and technology;
- Negotiates and defines bilateral and multilateral space agreements with other agencies and countries;
- Maintains international relations with other space countries

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Italian Legal context

- **Law 30 May 1988**, n. 186 Creation of the Italian Space Agency;
- **Law Decree 30 January 1999**, n. 27 Reorganization of the Italian Space Agency;
- **Law Decree 4 June 2003**, n. 128 Reorganization of the Italian Space Agency;
- **Law Decree 31 December 2009**, n. 213 Reorganization of the Italian Research Entities;
- **Italian Space Agency Statute:** 28 July 2015;

A new law is presently discussed in Parlament

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN MAIN SPACE ACTORS

- **ESA**
- **EU**
- **EU and ESA Member States**

EUSPACE
European Union in Space
JEAN MONNET MODULE

ESA MISSION

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

ESA's purpose shall be to provide for, and to promote, for exclusively peaceful purposes, cooperation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space applications systems:

- by elaborating and implementing a long-term **European space policy**, by recommending space objectives to the Member States, and by **concerting the policies of the Member States** with respect to other national and international organisations and institutions;
- by elaborating and **implementing activities and programmes** in the space field;
- by **coordinating the European space programme and national programmes**, and by integrating the latter progressively and as completely as possible into the European space programme, in particular as regards the development of applications satellites;
- by elaborating and **implementing the industrial policy** appropriate to its programme and by recommending a coherent industrial policy to the Member States.

(excerpt from *Article II, Purpose, Convention of establishment of a European Space Agency,* SP-1271(E), 2003)

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

ESA has 22 Member States: Austria, Belgium, Czech Republic (18th MS on 12 November 2008), Denmark, Estonia (21st MS 4 February 2015), Finland, France, Germany, Greece, Hungary (22nd MS 24 February 2015), Ireland, Italy, Luxembourg, The Netherlands, Norway, Poland (20th MS September 2012, Portugal, Romania (19th MS on 22 December 2011), Spain, Sweden, Switzerland and the United Kingdom.

Canada also sits on the Council and takes part in some projects under a Cooperation Agreement.

Slovenia is an Associate Member. Other EU states also have Cooperation Agreements with ESA, such as Bulgaria, Cyprus, Lithuania and Malta. Latvia and Slovakia are participating in the Plan for European Cooperating States (PECS).

EUSPACE
European Union in Space
JEAN MONNET MODULE

ESA Member States

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

ESA Funding

ESA's activities fall into two categories – 'mandatory' and 'optional'.

Programmes carried out under the General Budget and the Space Science programme budget are 'mandatory'; they include the agency's basic activities (studies on future projects, technology research, shared technical investments, information systems and training programmes).
All Member States contribute to these programmes on a scale based on their Gross Domestic Product (GDP).

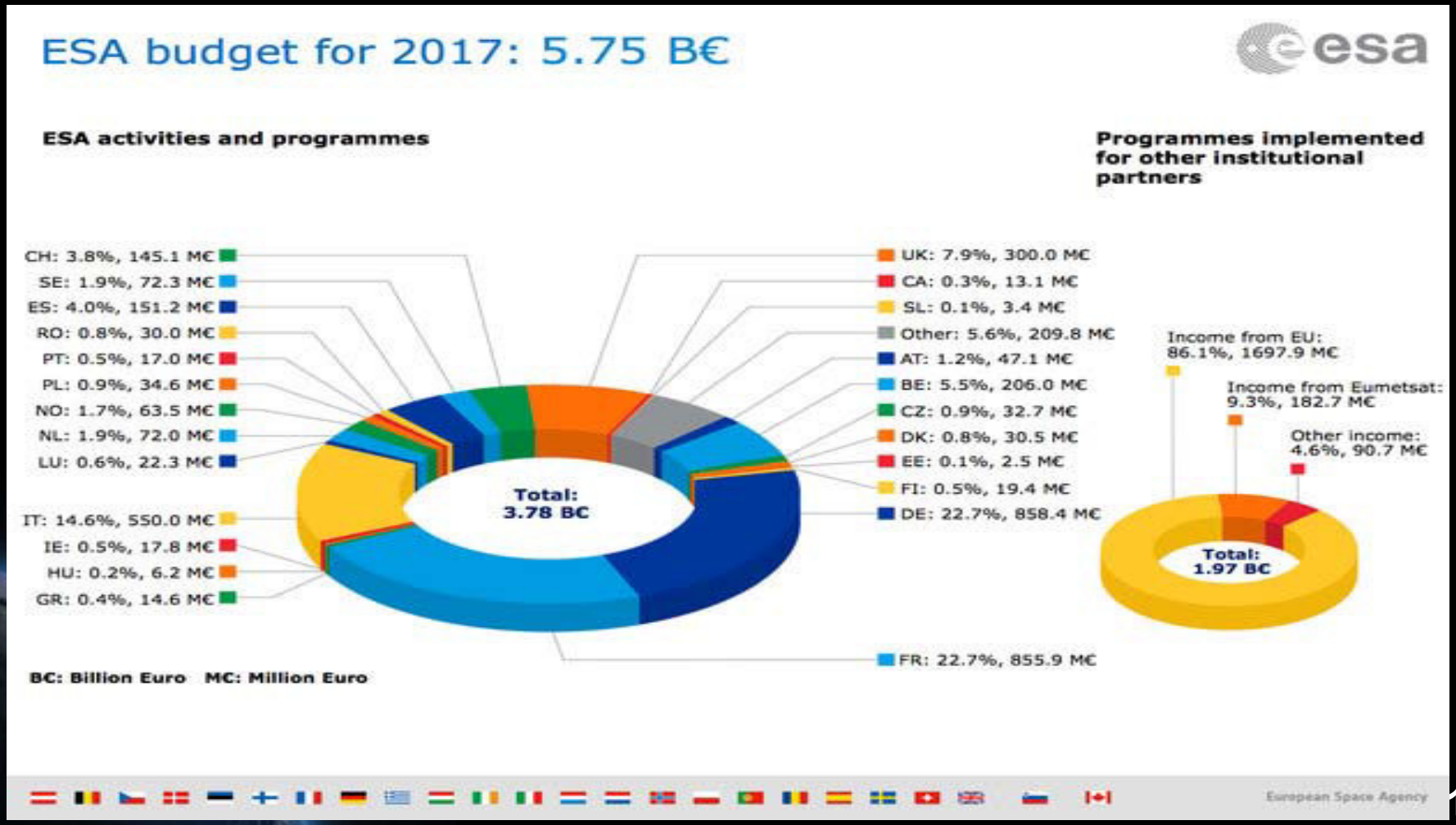
The other programmes, known as 'optional', are only of interest to some Member States, who are free to decide on their level of involvement. Optional programmes cover areas such as Earth observation, telecommunications, satellite navigation and space transportation. Similarly, the International Space Station and microgravity research are financed by optional contributions.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

ESA BUDGET: 2017



EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

ESA AT A GLANCE

- **More than 50 years of experience**
- **22 Member states**
- **5 establishments in Europe, about 2200 direct employees**
- **Budget around 5-6 B€**
- **More than 70 satellites, developed, tested and operational**
- **More than 17 operational scientific satellites**
- **More than 200 Ariane flights**
- **9 Vega flights**

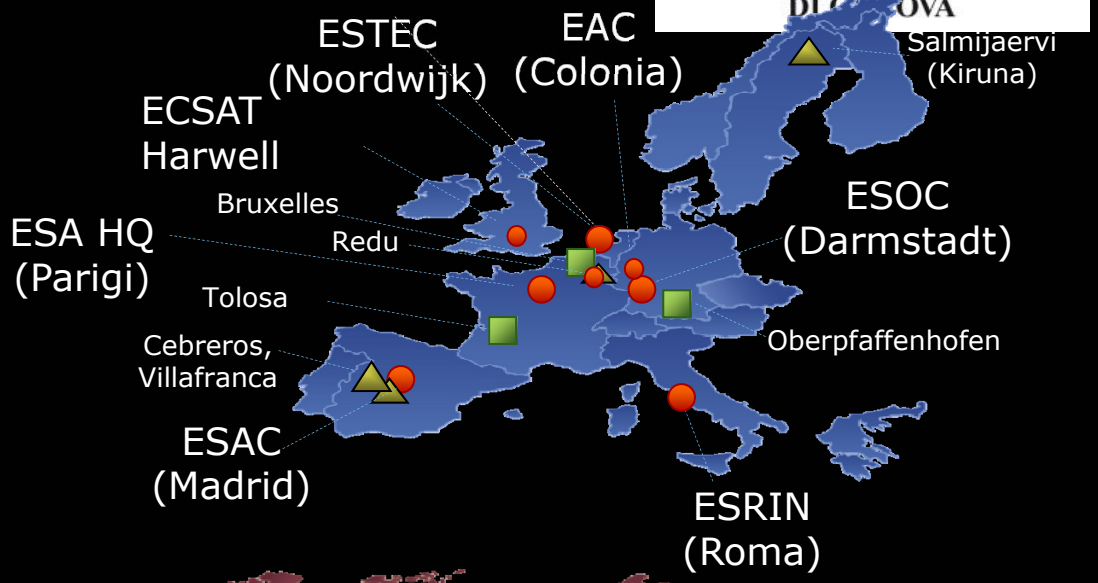
EUSPACE
European Union in Space
JEAN MONNET MODULE

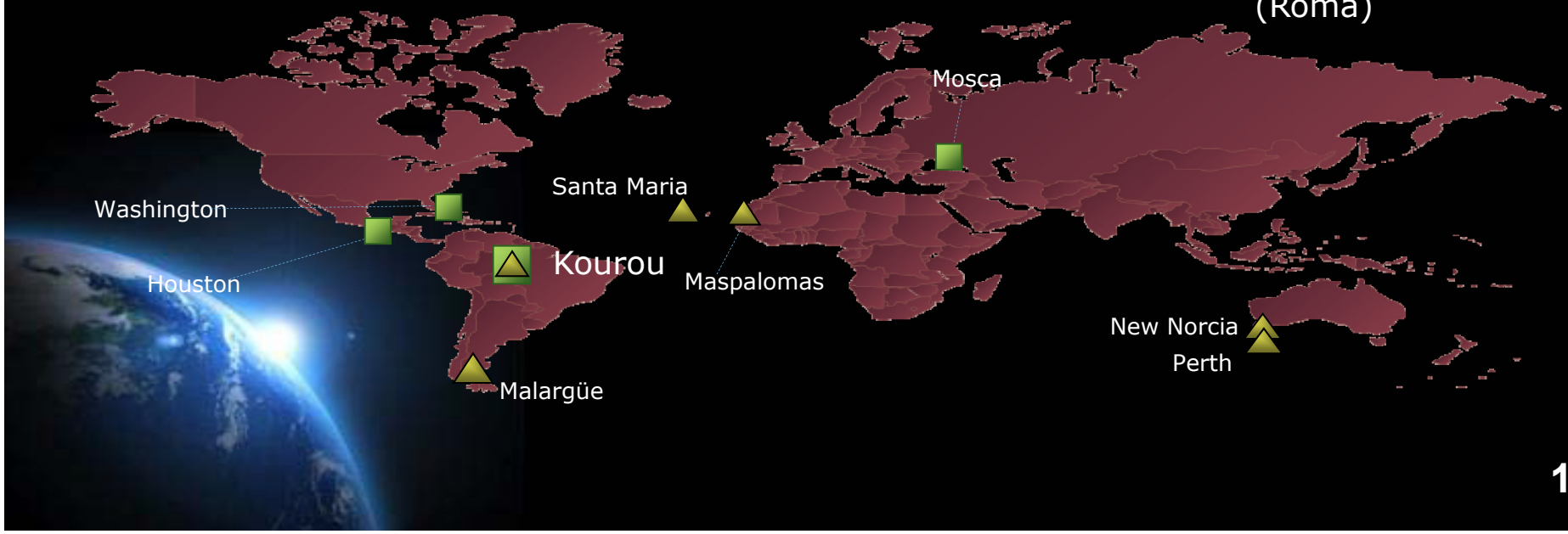
ESA ESTABLISHMENTS AND FACILITIES

ESA operational centers

Offices

ESA Ground stations





EUSPACE
European Union in Space
JEAN MONNET MODULE

ESRIN - European Space Research Institute

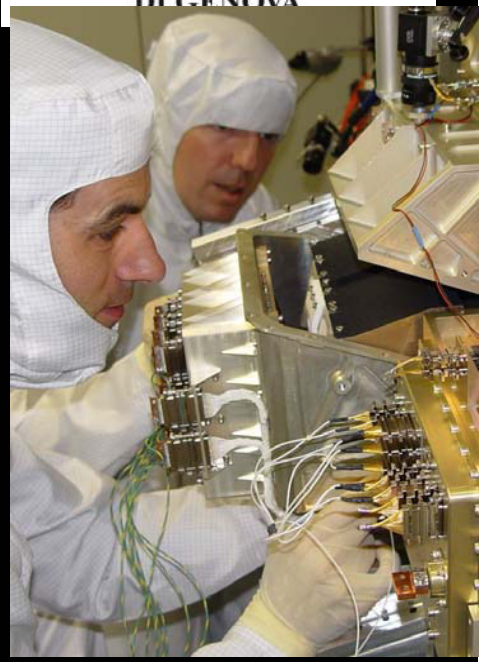
ESA's centre for Earth Observation in Frascati, near Rome, manages the ground segment for ESA and third-party Earth observation satellites, maintaining the largest archive of environmental data in Europe and coordinating over 20 ground stations and ground segment facilities in Europe. It also hosts the project team managing the Vega small-launcher programme, ESA information technology and security.

EUSPACE
European Union in Space
JEAN MONNET MODULE

ESA Industrial policy

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA



Around 90% of ESA budget is used for industrial contracts

According to Article VII of the ESA Convention ESA's Industrial Policy shall in particular be designed to:

a) meet the requirements of the European space programme and the coordinated national space programmes in a cost effective manner;

b) improve the world-wide competitiveness of European industry;

c) ensure that all Member States participate in an equitable manner, having regard to their financial contribution, in implementing the European space programme and in the associated development of space technology;

d) exploit the advantages of free competitive bidding in all cases, except where this would be incompatible with other defined objectives of industrial policy.

EUSPACE
European Union in Space
JEAN MONNET MODULE

ESA GEO RETURN

ESA ensures to each MS a geo return equivalent to its financial contribution (at programme level and at Country level)

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

SPACE BEFORE THE LISBON TREATY

2003: ESA/EU Framework Agreement has been signed, entered into force in May 2004

Main elements of the Agreement which defines terms of collaboration between ESA and EU:

⇒ creation of an ESA/EU Joint Secretariat;

⇒ organization of joint and concomitant meetings of the Council of the European Union and of the Council of ESA at ministerial level ("Space Council");

⇒ creation of an informal consultation group - *High Level Space Policy Group* with representatives of ESA and EU member states.

SPACE BEFORE THE LISBON TREATY

ESA/EU Framework Agreement - Art. 5 Joint initiatives

1. Subject to paragraph 3, the joint initiatives to be carried out by the Parties may take, without being limited to, the following forms:

(a) the management by the ESA of European Community space-related activities in accordance with the rules of the European Community;

(b) the participation by the European Community in an optional programme of the European Space Agency, in accordance with Article V.I.b of the ESA Convention;

(c) the carrying out of activities which are coordinated, implemented and funded by both Parties;

(d) the creation by the Parties of bodies charged with pursuing initiatives complementary to research and development activities, such as the provision of services, the promotion of operators formation and the management of infrastructures;

(e) the carrying out of studies, the organisation of scientific seminars, conferences, symposia and workshops, the training of scientists and technical experts, the exchange or sharing of equipment and materials, the access to facilities, and the support of visits and exchanges of scientists, engineers or other specialists.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

SPACE BEFORE THE LISBON TREATY

⇒ From 2004 to 2011: 8 Space Council have been organized and 8 Resolution or Orientations have been adopted

⇒ 22 May 2007: the 4° Space Council adopted a Resolution with the main elements and priorities of the European Space Policy.

- GALILEO
- COPERNICUS
- INTERNATIONAL RELATIONS

In 2008, the following new priorities have been added: climate change, security, exploration

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

THE LISBON TREATY

Lisbon Treaty, entered into force on the 1st December 2009 introducing important changes in the European Space Policy

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

THE LISBON TREATY (1)

Since 2009 EU has a specific competence in Space

Article 4.3:

- "In the areas of research, technological development and SPACE the Union shall have competence to carry out activities, in particular to define and implement programmes; however, **the exercise of that competence shall not result in Member States being prevented from exercising theirs.**"

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

THE LISBON TREATY (2)

Article 189:

(1)"To promote scientific and technical progress, industrial competitiveness and the implementation of its policies, the Union **shall draw up** a European space policy. To this end, it **may** promote joint initiatives, support research and technological development and coordinate the efforts needed for the exploration and exploitation of space."

(2)"To contribute to attaining the objectives referred to in paragraph 1, the European Parliament and Council, acting in accordance with the ordinary legislative procedure, **shall establish** the necessary measures, which **may** take the form of a European Space Programme, **excluding any harmonisation of the laws and regulations of the Member States**".

EUSPACE
European Union in Space
JEAN MONNET MODULE

THE LISBON TREATY (3)

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Article 189:

(3) “The Union shall establish any appropriate relations with the European Space Agency”

(4) “This article shall be without prejudice to the other provisions of this Title”

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN SPACE AFTER "LISBON"

European Commission:

- It is the executive of the European Union

Council of the European Union:

- It is one of the two chambers of the EU's legislative branch (the other is the Parliament)
- It meets in 10 different configurations of 28 national ministers

European Parliament:

- It is directly elected from European citizens;
- It is one of the two chambers of the EU's legislative branch (the other is the Council of the EU)
- It approves/adopts the EU budget

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN SPACE AFTER "LISBON"

➢ Competitiveness Council (Space):

- ✓ Main goal: adoption of the Council Conclusion relevant to EC Communications (except for Navigation area)
- ✓ Main areas: Space policy, Copernicus, SST, Industrial Policy
- ✓ Supported by the Space Working Party

➢ Transport Council (Galileo) :

- ✓ Main goal: adoption of the Council Conclusion relevant to EC Communications for the Navigation Area (e.g. Galileo/EGNOS)
- ✓ Supported by the Transport Working Party

EUSPACE
European Union in Space
JEAN MONNET MODULE

Three EU space programs

GALILEO: Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council;

COPERNICUS: Regulation (EU) No 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010;

SST: in 2014 Decision No. 541/2014/UE of the European Parliament and the Council Establishing a Space Surveillance and Tracking Support Framework was adopted

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN SPACE AFTER "LISBON"

Programme Committee and Working Group

- ✓ Committee relevant to the main EU programmes:
  - Copernicus,
  - Galileo,
  - SST - Surveillance and Tracking Committee,
  - H2020
- ✓ Space Policy Expert Group (SPEG)
- ✓ SPEG Expert sub group on Space Technology

2010	**Comunicazione della EC - Politica industriale (ottobre 2010): "EC proponga nel 2011 delle misure per attuare le priorità della politica spaziale sulla base dell'articolo 189 del TFUE [e persegua] una politica industriale dello spazio sviluppata in stretta collaborazione con l'ESA e gli Stati membri"**	**Consiglio Competitività (dicembre 2010): sottolinea "il ruolo del settore spaziale nella competitività e nell'innovazione dell'UE"; prende atto "dell'intenzione della EC di proporre le misure necessarie nel campo della politica spaziale e di perseguire una politica industriale nel settore spaziale";**
2011	Comunicazione della EC: "Verso una **strategia dell'Unione Europea al servizio dei cittadini"** (aprile 2011);	Conclusioni Consiglio Competitività sulla Comunicazione della EC (maggio 2011). Principali elementi: • forte impegno della UE su GMES e Galileo in particolare per finanziamento attraverso il budget EU; • azioni specifiche per climate change, security, competitiveness, innovation, space research and development (R&D) e exploration; • mantenere un accesso allo spazio "independent, reliable and cost effective" considerando di elevata priorità l'utilizzo di lanciatori sviluppati in Europa.
2012	Comunicazione della EC sul proseguimento del **Programma GMES** dal 2014 in poi; Comunicazione della EC sulle **adeguate relazioni ESA/UE**	Conclusioni Consiglio Competitività (febbraio) sulla Comunicazione della EC. Principali elementi: • necessità di rivedere Accordo Quadro ESA/UE; • elaborazione di proposte comuni (ESA/UE) su evoluzione rapporti ESA/UE per decisione entro 2014

2013	**Comunicazione della EC sulla politica industriale del settore spaziale**	**Principali elementi:** ⇨ **riconosce la necessità di tenere in considerazione le specificità del settore spaziale nelle misure per supportare l'accesso dell'industria europea nei mercati internazionali;** ⇨ **incoraggia lo sviluppo di capacità europee nell'area delle tecnologie critiche;** ⇨ **priorità per un "*independent, reliable, and cost effective access to space at affordable conditions*"**
2013	Proposta di Decisione a Consiglio e Parlamento per istituire a livello UE un programma di sostegno al servizio di Space Surveillance and Tracking (SST) adottata dalla EC (febbraio 2013) Obiettivo: creare un servizio europeo SST per la previsione e monitoraggio, da un lato delle collisioni tra oggetti spaziali, dall'altro sui rientri incontrollati sulla terra di satelliti o stadi di vettori di lancio che rappresentano un rischio per l'incolumità delle persone e/o danni a proprietà.	**Consiglio Competitività maggio**: ⇨ supporto ad azioni con obiettivo di creare una capacità SST a livello europeo; ⇨ servizio verrà offerto a tutti i MS, Council, EC, operatori pubblici e privati; ⇨ programma non prevede sviluppo di nuovi sensori SST; ⇨ definisce criteri per accesso al programma da parte dei MS. **Consiglio Competitività dicembre**: il Consiglio ha conseguito un orientamento generale sul Regolamento istitutivo del programma Copernicus e ha preso nota della Relazione sullo stato dei lavori della Decisione istitutiva del programma SST.

2014	**Febbraio: presentazione della Commissione sui progressi compiuti nell'istituzione di adeguate relazioni tra l'UE e l'Agenzia spaziale europea (ESA) e sui possibili scenari sul futuro delle relazioni UE/ESA**	**Consiglio Competitività 26 maggio:** **Greece Presidency :** • **ESA as an independent intergovernmental organisation dedicated to space research and development of space systems, as well as its role in relation to Union space programmes together, where appropriate, with other relevant actors.** • **EMPHASISES the need to set the ground for a scheme, which provides the most appropriate framework to implement an efficient and effective European space policy that fully utilises the competencies in Europe, in particular those of the EU, ESA and their respective Member States, and ensures the optimum contribution to other Union sectorial policies. In this context, STRESSES the importance of jointly developing a long-term European space vision and a strategy as a planning tool for major space activities in Europe thereby supporting the optimisation of public resources and skills."**
2014	14 aprile 2014: adozione da parte del Consiglio dell'UE della Decisione che istituisce un quadro di sostegno alla Sorveglianza dello Spazio e al Tracciamento (SST)	**Consiglio Competitività 5 dicembre 2014 (sotto presidenza italiana):** approvazione delle Conclusioni «*Underpinning the European space renaissance orientations and future challenges*» Nel documento si evidenzia la necessità che il settore spaziale vada rafforzato in quanto rappresenta uno dei motori dell'economia europea, sia per gli aspetti di ricerca e innovazione sia per quelli industriali e applicativi a esso connessi.

2015		**La Presidenza Lussemburghese del Consiglio UE, non riuscendo a convocare un nuovo Space Council, convoca una riunione dei ministri che si occupano di Spazio dei MS della UE e di ESA.** **Nel corso della riunione (30 novembre 2015 – Bruxelles) si discutono i seguenti temi:** • **evoluzione dello Space Council (è stato concordato di proseguire il dialogo per favorire sempre più un partenariato costruttivo tra l'Unione, gli Stati Membri e l'ESA)** • **mercato dei lanciatori istituzionali** • **la promozione dell'uso dei sistemi spaziali e del relativo sfruttamento dei dati**
2016	On the 26th October, EC published the Communication on «European Space Strategy» which includes the priorities for the future of the space sector and the main actions for the implementation. On the same day, a Joint Statement between EU and ESA has been signed. A statement on shared vision and goals, which shows convergence between the two organisations	On the 30th May 2017, the Competitiveness Council adopted the «Council Conclusions on the European Space Strategy» The main actions proposed by the EC in the Communication are included also in the Conclusions, for example: • Access to space; • Continuation of flagship programmes; • Use of space data

EUSPACE
European Union in Space
JEAN MONNET MODULE

SPACE ACTIVITIES IN EU

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

2016

On the 26th October, EC published the Communication on «European Space Strategy» which includes the priorities for the future of the space sector and the main actions for the implementation.

On the same day, a Joint Statement between EU and ESA has been signed. A statement on shared vision and goals, which shows convergence between the two organisations

EUSPACE
European Union in Space
JEAN MONNET MODULE

SPACE ACTIVITIES IN EU

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

2016

The European Space Strategic has the following 4 main objectives:

- Maximise the benefits of space for society and the EU economy
- Foster a globally competitive and innovative European space sector
- Reinforce Europe's autonomy in accessing and using space in a secure and safe environment
- Strengthen Europe's role as a global actor and promote international cooperation

EUSPACE
European Union in Space
JEAN MONNET MODULE

SPACE ACTIVITIES IN EU

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

2016

The European Space Strategy foresees the following main actions for the EC:

- Ensure the evolution of Copernicus and Galileo and link it to new services related to security or climate change;
- Continue support to research and innovation, in cooperation with Member States and ESA, in particular on disruptive and critical technologies; support to start ups and space industries exploring more effective financial instruments;
- Strengthen synergies with security and defence needs in the evolution of Galileo and Copernicus; Launch a Governmental Satellite Communications (GovSatCom) initiative; Start the evolution towards a comprehensive EU Space Situational Awareness Service; Support autonomous access to space

SPACE ACTIVITIES IN EU

2017

On the 30th May, the Competitiveness Council adopted the «Council Conclusions on the European Space Strategy»

The main actions proposed by the EC in the Communication are included also in the Conclusions, for example:

- Access to space;
- Continuation of flagship programmes;
- Use of space data

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN UNION MFF 2014-2020

EU budget is approved for 7 years.

Multiannual Financial Framework (MFF) 2014-2020 is in force. On the basis of the 7 year budget, yearly and programmatic budgets are defined.

In 2014-2020 EU is investing in the space sector about 12 in the following programmes:

- Copernicus
- Galileo
- H2020
- SST (not yet a real programme)

Consultations for next MFF 2021-2017 will begin shortly. In the space secotr the definition of the budget should take into account the priorities defined in the brand new European Space

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN UNION MFF 2014-2020 Copernicus

The most advanced Earth Observation system in the world, created to answer big societal challenges such as climate change, natural disasters, etc.

- Budget 2014-2020: 4.291M€
- 3 components: space, in situ, services
- 5 sentinels in orbit, 2 more to be launched in 2017, 7 satellites under development within 2025;
- 6 services running operationally

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN UNION MFF 2014-2020 Galileo

Budget 2014-2020: 7.071M€

EGNOS

- fully operational since 2011
- 2 main componentes: space segment with payloads on geostationary orbit and ground segment with more than 40 stations all over Europe;
- Delivers services, in particular for aviation

GALILEO

- 3 components: space segment, ground segment and service infrastructure;
- 18 satellites in orbit
- Initial services launched in December 2016

EUSPACE
European Union in Space
JEAN MONNET MODULE

EUROPEAN UNION MFF 2014-2020 SST

Budget 2014-2020: 70M€, from other programs

Consortium of 5 EU countries: Italy, UK, France, Spain and Germany

More countries already expressed their interest in joining the Consortium: Poland, Portugal, Sweden, Finland and Romania

An expression of interest from Slovakia is also foreseen

Selection procedure will begin in August 2017

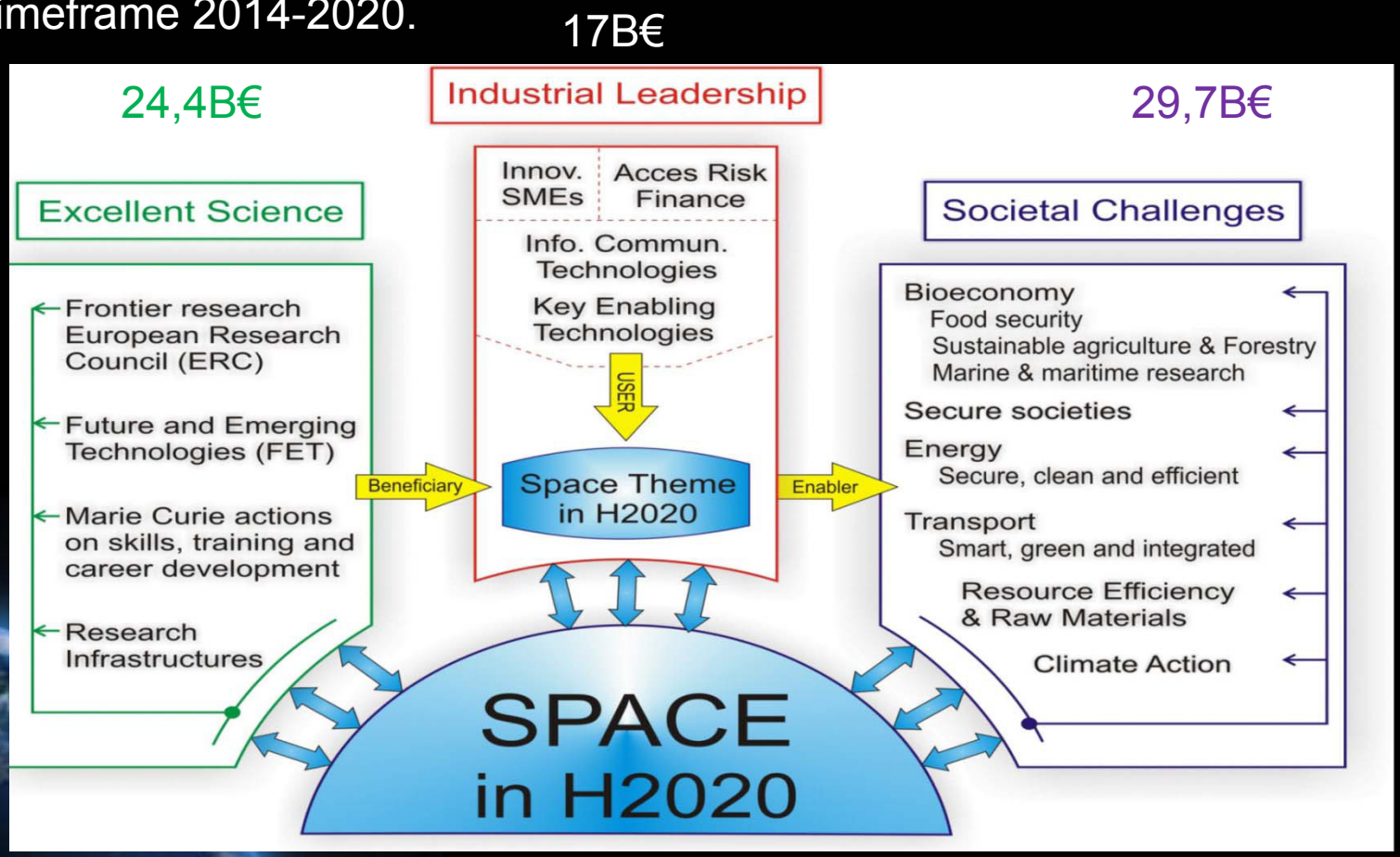
EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN UNION Horizon 2020

Horizon 2020 is the UE Research and Innovation Programme for the timeframe 2014-2020.



Source: European Commission

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN UNION Horizon 2020

- Global Navigation Satellite System (GNSS)

- Earth Observation (EO)

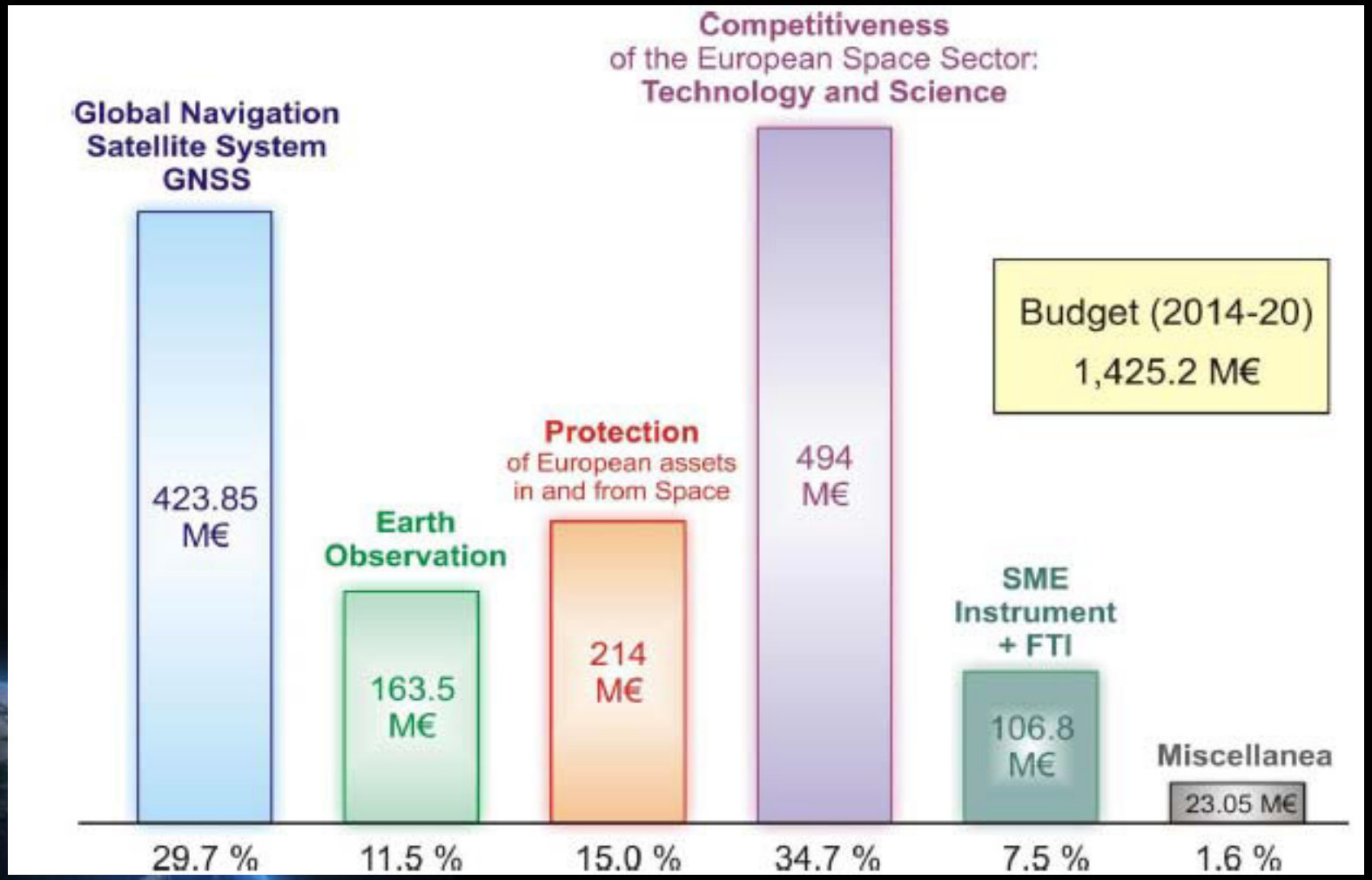
- Protection of European assets in and from space (PROTEC)
  - ❑ Space Surveillance and Tracking (SST)
  - ❑ Non-SST

- Competitiveness of the European Space Sector (COMPET)
  - ❑ Technologies for European non-dependence and competitiveness
  - ❑ Access to space
  - ❑ Space science
  - ❑ Space exploration

Budget 2014-2020: about 1,4B€

EUSPACE
European Union in Space
JEAN MONNET MODULE

EUROPEAN UNION Horizon 2020



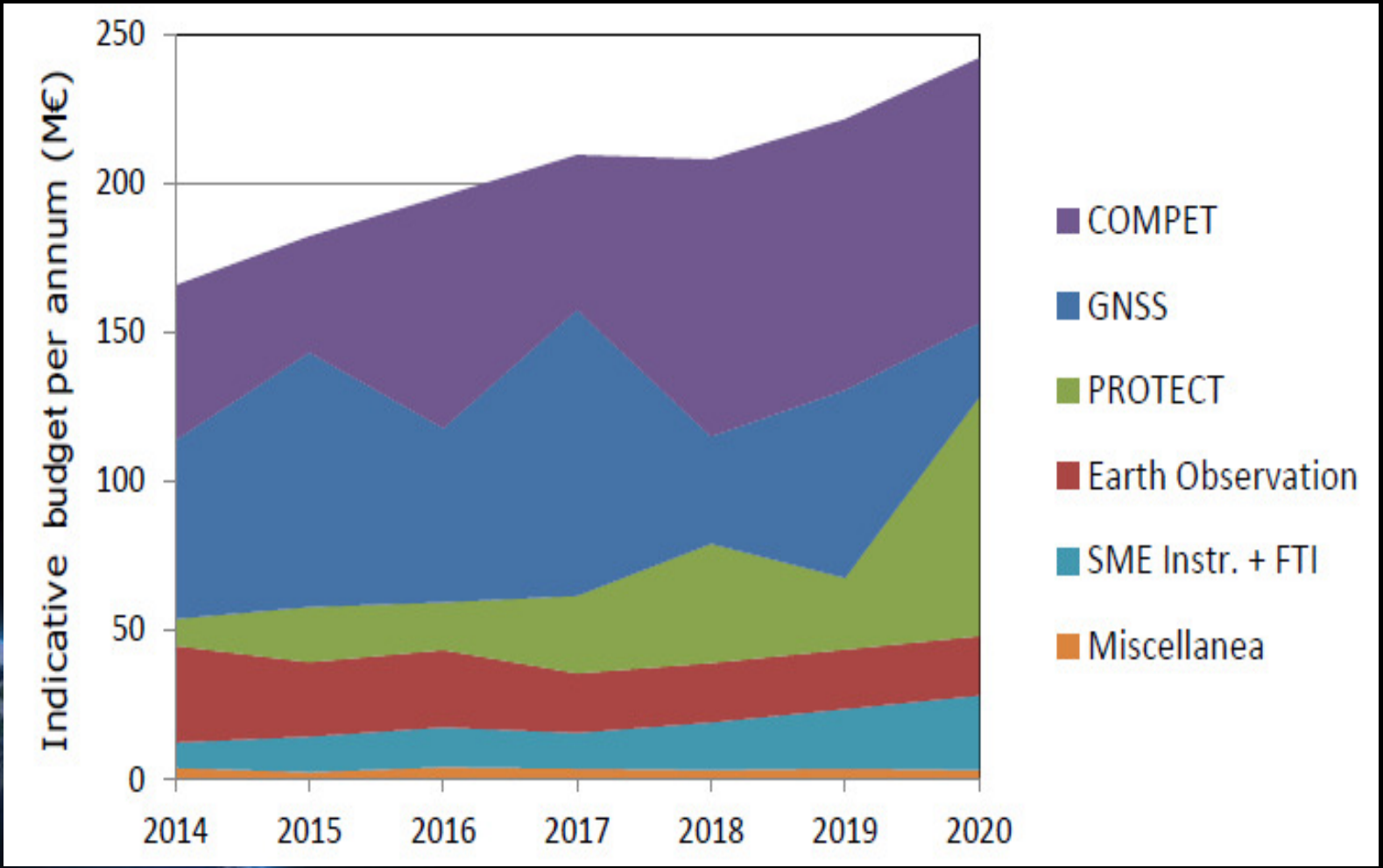
Source: European Commission

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EUROPEAN UNION Horizon 2020



Source: European Commission

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

EU flagship space programmes

EGNOS (the European Geostationary Navigation Overlay Service) provides “safety of life” navigation services to aviation, maritime and land-based users over most of Europe;

GALILEO is Europe's global satellite navigation system. It provides more accurate and reliable positioning and timing information for autonomous and connected cars, railways, aviation and other sectors, operational since December 2016;

COPERNICUS is a leading provider of Earth observation data.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

COPERNICUS – EARTH OBSERVATION

Copernicus, previously known as GMES (Global Monitoring for Environment and Security), is a European Union Programme aimed at developing European information services based on satellite Earth Observation and in situ (non-space) data.

Copernicus is served by a set of EU-owned satellites (the Sentinel families) and contributing missions (existing space infrastructure: satellites operated by ESA, EUMETSAT, the EU Member States and other third countries and commercial providers.).

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

COPERNICUS GOVERNANCE

Copernicus is coordinated and managed by the **European Commission**. Satellite infrastructure - the space component - is run by the European Space Agency, and the sensors - the in situ component -are developed by the European Environment Agency and individual **EU countries**.

The satellite weather data agency EUMETSAT will also provide operational support to the Copernicus marine, atmosphere and climate change services.

The development of the space component, including the launch of the dedicated Sentinel satellites, has been delegated to ESA, which also acts as the overall systems architect of the Space Component and ensures its technical coordination. The operations of the Sentinels have been entrusted to ESA and to EUMETSAT, on the basis of their specific know-how. The Sentinels are owned by the European Union.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Copernicus services

The service provision of Copernicus services has been delegated by the European Commission to a number "Entrusted Entities", which act or will act as "service providers".

Several "Delegation Agreements" were signed during the period 2014 – 2015.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

LEGAL FRAMEWORK

Regulation (EU) no 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010 establishes:

- the operational EU Copernicus programme,
- the funds (budget 2014-2020: EUR 4.3 billion) allocated to each Component,
- the responsibilities of all parties involved (art. 9-13).

The EU-ESA Copernicus Agreement, signed in October 2014, defines the terms and conditions relating to the implementation of the Copernicus Space Component by ESA, e.g.:

- Technical tasks entrusted to ESA within the allocated budget
- Contracting Authority and procurement rules
- Reporting to the Commission
- Assets ownership transfer.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Contracting authority

The Commission is Contracting Authority for the launch service contracts under the Copernicus Agreement, while ESA is Contracting Authority for all other contracts, including the prime contracts for the Sentinel satellites and the associated Contract Change Notices.

This approach ensures ESA's ability for an efficient management of the programme on a daily basis, while the Commission retains an equally efficient and continued control of the programme, reflecting the EU's role as the overall Programme Manager of the Copernicus Programme.

Ownership and liability

The EU accepts the ownership and associated liability under space law for all Sentinel satellites and Sentinel instruments being part of the Copernicus Space Component, including those procured under “GMES” (e.g. Sentinel-1/2/3 A and B Units). For the Sentinel- 1A, the EU acquires ownership and accepts liability from the entry into force of the Agreement or after successful in orbit commissioning review, whichever is the earliest while for all the other Sentinels this will happen at the time of lift-off.

In the case of some launches of the Sentinels, ESA will be considered the launching state and will incur liability under space law. The provision in the Copernicus Agreement specifies that the European Union shall indemnify and hold harmless ESA for any obligation accruing to it under space law and in particular the Convention on International Liability for Damages Caused by Space Objects entered into force on 1 September 1972 as a result of activities carried out under the Agreement regardless of the time at which such obligation may arise and with the exception of cases of gross negligence or willful misconduct, but limited to damages resulting from events arising after the signature of this Agreement. This is an important guarantee of the ESA Participating States which are subject to financial exposure in case of any damage arising from a space object launched by ESA in accordance with Resolution ESA/C/XXII/Res.3 adopted on 13 December 1977.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

ANNEX VIII

Ownership and Registration

The satellites constitute space objects in the meaning of Article I of the Convention on International Liability for Damage Caused by Space Objects.

Satellite registration

The satellites for which ESA has procured the launch service (Sentinel-1A, Sentinel-2A, Sentinel-3A, Sentinel-1B, Sentinel-2B, Sentinel-3B and Sentinel-5P (to be confirmed)) shall be registered by ESA by means of an entry into the ESA Space Object Register. ESA shall furnish to the Secretary-General (SG) of the United Nations, as soon as practicable, the name, designator, date and territory of launch and basic orbital parameters of the satellites in accordance with the Convention on Registration of Objects Launched into Outer Space.

Upon acquisition of ownership by the Union, ESA shall provide the SG of the United Nations with appropriate information identifying the Union as the owner of these space objects.

For all other satellites, the Union will undertake the necessary arrangements under international law with a competent launching state.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Main principle of Space Law

EUSPACE
European Union in Space
JEAN MONNET MODULE

International Legal Framework

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

United Nations Treaties on Outer Space	
1967	Outer Space Treaty (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies) - 103 ratificaitons
1968	Rescue Agreement (Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space) - 94 ratifications
1972	The Liability Convention (Convention on International Liability for Damage Caused by Space Objects) - 92 ratificaions
1975	The Registration Convention (Convention on Registration of Objects Launched into Outer Space) - 62 ratifications
1979	Registration Convention (Convention on Registration of Objects Launched into Outer Space) - 16 ratifications

EUSPACE
European Union in Space
JEAN MONNET MODULE

Key principles of space law (1/2)

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Outer Space Treaty (1967)	
Art. I	Freedom of exploration and use Freedom of scientific investigation
Art. II	Non-appropriation
Art. III	Duty to conduct space acrivities in accordance with international law
Art. IV	Prohibition of certain military uses
Art. VI	International responsibility of the States for national activities Authorization and continuing supervision of private space activities
Art. VII	International liability of the launching State
Art. VIII	Jurisdiction and control
ART. IX	Co-operation and mutual assistance Protection of the environment

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Responsibility/ liability/ giurisdiction and control (1/3)

Outer Space Treaty

- Article VI "States Parties to the Treaty shall bear international responsibility for national activities in outer space. The activities of non-governmental entities in outer space [...] shall require authorization and continuing supervision [...]".

- Article VII "Each State Party to the Treaty that launches or procures the launching of an object into outer space [...] and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space".

- Article VIII "A State Party to the Treaty on whose registry an object is launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof. Ownership of objects launched into outer space [...] is not affected by their presence in outer space [...] or by their return to Earth".

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Responsibility/ liability/ giurisdiction and control (2/3)

Liability Convention 1972

- Article II – "A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight".

- Article III – "In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible".

- Article IV – "two States shall be jointly and severally liable to the third state".

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Responsibility/ liability/ giurisdiction and control (3/3)

Registration Convention 1976

- Article II, 1. "When a space object is launched…the launching state shall register the space object by means of an entity in an appropriate registry which it shall maintain".

- Article II, 2. "where there are two or more launching States in respect of any space object, they shall jointly determine which of them shall register the object".

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

National space law

- At international level, four of the five space treaties have been widely ratified (with the exception of the Moon Agreement).
- States that have a launch service capability and/or have an established national space operation industry have ratified "four space treaties": the Outer Space Treaty, the Rescue Agreement, the Liability Convention and the Registration Convention.
- Through the **adoption of national space law or regulation**, States can undertake measures so as to regulate activities of **non-governmental entities** to ensure that such activities are in line with obligations under the UN space treaties.
- "Building blocks" of national space law:

⇩

- Authorization and national space operation licensing
- Third party liability and insurance obligations
- Registration of space objects in national registry
- Transfer of space object in-orbit
- Supervision and control
- Environmental issues, especially in matter of space debris mitigation measures

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Italian Legal Framework

- **Law. No. 87, 28 January 1970** - Ratification and Implementation of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies
- **Presidential Decree No. 965, 5 December 1975** - Ratification and Implementation of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space
- **Law No. 426, 5 May 1976** - Ratification and Implementation of the Convention on International Liability for Damage Caused by Space Objects
- **Law No. 23, 25 January 1983** – Norms for the implementation of the Convention on International Liability for Damage Caused by Space Objects
- **Law No. 153, 12 July 2005** – Accession to the Convention on Registration of Objects Launched into Outer Space. ASI to set up and maintain the National Registry of objects launched into Outer Space

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Space law and European Union (1/2)

Art. 189 Treaty on the functioning of the European Union (TFEU)

- "1- *To promote scientific and technical progress, industrial competitiveness and the implementation of its policies, the Union shall draw up a* ***European space policy****. To this end, it may promote joint initiatives, support research and technological development and coordinate the efforts needed for the exploration and exploitation of space.*

- *2- To contribute to attaining the objectives referred to in paragraph 1, the European Parliament and the Council, acting in accordance with the ordinary legislative procedure, shall establish the necessary measures, which may take the form of a European space programme,* ***excluding any harmonisation of the laws and regulations of the Member States*** *[…]*".

- The European Union has competences in outer space that are shared with its member states (so-called **parallel competence** under Art. 4(3) TFEU)

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Space law and European Union (2/2)

- European Union is a subject of international law and bound by its rules
- to the extent the European Union it **acts as a space operator and it should comply with the regime set out by the Outer Space Treaty**
- The **major issues** concern the obligations set out in **Art. VII** (*i.e.* a state involved in the launching of space object will be held liable for damage caused by such a space object) **and Art. VIII** (*i.e.* if a space object is launched into outer space, it is supposed to be registered by the state involved, giving such state jurisdiction over the object)
- These issues are debated at international level

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

Thank you

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

BACKUP SLIDES

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2010

- **Comunicazione della EC sulla politica industriale** (ottobre 2010): "EC proponga nel 2011 delle misure per attuare le priorità della politica spaziale sulla base dell'articolo 189 del TFUE [e persegua] una politica industriale dello spazio sviluppata in stretta collaborazione con l'ESA e gli Stati membri"

- Conclusioni **Consiglio Competitività** (dicembre 2010): sottolinea "il ruolo del settore spaziale nella competitività e nell'innovazione dell'UE"; prende atto "dell'intenzione della EC di proporre le misure necessarie nel campo della politica spaziale e di perseguire una politica industriale nel settore spaziale";

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2011

⇨ **Comunicazione della EC:** "Verso una strategia dell'Unione Europea al servizio dei cittadini" (aprile 2011);
⇨ **Conclusioni Consiglio Competitività** sulla Comunicazione della EC (maggio 2011). Principali elementi:

- ⇨ forte impegno della UE su GMES e Galileo in particolare per finanziamento attraverso il budget EU;
- ⇨ azioni specifiche per *climate change, security, competitiveness, innovation, space research and development (R&D) e exploration;*
- ⇨ mantenere un accesso allo spazio "*independent, reliable and cost effective*" considerando di elevata priorità l'utilizzo di lanciatori sviluppati in Europa.

EUSPACE
European Union in Space
JEAN MONNET MODULE

L'UE E LO SPAZIO: DAL 2010 AD OGGI

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

2012

⇨ **Comunicazione della EC** sul proseguimento del Programma GMES dal 2014 in poi;

⇨ **Comunicazione della EC** sulle adeguate relazioni ESA/UE;

⇨ **Conclusioni Consiglio Competitività (febbraio)** sulla Comunicazione della EC (febbraio 2013). Principali elementi:

- ⇨ necessità di rivedere Accordo Quadro ESA/UE;
- ⇨ elaborazione di proposte comuni (ESA/UE) su evoluzione rapporti ESA/UE per decisione entro 2014

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2013

⇨ **Comunicazione della EC sulla politica industriale** del settore spaziale

⇨ **Conclusioni Consiglio Competitività** sulla Comunicazione della EC. Principali elementi:

- ⇨ riconosce la necessità di tenere in considerazione le specificità del settore spaziale nelle misure per supportare l'accesso dell'industria europea nei mercati internazionali;
- ⇨ incoraggia lo sviluppo di capacità europee nell'area delle tecnologie critiche;
- ⇨ priorità per un "*independent, reliable, and cost effective access to space at affordable conditions*"

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2013

- **Proposta di Decisione** a Consiglio e Parlamento per istituire a livello UE un programma di sostegno al servizio di **Space Surveillance and Tracking** (SST) adottata dalla EC (febbraio 2013)
  - **Obiettivo**: creare un servizio europeo SST per la previsione e monitoraggio, da un lato delle collisioni tra oggetti spaziali, dall'altro sui rientri incontrollati sulla terra di satelliti o stadi di vettori di lancio che rappresentano un rischio per l'incolumità delle persone e/o danni a proprietà.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2013

⇨ **Consiglio Competitività maggio**:

⇨ supporto ad azioni con obiettivo di creare una capacità SST a livello europeo;
⇨ servizio verrà offerto a tutti i MS, Council, EC, operatori pubblici e privati;
⇨ programma non prevede sviluppo di nuovi sensori SST;
⇨ definisce criteri per accesso al programma da parte dei MS.

⇨ **Consiglio Competitività dicembre**:
⇨ il Consiglio ha conseguito un orientamento generale sul Regolamento istitutivo del programma Copernicus e ha preso nota della Relazione sullo stato dei lavori della Decisione istitutiva del programma SST.

EUSPACE
European Union in Space
JEAN MONNET MODULE

L'UE E LO SPAZIO: DAL 2010 AD OGGI

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

2014

⇨ **Consiglio Competitività febbraio:**

⇨presentazione della Commissione sui progressi compiuti nell'istituzione di adeguate relazioni tra l'UE e l'Agenzia spaziale europea (ESA) e sui possibili scenari sul futuro delle relazioni UE/ESA

⇨ **Consiglio Competitività 26 maggio:**

⇨la Presidenza greca presenta, per l'adozione da parte dei Paesi membri, le Conclusioni del Consiglio sulle relazioni ESA/UE.

- *ESA as an independent intergovernmental organisation dedicated to space research and development of space systems, as well as its role in relation to Union space programmes together, where appropriate, with other relevant actors.*
- *EMPHASISES the need to set the ground for a scheme, which provides the most appropriate framework to implement an efficient and effective European space policy that fully utilises the competencies in Europe, in particular those of the EU, ESA and their respective Member States, and ensures the optimum contribution to other Union sectorial policies. In this context, STRESSES the importance of jointly developing a long-term European space vision and a strategy as a planning tool for major space activities in Europe thereby supporting the optimisation of public resources and skills."*

EUSPACE
European Union in Space
JEAN MONNET MODULE

L'UE E LO SPAZIO: DAL 2010 AD OGGI

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

2014

Luglio 2014: inizia la presidenza italiana dell'UE terminata a dicembre 2014

Tematiche affrontate:

- Continuazione del dibattito sui possibili scenari delle relazioni ESA/UE
- Identificazione di nuove aree di possibile cooperazione
- Prosecuzione dell'approfondimento sulla Comunicazione della EC in tema di High Resolution Earth observation Satellite Data (HRSD)

⇨**Consiglio Competitività 5 dicembre 2014 (sotto presidenza italiana):**

⇨ approvazione delle Conclusioni «*Underpinning the European space renaissance orientations and future challenges*»

- Nel documento si evidenzia la necessità che il settore spaziale vada rafforzato in quanto rappresenta uno dei motori dell'economia europea, sia per gli aspetti di ricerca e innovazione sia per quelli industriali e applicativi a esso connessi.

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2014

- 3 aprile 2014: Lancio della prima sentinella del programma Copernicus

- 14 aprile 2014: adozione da parte del Consiglio dell'UE della Decisione che istituisce un quadro di sostegno alla Sorveglianza dello Spazio e al Tracciamento (SST)

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2015

Studi in corso avviati dalla EC:

- ✓Procurement rules la EC sta definendo proposte di raccomandazione su:
  - ✓Non dipendenza;
  - ✓Accesso allo spazio;
  - ✓PPP;
  - ✓Accesso ai mercati non europei;
  - ✓Spazio sostenibile;
  - ✓Procedure di procurement

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2015

Studi in corso avviati dalla EC (*cont.*):

- ✓ Iniziativa legislativa per un meccanismo di aggregazione periodico delle informazioni sulle attività spaziali dei paesi membri
- ✓ Impact assessment su relazioni ESA-UE

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

L'UE E LO SPAZIO: DAL 2010 AD OGGI

2015

La Presidenza Lussemburghese del Consiglio UE, non riuscendo a convocare un nuovo Space Council, convoca una riunione dei ministri che si occupano di Spazio dei MS della UE e di ESA.

Nel corso della riunione (30 novembre 2015 – Bruxelles) si discutono i seguenti temi:

- evoluzione dello Space Council (è stato concordato di proseguire il dialogo per favorire sempre più un partenariato costruttivo tra l'Unione, gli Stati Membri e l'ESA)
- mercato dei lanciatori istituzionali
- la promozione dell'uso dei sistemi spaziali e del relativo sfruttamento dei dati

EUSPACE
European Union in Space
JEAN MONNET MODULE

agenzia spaziale italiana

UNIVERSITÀ DEGLI STUDI DI GENOVA

SPACE ACTIVITIES IN EU

2016

La EC ha effettuato una consultazione per definire le priorità dell'ultimo triennio di H2020 (2018-2020)

È stata aggiornata la lista delle tecnologie critiche per la non dipendenza da parte della Joint task force di ESA-EDA-EC

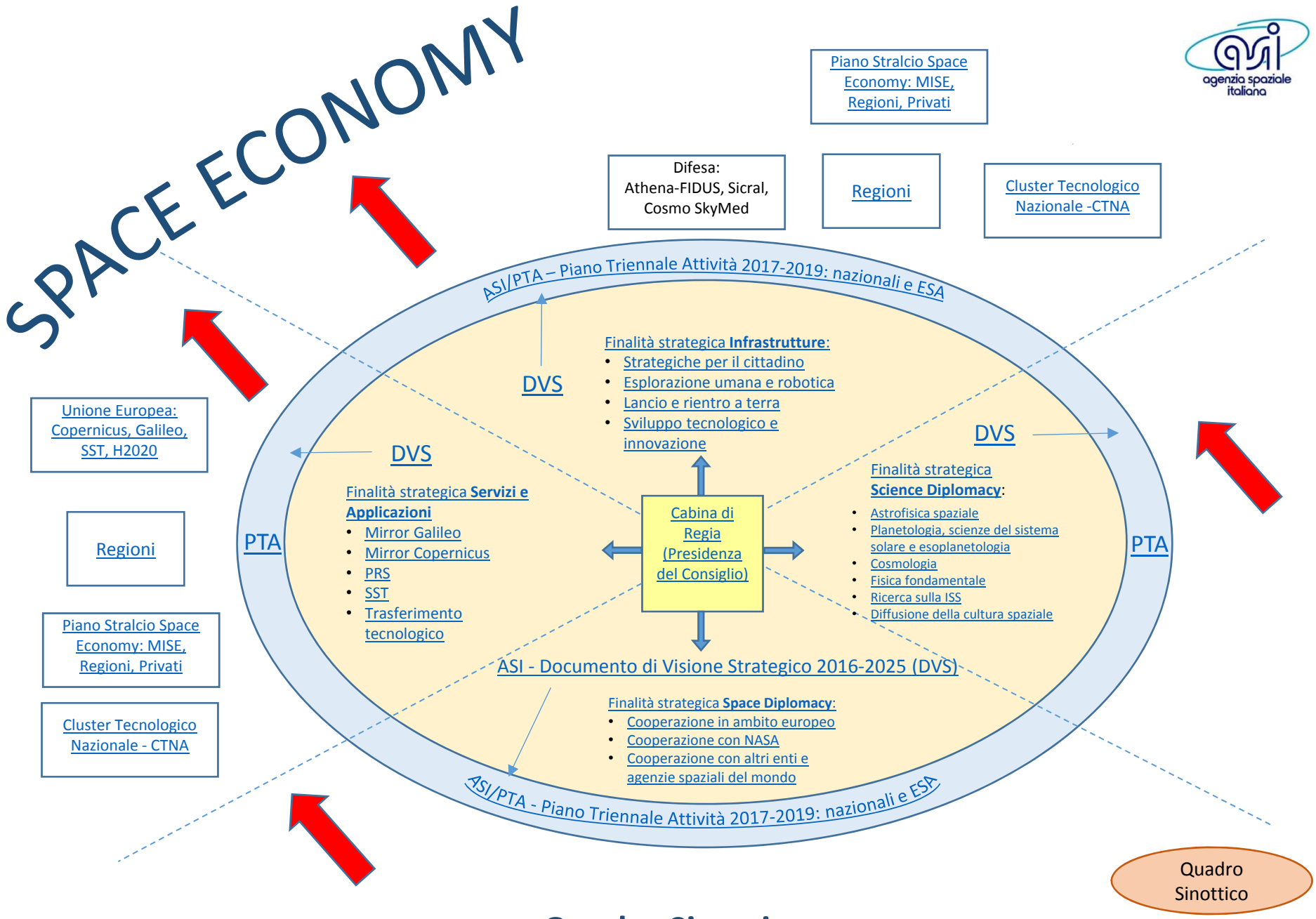
L'UE E LO SPAZIO: DAL 2010 AD OGGI

2016

Il 26 ottobre, la EC ha pubblicato la Comunicazione sulla «European Space Strategy» che contiene le priorità per il settore spaziale europeo per i prossimi anni oltre alle principali azioni per l'implementazione

Il documento è il risultato di una intensa collaborazione tra tutti gli stakeholder spaziali europei

Nello stesso giorno è stato firmato un Joint Statement tra EU-ESA che individua Vision e obiettivi comuni tra le due organizzazioni



Quadro Sinottico