



Lucerne  
2 December 2016

**EUROPEAN SPACE AGENCY**

**Council meeting held at ministerial level on 1 and 2 December 2016**

**Resolutions and main decisions**

The present document includes the main decisions taken at the Council meeting at ministerial level held in Lucerne on 1 and 2 December 2016:

- Towards Space 4.0 for a United Space in Europe
- Level of resources for the Agency's mandatory activities 2017–2021
- Guiana Space Centre (CSG) for the period 2017–2021
- ESA programmes: outlook and way forward



## **Resolution “Towards Space 4.0 for a United Space in Europe”**

Council, meeting at ministerial level,

### **I. Objectives of a United Space in Europe**

1. ACKNOWLEDGES that the European Space Agency (ESA), acting in accordance with its mandate and the objectives defined in its Convention, has successfully developed and implemented European space programmes, continually strengthening and expanding its expertise;
2. STATES that the ESA Member States, acting in cooperation in their common Agency, contribute substantially to the European construction; AFFIRMS that ESA Member States, exercising their competences in the area of space at national and international level, contribute significantly to the European space sector through the development and implementation of European space policy and programmes; ASSERTS that ESA Member States shall continue to act, notably within the framework of ESA Convention, across all space domains, developing ESA’s internal capability and European scientific and industrial capacities, in particular through preparatory and technology programmes; and ENCOURAGES the Director General to pursue and further strengthen European cooperation in the space sector for the benefit of European citizens;

3. RECALLS, the Joint Statement on Shared Vision and Goals for the future of Europe in space made on 26 October 2016, specifying the following three goals:
  - (a) maximise the integration of space into European society and economy, by extending the use of space technologies and applications to support public policies, providing effective solutions to the big societal challenges faced by Europe and the world;
  - (b) foster a globally competitive European space sector, by supporting research, innovation, entrepreneurship for growth and jobs, seizing larger shares of global markets; and
  - (c) ensure European autonomy in accessing and using space in a safe and secure environment, by consolidating and protecting its infrastructures;by which both the European Union and European Space Agency emphasise their intention to reinforce their cooperation in the future, as foreseen in the ESA-EU Framework Agreement of 2004 and taking into account the ESA Convention, in particular articles II and V, and the Lisbon Treaty, in particular articles 4.3 and 189;
4. WELCOMES the Communication of the European Commission on a “*Space Strategy for Europe*” dated 26 October 2016 which aims to achieve the above-mentioned goals; accordingly, INVITES the Director General to develop with Council and in accordance with the ESA-EU Framework Agreement of 2004, the necessary principles so as to ensure ESA’s ability to efficiently implement EU-funded space programmes and activities;
5. WELCOMES the Director General’s proposal (ESA/C-M(2016)1) and in particular:
  - (a) INVITES the Director General to further shape and promote ESA as THE space agency for Europe, that innovates, informs, inspires and interacts, in order to sustain and improve development and economic growth, by:
    - pursuing and enhancing relations with ESA Member States, and offering new opportunities for cooperation;
    - strengthening cooperation between ESA and the European Union and its agencies, in accordance with the ESA-EU Framework Agreement of 2004, in order to achieve common goals and programmes for the benefit of European citizens, underlining the importance of establishing sustainable and mutually beneficial arrangements for cooperation that take into account differences in the

- membership of ESA and of the European Union;
  - ensuring a seamless chain of innovation, enabling more cooperation between academic institutions and research establishments together with industry and end-users, in order to allow for uninterrupted, rapid development from idea to product or service and sustain competitiveness in an efficient manner;
  - opening up to new partnerships including with actors in sectors other than space, attracting investments from the private sector and in particular the digital sector;
  - implementing complementary new funding schemes while also relying on commercial initiatives for dedicated activities;
  - drawing on the lessons learned from association agreements and Plans for European Cooperating State (PECS) concluded so far, to assess the possibility of extending to interested European States an associate membership similar to the one recently concluded, or other forms of cooperation, enabling their participation in ESA activities and programmes, under certain conditions;
  - inspiring citizens and engaging European governments with proposals for challenging space projects;
- (b) RECOGNISES that space serves societal needs, responds to European and global challenges and offers opportunities, notably those related to the attainment of sustainable development goals and socioeconomic growth, mitigation of geopolitical risks, security, science, knowledge, climate change and a digital Europe; UNDERLINES that such needs and challenges will be taken into account for new technology developments; RECOGNISES also that space applications and services are instrumental in facing such societal challenges; and therefore INVITES the Director General, acting in close coordination with the Member States, the European Union and other European public and private actors, to ensure that ESA's activities and programmes properly contribute to satisfying these societal needs;
- (c) SUPPORTS the implementation of missions providing opportunities to the industry of all Member States to operate competitively with regard to ESA activities and programmes in accordance with their national priorities regarding, in particular, small and medium-sized enterprises (SMEs), and also as a means of achieving reactivity and quicker results with new missions, looking into and testing processes

and tools derived from the management of enterprises investing from areas other than space, and consolidating geographical return;

- (d) TAKES NOTE of the ESA Digital Agenda for Space (ESA/C(2016)108), responding to the challenge of a digital Europe, notably by providing improved access to space data and ESA's technical knowledge;
- (e) APPRECIATES the role of ESA in supporting Member States in the establishment and implementation of national space legislation, through technical and legal advice; and RECOGNISES ESA as an appropriate forum for Member States to exchange and coordinate positions on international space law and in acting as a permanent observer to the UN Committee on the Peaceful Uses of Outer Space, notably to support the establishment of a legal order in space in accordance with the existing body of multilateral space treaties and principles;
- (f) RECOGNISES that space technology and derived services contribute to providing solutions to security challenges and INVITES the Director General to establish a strategy concerning ESA space security activities, in coordination with its Member States and other national and European actors;
- (g) ENCOURAGES the Director General to foster and further build on ESA's inspirational capital, notably for Europe's future generations, through both traditional and innovative approaches, aimed in particular at:
- developing new concepts for international exploration activities, encompassing novel cooperation opportunities open to all nations and industrial actors;
  - preparing the next generation of experts in science, technology, engineering and mathematics, through investment in inspiring missions and support to education;
  - establishing a systematic and regular dialogue with user communities, together with ESA Member States and relevant European organisations; and
- WELCOMES the Director General's decision to reinforce ESA's capabilities to foster innovative and disruptive ideas, reorienting dedicated activities within ESA's Basic Activities towards these objectives.

## **II. ESA's long-term plan and industrial policy**

6. RECALLS that, in accordance with Article II of its Convention, ESA elaborates and implements a long-term European space policy; and WELCOMES the Director General's long-term plan and the annual reporting on this.
7. URGES the Director General to further optimise ESA's industrial policy and balance the geographical distribution of industrial work, notably by:
  - (a) fostering competitiveness, innovation and a balanced development of the European industrial sector among all Member States, while also facilitating the entry of new economic actors and the integration of its latest Member States;
  - (b) supporting private investment and entrepreneurship, in particular through start-ups and SMEs, and carrying out the SME-friendly policy adopted by the Industrial Policy Committee (IPC) so as to favour their contribution to the success of ESA programmes;
  - (c) promoting public-private partnership schemes that include the sharing of risks and rewards, prioritising pre-operational space activities with a potential for industrialisation and commercialisation;
  - (d) implementing the proactive management of its industrial policy through close dialogue and coordination with Member States and industry, and supporting a further development of industrial capabilities in chronically under-returned Member States, using in particular the Observatory of Critical Countries (OCC) established by the IPC and the internal mandatory activities steering committee.

## **III. An optimised ESA for Space 4.0**

8. RECOMMENDS to the Director General to continue to strengthen ESA efficiency in conducting its activities and programmes, and to align its organisation across

programmes and directorates with its strategic and programmatic objectives, while ensuring the necessary supervision; and in order to further optimise ESA, for the benefit of all Member States, INVITES the Director General to:

- (a) further improve and strengthen ESA's corporate management methods and tools, including procurement tools, corporate control and knowledge management, with the aim of enhancing working practices across all ESA activities and programmes;
- (b) continue to foster cross-fertilisation for the benefit of on-going and future ESA activities and programmes;
- (c) plan for an effective, efficient and sustainable development of ESA sites and facilities;
- (d) conclude agreements with institutional partners in Europe with a view to safeguarding Member States' investments in ESA and to maintaining, in accordance with Article VI.1 of the Convention, the necessary critical mass to preserve ESA's capability and excellence in space systems operations;
- (e) reinforce ESA's corporate identity, visibility and communication so as to reach out to the largest possible audience;
- (f) reinforce workforce planning with the aim of ensuring the availability of skilled staff to cover core activities and to develop and implement the programmes of the Agency, including through exchanges of personnel and secondments to and from industry, academia and other national and European institutions;
- (g) take measures to impose better adherence to cost limits and schedules for ESA procurements by:
  - increasing early technological investments, especially in innovative areas;
  - improving project review processes;
  - fostering project management capacities and tools; and
  - mandating the IPC to recommend to Council, by June 2017, industrial policy



measures to fulfil the above-mentioned objectives, while securing a level playing field and ensuring that all industrial stakeholders and Member States are presented with fair opportunities;

- (h) reinforce an efficient ESA corporate information technology (IT) system and implement a comprehensive ESA Digital Agenda to secure and enhance knowledge by means of an overall ESA information policy;
- (i) present to Member States an analysis of the corresponding strengths and weaknesses of the current situation at ESA, as a basis for the Member States to assess the need for a modernisation of ESA's structures and procedures for decision-preparation and decision-making, with the aim of reinforcing ESA's ability to better reflect the collective interest of Member States.



**Level of resources  
for the Agency's mandatory activities 2017-2021**

Council, meeting at ministerial level,

HAVING REGARD to Articles I.3, V.1 (a) and XI.5 (a) (ii) of the Convention,

HAVING REGARD to the Director General's proposal for the level of resources for the Agency's mandatory activities 2017-2021 (ESA/C-M(2016)6, rev. 2),

DECIDES by a unanimous vote of all Member States to determine at 3,813 Meuro at current economic conditions the level of resources to be made available to the Agency for the period 2017-2021, including 1% annual adjustments, according to the following planning:

2017	2018	2019	2020	2021	TOTAL
747.5	755	762.5	770	778	3,813

which is broken down into:

- (a) the scientific programme for an amount of 2,540 Meuro,
- (b) the Agency's basic activities for an amount of 1,160 Meuro,
- (c) annual adjustments for an amount of 113 Meuro,

according to the following planning:

	2017	2018	2019	2020	2021	TOTAL
(a) scientific programme	508	508	508	508	508	2,540
(b) basic activities	232	232	232	232	232	1,160
(c) annual adjustments	7.5	15	22.5	30	38	113

CONGRATULATES the Agency for the excellence and outstanding achievements of its scientific programme, illustrated recently through the Rosetta and LISA Pathfinder missions, making Europe as a whole a world leader in space science, and RECOGNISES that the scientific programme has been remarkably successful thanks to the stability that it offers and to the partnership with Member States through national programmes, Agencies or PRODEX;

#### SUPPORTS

- the Cosmic Vision programme through implementing the missions currently under development and those recently decided, and
- enhancing the programme's stability by improving the Agency's management support to payloads of the Member States;

UNDERLINES the crucial role of the basic activities as the Agency's backbone to achieve its programmatic and strategic objectives and to contribute to a United Space in Europe by:

- studies, research, innovation and dissemination;
- sustainability and long term capability; and
- industrial support and services.

RECOGNISES the importance of education and of fostering technology transfer by supporting business incubation and spin-in from developments in areas outside space, which contribute to growth and competitiveness, create new jobs and promote innovation.

## **Resolution on the CSG 2017-2021**

Council, meeting at ministerial level,

RECALLING that, since 1975, the Agency has contributed to the funding of the Guiana Space Centre (hereinafter referred to as “the CSG”) and associated services, and RECOGNISING the need to continue contributing to the funding of the CSG Launch Range, this being a main element of the guaranteed access to space for all European customers, and in particular for European institutional missions,

HAVING REGARD to the Resolution on the evolution of the European launcher sector (ESA/C-M/CLXXXV/Res. 3 (Final)) adopted by the Council meeting at ministerial level on 6 December 2005, hereinafter referred to as “the 2005 Launchers Resolution”, and in particular to its Chapter V on CSG Launch Range funding,

HAVING REGARD to the Agreement between the Agency and the Government of the French Republic on the Guiana Space Centre and associated services, signed on 18 December 2008 and concluded for the period from 1 January 2009 to 31 December 2020 (ESA/LEG/351), hereinafter referred to as “the CSG Agreement”,

CONSIDERING that the adoption by Council of the present Resolution covering the period 2017-2021 amounts to an agreement by France and ESA to extend the duration of the CSG Agreement until the end of 2021,

TAKING NOTE of the Declaration by certain European Governments on the Launchers Exploitation Phase of Ariane, Vega and Soyuz from the Guiana Space Centre, which entered into force on 26 November 2009 and has been concluded for the period from 1 January 2009 to 31 December 2020 (see ESA/C/R(2007)2, rev. 1), hereinafter referred to as the “2007 Launchers Exploitation Declaration”,

TAKING NOTE that a revision of the 2007 Launchers Exploitation Declaration for what concerns the exploitation phase of Ariane 6, Vega C and their evolutions is expected to be finalised among certain Government representatives of the Member States of the Agency in the early months of 2017 and will be applicable for a period running until the end of 2035, hereinafter referred to as the “2017 Launchers Exploitation Declaration”,

HAVING REGARD to the Resolution (ESA/C/CXCV/Res. 3 (Final)), adopted by the Council on 13 June 2007, through which the Agency accepted the mandate entrusted to it in the 2007 Launchers Exploitation Declaration, and to the fact that a similar Resolution will be adopted by the Council of the Agency so as to accept the mandate entrusted to ESA in the 2017 Launchers Exploitation Declaration ,

TAKING NOTE of the exploitation agreements for the launchers Ariane (hereinafter referred to as “the Ariane Exploitation Agreement”) and Vega (hereinafter referred to as “the Vega Exploitation Agreement”), concluded by Member States of the Agency participating in the relevant Agency launcher development programmes at the Council meeting on 13 June 2007, that are planned to be amended in view of the Ariane 6 and Vega exploitation beyond 2019,

TAKING NOTE of the Arrangement between the Agency and Arianespace on the launchers exploitation phase of Ariane, Vega and Soyuz from the Guiana Space Centre, which was concluded for the period from 1 January 2009 to 31 December 2020 (ESA/LEG/350(R)), hereinafter referred to as “the ESA/Arianespace Exploitation Arrangement” which will be amended on the basis of the 2017 Launchers Exploitation Declaration and a Memorandum of Understanding concluded among the European Space Agency, Arianespace Participation S.A., Aibus Safran Launchers Holding, ELV S.p.A. represented by Avio S.p.A. and the Centre national d’études spatiales regarding the

exploitation of Ariane 6 and Vega Launch Systems (ESA/C(2016)92, rev.1, hereinafter referred to as “the Exploitation MoU”),

HAVING REGARD to the procedure defined in document ESA/C/R(2015)3, rev.3 (Final) for the establishment of the prices for standard launch services applicable to ESA missions, and to the current applicable prices for standard launch services applicable to ESA missions based on ESA audited Arianespace data, communicated to the ESA Member States on the occasion of the Council meeting on 12-13 October 2016,

HAVING REGARD to the industrial policy measures and tools agreed in the Implementation plan for a proactive Industrial Policy Management provided in document (ESA/IPC(2016)31, rev.1), hereinafter referred to as the “Industrial Policy Implementation Plan”,

HAVING REGARD to the Resolution on the CSG (ESA/C-M/CCXXXIV/Res.3 (Final)) attached to (ESA/C(2012)186) adopted on 21 November 2012 at the Council meeting at Ministerial level (hereinafter referred to as “the 2012 CSG Resolution”) and in particular its paragraph XVIII inviting the Director General to draw up in due time a proposal, and the corresponding legal arrangements, on the Agency’s contribution to the CSG funding beyond the year 2015,

ACKNOWLEDGING the Director General’s proposal for the Agency contribution to the funding of the Guiana Space Centre and associated services over the period 2017-2021 (ESA/PB-LAU(2016)23, rev.2), hereinafter referred to as “the Director General’s Proposal”, which has been drawn up in compliance with the principles set out in Chapter V of the 2005 Launchers Resolution;

1. RECOGNISES that the total costs of the CSG Launch Range consist in:
  - (i) the costs of all activities, services, investments and workforce necessary to maintain the CSG Launch Range facilities safe and in working order in accordance with established practice with a view to maintaining them in, or restoring them to, a state in which they can perform the required function in accordance with applicable laws and regulations hereinafter referred to as “Reference MCO costs”, and
  - (ii) the costs induced by the execution of launch campaign activities.

2. AGREES that the Agency shall contribute to the funding of the CSG and associated services in return for services to be provided by the Centre National d'Etudes Spatiales (CNES) under article 8 of the CSG Agreement (hereinafter referred to as "CNES Services").
  
3. AGREES that the Agency's yearly contribution (in M€ at 2016 e.c.) to both the Reference MCO costs of the CSG and associated services and to the ESA costs, hereinafter referred to as the "Agency's contribution to the CSG funding" over the period 2017-2021, as detailed in section 7.3 of the Director General's Proposal and outlined in chapter V of the Annex, shall be in accordance with the following planning:

Final Amounts			Provisional amounts		Total 2017-2021
2017	2018	2019	2020	2021	
90.9	88.1	88.1	85.4	85.4	437.9

4. FURTHER AGREES that the Agency's contribution to the CSG funding over the period 2017-2021, set out in paragraph 3 above, shall be funded by ESA Member States in accordance with the following initial composite contribution scale, calculated and adjusted as detailed in the Director General's Proposal and outlined in chapter V of the Annex:

<b>MEMBER STATES</b>	<b>(%)</b>
Austria	1.47
Belgium	4.07
Czech Republic	0.54
Denmark	0.95
Estonia	0.06
Finland	0.74
France	34.13
Germany	18.43
Greece	0.78
Hungary	0.34
Ireland	0.62
Italy	11.21
Luxembourg	0.10
Netherlands	3.16
Norway	1.80



Poland	1.47
Portugal	0.62
Romania	0.48
Spain	5.51
Sweden	2.15
Switzerland	3.75
United Kingdom	7.62
<b>Total</b>	<b>100.00</b>

5. NOTES the commitment by Arianespace to cover the Reference MCO costs apportioned to Soyuz, through payments to the Agency which will be transferred to CNES. The corresponding yearly amounts (in M€ at 2016 e.c.) over the period 2017-2021 shall be in accordance with the following planning:

Final Amounts			Provisional amounts		Total 2017-2021
2017	2018	2019	2020	2021	
6.3	6.1	6.1	5.9	5.9	30.3

6. The final yearly amounts related to the period beyond the year 2019 will be decided by Council on the basis of a new Director General's Proposal. In case the yearly amounts for the period beyond 2019 cannot be determined in due time or in the absence of a decision by Council on the future Agency's contribution to the CSG funding beyond 2019, the provisional amounts referred to in paragraph 3 above shall be considered as ceiling amounts.
7. FURTHER AGREES on the following principles:
- (a) Should, during a given year  $n$ , the Agency notify to CNES a substantial change in the services to be provided by CNES in the year  $n+2$  with respect to those defined in this Resolution, the amounts referred to in paragraph 3 above and the modalities for their funding by ESA Member States within the framework of this Resolution may be revised;

to that end, the Director General shall assess the situation jointly with CNES and, if appropriate, with Arianespace; on the basis of this assessment the Director General's Proposal and this Resolution shall be revised as necessary to take account of this substantial change;

- (b) The Agency contribution to the funding of the CSG and associated services shall be alleviated, if appropriate, depending on launcher exploitation turnover, as described in Attachment II to the ESA/Arianespace Exploitation Arrangement.
8. INVITES the Director General to draw up in due time a proposal, and the corresponding legal arrangements, on the Agency's contribution to the CSG funding beyond the year 2019.

## **Resolution on ESA programmes: outlook and way forward**

Council, meeting at ministerial level,

RECALLING the purpose of the European Space Agency (ESA) as outlined in Article II of its Convention,

HAVING REGARD to the Resolution on Europe's Access to Space (ESA/C-M/CCXLVII/Res. 1 (Final)) adopted at ministerial level on 2 December 2014,

HAVING REGARD to the Resolution on the continuation of the Ariane 6 and P120C Elements of the Ariane and Vega Development Programme (ESA/C/CCLX/Res.1 (Final)) adopted on 13 September 2016,

RECALLING the Resolution on Europe's space exploration strategy (ESA/C-M/CCXLVII/Res. 2 (Final)) adopted at ministerial level on 2 December 2014,

RECALLING the Act in Council on Funding for the ExoMars Programme Activities (ESA/C/CCLVIII/Act.1 (Final)) adopted on 15 June 2016,

RECALLING the preparations made in the current and previous decades, through a series of ESA programmes dedicated to different destinations, namely Low Earth Orbit (LEO), the Moon and Mars; and RECALLING further the instruments concluded with international partners for the implementation of ESA's space exploration programmes,

HAVING REGARD to the Resolution “Towards Space 4.0 for a United Space in Europe” (ESA/C-M/CCLXIV/Res. 1(Final)) adopted at ministerial level at Lucerne on 1 December 2016,

ACKNOWLEDGING that the capability for the Member States to conduct at the Agency optional programmes in different domains of space activity constitutes a powerful and flexible instrument with which to respond to the change in paradigm recently introduced by the new space economy and to support the growth and competitiveness of European industry,

## **CHAPTER I GENERAL CONSIDERATIONS ON THE AGENCY PROGRAMMES**

1. TAKES NOTE of the programme proposals submitted by the Director General with a view to fulfilling the objectives and priorities outlined in his proposal entitled “Towards Space 4.0 for a United Space in Europe” (ESA/C-M(2016)1), and WELCOMES the decisions of the Participating States concerned, made on this day and detailed in the latest revision of ESA/C(2016)100, to subscribe the new or revised Declarations required for the implementation of several optional programmes in the coming years in the following domains:

- Space Applications, comprising the Earth Observation programmes, the Telecommunications programmes and the Navigation programme;
- Space Transportation;
- Science and Exploration; and
- Technology and Operations.

2. STRESSES the need for the Agency to take steps to contribute decisively, through a coordinated effort making use of data generated across ESA programmes, in meeting the major challenges faced worldwide by our societies, particularly sustainable development, bearing in mind the 2015 United Nations Sustainable Development Goals, better knowledge of the environment and economic development of specific areas while ensuring the protection of the corresponding valued ecosystems, such as the Arctic, the Atlantic Ocean and the Alpine region.

3. SUPPORTS the conduct of opportunity missions (e.g. small, fast, high-risk, low-cost) through suitable programmatic domains (both mandatory and optional) of the Agency, to be defined on the basis of their innovative character and scientific excellence, with a view to providing further industrial opportunities for all Member States, as well as promoting the competitiveness of the European space sector and contributing to the development of the required responsiveness to the needs and challenges of Space 4.0.
4. WELCOMES the approach advocated by the Director General to establish a common goal for space-based applications, and STRESSES that the corresponding programmatic and financial commitments made by Member States on this day will be executed in an optimised and harmonised manner so as to enable the Agency to reap the maximum benefit allowable to programme activities carried out on a co-funding basis, such as in ARTES, GSTP, NAVISP and the InCubed Element of Earth Watch, and INVITES the Industrial Policy Committee to define the corresponding measures for submission to Council during the first half of 2017.
5. INVITES the Administrative and Finance Committee to conduct a review of the Financial Regulations and propose to Council by October 2017 the necessary amendments for the purpose of improving the Agency's annual funding sustainability, so that Member States progressively meet their multi-annual obligations while ensuring the continuous execution of the Agency's approved programmes and activities, in accordance with Article III of Annex II to the Convention and based on equal treatment among Member States.

## **CHAPTER II SPACE APPLICATIONS**

### A. Earth Observation Programme

6. ACKNOWLEDGES that the continuation of the Earth Observation Envelope Programme, with a fifth period spanning from 2017 to 2021, will contribute to keeping Europe at the forefront of understanding of the Earth system;

7. STRESSES the essential contribution made through the Agency's Earth Observation Programme for the implementation and enforcement of major international environmental conventions, STRESSES further the need to define and develop a reliable European contribution in global systems to monitor greenhouse gases and, through the Global Monitoring of Essential Climate Variables – GMECV, the products needed for the monitoring of global change effects;
8. ACKNOWLEDGES the continued attractiveness of the Agency's Earth Observation programmes for a wide variety of stakeholders, ranging from the international Earth science community to major European organisations such as the European Union, meteorological agencies such as EUMETSAT and the European Centre for Medium-Range Weather Forecasts (ECMWF), international financial institutions, international partner space agencies, users and operational bodies, the Earth observation value-added sector, and commercial players outside the space domain;
9. UNDERLINES the new opportunities for European economic actors and European citizens provided by the advent of the Copernicus constellation and RECOGNISES the need for the Agency to prepare for the evolution of European Earth observation capacity, including through its timely support to the efforts of the European Commission in defining and developing the evolution of the Copernicus Space Component, in line with the Copernicus Agreement between ESA and the European Union;

B. Telecommunication Programme

10. NOTES that the developments of the global telecommunication market are changing rapidly, with key segments of that market showing in 2016 an unprecedented level of competition between satellite operators and terrestrial operators, affecting the entire satellite industry;
11. STRESSES that the different projects carried out outside Europe for the development of Very High Throughput Satellites and mega-constellations of telecommunication satellites

pose an additional serious challenge to the European space sector which calls for an unprecedented effort of innovation and efficiency from Europe's manufacturing industry;

12. NOTES that the European telecommunication satellite industry has, over time, acquired strong assets resulting from continued R&D investment, in the form of an excellent reputation, a skilled workforce, modern facilities, and a global market share of over 30%;
13. WELCOMES the approach taken through the ARTES programme:
  - (a) to support the competitiveness of Member States' industry at the level of technology or products, in particular the Core Competitiveness and Future Preparations Elements;
  - (b) to stimulate innovation at the level of end-to-end systems through public private partnership with operators or service providers, thus promoting a balanced risk-sharing scheme between public and private partners so as to enable European industry to keep pace with the intensifying global competition in the vital telecommunications sector; and
  - (c) in the framework of the Integrated Application Promotions Element, with a view to fostering interaction between the space sector and the rest of society, enabling the delivery of new commercially-sustainable services to citizens and strengthening the economy;

#### C. Navigation Programme

14. NOTES, through the implementation of the new Navigation Innovation and Support Programme (NAVISP), that the Agency will, coordinating as appropriate with the European Union's Horizon 2020 programme:
  - (a) facilitate the generation of innovative Satellite Navigation - Positioning Navigation and Timing (PNT) in partnership with Member States and industry, along the entire satellite navigation value chain;
  - (b) enhance the industrial capabilities of Member States in satellite navigation while stimulating job creation and growth in the space sector;

- (c) support industry in its efforts to strengthen the technology readiness of the relevant product portfolio and the emergence of new entrants into the PNT market;
- (d) leverage both the Agency expertise gained through Galileo, EGNOS and navigation and the existing industrial base of the European navigation sector; and
- (e) contribute to a reduction in the risks involved in developing the next generation of European Union infrastructure in that sector.

### **CHAPTER III SPACE TRANSPORTATION**

15. REAFFIRMS that successful commercial exploitation and affordable guaranteed access to space are inseparable halves of an effective strategy, UNDERLINES that Europe's strategy for space transportation shall take into account the growing needs of institutions, academia and the commercial sector in the light missions segment, and WELCOMES initiatives aimed at offering competitive launch opportunities with ESA-developed launchers in that segment and fostering downstream satellite-based services;
16. STRESSES the need for the Agency to continue to support the exploitation of the ESA-developed launchers in operation today, with a view to maintaining the qualification and safe operation of Ariane 5 and Vega and preparing a safe and efficient transition to Ariane 6 and Vega C, while safeguarding the interests of the Member States;
17. ACKNOWLEDGES that, in response to the fast-moving worldwide market for space launch services:
  - (a) the maiden flights of Ariane 6 and Vega C must be carried out no later than at the stipulated contractual milestones, and within the agreed launch service costs; and
  - (b) the Agency shall take steps to prepare, together with the industry of all participating States, the evolution and the development of technology and components required for future generations of launchers, so that proven technologies, which shall result in cost benefits, can be introduced into operational launchers with minimal risk and that the transition from one generation of launcher to the next is carefully managed;



18. NOTES the currently applicable prices for the procurement by the Agency of Ariane 5, Vega and Soyuz at CSG standard launch services for its missions communicated to ESA Member States at the Council meeting held in October 2016;
19. INVITES the Director General to make timely preparations for the conduct of the Ariane 6 Exploitation Readiness Key Point and for the submission for Council approval, before the end of March 2018, of an ESA launch service procurement policy for Ariane 6 and Vega, including the terms and conditions applicable to Private-Public Partnership missions conducted with the Agency's involvement.

#### **CHAPTER IV SCIENCE AND EXPLORATION**

20. ACKNOWLEDGES that, in recent years, the Agency's Scientific Programme has continued to fulfil its objectives remarkably by putting at the disposal of the scientific community the best space tools possible for achieving and sustaining excellence through a choice of projects, making the Agency a world leader in discovery and innovation, and contributing significantly to the sustainability of European space capabilities and associated infrastructures;
21. ENCOURAGES the Director General to pursue vigorously the implementation of the long-term planning of the Scientific Programme, maintaining a regular rate of missions, so as to consolidate and extend Europe's leadership in innovative domains, such as the determination of the nature of the elusive dark energy, the exoplanets, the exploration of the icy moons of Jupiter and the opening of the new discipline of space-based gravitational wave astronomy;
22. ACCEPTS that the European Exploration Envelope Programme (E3P) shall be conducted within the framework of the Agency as a successor programme to several optional programmes, remaining in force as specified in the E3P Declaration and which are devoted to different aspects of space exploration and utilisation, and UNDERLINES that, through the different domains of activity covered by E3P, the Agency will pursue a consistent, strong and forward-looking space exploration strategy designed to:

- (a) strengthen the Agency's exploration efforts over the coming years, thus attracting even more interest and support from international partners;
- (b) continue to deliver world-class science and to generate socio-economic benefits, thereby significantly contributing to education and inspiration;
- (c) provide a sound basis not only for a successful continuation of space activities in Low Earth Orbit (LEO) in the coming years but also for the detailed definition of the Agency's contributions and role in future exploration missions to be conducted in LEO, and to the Moon and Mars; and
- (d) further stimulate commercial partnerships with industrial entities;

23. ACKNOWLEDGES that, through their subscription of the E3P Declaration, the European Partner States have:

- (a) joined the other International Space Station (ISS) Partners in their objective to extend the duration of their involvement in ISS cooperation from the beginning of 2021 until the end of 2024;
- (b) taken steps within the Agency framework to be in a position to abide by their rights and obligations under the ISS Intergovernmental Agreement (IGA), and the corresponding ESA/NASA Memorandum of Understanding, for that period; and
- (c) enabled the conduct of definition activities for different elements to be provided, subject to timely decisions being taken, to meet the Agency's ISS-related common operations costs responsibilities;

24. NOTES that, with the arrival at Mars on 19 October 2016 of the Trace Gas Orbiter and Schiaparelli Demonstrator Module, the Agency is encouraged to strive to reap the benefits expected from the significant investments made through the ExoMars programme, including those earmarked for the successful completion of the second ExoMars mission, and for this purpose STRESSES the importance for the Director General to implement thoroughly the ExoMars Plan of action;

25. INVITES the Director General working alongside international partners and in close coordination with the European Partner States:

- (a) to elaborate approaches to continue space activities in Low Earth Orbit; and

- (b) to define future missions in the domain of robotic and human exploration, such as a Mars Sample Return mission as a possible project.

## **CHAPTER V TECHNOLOGY AND OPERATIONS**

26. **ACKNOWLEDGES** with appreciation that the Agency has established a seamless chain/grid of innovation in support of the European space sector, and will continue foster it with general studies and technology research funded through the Preparation, Discovery and Technology Developments in the Basic Activities (Technology Research Programme – TRP, and General Studies Programme – GSP) as part of the Agency’s Mandatory Activities, and continuing with the General Support Technology Programme (GSTP), which represents an integral part of the process and includes activities devoted to technology breakthrough missions and support to the Business Incubation Centres;
27. **STRESSES**, as reliance on satellites and the services they offer continues to grow, that the number of spacecraft in orbit around the Earth is increasing substantially, a phenomenon which will be stimulated further by the expanding commercial use of space, the growing interest in cubesats and nanosats, and the potential arrival of mega-constellations, **RECOGNISES** that this increase, combined with a proliferation of orbital debris and with naturally-occurring space hazards such as space weather events, is bound to increase safety issues critically for operational spacecraft as well as to pose a potential threat to populations and infrastructure on the ground, and **WELCOMES** the effort of the Agency to provide Europe with the technology needed to monitor, predict and mitigate these problems;
28. **UNDERLINES** the need to protect operational satellites, and primarily the Agency’s spacecraft, and in the long run preserve a safe orbital environment notably through compliance of all Agency missions as from 2020 with the international guidelines defined by the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) and the Inter Agency Space Debris Coordination Committee (IADC), and for this purpose **ENCOURAGES** the Agency to strive to acquire a broader knowledge of that environment to better forecast hazards and continue to develop the technology required to facilitate compliance with such guidelines;

29. ACKNOWLEDGES, in view of the above, that a series of activities to be started or continued in the framework of the SSA programme and the GSTP, in some cases already having attained a certain stage of maturity, contribute towards forming an Agency initiative devoted to Space Safety, and INVITES the Director General to develop such an initiative in good time for the next meeting of Council at ministerial level, taking stock of the financial contributions confirmed on this day in relevant activities and bearing in mind the regulatory aspects relevant to safety addressed by Member States in different forums, in particular at global level.