

REPORT ON THE 12th ANNUAL EUROPEAN SPACE CONFERENCE*

New Decade, Global Ambitions: Growth, Climate, Security & Defence

21 & 22 January 2020

Egmont Palace, Brussels

This report is not a verbatim transcript of the conference and is based upon the written notes and memory of the Eurospace team that attended the event; it is intended to capture only the main points made in the meeting. Please do not hesitate to report any discrepancies.

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DAY 1 – 21 January 2020

WELCOME ADDRESS:
NEW GREEN, INDUSTRIAL AND GEOPOLITICAL AMBITIONS FOR EUROPE IN SPACE

David Clarinval, Deputy Prime Minister, Kingdom of Belgium,

- Stressing that Belgium is preparing for negotiations on the space programme and the Multiannual Financial Framework, he then highlighted that:
- Autonomous access to space for Europe has never been so crucial.
- There are new ambitions and new challenges, new threats which calls upon Europe to improve its performances.
- Defence and space together can bring solutions.
- Vega and Ariane will create employments in Belgium.
- Cyber threats for Belgium are very important and a priority. Belgium wants to become a centre for cyber security with the ESA centre in Redu.

Josep Borrell, ([speech available here](#)) High Representative and Vice-President, European Commission

- Recalled that no so long ago launching a satellite was considered as a waste of money. Then, talking about Space policy from geopolitical point of view, he stressed that:
- Space is the new frontier of global politics.
- Space is a strategic issue and needs to be treated as such.
- There are rising political tension on earth and it is projected in space:
 - China is setting up a specialized unit.
 - USA created a formal US space force.
 - Japanese PM announced the creation of a space defence unit as well.
- Space is congested, contested and competitive:
 - Space is congested as more and more countries are launching civilian and military satellites. There is now the trend of launching larger constellations.
 - Space is contested due to the risk of growing weaponization in space.
 - Space is competitive and vital, and Europe has a massive stake in the future of space. Europe has to face a competition in the global environment.

Blaženka Divjak, Minister of Science and Education, EU Council Presidency, Croatia, highlighted the fact that space rises questions relevant for social sciences and humanities. She then stressed that:

- Space is of strategic importance for Europe and Europe has historically been at the forefront with Copernicus, Galileo and EGNOS.
- The sector is undergoing a new transformation.
- To answer global challenges, Europe need to support the whole chain.
- Public funding for the European space sector has been relatively strong with Horizon 2020 and there are good perspectives for HE.
- Space creates job that makes Europe sustainable.

Johann-Dietrich Wörner, Director-General, European Space Agency focused his speech on the challenges that space can tackle such as climate change, energy, conflicts and health issues. He stressed more in details that:

- Europe must discover climate change and then monitor it. The next step is to raise awareness and then look into the future, how to protect and mitigate.
- Space debris, satellites and particles, are one of the challenges of the future.

- ESA and the EU are working together with the industry and all stakeholders should join forces to mitigate climate change. Earth Observation is a good example for that, with Copernicus.
- It is important to also join forces for Europe, because only then success will be achieved in the global competition and called it “United space in Europe”.

Jean-Loic Galle, ([speech available here](#)) President, Eurospace, addressed in his speech the main priorities of Europe which can be tackled by Space; he focussed his intervention on three key issues:

- What can space do for Europe?
 - “Green Deal” objectives: we will not be able to make Europe climate-neutral nor to protect our natural habitat if we do not have the means to autonomously assess what is happening from a global perspective.
 - Space technology and data are key to “make Europe fit for the digital age”, allowing for ubiquitous connectivity, secured communications, high performance navigation and providing an enormous amount of resources to data and artificial intelligence technologies
 - In the field of security and defence, but also international cooperation and humanitarian aid, space is recognised as a strategic asset by every single world power, a “Europe stronger in the world” does not exist without stronger capacities in space
- How is Europe doing in space?
 - Europe is the 4th space manufacturing power worldwide and provides about 15% of worldwide spacecraft production. However, contrary to the situation of its competitors for which their institutional domestic market is the main source of revenues, most of that activity in Europe is associated to volatile and cyclical commercial export markets.
 - With only 4% of the worldwide space industry workforce the European space sector is an undisputed leader in at least one domain: its efficiency and its competitiveness. This efficiency is also demonstrated commercially: this decade, European spacecraft exports rose up to almost 1B\$ per year.
- How can we do even better?
 - To strengthen innovation and R&D in order to improve competitiveness and non-dependence,
 - To devise a European-wide industrial space policy
 - To fully use Space to ensure that the EU is fit for the Digital Age and to make the full use of space to deal with environmental challenges;
 - To make Europe a precursor of a cleaner space by developing IOS. For debris removal and deorbiting.
 - To mainstream a “space dimension” into EU Defence Industry programs
 - To guarantee independent access to space, and freedom to operate in space
- He concluded by declaring Europe take should the lead by inventing and investing together, industry and institutions, in an ambitious space initiative that will make Europe greener, fitter for the digital age, more secure and stronger in the world.

PLENARY SESSION I - THE FUTURE OF THE EUROPEAN SPACE ECOSYSTEM: FROM ACCESS TO SPACE TO THE NEW EU INDUSTRIAL STRATEGY

Jerzy Buzek, Member, European Parliament, noted that having a common space policy is a new idea, before talking about the ability of Europe to face the current challenges:

- During the last five years Europe worked to prepare itself to the new challenges and needed a long-term strategy.
- He had the privilege to negotiate the EU space programme which sets up the cooperation with the institutions: GSA, national space agencies, Member States.
- The budget is key to go forward.
- It will be necessary to use all the possibilities of the space policy for example for the green deal mentioning that space policy should be an integrated part of the industrial policy for green deal

Thomas Jarzombek, Coordinator of German Aerospace Policy, Germany, focused his speech

- on the financing of space activities and described it as a big issue for the EU
- then mentioned other priorities of the German presidency, such as property and space safety.
- Highlighted the importance of protecting European infrastructure against cyber-attacks, but also the importance of supporting competitiveness which is lacking in Europe.
- He mentioned the need to foster a “newspace ecosystem” before concluding on the importance of not having too much political influence.

Timo Pesonen, Director-General, DG DEFIS, European Commission,

- Described the 3 key priorities for the European Commission to work on:
 - The EU space programme: the consolidation of the space regulation, a sufficient budget, increase synergies between space and defence, consolidate our flagship Copernicus and Galileo, Gvsatcom etc.
 - Competition: domestic competitiveness but also, with the partners and competitors such as the US, Russia, China, and to be active in Africa.
 - Communication: European citizens should be made better aware of what Europe has, to make Copernicus, Galileo, and other applications known by the citizens.
- Europe needs to trust on its excellence and should not copy paste on its competitors.
- It is important that SMEs are active.

Eric Morel de Westgaver, Director of Industry, Procurement and Legal Services, European Space Agency, on the emergence of new players, business models and how to adapt stressed that:

- The ability to innovate is important.
- “Newspace” is actually mostly about new acquisition policy.
- ESA selected a mission as a service for cleaner space.
- The capacity to assess and to oversee the technical developments is important and this creates confidence in ESA Member States, to invest in risky and innovative ventures. ESA provides them with the technical assessment.
- There are three challenges:
 - Deliver the programmes
 - Continue the flagship and give to Europe infrastructure and data it needs.
 - Ensure that space19+ and EU space programme are working in a coherent way, to deliver data.

Lutz Bertling, CEO, OHB

- Talking about Galileo, stressed that Europe is the owner of a large constellations, before saying that Europe needs to make better known to people the benefits of space applications through better communication.
- He added that Galileo is a success and is reliable, but the priority should be to ensure sustainability of the service. He then mentioned the challenges, such as avoiding the risk of a gap and the need to go to a second generation, as well as the importance of competition which drives innovation and performance.
- He added that Europe needs to stay at the forefront as more actors are entering space due to the democratization of access to space.

Jean-Marc Nasr, Executive Vice-President, Space Systems, Airbus Defence and Space

- Noted that there is a clear decision to go forward in space. He mentioned the example of the budget discussed by the European Commission and the success of the last ministerial council of ESA. He then highlighted that:
- Europe can be proud of what is being done in space: 2 out of 3 constellations are made by European companies.
- Stability is key for industry as well as vision.
- Europe should be the partner of choice of other continents.
- It is necessary to make sure European assets are connected in a secure way.
- To support further growth of Airbus DS there is a need for a strong ESA, as well as a determined European Commission to make sure Europe has operational tools in space for European citizens.

Luigi Pasquali, CEO, Telespazio, stressed on the changes expected to serve the interest of the sector:

- Telespazio work on the downstream side.
- It is important to develop competitiveness and innovation, as innovation in the downstream is the best accelerator.
- The right approach is not to be a system integrator but a mission integrator. The mission is the starting point.
- There is a matter of security in space. SSA and SSI are particularly important.

André-Hubert Roussel, CEO, ArianeGroup, stresses about the current EU ESA industrial policy, the further improvements suggestions and the challenges and opportunities for ArianeGroup, that:

- A powerful industrial policy starts with an ambitious programme.
- In terms of industrial policy, Europe needs to consolidate public demand and especially for Ariane 6 exploitation.
- The international market of launches is dominated by institutional launches and Europe needs to set up a mechanism of European preference, even to go toward a buy European act.
- Research and innovation are important but there is a need for a sufficient budget. He described the ESA ministerial as an outstanding success.
- It is important to not forget the European Defence Fund and the Horizon Europe programme.
- Europe should take care of its infrastructure in space and invest in SSA. ArianeGroup is ready to be part of the solution.
- It is time to think about the next ambitious programme in Europe: a constellation linked with 5G, or something around in-orbit services.

SPECIAL ADDRESS

Margrethe Vestager, ([speech available here](#)) Executive Vice-President, A Europe fit for the Digital Age, European Commission stressed about her portfolio that she was looking forward to these new responsibilities and to learn a lot before saying that:

- Europe has global ambitions and can build the networks to provide conditions for all innovative companies in Europe to develop and have global impact.
- Europe can support ambitious project, like Galileo and Copernicus.
- Space is of strategic importance and has deep influence in everyday life.
- It is important to spread the message of what Europe has achieved, mentioning again the example of Galileo and Copernicus and the reliance on data for the fires in Australia.
- To make Europe the first climate neutral continent, Europe will have to make the best use of the capacities that it has. Copernicus can help us measure pollution. This green transition will happen at the same time as the digital transformation and Galileo will help to support internet of things. There are huge sets of opportunities in the decade ahead.
- Europe must continue to develop and improve space infrastructure like Copernicus and Galileo and make sure there is a sufficient budget to support new ideas.
- To get the financing, it is necessary to make links between the defence and the space industry but not by militarizing space:
 - Emerging technologies are changing the working methods such as Artificial Intelligence
 - One technology has military and civilian purposes.
 - Satellite navigations can help armies to operate and are used by civilians.
 - Some of challenges are shared like risk of collision with space debris. It is important to work collectively with EU institutions and governments to make sure that the data collected produce better services and to make the best of the European Defence Fund to finance space research.
- Europe must promote to its citizens the successful achievements resulting from a collective work.

PLENARY SESSION II - SPACE AND DEFENCE: NEW CHALLENGES IN A CHANGING INTERNATIONAL CONTEXT

Guest Speakers:

Angelo Tofalo, Undersecretary of State for Defence, Italy stressed that

- Space has always been an enabling sector, but it needs to be rationalized.
- Space is considered as an actual domain of confrontations with a clear parallel with cyber domain.

Philippe Goffin, Minister of Foreign Affairs and Defence, Kingdom of Belgium started by noticing that it was the first time that the word security is in the title of this conference, before explaining what kind of expectations this underlines:

- Space is a vector of data and modern army efficiency.
- The strategic dimension of space is not questioned.
- The US have a space force, France has a military strategy for space and NATO now sees space as an operational domain.
- Europe is not pleading for a militarization of space, but Galileo and Copernicus are two wonderful technologies and the EU institutions have to be aware of the threats against space assets.
- A further reflection about dual use of space infrastructure will be needed, though it weighs heavily on budget.
- Cyberattacks are a threat for space infrastructure and earth components. A logical consequence would be to ask for the next MFF to be equipped with a sufficient budget and to fulfil dual use projects.

Michel Friedling, General, Space Commander, Ministry of Armed Forces, France

- Stressed that the key role and growing importance of space-based services, for society and companies,
- There is a multiplication of actors and projects and the vulnerability of European space infrastructure have never been so strong. He mentioned the progressive congestion of space and the defence space strategy that France put in place. He stressed 3 axes and described the measures France took:
 - Bringing the strategic possibilities,
 - Extending the capacities
 - Developing an active space defence capacity to be able to defend the space objects.
- 5 billion euros will be dedicated to the renewal of defence satellites.
- France aims at sharing a common vision of space, a strategy to face the threats in space.
- France will support a European space defence, in order to develop defence and security on the continent.
- A space defence is key for strategic autonomy and freedom of access to space and it is important to also deploy diplomatic efforts to make sure there is a peaceful use of space.

Debate with:

Nathalie Loiseau, Member, Chair of SEDE subcommittee, European Parliament focused his speech on the strategic autonomy:

- It is necessary to be able and to act autonomously in space when it is needed.
- There is also the capacity to secure space assets. It is a strategic ambition.
- The USA does not give the same value of alliance because their motto is America first. The pre-eminence of trade concerns on any other type of consideration.
- Europe possesses several assets such as launchers, Galileo and the PRS.
 - European allies ask to have access to PRS today.
 - Redundancy is a security necessity.
- Space is congested, competitive and it is important to develop Govsatcom.
- Europe must work on EU military space surveillance network.
- The space programme needs to be finalized and the European Parliament will look into it.
- Europe must make sure that there is enough financing.
- Europe must tend toward a smart power and be a power to protect our sovereignty. It is indispensable to have a white paper on space defence.

Pierre Delsaux, Deputy Director-General, DG DEFIS, European Commission stressed that:

- Europe is managing civil programmes and the civil nature of the programmes will be kept.
- However, the defence dimension cannot be ignored.
- Space is becoming an essential asset, and the society is more and more dependent of its space assets.
- Europe must make sure that its infrastructure in space are protected.
- It is important to realize that to remain competitive, cooperation is needed and that is the logic behind the European Defence Fund, to have more cooperation between Member States. If there is a synergy, it is only through cooperation
- For Galileo there is the PRS programme and the purpose is to use it for defence.
- There is also the issue of the free data policy for Copernicus that is delicate when addressing security matters.
- Regarding Space Traffic Management, Europe must be independent and build its own capacity.
- On Govsatcom, the purpose is to regroup all the capability which exist in Europe, pull them together and deliver services to all Member States.

Jean-Loïc Galle, CEO, Thales Alenia Space stressed about the technological solutions:

- Technological solutions already exists on space debris.
- The side effect of digitalization of satellite is that this makes the satellite more powerful and flexible, but also more vulnerable. Software is more vulnerable than hardware.
- Europe should have a secure, independent, space awareness.
- Thales Alenia Space is working on sensors, cameras that could be embedded in satellite to have a picture around the satellite.
- Thales Alenia Space has developed, cyber-security solutions.
- The civil constellations of LEO and MEO satellite can bring their service to the forces in order to have a real time picture.
- Almost all constellations that exist today are coming from the European industry.

Miguel Ángel Garcia Primo, CEO, Hisdesat started by describing briefly the work of Hisdesat as a government satellite services operator on the area of security and defence. He then focused his speech on the importance of public private partnership and the need to be able to protect our assets.

Philippe Glaesener, Senior Vice-President, Corporate Development, SES

- Stressed first that there is a long time already the military come to SES and ask for support.
- Expressed that SES wants to make sure that even the civil assets will be protected against cyber threats.
- Is pushing for Govsatcom to be further developed in order to create the European autonomy. To bring Europe further, he added that Europe must have this issue as part of the agenda and to have the defence and commercial community to work together.

Jean-Pierre Serra, Vice-President Defence and Security, Airbus Defence and Space stressed that:

- It is necessary to have images, pictures with higher resolution, to better assess the situation. It is important to get the information and understand it quickly.
- Dual use will bring useful data.
- There will be some redundancy, but it is important to think about confidentiality of information. It is at the essence to get the right information and communicate it to the right person.
- European industrials have technological solutions. The European Defence Fund is key to have more options and to build what Europe needs and reach this defence autonomy.

PLENARY SESSION III - BUILDING BRIDGES: GIVING NEW MEANING TO INTERNATIONAL SPACE COOPERATION IN THE NEW DECADE

Guest Speaker:

Johann-Dietrich Wörner, Director-General, European Space Agency on development of collaboration of ESA:

- Competition is a driver and cooperation is an enabler, but both are necessary.
- The content of the global cooperation is important.
- On space debris there are concrete assets and concrete problems. Cooperation on Space Traffic Management will be needed, and the EU can help.
- ESA trains astronauts from the United Arab Emirates.
- There the collaboration on Bepi Colombo with Japan.
- The Moon village is a multi-partner open concept.

Roundtable Discussion:

Massimiliano Salini, Member, European Parliament, stressed about the EU ambitions that:

- In order to be ambitious, the EU must speak with one voice.

- It is necessary to push for a common position through common governance.
- On the budget, this is the final part of the negotiations but there is a problem regarding that budget. In the US it is much higher than in Europe. The good news is that the ministerial of ESA was very positive on this matter.
- The second good news is the decision to have a dedicated Directorate General for space and defence and the decision to establish a defence fund.
- The fact that there is no specific line for space in Horizon Europe is worrying.

Stephane Israël, CEO, Arianespace, focused his speech on the major achievements of Arianespace:

- International cooperation is key in what Arianespace delivered.
- He recalled the project with NASA, the launch of Bepi Colombo and another project for ESA and JAXA again in the future.
- In 2021 Arianespace will deliver the most powerful telescope ever launched worth 10 billion dollars.
- About Ariane 6, he stressed that last year Arianespace has been awarded two scientific missions
- The big story would be going forward to the moon. Ariane 6 is fully adapted to this mission and is willing to launch the European contribution to the moon.

Carine Claeys, Special Envoy, Space Task Force, European External Action Service, mentioned the importance of building a common understanding before explaining the specificities of space:

- Space is the ultimate frontier, but space tools are also key for the everyday life, security and defence.
- Space is congested, contested and competitive.
- There are mega constellations and a multiplication of space actors.
- Public diplomacy initiative has been launched toward policy makers, towards the academia, the scientific community.
 - The UN COPUOS has made a step forward with the adoption of guidelines
 - The challenge of today is the implementation of these guidelines
 - It will be necessary to call all stakeholders, public and private to commit in implementing the guidelines for a sustainable outer space for now and the future.
- The rise of geopolitical tensions is being exported in outer space:
 - The US created the space force,
 - NATO recognized space as an operational warfighting domain.
 - Some EU states as well adopted strategies.
- Europe must have common messages and coordinated actions.

Ikuko Kuriyama, Advisor to the Director, International Relations and Research Department, JAXA

- Talked about the international strategy of JAXA such as the promotion of Research & Development for mutual benefit, the implementation of projects efficiently and effectively, through collaboration and strategic dialogue with major space agencies.
- JAXA has been successfully working together on climate change.
- On the new challenges and opportunity, she mentioned smart city, agriculture, natural resources.
- The other major area of cooperation is international space exploration.
- JAXA is willing to bring significant contribution to the lunar gateway. JAXA organized strategic dialogues for partnership with government, such as the space policy dialogue between Japan EU and France.
- JAXA sees the changes in business environment as opportunities to expand its activities through collaboration with international industrial partners.

Giorgio Saccoccia, President, ASI described space as a national priority and interest. On collaboration and bilateral initiative, he stressed that:

- The work of the agency is also about putting on the table a concrete example of collaboration.
- One of the best examples is the exchange of Earth Observation data.

Donato Amoroso, Deputy CEO, Thales Alenia Space,

- underlined that the role of industry is to translate the opportunity into initiative.
- He mentioned mutual trust as a key element before highlighting the benefits of space diplomacy for his company.
- Being capable to develop a product sizeable for the export market makes the cooperation attractive.

Johannes von Thadden, Senior Vice-President, Airbus Defence and Space,

- Explained that cooperation is only possible in the long run if it is profitable for both sides before going into details about the need of market access and a joint understanding of export control.
- He stated that the European Commission needs to engage on joint rules and regulation as the more space become and economic interest, the more there is a need for global rules.
- He called for the European Commission to support European interest on the international market and to put its new programme under the guidelines of the green deal explaining the importance for the European Commission to save the planet and underlying the fact that space will play a major role in this regard.
- He then concluded by describing secure communication as a strategic element for sovereignty.

PLENARY SESSION IV - SPACE TO SERVE THE EUROPEAN GREEN DEAL: A LOOK AT THE FUTURE

Guest Speaker:

Riccardo Fraccaro, Undersecretary of the Presidency of the Council of Ministers,

- Italy stressed that Space is a necessity for all countries to become more competitive and efficient as well as an accelerator of social processes.
- On the fight against climate change he underlined that:
 - It is on one of the major challenges
 - Europe must to bet on sustainable development and invest in green technologies to leave our children a green planet, but also react very quickly in order to change policies
 - Data have huge impact and the challenge is to develop services based on these data to protect the environment
- The cooperation amongst countries is crucial

Debate with:

Christophe Grudler, Member, European Parliament

- raised the question of space technologies at the service of the objective of the green deal and focused on highlighting the benefits of space in monitoring the environment.
- stressed that importance of space data cannot be disputed and the space programme will help assess the state of the environment in order to improve our renewable resources.
- He noted that however the current technologies are not precise enough to monitor carbon emissions.

Daniel Calleja Crespo, Director-General, DG ENVI, European Commission talked about the three global crisis which are climate change, biodiversity crisis and the pollution crisis, before explaining the benefits of space technologies and data:

- Science-based decisions are based on space data
- This is about opportunities for growth, competitiveness, new sustainable space models

- Space can be a good multiplier
- More than just challenges, there are also huge opportunity with the instruments that Europe has.

Ambroise Fayolle, Vice-President, European Investment Bank,

- described the role of the European Investment Bank, stressing it finances research and development and mentioning the examples of AVIO and OHB.
- EIB has also just signed a 100M support to Ariane 6 in R&D. It is a contingent loan, the reimbursement is based on the commercial success of Ariane 6 and above a number of launches, it is reimbursed.
- EIB supports SMEs active in the space sector and she gave the example of 100M pilot project to support equity in the space sector.

Josef Aschbacher, Director of Earth Observation Programmes, European Space Agency

- highlighted the importance of the European Green Deal, describing it as an excellent proposal for Europe.
- He stressed that Copernicus is the answer to the European Green Deal and with the results of the Space19+ the Copernicus budget increased.

Alain Ratier, Director-General, EUMETSAT, mainly stressed in his speech the importance of demonstrating and managing CO2 emissions, as well the importance of space weather for the energy efficiency part of the green deal.

Florence Rabier, Director-General, ECMWF stressed about his organization that it has expertise in using satellite data as it produces weather forecasts and combines it into a model of the earth system.

Pierre Bahurel, Director-General, Mercator, mainly stressed in his speech the evolution of the importance of oceans in the political agenda and he took the example of the United Nations. He then explained the importance of having a solid observation with satellites to forecast oceans.

FOCUS SESSIONS 1 - CONVERGING EUROPEAN DEFENCE INITIATIVES FOR SPACE

Guest Speaker:

Carlo Massagli, Vice-Admiral, Military Advisor to the President of the Council of Ministers, Italy stressed that:

- Italy intends to invest more and more for competitiveness
- Space is becoming more and more congested and there are risks of collisions in orbit
- SSA SST should be developed in space traffic management and international standards and common rules should be set
- Minimum security standards to space infrastructures should be developed and included
- The European Commission should continue to be responsible for the overall inclusiveness of the European space programme

Roundtable Discussion:

Jorge Domecq, Chief Executive, European Defence Agency, focused his speech on the fact that Space is becoming the key for all operations.

Sorin Ducaru, Director, SatCen,

- Explained the key functions of SatCen which are SSA and supporting decision-making for the high representative of the EU, before listing the customers of SatCen such as the European External Actions Service but also the Member States, The European Commission and Frontex.
- Going more into details, he stressed that SatCen is supporting crisis management (e.g. operation Atalanta), providing high imagery like the use of 3D Data and Artificial Intelligence, border control, monitoring migration.
- SatCen is also in charge of one important component of Copernicus (SEA), climate change, and is engaged in SST, research and innovation projects with EDA. He stressed that it is a very operational agency with a spirit for innovation and its value can be even more amplified. SatCen also dialogues with industry.

Alain Alexis, Head of Unit Defence Fund – Capability Development, DG DEFIS, European Commission

- Started by mentioning the budget for the European Defence Fund, which will be between 6 and 13 billion euros and talked about the necessity to be inclusive (not only for large companies).
- He then explained that for the EDF there are only a limited number of domains due to the budget limitations and a strategy needs to be defined to identify these large domains. However, there are already identification of priorities made by the European Defence Agency. The European Parliament is also needed on board. The support from other DGs will be needed, as well as the expertise from the EDA and Member States. Universities will also have a crucial role to define long term skills and companies should have good skills.

Philippe Bertrand, Deputy Director, Multilateral Affairs, Defence Procurement Agency, France

- Started by talking about the new situation in France with a new defence space strategy, before explaining the importance of space for the society and describing it as a competitive domain.
- Stressing that there is a new space environment he underlined the need for Europe to achieve strategic autonomy (military monitoring on operations, expand SSA to monitor activities across all orbit, develop defence space activities).
- He explained that SSA has to be reinforced on the ground and in space and that it is a huge area for cooperation.
- Talking about the dual use, he mentioned the example of Galileo and the PRS with military applications and stressed the importance of increasing synergies between different activities (Galileo, Copernicus, Govsatcom).

Juan Tomas Hernani, CEO, Satlantis stressed that:

- Europe must bet on Earth Observation technologies.
- On the EDF, there should be consciousness of space as space is matter of sovereignty. It is about capacity to implement and develop missions. There should be a strong management such as fixed dates and fixed meetings to ensure the efficiency

FOCUS SESSIONS 2 - TOWARDS A SPACE PARTNERSHIP BETWEEN EUROPE AND AFRICA

No attended by Eurospace

FOCUS SESSIONS 3 - HUMAN AND ROBOTIC EXPLORATION AND EXPLOITATION: *COMMERCIAL AND ECONOMIC OPPORTUNITIES FOR EUROPE*

Roundtable Discussion:

David Parker, Director of Human and Robotic Exploration, European Space Agency

- stressed that exploration is robotics and also Artificial Intelligence

- important to link non space sectors with space.
- International partnership is also vital to develop technology.
- He then talked about the international lunar based on the moon and stressed that space exploration is placing Europe at the top division and this is the result of the decision made by the Member States of ESA.

Marc Serres, President, Luxembourg Space Agency

- started by stressing that space has been identified as a sector for the diversification of the economy of the country before underlying the importance of the use of space in the future for new opportunities
- He also talked about the big challenges such as the technical one, but also the regulatory aspect and the fact that all activities are framed by international treaties
- There is indeed a debate on the use of resources, and it is necessary to work with the UN for international framework on the use of space resources. The idea is to involve as soon as possible private players.
- Regarding the development of the market Luxembourg developed a specific strategy and the success will be measured by companies which will have their own missions.

Helene Huby, Vice-President, Orion ESM, Airbus Defence & Space

- underlined first that exploration and science is about 20 billion euros market per year and that the main driver is human transportation.
- On Airbus activities, she mentioned out of 3 billion turnover with science and exploration which represent 20% and one part is orbital business. The plan is to continue with ISS and Orion ESM.
- On the key technologies she mentioned the 3D printing in space.

Agata Jozwicka, Head of New Customers & Services in Future Programmes, ArianeGroup,

- described ArianeGroup as the space enabler; underlined the capacities of Ariane 6, which will respond to any call, whether it is the moon, Mars or inhabited flights.
- ArianeGroup is exploring the translunar capability of Ariane 6 and payload could be transported in the lunar surface, it is already possible. With the improvement of Ariane 6, it is possible to progress further.

Walter Cugno, VP Exploration and science, Thales Alenia Space

- talked about space being key for the global economy and the turnover of Thales Alenia Space for example with the cargo service to the ISS with the partners in the US
- The ISS gives opportunity for business and to test new business model and cooperation between industrial players.
- TAS is in the process to develop an industrial partnership with the US for a commercial station.
- Capability to act with robotic technologies and Artificial Intelligence will be a key.
- TAS is looking for more contract for the lunar gateway and it is important to develop infrastructure to support humans, and automobility in the moon. This is in preparation for the mars mission. It is key to use all the experience gained for the mars mission.

David Henri, CEO, Exotrail,

- explained that his company is a start-up based in France with 25 people next to Paris and Toulouse to develop the software.
- The aim is to bring agility to satellite and put proportion onboard satellite. Exotrail wants to be able to transport nano satellite in orbit in one vehicle and gradually think about this vehicle as a spacecraft.
- To make the individual cost of the exploration mission lower, there is a way, by investing money into earth orbit infrastructure, to be able to build things in orbit and start from orbit to go elsewhere. To do that, technological bricks are needed.

- Smaller companies and larger companies can work together and develop solutions quickly for an affordable cost.

DAY 2 – 22 January 2020

OPENING ADDRESS

Etienne Schneider, Deputy Prime Minister, Luxembourg,

- Stressed, after highlighting the importance of a legal framework to give confidence to companies and of putting in place dedicated research and development brands, the evolution of Luxembourg's policy toward the space sector:
 - There was the first closing of a joint resources venture capital fund, which has been set up with private partners, with the aim of bridging the funding gap for space companies. The money question is always important, and we addressed this.
 - There is a legal framework with the Luxembourg space agency.
 - The aim is to help space companies settling down, to help them actively to develop their business from Luxembourg.
 - International talents are coming to Luxembourg due to its commitment to space. Luxembourg put in place space master's degrees and signed agreement with China, Japan, Portugal, entered in a closer collaboration with ESA, and put in place a space resource research Centre.

Manuel Heitor, Minister for Science, Technology and Higher Education, Portugal,

- Talked about the Portuguese presidency of the EU next year and the commitment of Portugal to continue the task of the co-presidency of ESA ministerial with France.
- He also highlighted a number of preoccupations: the new space agency, the development of a new legal regime to foster activities, the promotion of global partnerships, the key role of space system for climate change, the importance of space weather and space as an area for new and better jobs.
- He also talked about the changing role of government and institutions to provide opportunities.

Pedro Duque, Minister for Science and Innovation, Spain

- Talked about several challenges such as Space Traffic Management, protecting earth from major threats, important goal of the green deal which will require space assets.
- At EU level, the message has been clear about space being an essential tool to improve life of citizens with the successful discussion on EU space programme and the new DG, but the budget to be assigned to the space programme is still to be discussed.
- Regarding ESA its strength has been renewed in the last ministerial and there is a full awareness in the agency of what is ahead and how to cope with it.

PLENARY SESSION V - NEW SPACE, R&D AND INNOVATION: *TOWARDS A PARADIGM SHIFT***Debate with:****Damian Boeselager**, Member, European Parliament

- Focused on the question of investment and the willingness of the European Commission and the European Parliament to invest in space.
- He then talked about his focus on the downstream commercialization and his interest for the Space eye, a programme to look at refugee movement into Mediterranean Sea, before concluding on the many different ways to use the space data.

Patrick Child, Deputy Director General, DG RDT, European Commission

- Noted the impact and relevance of the work on other (non-space) sectors. Space has indeed an increasingly direct impact on societal challenges and the example of Australia using European capacities of Copernicus shows it.
- Research and Innovation is important to develop further space capacities. He stressed that the European Commission put in place a strong contribution for space related R&I under Horizon Europe and dedicated programme for space.
- He highlighted the good cooperation with ESA, as well as the contribution of space for the Green deal and to make Europe ready for the digital age.

Pascale Ehrenfreund, Chair, ESRE

- Stressed about “newspace” that Europe can also go into that direction, as well as the established companies.
- She also talked about ESRE white paper and its recommendations such as having a roadmap research and closer cooperation with industry and public research.
- She also stressed the importance of a co-programmed partnership and ESRE supports it. Besides a traditional cooperation research should be kept at the heart of Horizon Europe.
- She then mentioned the importance of funding breakthrough innovation and ESRE recommend increasing the EU funding for space related R&D.

Sabine Klauke, Executive Vice-President, Head of Engineering, Airbus Defence and Space stressed mainly that:

- Europe should stay at the forefront of technological change and the industry can create new capacities in and outside the space sector, comprising, AI, big data, high performance computing.
- Airbus has taken a step forward and showed that an establish player can open up into the newspace. In the downstream Airbus opened more intelligence into the data.
- It is key to have a significant stay and commitment into the R&D, especially with Horizon Europe and a co-programmed partnership.

Riadh Cammoun, Vice-President Public and Regulatory Affairs, Thales Alenia Space stressed about the challenges and assets of Thales Alenia Space:

- There is a severe competition on the global market with a deep revolution, fast innovation cycle.
- There are strong assets in Europe it is necessary to take this opportunity to change our DNA and integrate more innovation culture.
- TAS is developing innovation cluster in its fab labs. The aim is to take more risk, to invest in more subjects such as Internet of Things, stratospheric platform.
- TAS is introducing new type of processors, on board and ground segments.
- It is important to have more disruptive R&D supported by the institution and a co-programmed partnership.
- It is possible to develop a new infrastructure for the 5G using satellites.

Morena Bernardini, Director Strategy, ArianeGroup highlighted that:

- After only 5 years, ArianeGroup is already getting into the last mile ahead for Ariane 6.
- The factory 4.0, digitalization and virtual reality are the tools that are now helping the engineer to be faster in design, as well as the partnerships with the startups.

Chris Larmour, CEO, Orbex

- explained that the goal is to create valuable company and criticized the absolute need of the public for financing. He explained his worries about taking more money from ESA because it comes with conditions.
- He underlined the importance of risk and failure to adapt and progress.

- He concluded by stressing that countries ahead of are moving

Giulio Ranzo, CEO, Avio

- explained that his company needed to open up to private capital and he also decided to list the company on the stock market.
- explained that the interesting part in the new space is the amount of finance. He stressed not being impressed by the technology of space X but impressed by the volume of activities, number of failures etc. In Europe it is important to not consider failure as a shame.

PLENARY SESSION VI - SECURITY IN SPACE: A EUROPEAN OR INTERNATIONAL APPROACH TO SPACE TRAFFIC MANAGEMENT, SST/SSA AND CYBERSECURITY?

Debate with:

Marian-Jean Marinescu, Member, European Parliament mainly stressed that:

- Space Traffic Management is a key issue
- 10% of European GDP is based on space technology.
- EU should have its own system and provide all the necessary system equipment's to have a catalogue of objects in space.
- Europe should also have the means to defend the satellites (also from space weather, or debris). Securing a close cooperation at EU levels is needed and all Member States should contribute to this system.
- The space industry should also participate to this project and create a common platform to have an independent system. The governance of this system should be European in order to be independent.

Pascal Faucher, Chair of EUSST Consortium on recommendation on medium term future regarding evolution of European SST and SSA capabilities:

- It is important to have high quality SSA data; SSA data sharing must be intensified
- A fully operational European database fully operational has been established and a catalogue is expected.
- Regarding the security dimension, the duality of the space domain must be taken into account and that is why there this consortium of Member States.
- The objective is to reach the highest level of autonomy in the SSA SST domain, to develop radars, large surveillance sensors, telescopes.
- To take a position about STM at European level, France first needs to understand what we are talking about

Pascal Claudel, Chief-Executive Director, GSA,

- explained that the European Commission entrusted the agency with the promotion and exploitation of European satellite navigation system: i.e. to make sure that Galileo and EGNOS services can be used operationally.
- The signals must protected and in this regard, the European Commission along with the GSA and Member States are working to avoid new type of threats. From an operational point of view he mentioned the existing tools at all level and the 24hours of surveillance monitoring for the system. The work is then presented to an independent body that validates and assess the safety approach.
- He listed the two main services which are the civil one and the government services (PRS). The PRS delivers encrypted services. The aim is to understand the needs of Member States and deliver services to them.
- He mentioned a role in Govsatcom in preparation for the next MFF.

Sorin Ducaru, Director, EU SATCEN

- highlighted the functions of this intergovernmental agency, mainly security from space and security in space, supporting decision making, and some missions such as OSCE mission in Ukraine.
- For what concern “In space” issues, SatCen provides services focusing on collision avoidance, detecting and analyzing fragmentation. The focus is strongly on user engagement and coordination. The agency can provide facts and quick information on a situation. SatCen sensitive and classified data requires constant investment into secure IR and cyber protection.

Rolf Densing, Director of Operations, European Space Agency,

- Stressed that there are more than a hundred collision warning per day before talking about the deployment of mega constellations with the example of Starlink, which will make the collision warns more severe.
- By lack of regulation on collision awareness it has been decided to move the satellite out of the way. An international protocol is needed as well as a homogeneous European approach to have a good technical basis and a radar to have an independent space debris catalogue.
- It is the prerequisite to collision awareness, but Europe is a bit fragmented in strategic terms.

Ignacio Mataix, Board Member & COO Defence, Transports & Air Traffic Management, Indra

- Talked about the protection of space infrastructure and the reinforcement of European autonomy before underlying the necessity to regulate and deploy a dedicated infrastructure for space surveillance.
- He also listed few areas to develop European capability such as sensors, an STM open architecture, and the need to improve cyber security.

PLENARY SESSION VII - THE KEYS TO THE FUTURE: EUROPEAN STRATEGIC AUTONOMY IN AI, QUANTUM TECHNOLOGY, DATA, THE CLOUD, 5G AND CYBERSECURITY

Debate with:

Roberto Viola, Director-General, DG CONNECT, European Commission

- Defined sovereignty as the possibility to be autonomous in the supply of the technology before advocating for Europe to defend its values, democracy and way of life.
- He also mentioned Thierry Breton’s portfolio which joins digital, space and internal market. He underlined the importance of synergies and putting concrete initiative on the table.
- He also mentioned the creation of a constellation and the future of Artificial Intelligence in the European Commission.

Rodolphe Belmer, Chairman & CEO, EUTELSAT

- Satellite systems will be an essential asset to enable the fast deployment of 5G across the continent and the world and represent a significant source of upside for companies like Eutelsat.
- He stated that satellite constellations will be a substantial enabler which gives the private sector a very important role in financing or driving the innovation to the marketplace
- Bigger European investments are needed, as well as very strong European companies and to be more protective of European interests.

Magali Vaissiere, Director of Telecommunications and Integrated Applications, European Space Agency started by listing 3 strategic goals, before going into details:

- The first goal is space for 5G,
- The second goal is space system for safety and security,
- And the third goal is optical communication.

- There is a transformation toward digitalization.
- 5G is multitechnology and satellite is part of this mix of technology. The businesses want to use hybrid network.
- There is a clear ambition to provide support to security initiative at national and EU level such as Quantum communication initiative and Govstacom initiative.
- On SAGA ESA is closely cooperating with DG CNECT and DEFIS.
- On the Security aspect she mentioned the definition of ESA security scheme to grant proper protection of sensitive information.

Evert Dudok, Executive Vice-President Connect Intelligence, Airbus Defence & Space,

- Described space as vital for services that Airbus CI is providing
- Highlighted the work of Airbus on secure connectivity, on Govstacom, but also on the quantum communication initiative.
- Talked about the importance of trusting the data
- Underlined the strengthening element that the European Commission has started with the Quantum Communication Infrastructure.
- Europe needs a cloud solution independent from the US
- The QCI could be the next steppingstone to an independent secure connectivity.

Mathias Van Den Bossche, Director Telecommunication and Navigation Systems R&D, Quantum Technology Leader, Thales Alenia Space

- Talked about the technology, autonomy and non-reliance on external system and explained that Quantum Communication is the most promising use of Quantum technology in space in order to secure network.
- stressed that China is leading the domain at this point, but it is not possible to rely on Chinese system.
- For the QCI, the best solution would be a Galileo-like setup.
- He then highlighted that 5G is an interesting field for satellite, as 5G satellite will be a complement to the traditional terrestrial network.
- Two projects in China and the US have already been spotted to make a constellation to provide direct access to consumers and it is of key importance that Europe does not rely on Chinese or US system.
- He then underlined the benefits of Artificial Intelligence and the work of Thales Alenia Space in the field of cybersecurity.

Jurry de la Mar, Director, T-Systems,

- Focused first on the use of Artificial Intelligence but also the fear it can generate in the public opinion.
- On the data generated by space, he talked about the radar data, which is more complex than visual data.
- He highlighted the importance of having verified quality data and to be able to trust the methodologies.
- He also mentioned the growing cloud competence in Europe despite the medias always referring to some big companies.

Robert Mazzolin, Chief Cyber Security Strategist, RHEA Group

- talked about space and cyber as the new strategic enablers for nations, key to national security, political, military, industry
- There is a mutual interdependency of internet and satellite/space systems.
- A progressive response methodology requires to enable the integrity of future societal initiatives and a holistic policy approach comprising cyber security, data is important.
- For cybersecurity in space and a strategic digital autonomy, he suggested to have “dual use” technologies, to protect critical information infrastructure etc.

- The cooperation with private sector is important and the private sector must adopt the cybersecurity best practices or ensure collaboration on improved implementation of cybersecurity strategies.
- Partnership and cooperation to develop flexible, multilateral space and cybersecurity regimes is important and to improve the mechanisms of space diplomacy.
- Intergovernmental coordination mechanisms for developing guidance on space cybersecurity is also key.

SPECIAL ADDRESS

Thierry Breton, ([speech available here](#)) Commissioner for Internal Market, European Commission started his speech by underlying the great success of the European space industry and the upcoming challenges:

- Copernicus
 - Copernicus is recognized and used worldwide and is valued. Europe has one of the biggest data providers in the world.
 - The objective now is to maintain the EU autonomous capacity to observe earth and position Copernicus at the edge of the technological frontier.
 - He stressed the willingness of the European Commission to integrate in Copernicus new capacities with quantum technologies.
- Galileo
 - the past year have been dedicated to the deployment of Galileo. The accuracy of Galileo goes beyond what was expected
 - The objective is
 - to continue deploying Galileo in order to reach the Full Operational Capability as soon as possible
 - to continue improving the precision of Galileo (target 20cm precision)
 - to prepare the second generation of Galileo, in order to stay ahead in the technological race. The transition batch procurement is ongoing;
 - to ensure the smooth development of the encrypted signal (PRS)
- Europe cannot afford to capitalize only on past achievement and need to invest on the future, to deliver more, but differently. He stressed that he will be tough on the negotiation of the budget and he will fight for a lot of money.
- The space sector is undergoing massive changes worldwide as doing space is cheaper and more accessible.
- It is necessary to develop new services related to security, climate change, to optimize the use of raw materials, using the full potential of Quantum technologies.
- It is imperative that the EU space sector adapt itself to the new realities: geopolitical, strategic, industrial and technologic.
- Space is an enabler of security and defence: one of the big achievements of Juncker commission has been to establish the European Defence Fund. Galileo has a defence dimension ; Copernicus can serve security missions ; and this trend will be strengthened in the future : SST and Govsatcom.
- There will not be a credible space policy without an independent access to space and Ariane 6 and Vega C will support the autonomous access to space. The European Commission will be the first client of Ariane 6.
- The EU is ready to support ground infrastructure and the deployment of new technology. In light of the development of US launchers, it is equally important to prepare the next generation of European launchers, so we do not miss the reusability technology or other disruptive technologies.
- On the Governance Europe must work differently. It will be necessary to invent a new way to act together: the European Commission, national space agencies, ESA, GSA, the industry.
- Regarding the incident on Galileo, consequently, some rules will be changed. The system provides operational services and it must have zero defaults. The system is not in a development phase anymore.

- We need to look critically at the way we are organised, when it comes for instance to the support to space innovation, space entrepreneurship and start-ups. I am convinced we need to develop a European approach to “New Space”. An approach that is not a replicate of the US. An approach which does not oppose large companies with startups.
- I believe we should collectively map the strategic technologies and critical components on which we are dependant. So that we can use this to design a clear industrial policy based on strategic value chains.

CLOSING ADDRESS

Marian-Jean Marinescu, Member, European Parliament

- noticed the growing participation from a year to another, stressing that the content of this conference is rich.
- He then underlined the importance of predictability for the industry. He then called on the industry to develop a strategy. The EU institutions will come very quickly with different decision, including MFF that will be very important for industry and a roadmap will be very important. The sky and space intergroup will be delighted to help in this regard.
- Turning to commissioner Breton, MEP Marinescu made a request, to have the European Commission negotiating with Head of States. He stressed the fact that a group of Member States is an issue regarding the budget. He then made a few suggestions such as the need for a full chain from launching, to be independent, to develop Govsatcom, SSA and SST and to have an appropriate financing.
- He added that the downstream should not be forgotten.
- As a conclusion, he stressed that no Member States alone can face the upcoming challenges alone so the EU and Member States should work together to build a space policy to maintain EU’s leadership.