

'Space 4.0' can help EU overcome its challenges

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Opinion

From a 'moon village' to dealing with the migration crisis, Jan Wörner is ready to explore the endless possibilities of EU space technologies.



For some people, myself included, 'United States of Europe' remains a dream. In the meantime, the 'United Space in Europe' is part of what I am determined to make a reality.

Over the past 50 years, the European Space Agency (ESA) has contributed to European integration by elaborating and implementing of the European space policy and programme. This was done for the benefit of citizens in association with national and international stakeholders.

To continue this success story, this December I will present my proposal to ministers of ESA member states for the coming years, known as; 'Driving space 4.0: United Space in Europe'.

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I endeavour to lead European space activities on the sound foundation of existing structures, but also to adapt the ESA so it responds to the needs of science, industry, politics and society.

The ESA is a long-standing European intergovernmental organisation, mandated to foster cooperation among EU states in space research and technology and their space applications.

It is entrusted to implement a long-term European space policy and align member states' policies with respect to other national, European and international institutions. It is also tasked with developing the European space programme, coordinating national programmes and implementing an appropriate industrial policy.

With this mandate, the ESA has successfully developed Europe's space capabilities and competitiveness in all fields of space technology; transport, navigation, Earth observation, telecommunication, science, exploration, technology, applications and space situational awareness (SSA). It is now a fully-fledged agency and a globally recognised reliable partner.

Since 2003, the ESA has partnered with the EU through the framework agreement and has produced two flagship programmes: Galileo for navigation and Copernicus for Earth observation. The ESA's preparatory programme on SSA has been the basis for the EU's space surveillance and tracking programme.

Currently, we plan to support the EU in developing a GovSatCom programme in close cooperation with the European Defence Agency. Over the years, the ESA has established various ties with EU institutions and agencies. I plan to expand and intensify this cooperation to ensure that European tax payers are getting the best benefits out of their investments.

When I first began as the ESA's Director General, I asked the delegations why they were members of the agency. The answers I got, ranked in order of importance, were: setting the European space agenda, big projects, supporting authorities, competitiveness of industry, enabling new ideas, science, STEM, mobility, education, commercial applications, cross fertilisation, its European spirit and enabling national projects. Additionally, they all confirmed that the ESA should remain a fully-fledged agency acting in all domains for all stakeholders.

We at the ESA are ready to continue being 'The Space Agency for Europe', driving European space policy and programme, while remaining a reliable partner to our member states, the EU and international partners. There are now more space-faring nations and more commercialisation, and industry and agencies have been given a new role to play.

With December's ESA ministerial-level Council on the horizon, I plan to develop what I call, 'Space 4.0', which is linked to, 'Industry 4.0'. Industry 4.0 is expected to transform the lives of citizens, decision and policymakers and businesses.

Space 4.0 marks a new era; in which space is an enabler. It enables knowledge, jobs and growth, decision and policymaking, inspiring and motivating the next generations.

Space 4.0 will be the driver for contemporary technologies in automation, miniaturisation, advanced manufacturing, machine to machine/human interaction, connectivity, big data, biotechnology and more. It stimulates the interaction of different sectors with spin-in, spin-off and spin-together. Space 4.0 is new space, more relaxed, fascinating and comprehensive.

Space 4.0 can be used as a tool to tackle global challenges such as climate change, demographic development, migration, shortage of resources, conflicts and catastrophes, energy, digital divide, health and curiosity.

Building on the successful 'space and major disasters charter' of the past 15 years, I intend to set up the 'space and migration charter' to give Europe an additional tool to tackle migration. The intent letters will be signed under the Dutch EU Council presidency on 30 May in The Hague. This charter will have two objectives.

The first is to alleviate human suffering through the provision of innovative services relating to migration flows, refugee assistance, the fight against human trafficking, piracy, and law enforcement.

The second is to provide long-term support mechanisms to fight the causes of migration, working closely with the United Nations 2030 agenda for sustainable development. This will include support for agriculture, water supply, waste management, energy, tele-education, tele-medicine, communication and inspiration.

As requested by the European Parliament and the member states, the ESA will take up a more active role on security, building on the use of satellite technologies and applications.

I will work closely with the member states, European Defence Agency, European Union Satellite Centre, European Commission, EU External Action Service, industry and other stakeholders in order to develop a coherent European space security policy for the years to come.

I also plan to bring forward space exploration. Europe has traditionally pioneered in exploring this planet and the universe. I intend to continue this and promote the extension of European participation to the international space station (ISS) till 2024.

Additionally, I foresee after ISS, a future where Europe's exploration activities can be lead through a sustainable moon surface operation, better known as the 'moon village' concept. There, in collaboration with other countries, we could create a single destination for multiple users and uses.

In December, I will provide the means for Europe to remain at the forefront of space technologies and applications for the benefit of EU citizens.

I will bring all relevant actors together, to help Europe in 'Driving Space 4.0' and enforce the basis for a 'United Space in Europe'. This will require active participation, direct communication, critique and ideas, and I welcome everyone to contribute.

About the author

Jan Wörner is Director General of the European Space Agency

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