



SPACE TECH EXPO
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BREMEN, GERMANY

**UNDERSTANDING
THE IMPACT
OF ESA'S
ACCELERATORS
ON COMMERCIAL
EUROPEAN SPACE**

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In October 2021, ESA Director General, Josef Aschbacher, presented three Accelerators. He commented, “We face unprecedented societal, economic & security challenges. Space has enormous untapped potential to tackle these challenges & future crises, while also creating jobs & boosting innovation in the European space industry”. The three Accelerators are ‘a set of recommendations by a High-Level Advisory group in order to address these challenges & move space forward for Europe, for Europeans, & for society at large’.

The three Accelerators presented are:

- Space for a Green Future: Data gleaned from Earth observation will help Europe act to mitigate climate change;
- Rapid and Resilient Crisis Response: Intelligent interconnectivity in space empowers rapid, resilient responses to crises on Earth;
- Protection of Space Assets: Timely and accurate warnings of threats are needed.

The Accelerators aim to develop not only the European space industry, but also wider society by providing solutions to critical problems being faced today. In order to set these into motion, technological innovation is absolutely necessary to enable the deployment of the Accelerators.

The commercial space industry and growth of the NewSpace sector provides ample opportunities to work towards achieving the targets set in the Accelerators.



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THE ACCELERATORS

The first Accelerator, 'Space for a Green Future', sets out to provide solutions for sustainability on Earth through a digital twin, utilise technology to help better understand the future of our planet, and contribute to climate goals such as net-zero by 2050.

The second Accelerator, 'Rapid and Resilient Crisis Response', will ensure to provide support to governments in the case of national emergencies and crises, such as natural disasters including wildfires and flooding.

Finally, 'Protection of Space Assets', the third Accelerator, aims to protect space from natural and human-made hazards. This includes space traffic management, in-orbit servicing and other innovations. This is not only to protect space, but also infrastructure relying on space, on Earth.

Although each of the three has a distinct goal, the Accelerators all have a very strong commercial dimension to them. With a focus on space-as-a-service, the three highlight ESA's pursuit for creating stronger relations with non-space industries and providing services for wider European prosperity.

One report states that "the Accelerators highlight the need to ensure users engagement throughout Europe and the development and exploitation processes of future operational space systems addressing public needs". This theme is central to the goals of the initiative.

FROM INDUSTRIALISATION TO COMMERCIALISATION

An important vantage that the Accelerators demonstrate is ESA's shift from industrialisation to commercialisation.

How do the two differ? Industrialisation refers to relying on industry to implement projects through the acquisition of hardware (for example), whilst commercialisation looks at establishing commercially viable sectors that can do business themselves. With the former being a building block with a procurement approach, the latter has a service approach.

Whilst ESA has and will continue to play many roles (as a broker, as a research facility, a technology and service provider, and much more), crucially, this growing commercialisation aspect positions ESA as a customer. The Accelerators highlight this very well, where the initiative is relying on strong commercial aspect to achieve them.

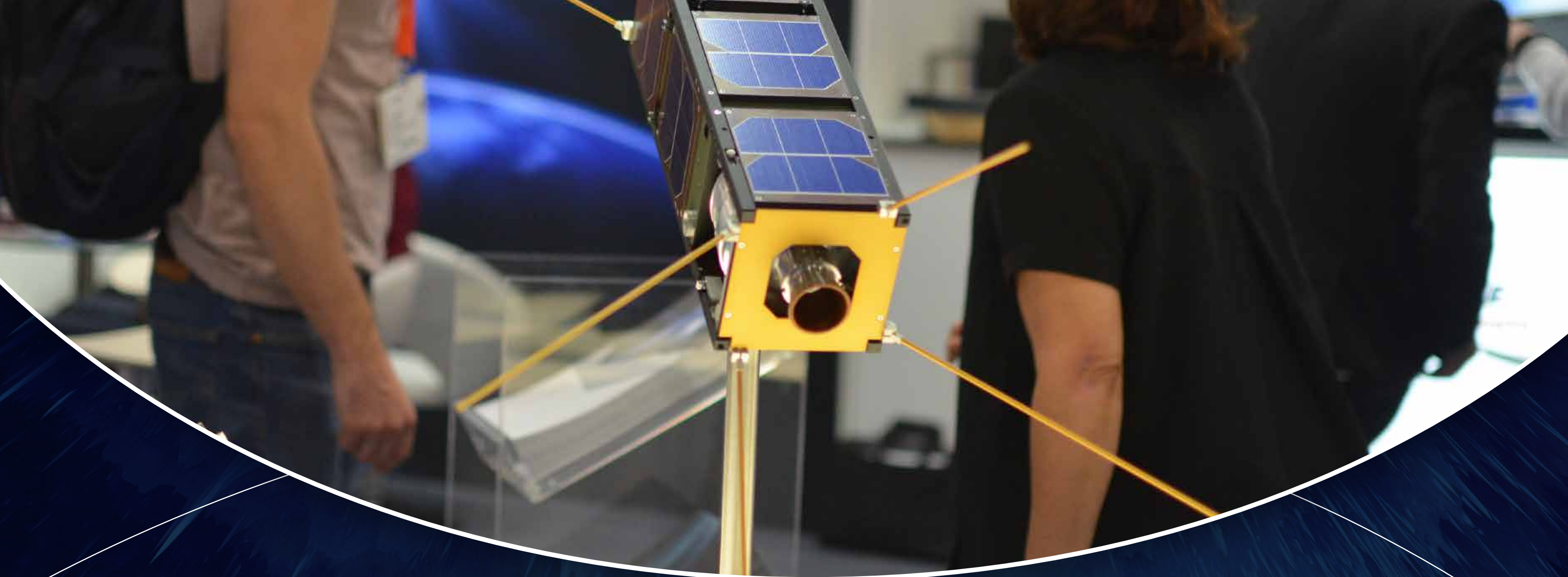
Further supporting this statement, ESA commented on their website, "We have huge opportunities in commercialisation. In 2040, the market of space, or the space economy is about US \$1 trillion, according to external estimates. Can Europe afford not to participate? Of course we cannot. European space companies should be among the biggest and best space companies, strongly contributing to a greener and more digital economic recovery".

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THE ACCELERATORS HIGHLIGHT THE NEED TO ENSURE USERS ENGAGEMENT THROUGHOUT EUROPE AND THE DEVELOPMENT AND EXPLOITATION PROCESSES OF FUTURE OPERATIONAL SPACE SYSTEMS ADDRESSING PUBLIC NEEDS.

**EUROPEAN SPACE POLICY
INSTITUTE (ESPI)**





THE ‘SOLUTION ARCHITECT’

Viewing ESA through this new ‘customer’ lens highlights what the European Space Policy Institute (ESPI) refers to as ESA’s new role as a ‘solution architect’.

“With the Accelerators approach, ESA is called to broaden its responsibilities as programme manager to encompass a new role as solution architect for the development and deployment of Europe-wide operational space infrastructure and service,” writes [ESPI](#).

This opens up the commercial stage to a number of new innovations and solutions. The Accelerators have set the requirements of what is needed and call on the commercial market to respond.

Aside from the technological developments that the Accelerators will generate, the initiative will also raise awareness of space-as-a-service for many end user verticals. This is a key part of democratising space and promoting the benefits that the sector has to offer, which is extremely important for developing the industry.

However, currently, one of the main bottlenecks in continuing the development of space-as-a-service is building relations with end-user verticals and bridging the gap between space and non-space. This requires a new approach to doing cross-sector relations, which according to [Juan Tomas Hernani](#), CEO of Satlantis, “The way of incorporating all this [space] data is not thought to be customer centric. And I think this is the

main bottleneck... I think it's certainly the solution is to be a business model with the customer in the centre”.

ESA’s role as the solution architect could encourage the development and adoption of space technologies for the benefit of Earth, where the Accelerators act as a gateway to bridge this gap.

Chiara Manfletti, Chief Operating Officer at Neuraspace, states that, “You don’t have to understand space, you just need to tell us the challenges and needs and we can offer you a solution, potentially integrated with other terrestrial solutions; a fully integrated terrestrial aerial solution”.

Although initiatives such as ESA’s Accelerators provide a forum to encourage a generation of new customers, there is still a need for a more rigid framework for increasing engagement between the space and non-space industries. With that said, in order for ESA to fulfil its role as the ‘solution architect’, it will need to continue to engage not only with the commercial industry, but with other relevant stakeholders, such as governments. ESPI comments further on these partnerships: “the Accelerators open new perspectives to Member States to contribute to ESA’s activities in a framework in which they can pursue their national priorities, while ESA operates as an integrator, federating national initiatives and incorporating various concepts into the Accelerators”.

CHALLENGES AND OPPORTUNITIES OF THE ACCELERATORS FOR THE COMMERCIAL MARKET

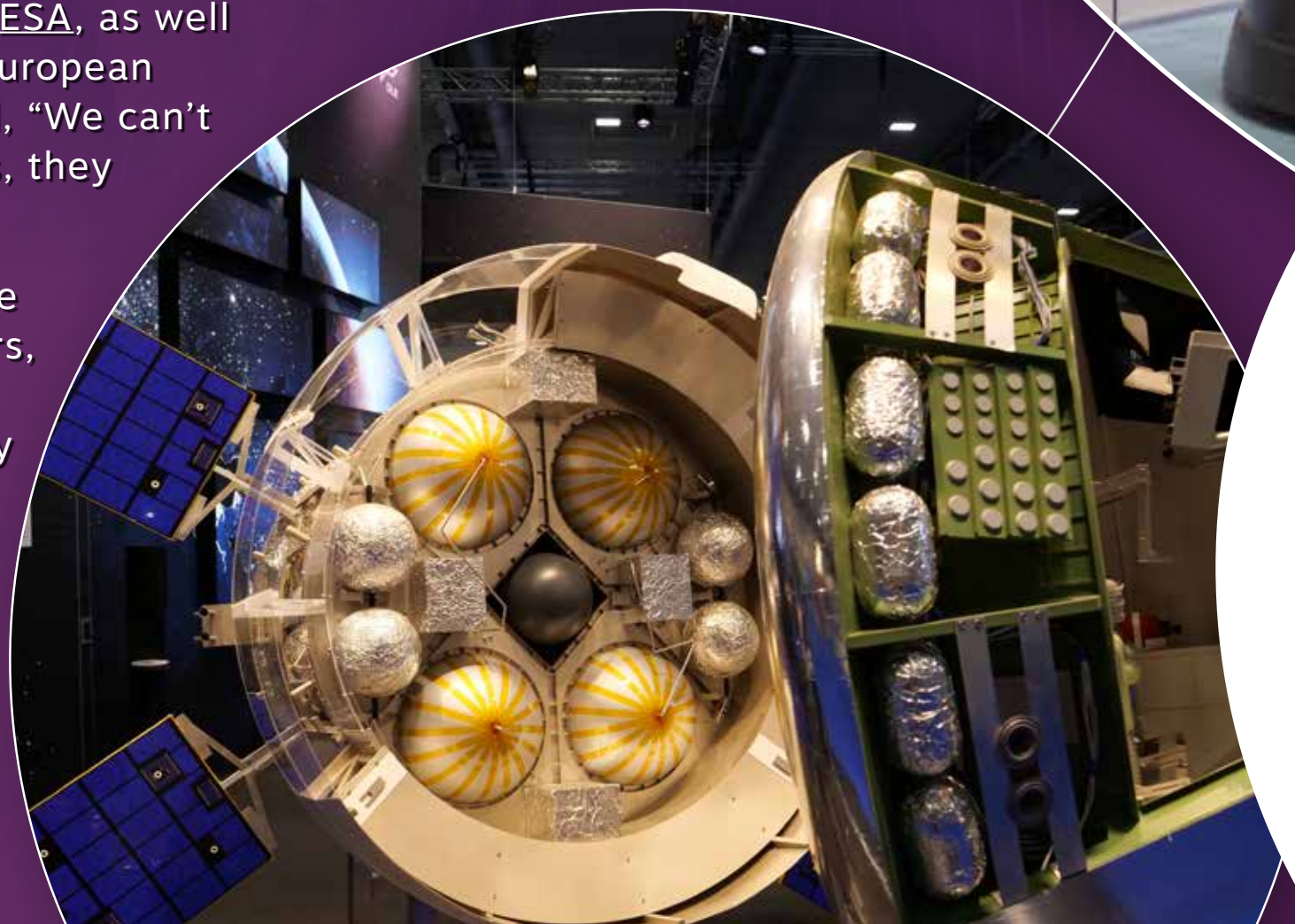
“Beyond the technical relevance of the issues tackled by the Accelerators, they aim to stimulate innovation and the emergence of new business models contributing to shift the focus from system to services and from programmes to the market in a closely coordinated manner between institutional and commercial players”, reports ESPI. As suggested so far, the commercial onus is central to the Accelerators. However, what are the challenges and opportunities created for the commercial market?

FUNDING

Funding poses both a challenge and opportunity in supporting the enactment of the Accelerators. The changing investment landscape in European space has been a catalyst for the NewSpace movement. According to one report, globally “start-up space ventures attracted over \$15 billion [€ 14.7 billion] in total financing during 2021, breaking the \$7.7 billion [€ 7.5 billion] record set in 2020”.

Whilst funding opportunities are still on the rise, competition to acquire investments is increasing too. Start-up COO Manfletti, stated, “We are facing difficult times in being able to raise funds with increased competition”. Although there are a number of public funding options available by ESA, as well as institutional such as the European Commission, Manfletti added, “We can’t survive on institutional funds, they should be there to boost”.

Simply put, for ESA to be able to succeed in the Accelerators, there must be sufficient funding in place both publicly and privately.



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**SPACE APPLICATIONS AND DOWNSTREAM
MARKETS HOLD A SPECIFIC PLACE FOR EUROPE,
WHERE THEY HAVE BECOME THE MAIN DRIVER OF
INDUSTRIAL ACTIVITY AND WHERE COMMERCIAL
AND SOCIO-ECONOMIC CONSIDERATIONS PLAY A
MAJOR ROLE IN SPACE POLICY**

SEBASTIAN MORANTA

INCREASED COMPETITION

Competition is often a catalyst for innovation. The Accelerators are offering a call to new innovations which will be able to meet them. Especially within an emerging market, competition drives new technologies to be better than the rest.

Of course, when many organisations are striving to achieve the same thing, not all will succeed. But, what this does ensure, as Manfletti comments, “if you survive you’ll have the best product on the market”. Further, particularly within emerging market segments, competition provides the benefit of allowing the innovators to shape a market and set or reset the parameters of the industry.

Competition is not only between organisations within an industry but can be approached from an international scale. As such, it could also be argued that the achievement of the Accelerators will position Europe at the forefront of the downstream, space-as-a-service sector. “Space applications and downstream markets hold a specific place for Europe, where they have become the main driver of industrial activity and where commercial and socio-economic considerations play a major role in space policy”, comments Sebastian Moranta in a recent [report](#), The Space Downstream Sector Challenges for the Emergence of a European Space Economy. Through strengthening what Europe is already successful at, the Accelerators will further cement their position within the international landscape.

APPROACHES TO EMERGING MARKETS

For more mature markets supporting the Accelerators, such as Earth observation (EO), there are existing frameworks in place to strengthen the development of the commercial sector.

The EO market, which supports the green and resilience Accelerators, is an already established market which is set to double from €2.8 billion to over €5.5 billion over the next decade. The revenue of this market sector is now distributed between 16 segments, including: climate services, emergency management and humanitarian aid, and biodiversity, ecosystems and natural capital.

This has been bolstered by large scale infrastructure on a public level, such as the Copernicus programme. Here, the resources are already in place to help the commercial sector achieve the Accelerators.

A representative from leading EO data provider, Planet, commented, “There’s great opportunity for public private

partnerships to further this effort. Leveraging the work that the commercial space sector is already doing in areas such as agriculture, biodiversity loss, forest and land use change, and emissions monitoring will help to deliver faster, more informed insights and help bolster the Accelerator program”.

However, this isn’t the case for all. An emerging market which will be critical to meeting the third Accelerator - protection of space assets – does not currently have the same level of technological or business infrastructure as EO.

Manfletti, who’s company Neuraspace is working in the space traffic management domain, commented that, “Perhaps one thing I can say here which is helpful from a start-up perspective, is that one challenge we are facing with space traffic management is that if this is a future market, the public sector needs to show confidence in it. We don’t know when in-orbit servicing as a market will happen. It’s not if, it’s when. Agencies, ESA, and member states need to make sure that they are set up in their roles to demonstrate this for when start-ups go to investors and try to raise funds. The public sector need to show confidence that these markets are happening, you can invest in us”.

When it comes to emerging markets in the space domain, Stela Tkatchova, EIC Programme Manager for Space at European Innovation Council and SMEs Executive Agency (EISMEA) shared that, “We are witnessing the emergence of many Newspace SMEs and start-ups in the domains of active debris removal, in-orbit satellite servicing, in-space manufacturing & assembly, space transportation and innovative propulsion solutions throughout Europe. Disruptive technologies, driven by SMEs and start-ups, are changing the value proposition in the European space industry”.

This ‘value proposition’ is a very important aspect of the Accelerators supporting emerging markets. ESA must support these markets to help them create the value to their customers in order for them to become successful, and ultimately achieve the goals set out in its own agenda.

Indeed, Tkatchova continues: “the growth of the Newspace SMEs and start-ups will depend on a number of factors, but also on their own capabilities to develop and propose ‘customer-driven’ interoperable, scalable and cost-effective space-based solutions”.



END-USER ENGAGEMENT

Finally, and perhaps most importantly, for the Accelerators to succeed there needs to be engagement from the end-user. Touched upon already earlier in this article, one of the key requirements for the initiative is engaging with those who will be the customers of this space-as-a-service model.

For some end-users more than others, there is already sufficient awareness of the benefits of space for their application. Looking at these frameworks which demonstrate the symbiosis between the space industry and the end-use application could help to form a basis for other new end-users to follow.

A great example of this is the use of satellite data for crisis response. When asked about whether there was currently enough end-user engagement in acquiring space data for disaster monitoring, Planet commented, “More can always be done, but we’ve made great progress in getting this valuable data into the hands of those who need it most in crisis situations. Take the International Space Charter and Major Disasters, for example. This organization makes Planet’s satellite data, among other providers, available to the public, volunteers, humanitarian organisations, and other coordinating bodies during select disaster events”.

The International Space Charter and Major Disasters is made up of international space agencies and space system operators who provide satellite data for the purpose of monitoring disasters and crises. The interconnectedness of the commercial space sector with non-commercial actors is a prime example of how to proliferate space-as-a-service, where all end-users have tangible value in acquiring this data. Following a similar path and creating value through technology for the end-user is key to building engagement and ultimately developing the Accelerators.

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ULTIMATELY, THE SUCCESS OF THE ACCELERATORS IS DEPENDENT ON THE INDUSTRY’S ABILITY TO ADAPT TO A NEW OPERATIONAL MODEL... EFFECTIVELY UNDERGOING THIS TRANSFORMATION WILL RESULT IN ACHIEVING ESA’S INTENTIONS TO TACKLE MAJOR CHALLENGES ON EARTH AND WILL DEVELOP THE COMMERCIAL SECTOR THROUGH DEMOCRATISING SPACE FOR THE MASSES.

WHAT DOES THE FUTURE HOLD?

As evidenced, all three of ESA’s Accelerators provide the commercial European space sector with ample opportunities to grow and innovate. However, in order to achieve these targets, there are key challenges in funding and market development which need to be addressed.

If ESA wants to succeed, there needs to be adequate support in place for the commercial sector, particularly for the NewSpace segment, to allow these organisations to properly develop and be able to achieve their goals. There also needs to be more awareness of space services for the non-space industries which are being targeted, in order to promote the use of space to these stakeholders.

Ultimately, the success of the Accelerators (and of increasing space-as-a-service and the downstream segment) is dependent on the industry’s ability to adapt to a new operational model. It highlights a transformation within ESA and within the space industry at large, where the lines between public and private space become blurred. Effectively undergoing this transformation will result in achieving ESA’s intentions to tackle major challenges on Earth and will develop the commercial sector through democratising space for the masses.





SPACE TECH CONFERENCES

At the **Space Tech Expo Europe** Conferences, we will be addressing many of the topics touched upon in the article. From funding, to downstream applications, space-as-a-service, private public partnerships, and much, much more across our Industry Conference and Smallsats Conference stages.

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