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**SPACE TECH:
CHALLENGES AND
OPPORTUNITIES**



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SPACE TECH: CHALLENGES AND OPPORTUNITIES

Space tech is not a future concept – it's here and now and offers many investment opportunities. The space industry is growing rapidly and has expanded by 70% since 2010. In just over 15 years its annual revenue is expected to reach more than one trillion dollars. In this extract from a recent webinar, Clifford Chance experts explore the opportunities and financial considerations in the space sector.

"Space is no longer the realm of governments only – although they continue to invest heavily given the current geopolitical climate. It is now also the domain of private companies, so-called new space, which range from major enterprises to small start-ups. And, in response, governments are changing their legislation to encourage entrepreneurship and access to space," says Clifford Chance Counsel, Julia Dreosti, who is based in Australia.

In addition, the costs of access to space are coming down – one financial institution says that by 2040 launch costs will have dropped by 95%. This provides scope for far more services to operate in space and, therefore, far more opportunities for investments and solid ROI.

Currently, the greatest level of investment is in satellites, which are being launched into orbit by companies, including SpaceX, OneWeb and Amazon, to deliver mass coverage broadband and the internet of things in a way that's accessible and affordable. There are now 3,300 satellites in orbit and plans to launch over 60,000 in the next 10 years. These satellites can also be used for earth observation and are a vital tool in monitoring climate change which feeds into the environmental, social and governance (ESG) goals and reporting that are a major consideration for financial investors.

What is the European perspective?

At the European level, there is a major focus on the EU's digital sovereignty and strategic autonomy throughout the entire tech industry, as Alexander Kennedy, a Clifford Chance Counsel based in Paris, explains: "As part of this drive, the EU is seeking to proactively regulate critical domains. We saw this with data protection and now we're seeing this with artificial intelligence, data access and use, digital ethics, cybersecurity, supplies of semiconductors, the protection of critical infrastructure – and the space sector itself. Space represents fantastic opportunities and, clearly, Europe wants a strong space sector where citizens and businesses, including start-ups and SMEs, can really benefit. At the same time, we are seeing a number of major threats and risks emerge, where space and space technologies can play a key role. And there is a clear geopolitical dimension here."

As an example, the EU wants to ensure secure and reliable access to satellite communication services for strategic needs, such as protecting key infrastructure, crisis management and surveillance activities. It is also keen to enable high-speed broadband access and connectivity throughout Europe, including in dead zones, and also provide connectivity in strategic areas such as the Arctic and Africa. In addition, Europe wants to secure an EU approach and position itself as a leader in space traffic

management (STM). Currently, we are missing a comprehensive legal framework to manage this safely and sustainably despite the rapidly growing number of satellites in space and the developments that are expected ahead.

What are the legal risks?

Space offers many opportunities but also carries significant risks – reputational risks for investors, for financial services and for corporates in this area, regulatory and litigation risks, and ESG risks.

Joshua Berman, a Clifford Chance Partner based in Washington, D.C. says: "We need to focus on the ESG impact on space and what it means for future technology and future investment. We need to think about waste, pollution and space debris – there are something like 30,000 pieces of orbital debris or space junk floating around right now. And that's increasing exponentially. If you're a company in the space sector, then what are you doing about it? If you're an investor, how are you doing your due diligence? What is the plan for dealing with and addressing those considerations? Studies suggest that increasing numbers of space flights will accelerate climate change. So, what are the controls being put in place and, if you're an investor, what do you know about your investments."

He adds that space mining – the exploitation and use of natural resources on the moon, asteroids and other planets – is also a very difficult issue. "If we're going to be doing space mining, we need to think about water rights and land rights. We need to think about supply chain issues – we have our own supply chain issues on earth with things like rare earth elements, radiation-hardened processors and space-class, photovoltaic cells – but the supply chain will be even more complex in space."

Other ESG considerations include which international US, UK, EU and global regulatory lenses will be used for space? In the United States, that includes Export Administration Regulations (EAR), the International Traffic in Arms Regulations (ITAR) and the implications for sanctions that are already in place, or that will be put in place in the future.

Financing

Venture Capital funding for space companies and start-ups was very much available in 2020/2021 and valuations were sky-high. SPACs – special purpose acquisition companies – were a popular option for accessing public markets, particularly in the US, but the situation is changing. "While VC funding remains an important financing option for start-ups, we are no longer seeing the same kind of valuations as a year ago and SPACs have almost completely fallen away (except for a few exceptions); and high-profile space-focused SPACs were abandoned," says David Ho, a Clifford Chance Associate in Singapore.

Start-ups are now turning to debt financing and project financing. Asset financing also remains on the table and listed companies are expanding into the space sector. "In terms of exit options, SPACs were an obvious choice for a lot of early investors in space start-ups, but now those are drying up, people are turning towards M&A. High-profile deals include British government-owned satellite company OneWeb's US\$3.4 billion merger with French satellite company, Eutelsat and, in the lunar exploration field, Astrobotic bought the assets and contracts of its competitor Masten Space Systems," Ho says. There is also speculation that private equity firms may begin investing in the space market as it grows and matures, and lunar exploration becomes more achievable.

New space

Deepika Jeyakodi was a guest speaker at our webinar. She has worked in the space industry for a number of years and is currently based in Europe but has maintained strong connections with the Indian space community – one of the fastest growing in the world.

New space has two common global characteristics – it is entrepreneurial and the relationships between private entities and government space agencies are changing. "Private entities, which were once predominantly suppliers to government agencies, are now becoming commercial partners. Funding is also changing – it used to be mostly publicly funded, but we are now seeing privately funded activities. Commercial space activities are not limited to the US and Europe, there is also a lot of activity in India, Asia Pacific, and Latin America," she says.

This provides a platform for numerous industries to build products, technology and services that will benefit from space activities as she explains: "In India, for example, five years ago, around 500 private companies were acting as suppliers to the Indian Space Research Organisation. Now we are seeing growing numbers of start-ups that are either focusing purely on space technology and services, or are using space-based infrastructure to develop other products and services."

However, Jeyakodi says that the private space sector still has some way to go in terms of due diligence and business models. "Those, like me, who have had experience of working with engineers building cool stuff, will know that often they are not as financially aware as they should be when they establish these start-ups. There is definitely a lack of knowledge and the capability to commercialise their innovation."

She adds that there is a role for investors and financial institutions to support these start-ups and to derive value from that support. "One role is to raise financial awareness and to challenge these start-ups on their market purpose and market use and ask how you are actually going to bring this to market?"

Commercialisation and funding

The space industry is currently contributing around €45 billion to €55 billion to the EU economy, and that is expected to grow substantially including as the EU focuses on its proposed satellite-based secure connectivity system, IRIS – which could be implemented through a public-private partnership model – and space traffic management. "The view is also that the EU needs to act as an anchor customer in helping to develop the industry in Europe. In terms of space opportunities, there are many, many applications; space can be a key enabler in dealing with fundamental issues such as climate change and other critical ESG topics, including in terms of monitoring emissions, dealing with deforestation, protecting maritime ecosystems and supporting sustainable agriculture. There are other major applications as regards Earth observation. On top of the EU's

strategic programmes and the development of major satellite constellations, we should see other areas developing including novel technologies that can help to enhance the sector and reduce costs, and downstream services," says Kennedy.

The EU has put in place a number of initiatives and financial instruments recently to help build a strong space sector. This includes such things as the €10 million prize focusing on a low-cost space launch awarded at the beginning of the year, and the introduction of the CASSINI space investment facility, which will enable risk capital investments in space-related companies at the level of €1 billion or more during the next six years. "These initiatives aim to provide support including technical and managerial support to start-ups and SMEs, and also seed and growth funds to facilitate and encourage investment," says Kennedy.

The challenges of raising funds

At our webinar, Adam Gilmour, co-founder of Gilmour Space, a venture-backed Australian company developing new capabilities for launching small satellites into space, spoke about funding.

"We were literally trail blazers. When we started, there were no Australian government agencies that were focused on space. Everybody thought we were crazy. Investors had no interest at the beginning. It was difficult. I didn't have a track record in launch technology, so I decided to put the first couple of million dollars in, get the technology to a point where it looked like we are doing something good and then I started looking for investors," he says.

By 2017, Gilmour Space had raised venture capital and in 2021, Australian superannuation funds started to invest. "Super funds are traditionally conservative, but they decided to invest, so it's got to be going well if they are willing to invest in a rocket company," he says.

The industry is growing rapidly, and as well as our Gilmour Space, there are around five other close commercial launch competitors around the world, mainly in the US and Europe. Gilmour says: "I am not too worried about competition because our analysis of the market since 2015 hasn't really changed – there are still massive numbers of companies that need to launch satellites."

He says that Venture Capital firms are investing in space companies, but are now taking a more considered, cautious approach. "A year ago, VCs seemed to be just throwing money at any idea related to space, but now investors spend a lot more time looking at the business models and the technology to ensure that there is a really good roadmap ahead. I'm happy with that because I would like to see the industry grow on the back of good business plans and good ideas."

The US regulatory perspective

A range of US rules and regulations are in place that will have an impact on space. These include Department of Commerce rules on export controls and Treasury Department and FTC rules regarding trade practices.

Josh Berman says that existing ESG regulation will also have an impact and that those in the space industry or considering investing in it will need to bear in mind the following:

- Public statements need to be accurate. Misleading hyperbole will not work as the US regulators will act swiftly and there will be consequences.
- Regular compliance due diligence will be needed, and not just at a national level; for example, in the US there are

also state-based ESG laws and regulations in place relating to supply chains, consumer protection and public nuisance.

- Supply chain due diligence is essential, particularly in regard to ESG.
- For M&A, investment strategies and, if private equity comes into play, all parties must be aware of what the target or merged company is doing and that includes past activities which could affect liability.
- ESG disclosures must be transparent and consistent.
- Stay current – rules and regulations change frequently, across different countries.



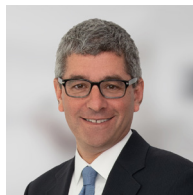
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