



Patenting in the Space Sector

A look at the important role patents can play in the success of businesses in the UK space sector, and beyond.

The Space Sector is Growing

The UK space sector is worth over £17.5 billion per year and is growing faster than the rest of the UK economy. Its workforce, which comprises around 48,800 people, is the most highly qualified in the UK and has a productivity level per employee that is 2.5 times the UK average.

The sector already forms an important part of the UK's knowledge economy, and this importance is set to increase over the next decade given that the global space economy is predicted to expand from an estimated £270 billion in 2019 to £490 billion by 2030.

In 2021 the UK Government published its national space strategy setting out its vision of the UK building one of the most innovative and attractive space economies in the world performing cutting-edge research to sustain its competitive edge in space science and technology.

The national space strategy sets out a ten-point plan of initial focus areas one of which is to 'Unleash innovation across the space sector' and in doing so generate intellectual property. Why then are intellectual property rights, and more specifically, patents important for the sector?

Investment

The European Space Policy Institute reported in its annual report (published June 2022) that 611 million Euros were invested in European space start-ups in 2021 and that

venture capital accounted for most of such investments in the 2014-2021 period.

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As innovation is central to the products and services that venture-backed companies are seeking to commercialise, it is not surprising that a close consideration of the patent rights protecting those products and services is an important part of the investment process.

The Luxembourg based company OQ Technology which is a satellite telecom operator developing technology to improve global IoT connectivity recently gained 13 million Euros in Series A funding. It has a number of pending patent applications protecting its technology.

The European Space Policy Institute further reported in its annual report that whereas early-stage VC investments in European space start-ups have increased over the last few years, only two Series C funding rounds have been recorded, both by the Finnish company Iceye OY.

Our investigations show that Iceye OY has been diligent in filing patent applications to protect its technology. It has seven published International (PCT) patent applications and, interestingly, as of March 2023, has filed at least sixteen not yet published UK patent applications which may already have been used or can be used as priority filings for further International patent applications.

Deterrence and Enforcement

Patents are publicly available information and can act as a 'hands-off' warning to competitors. Ultimately, a granted patent can be enforced in patent infringement litigation to stop or prevent a third party's unauthorised use of the technology covered by the patent and to recover monetary damages caused by any infringement. To date, patent litigation in the space sector is relatively rare but history shows that the amount of patent litigation in a technological sector tends to increase as the value of that technological sector increases.

Co-operation

The national space strategy sets out the importance of international co-operation in unlocking growth in the space sector. Patents can help facilitate co-operation. Patents can be licensed to others in return for a licence fee. This can generate a revenue stream for a business whilst allowing wider dissemination of innovative technology.

A company may look to licence technology that it no longer intends to directly use itself. For example, recent press reports indicate that whereas the UK based company Arqit Ltd

no longer intends to build its own satellites for a space-based quantum encryption network, it intends to license the technology it has developed in this field to other organisations. Arqit Ltd has a patent portfolio consisting of around 27 patent families a number of which are relevant to quantum key distribution.

Companies may also participate in patent cross-licensing agreements to give access to each other's patented technology.

Tax Reduction

By taking advantage of the UK's Patent Box tax relief scheme, businesses can benefit from a reduced rate of UK corporation tax on profits earned from patented inventions.

Risk Mitigation

It is important also to carefully manage the risks posed by third parties' existing patent rights. This may involve running specific Freedom to Operate (FTO) searches prior to launching a new product or service to mitigate the risk that a competitor has granted patents or pending applications that cover the new product or service.

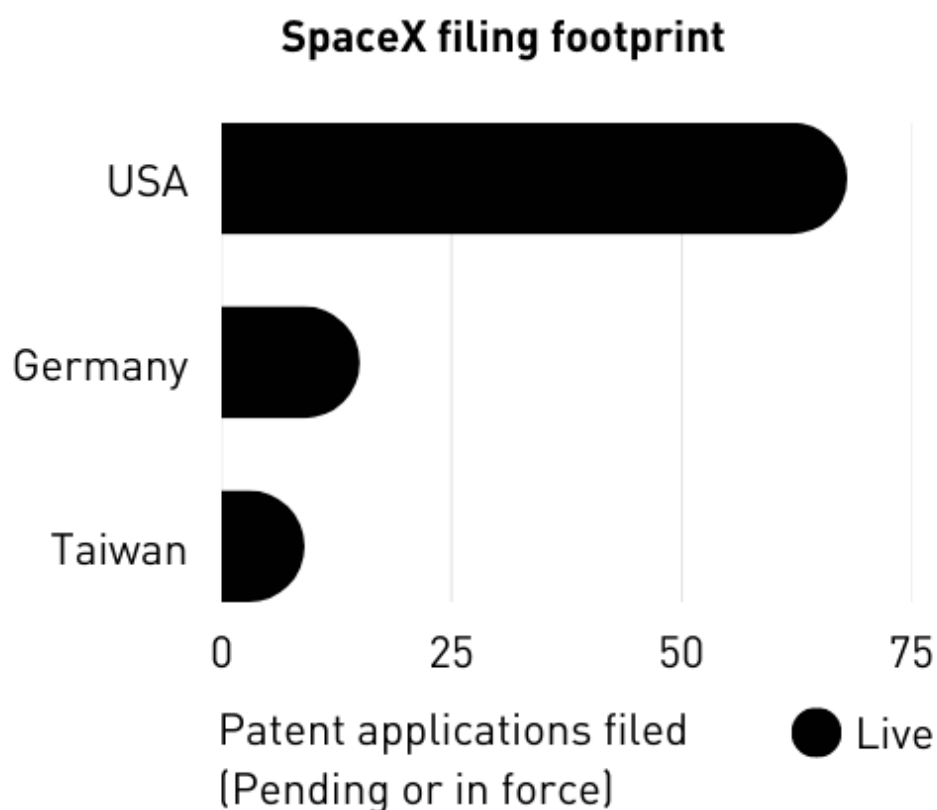


Figure 1a

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It can also provide useful intelligence to run so called 'watching searches' to monitor the patent filing strategies of companies of interest. For example, SpaceX's portfolio of pending patent applications and granted patents (See Figure 1a) is concentrated in the USA with a smaller number of filings in Germany and Taiwan. Most of its portfolio (See Figure 1b) has been classified as pertaining to Telecoms technology, in particular antennas, and electronics, which are likely of importance to the Starlink project.

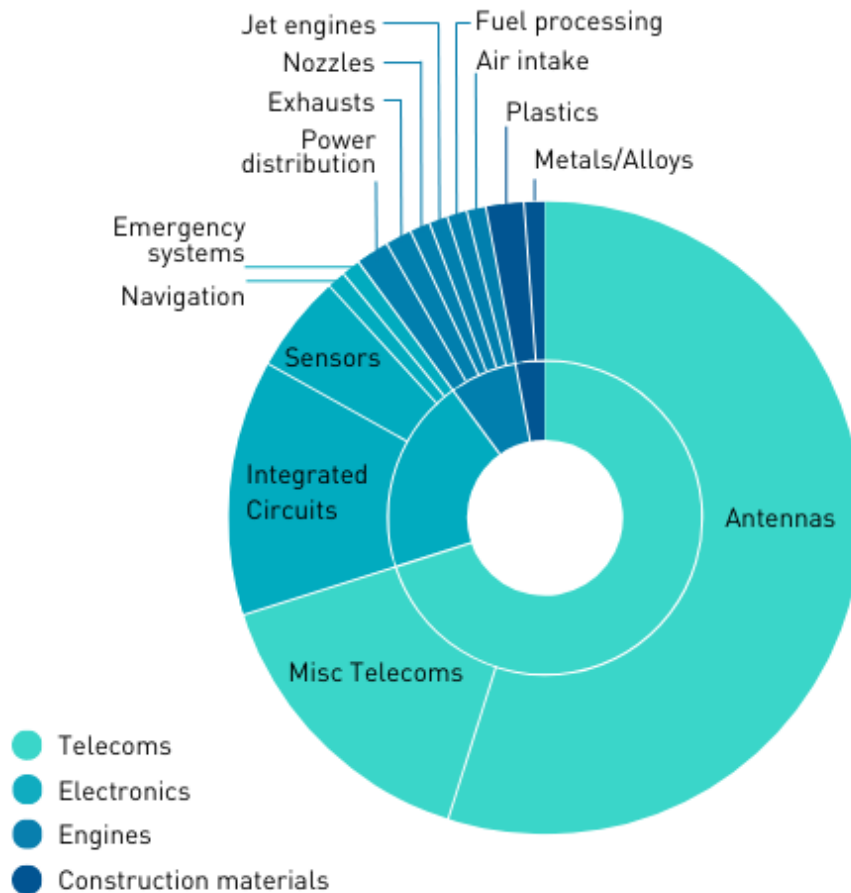


Figure 1b

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Blue Origin's portfolio of pending patent applications and granted patents (See Figure 2a) is also concentrated in the USA with a smaller number of filings in other jurisdictions that traditionally have had rocket launching facilities. The majority of its portfolio (see Figure 2b) has been classified as pertaining to space vehicles and engine technology.

Interestingly, a small part of the portfolio has been classified as also pertaining to weapons and in particular ammunition technology. However, we do not believe that this is because Blue Origin has filed patent applications specifically directed towards weapons technology. Instead, this is because the patent offices which have classified the relevant patent applications believe that the space vehicle and engine technology that underpins these patents applications may also be relevant in the field of missile (and other such projectiles) technology.

Blue Origin filing footprint

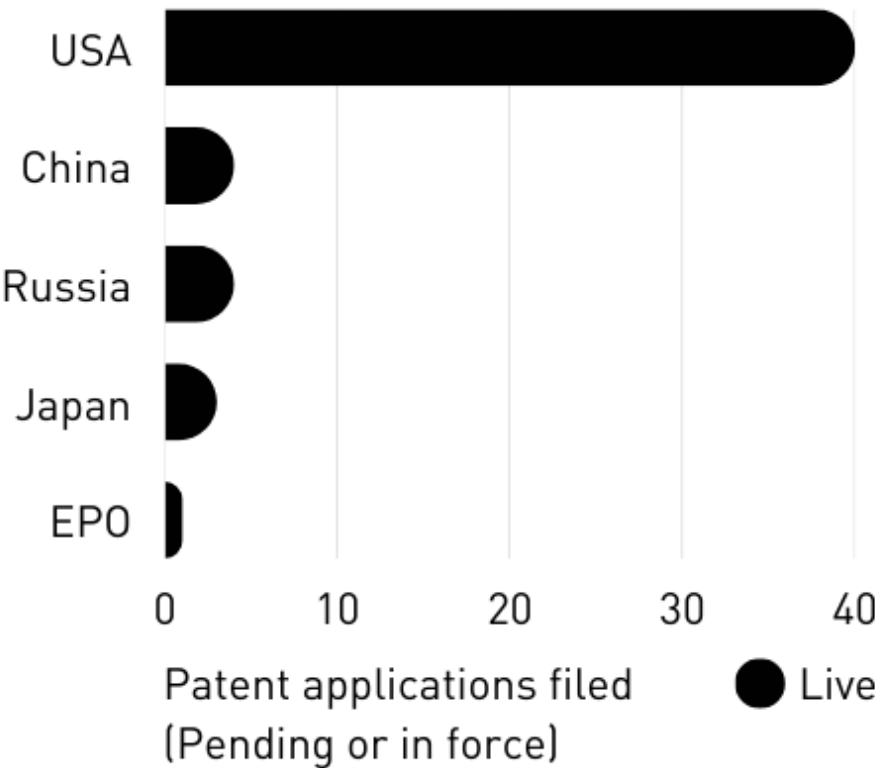


Figure 2a

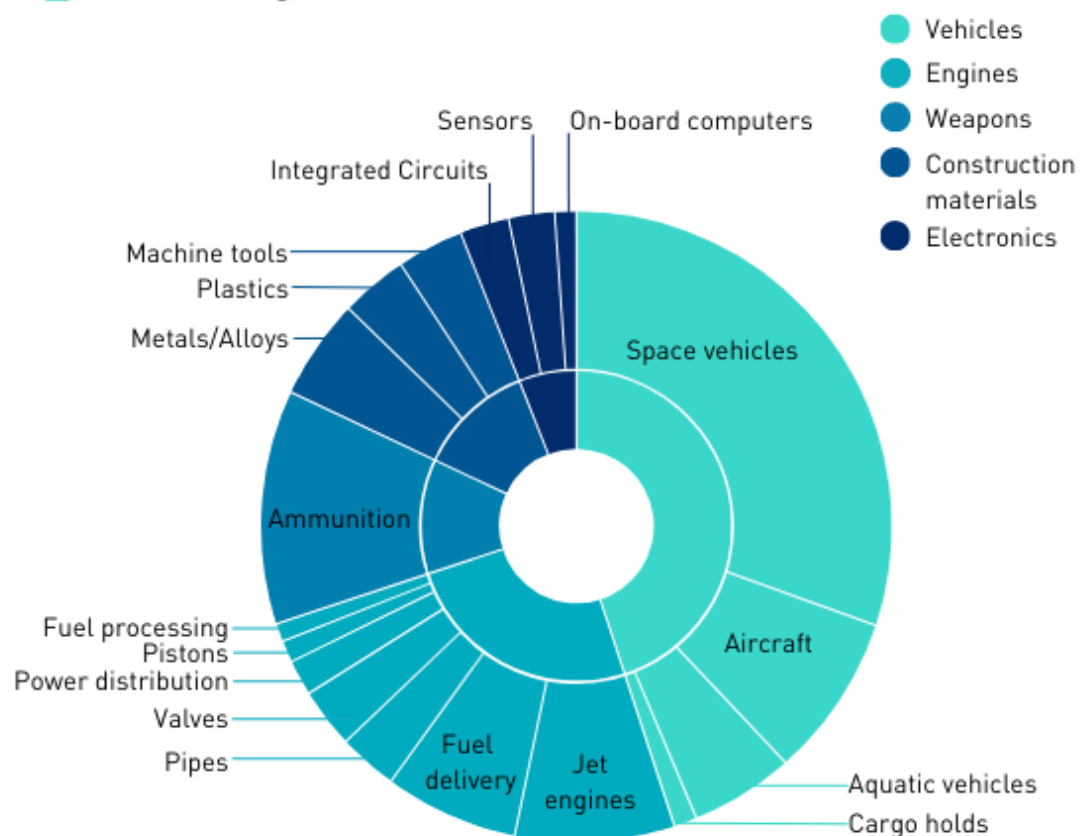


Figure 2b

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Conclusion

Patents are important tools for attracting investment, deterring competitors, facilitating co-operation and can reduce corporation tax. Care should be taken to mitigate risk presented by third party patents.