



# The impacts of COVID-19 on the space industry

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As part of the digitalisation of the economy, satellite signals and data play an increasingly pivotal role in the efficient functioning of societies and their economic development. The recent growth in the sector has generated unprecedented levels of entrepreneurship and start-up activity. However, with the COVID-19 crisis, this positive trend could be reversed. While many space sector firms seem to be able to cope, a significant number is struggling, particularly small and medium-sized enterprises that constitute the bulk of commercial actors in the space industry. Considering the high costs of entry to the sector, there is a risk that the crisis could lead to more industry concentration, eliminating smaller and younger firms that are key sources of innovation, employment and economic growth. Space agencies and other public administrations therefore need to fully consider vulnerable smaller actors in their overall crisis responses.

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## Key messages

- As part of the digitalisation of the economy, satellite signals and data play an increasingly pivotal role in the efficient functioning of societies and their economic development. Investments in space programmes contribute to drive scientific exploration, knowledge, technology development, and advances in commercial digital products and services.
- While many space sector firms seem to be able to cope with the current COVID-19 crisis, a significant number is struggling, particularly small and medium-sized enterprises that generally constitute the bulk of commercial actors in the space industry. There are growing concerns about the medium and long-term effects of the crisis on government budgets and customer demand, as many industry actors anticipate significant funding cuts in future institutional programmes.
- Considering the high costs of entry to the sector (considerable technological and financing risks, strong government requirements), there is a risk that the crisis could lead to more industry concentration, eliminating smaller and younger firms that are key sources of innovation, employment and economic growth.
- As key institutional customers to the space industry, space agencies and other public administrations need to consider vulnerable smaller actors fully in their overall crisis responses, simplifying procedures and adapting eligibility criteria for support and procurement programmes, to facilitate access to public and private funding. They could also increase the visibility of existing and new government long-term space programmes and their funding schemes, enabling firms to retain needed skilled staff and reassure their investors.

### The space sector plays an increasingly important role in society...

As part of the digitalisation of the economy, satellite signals and data play an increasingly pivotal role in the functioning of societies and their economic development. Investments in space programmes contribute to drive scientific exploration, knowledge, technology development, and advances in products and services. Several space sector activities, such as space manufacturing and satellite telecommunications, in many OECD countries are designated as national critical infrastructure sectors that are considered essential for the functioning of a society and economy, as well as for the continued safety and well-being of the population.

Over the past decade, the economic importance of the space sector has increased, as new commercial actors have developed innovative products and services highly responsive to market needs with essential localisation, navigation and telecommunications applications used around the world. [More than 80 countries have now space programmes](#), with many ongoing space exploration, technology development and earth observing missions (OECD, 2019). The sector, worth an estimated USD 277 billion in commercial revenues in 2018 (mostly derived from satellite services), is increasingly seen as a driver of innovation and growth in the wider economy. Government investments remains crucial to support the overall space infrastructure, science and R&D, with institutional budgets dedicated to space activities conservatively accounting for some USD 75 billion yearly. [In the OECD area, public R&D allocations to civil space activities represent about 7% of total government R&D spending.](#)

During the COVID-19 crisis, space manufacturers and agencies have actively contributed to the response efforts, by producing medical equipment, providing storage and processing capabilities for modelling and other research needs and studying impacts. Space actors have also provided high-speed connectivity to remote locations (e.g. [establishing links to remote hospitals](#), residential and small business customers, and [deployment of online solutions schooling](#)) as well as earth observation imagery for industry intelligence and monitoring of remotely located infrastructure.



## ...however, COVID-19 is exposing inherent vulnerabilities in the sector

Certain structural weaknesses of the space industry makes it uniquely vulnerable to economic shocks. The space sector comprises a sprawling patchwork of activities, ranging from space manufacturing, rocket launch and satellite operations, all the way to increasingly diverse commercial applications dependent on satellite data and signals, such as consumer broadband. Certain industry segments, such as space exploration and science, or even satellite manufacturing, are characterised by low production volumes and high levels of specialisation, with a limited number of suppliers. [Value chains are increasingly global, but many nations would like to keep some control over sovereign interests and sub-sectors.](#)

These segments tend to be populated by small and medium-sized enterprises (SMEs). SMEs generally constitute the bulk of commercial actors in the space sector (e.g. 95% in Canada, 92% in Korea). Furthermore, they often rely on single, mainly government, sources of revenues. In [Canada](#), for instance, sales to government clients accounted for 63% of revenues of earth observation companies in 2018, and a much higher share in space exploration and science. Whereas government contracts have sheltered the industry against short-term impacts of the crisis, there are growing concerns about the medium and long-term effects of the crisis on government budgets and customer demand. Many industry actors anticipate significant [funding cuts in future institutional programmes.](#)

Some creative destruction would benefit the space sector in the long run, but considering the high costs of entry to the sector (considerable technological and financing risks, strong government requirements), there is a significant risk that the crisis would mainly lead to more industry concentration, eliminating smaller and younger firms that are key sources of innovation, employment and economic growth.

## Smaller and younger firms are more exposed to negative impacts

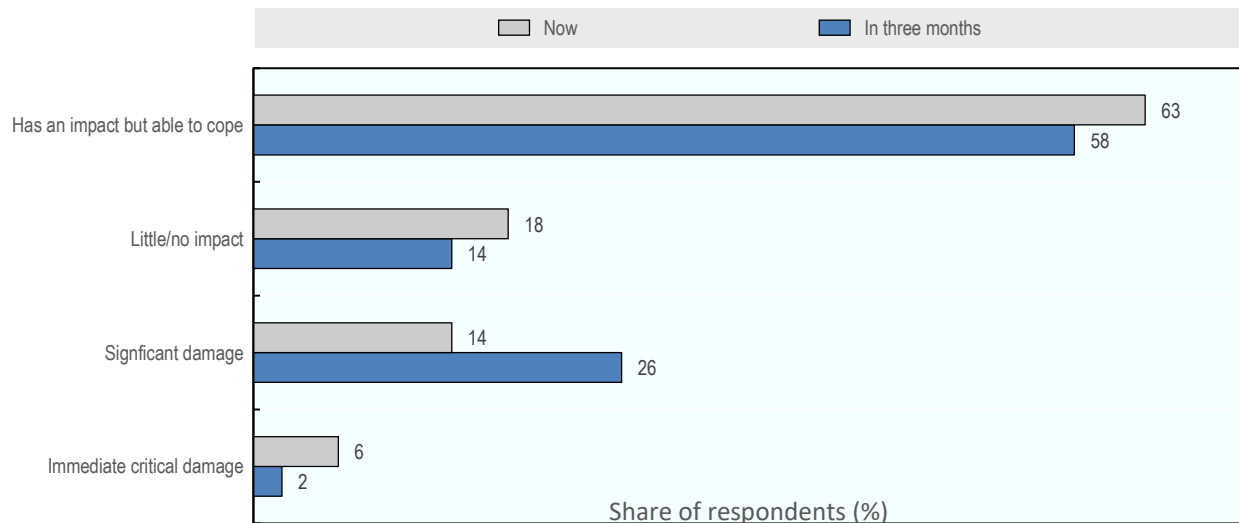
While most firms seem to be able to cope, still a significant number is struggling. For large space manufacturers, the crisis has so far mainly slowed down product deliveries and mission deployments, due to social distancing measures and supply-chain delays, with only limited effects on revenues. Government contractors in North America, Europe and Asia have benefitted from significant administrative and financial support from space agencies through accelerated and advance payments and liaising with local and regional authorities to keep facilities open.

More significant negative short-term impacts have been concentrated among smaller suppliers, many of which are dependent on contracts from larger firms and must wait for payments to trickle down. In a recent [survey of space sector firms in the United Kingdom](#), 20% report significant or critical economic damage to their business, 63% report some impact, while 18% of respondents report little or no current impact. Medium-term forecasts are more pessimistic, as restrictions on travel and large gatherings make it difficult to generate new business and concerns about future government contracts are growing (Figure 1). In Korea, some 66% of space companies [surveyed in March by the Korea Association for Space Technology Promotion](#) anticipated negative impacts throughout 2020, with 42% expecting to recover business in the first half of 2021, although 22% were anxious about future business.

In the United States, a Department of Commerce study on [the space industrial base](#) found that 92% of space firms with R&D as a primary business line were small businesses, often sole source providers of critical parts, equipment and services. US government agencies have expressed particular concern about these small firms and subcontractors in the strategic supply chains of small rockets, commercial satellite communications, and micro-electronics segments, with the US Space Force Acquisition Council launching a [dedicated survey](#) for these suppliers. Another survey conducted among [European SMEs](#) in the space sector revealed that 70% of respondents already had cash flow constraints in April 2020. A month later, the lack of long-term R&D projects and commercial orders became the [main concerns.](#)



**Figure 1. Impacts of COVID-19 as reported by space sector firms in the United Kingdom**



Source: UKSpace (2020), *Monthly Space Sector COVID-19 Impact and Recovery Survey*, <https://www.ukspace.org/covid19/covid19-surveys/> (accessed 10 June 2020).

Note: A previous version of this figure was incorrectly titled. It has been corrected.

As in other industry sectors, [start-ups are particularly vulnerable to the current crisis](#). In March, the satellite operator OneWeb, one of the companies developing a service for satellite broadband in the low-earth orbit, filed for bankruptcy protection after it failed to raise sufficient financing for completing its constellation. A [German survey specifically targeting space start-ups](#) reveals that almost 40% of respondents report the impacts of COVID-19 are “dramatic” and threaten the very existence of their firm, with 80% of the surveyed start-ups considering existing government support measures insufficient.

A major concern of start-ups is the lack of visibility of future contracts, with clients and private investors putting decisions on hold. The restrictions on international travel and cancellations of conferences and trade fairs also make it much more difficult to make new business deals. These findings are echoed in similar industry consultations in [Canada](#) and [France](#).

Overall, evidence from this growing number of industry surveys and consultations in several OECD countries suggest that SMEs and entrepreneurs in the space sector may be falling between the cracks of available government measures.

- All actors are concerned about the long-term impacts of the crisis on funding for government programmes and procurement, as this directly and indirectly supports and attracts an increasingly complex ecosystem of contractors, subcontractors, start-ups and private investors.
- SMEs have often problems identifying and navigating appropriate support programmes, finding them hard to understand.
- Eligibility is a problem for some actors. High collateral requirements remain a hurdle in several cases, and start-ups backed by venture capital firms often do not qualify for support.
- Procurement agency administrative processes are considered to be too slow to be effective.

## Key recommendations

Space agencies and other public administration, as funders or anchor tenants of space R&D, products and services, have acted swiftly and decisively to ensure the continuity of space operations and accelerate and



ease procurement procedures. However, more targeted measures may be needed for the smallest and most vulnerable actors, in order to sustain a diverse and innovative space ecosystem. Policy makers may consider some of the following:

- As key institutional customers to the space industry, space agencies and other public administrations need to consider vulnerable smaller actors fully in their overall crisis response, simplifying procedures and adapting eligibility criteria for support and procurement programmes, to facilitate access to public and private funding (e.g. accelerated and advance payments, liaising with local and regional authorities to keep facilities open).
- Increase the visibility of existing and new government long-term space programmes and their funding schemes, enabling firms to retain needed skilled staff and reassure their investors.
- Reinforce existing measures such as business incubation centres and product testing and demonstration schemes, addressing particularly the needs of SMEs and entrepreneurs (e.g. encouraging reduced or no access fee to access testing facilities).
- Keep track of who is doing what. Overall, more high-quality data is needed about the space industrial base in order to inform policy decisions.

## Further reading

OECD (2020), *Start-ups in the time of COVID-19: Facing the challenges, seizing the opportunities*, OECD, Paris, [www.oecd.org/coronavirus/policy-responses/start-ups-in-the-time-of-covid-19-facing-the-challenges-seizing-the-opportunities-87219267/](http://www.oecd.org/coronavirus/policy-responses/start-ups-in-the-time-of-covid-19-facing-the-challenges-seizing-the-opportunities-87219267/).

OECD (2019), *The Space Economy in Figures: How Space Contributes to the Global Economy*, OECD Publishing, Paris, <https://doi.org/10.1787/c5996201-en>.

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