



The private equity opportunity in aerospace & defense



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Summary

The determined and imaginative private equity (PE) investor can obtain significant and sustainable value from the aerospace & defense (A&D) sector. Due to several compounding factors, now is perhaps one of the best times for private equity to leverage the strengths and engage with a sector that was historically underutilized. There are four main drivers behind this opportunity: the COVID-19 pandemic; increased geopolitical instability; the expansion of defense capabilities away from traditional hardware towards new technologies; and, increased onshoring of manufacturing and supply capability. There is real value to be found in the field of lower-tier supply chain consolidation and high-end digital innovation.



Contents



Background

04



05

The new landscape of aerospace and defense

- 🚀 The COVID-19 pandemic
- 🚀 Increased global instability and dependence on the internet
- 🚀 Innovations and expansions
- 🚀 Increased onshoring of capability



10

Two opportunities for private equity

- 🚀 First approach: supply chain consolidation
- 🚀 Second approach: technology-focused innovation
- 🚀 Synthesizing the twin approaches



Background

Private equity has historically been underinvested in A&D, in comparison to other sectors, because of a perceived incompatibility with the nature of the sector's contracts and cash flow models and several barriers to entry. This includes the fact that A&D is perceived to be a relatively closed shop dominated by a small cohort of actors. A feature of the sector is the long-term contracts that are set up between suppliers and Original Equipment Manufacturers (OEMs). These contracts supply equipment for research and development and capex-heavy programs that have twenty or thirty-year lives. While these offer steady cash flows, they do not necessarily guarantee rapid profit. This has been long deemed incompatible with the traditional model of PE investing, which is to invest in an asset and then exit it at a premium four or five years later after conducting intensive work on its operations and practices, or aiding its growth by acquiring other assets. The punitive costs of participating in procurement exercises have also served to put off the PE community. In reality this issue only affects Tier 1 suppliers as opposed to the sub-systems and component manufacturers in Tiers 2, 3 and 4, the exact areas in which we see most investment opportunity in any case.

Now, however, KPMG professionals believe that those paradigms are closer together than they have ever been and that the traditional PE model can be brought to bear on the sector in a manner that achieves far greater mutual benefits than were possible before.

Further, investing in defense in particular has been inhibited, certainly amongst European PE houses, by the more restrictive approach they have taken towards what is deemed to be acceptable from an investment perspective. 'Offensive defense' assets such as weaponry, for instance, likely fall outside what investment committees deem an acceptable investment, with the significant ESG issues that accompany them. Even some 'defensive' assets such as anti-aircraft weaponry would be included on this list as well. However, recent developments in technology have greatly broadened what may be classified as defense assets, and now include non-kinetic and indeed non-military areas such as cyber defense and surveillance, which will help to remove such reputational barriers to investment.



The traditional **PE model** can be brought to bear on the Aerospace and Defense sector in a manner that achieves far greater mutual benefits than were possible before.



The new landscape of aerospace and defense

Seismic recent developments warrant a reappraisal of previously accepted norms about aerospace and defense and should be borne in mind by people looking to invest in the sector.



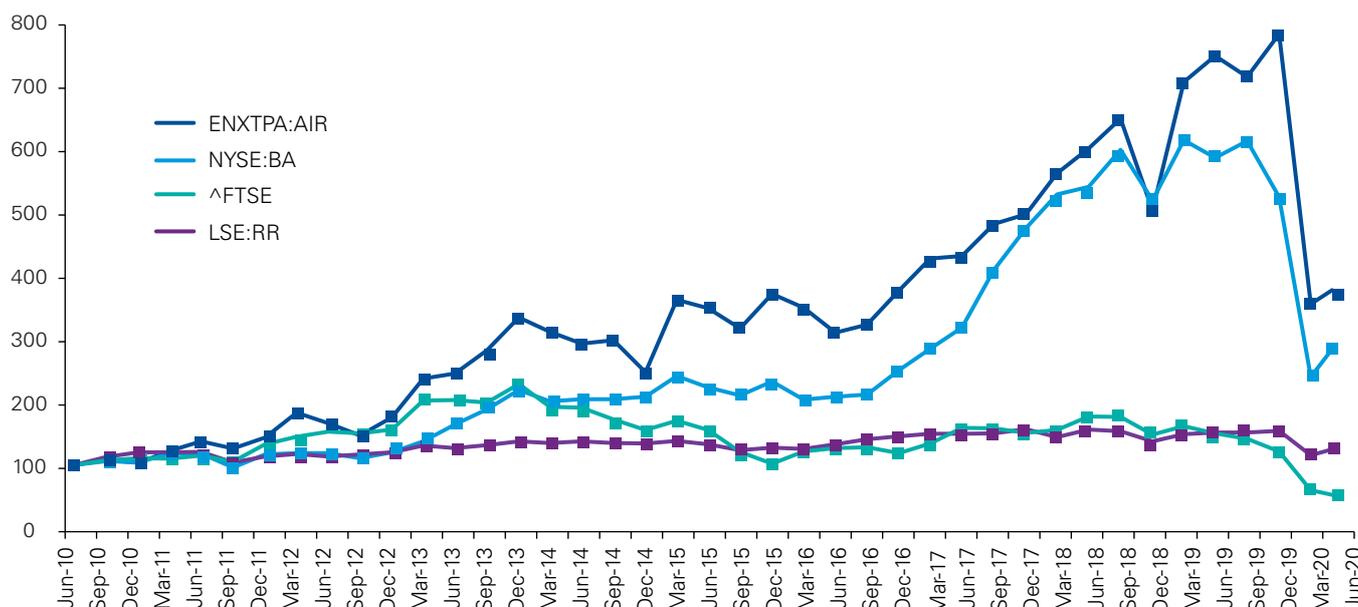
The COVID-19 pandemic

The civilian aerospace industry, which was already damaged by problems with the Boeing 737 Max, has seen a near collapse in the wake of the pandemic. Civilian airlines' total revenue passenger kilometres (RPK) fell by more than 60 percent in 2020 and the International Air Transport Association (IATA) predicts the industry will not return to 2019 levels of demand until 2024.¹ That prediction is far from certain: the demand forecast for the latter year ranges from 7 trillion RPKs to 10.5 trillion. While the last year has been characterized by a number of governmental stimulus packages, this has obscured the true damage sustained by companies in the sector; time will tell which businesses used those packages to weather the storm and emerge relatively healthily and which ones used it as life support and will collapse when such aid is drawn down. There have been several high-profile cancellations and disposals already as the

big players seek to retrench and to concentrate on core operations and lessen exposure to risk in the wake of massive share price shocks. To take two examples, in April 2020 Boeing cancelled its offer to buy 80 percent of Embraer's commercial jet business for USD4.2 billion and Rolls-Royce is selling assets to raise more than USD2.8 billion, including its Spanish aircraft engine manufacturer ITP Aero, in order to protect its balance sheet against the ravages of the pandemic.²

In the medium-term fallout of the pandemic, many constrained government budgets will be unable to continue support for the civilian aerospace industry. However, as outlined below, there is not as much reason to think that defense spending will be significantly affected. If anything, it will rise in response to increased global instability in the wake of 2020.

Share Price Index



Increased global instability and dependence on the internet

The world settlement is currently at its most fragile since the Cold War, with the three main players — the US, China and Russia — continuing to spend more on their defense capabilities and so inducing a trickle-down effect onto other nations' defense expenditure. The increased dependency of nation-states' infrastructure on the internet also creates new front lines for them within their own borders, with vital systems vulnerable to hostile attack, such as DDOS and malware operations, from both state and non-state actors. This all means that a well-resourced and funded whole spectrum of defense, from traditional hardware to cutting-edge software is going to be a

necessity for any country to operate safely in the future.

In both the United Kingdom and the United States governmental defense spending is on an upward trajectory. The FY2021 US Department of Defense (DoD) Budget Request projected 1.5 percent annual growth over the next five years and if it does not continue to increase its budget, then by 2032 its defense spending will have been overtaken by the combined budgets of Russia and China. This will be so politically toxic that it is our projection that US spending will overcompensate against even the risk of that happening.

¹ <https://www.iata.org/en/iata-repository/publications/economic-reports/airline-industry-economic-performance-november-2020—presentation/>

² <https://www.thetimes.co.uk/article/rolls-royce-to-raise-1bn-with-sale-of-spanish-subsiary-itp-aero-6czpzl6vx>

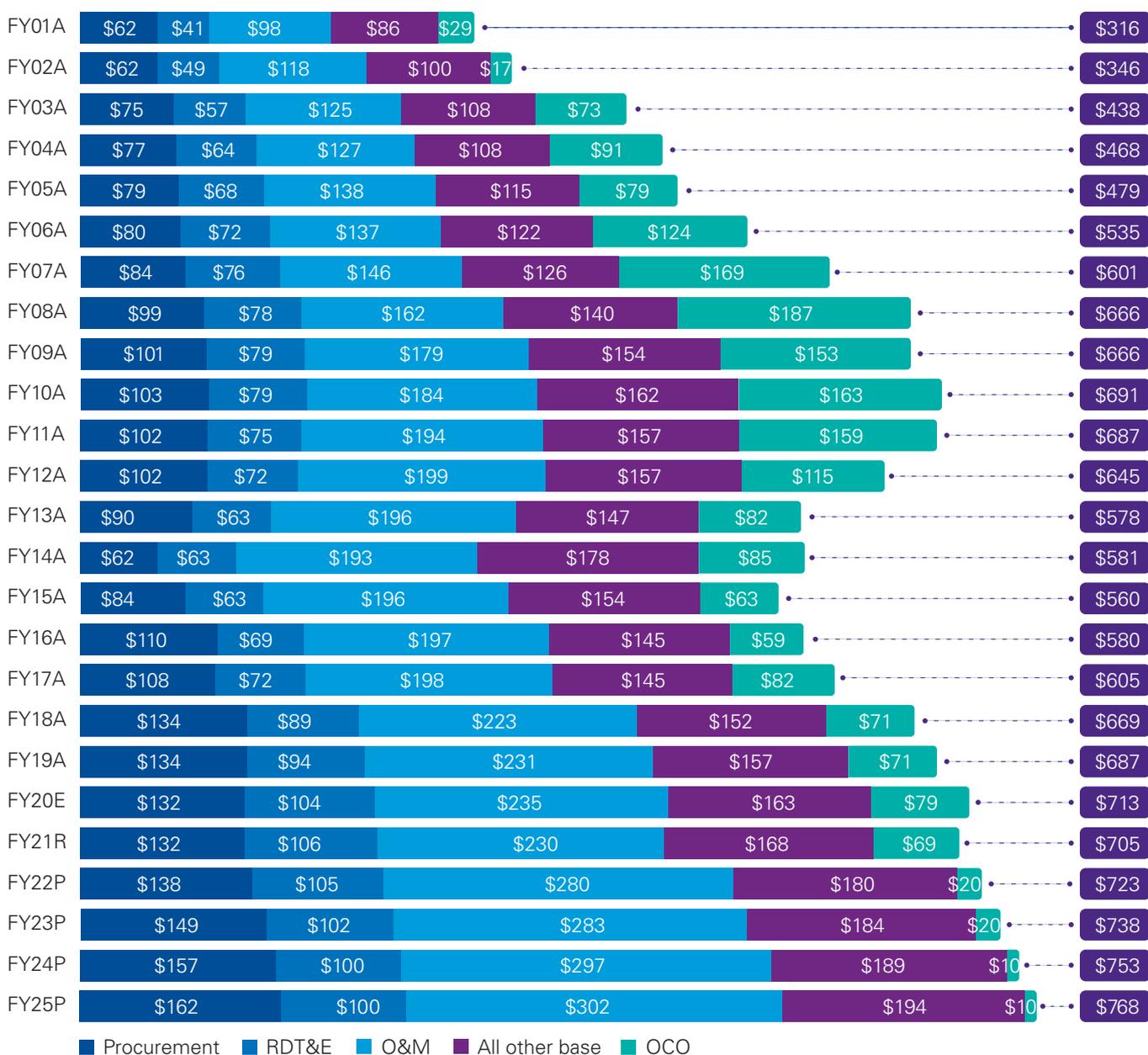


In the United Kingdom the recent Integrated Review into Security and Defense will see the defense budget gain nearly an extra USD22.9 billion over the next four years, amounting to an increase of 10–15 percent on the current annual budget of approximately USD58 billion.³ Therefore, in both geographies there is increased governmental spending power that will create ample opportunities for investment in new and existing programs of the dry powder currently in existence across the PE sector.

Further, this promising investment landscape remains even if budgets do come under some short-term pressure, especially since ultimately there will be

a need to catch up on deferred programs. In fact, reduced budgets actually bolster the case for private sector investment. If governments cannot afford expensive next generation platforms, they will need to compromise by upgrading or repositioning existing equipment and capabilities which will mean increased demand for Tier 2/3/4 supply chain players (albeit with potentially reduced demand at the Tier 1 level). Furthermore, cost considerations themselves may drive the innovation that is shown below to offer such significant value.

DoD Discretionary budget authority by public law title (FY2001A — FY2025P; current dollars, in billions of dollars)



All other includes MILPERS, MILCON, Family Housing, and Revolving Funds
Sources: FY21 DoD PBR, Tables 1-2 & 2-1

³ <https://www.rusi.org/projects/uk-integrated-review-2021>



Innovations and expansions

The changing face of modern warfare and rapid new technological developments has broadened the scope of what 'defense' means to an extraordinary degree. There are several areas in which innovation is creating opportunities in markets that have not yet crystallized and therefore offer first mover advantage for an investor.



The space arena has seen the US launch a significant new strategic interest, creating in 2019 Space Force, the first new US military service in more than 70 years since the establishment of the US Air Force in 1947.⁴ Analysts from KPMG in the US predict this will likely be a material driver of investment in defense in the coming years. In the UK, the Skynet 6 program is just one example of another government entering the **space sector**. Beyond defense, the opportunity to support ventures into other aspects of space technology is very exciting, with companies in the low earth orbital arena such as Planet Labs and Orbital Insight leading the way in expanding the possibilities of the sector.⁵



The recent fighting in Ngorno-Karabakh has served to highlight the demise of a shibboleth of military orthodoxy. Armor, previously seen as an essential component of defense capability, has been shown to be obsolescent in the face of recent **technological innovations**, like the expensive tanks that were easily destroyed by cheap and easily made Unmanned Aerial Vehicle (UAV) technology. This will add to the growing consensus that the militaries of the near future will be more remotely driven, which will signal a dramatic departure from previously accepted norms of vehicle shape, vehicle size and necessity for armor and radio communications. An example of this is the Robotic Combat Vehicle-Light (RCV-L) — a small and expandable unmanned combat vehicle jointly developed by British multi-national defense technology company QinetiQ Group and American military vehicles developer Pratt Miller Defense to support ground-combat operations.⁶ The manufacturer who can get ahead of the game in this growing area will be an extremely attractive target for an investor with an eye to the future.



Assets that are rich in **intellectual property** and not tied up with significant capex on physical equipment and production lines will attract national governments seeking to gain an edge in the vital cyber and ISTAR aspects of defense (intelligence, surveillance, target acquisition and reconnaissance). Electronic Warfare (EW) should also be included amongst attractive defense sub sectors. It is currently a booming area and one where defense budgets are rising very quickly as countries continue an arms race with near-peer adversaries in this capability. The type of assets that could come under the 'tech' label range from those that provide security and robustness of communications, through to supporting soldiers in the field with the provision of visualization, connectivity and AI-based commands based on a multitude of sensor sources, from space through to drones.



The recently published Integrated Review, the UK government's strategy that sets out its priorities until 2030, shows a decisive pivot away from the mantra that 'mass matters' and towards investment in technology.⁷ With manpower becoming more depleted, anything in the future that will free it up to leave training and supply functions available for front line roles will be invaluable. Opportunities therefore will be presented in the **training and maintenance sectors of defense**, both in technology and in manpower provision. It is even foreseeable that defense departments contract out the actual ownership of a fleet of vehicles and the private sector leases that fleet or equipment back to them on 'track miles' or 'engine hours under availability' type of contracts.



There will still, however, be the chance to invest in proven hardware assets. For all the talk of the demise of armor, for instance, no country is suddenly just going to give it up. Instead, they will likely choose a phased withdrawal of its armor capability and a weaning off that will take perhaps decades, keeping open the supply chain markets and the opportunities for consolidation outlined below. An additional layer of nuance is that while the need for heavy armor may be in decline, the demand for more **heavily armored smaller fighting vehicles** is growing. The UK, for instance, in its Integrated Review, is thought to be planning to replace the aging legacy fleet of warrior armored personnel carriers, which have been at the core of defense procurement for several decades, with the new, smaller fleet family of 'boxer' armored carriers.⁸ The overall transition industry dynamic therefore does not just have reduced demand, but demand for alternative types of equipment. PE houses with their considerable operational expertise are well-positioned to help owner-operated and owned companies in the pre-existing heavy armor supply chain ecosystems to pivot to meet this transition challenge.

⁴ <https://www.planet.com/company/>

⁵ <https://orbitalinsight.com/>

⁶ <https://www.army-technology.com/projects/robotic-combat-vehicle-light-rcv-l/>

⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/974661/CP411_-_Defence_Command_Plan.pdf

⁸ <https://www.thetimes.co.uk/article/dozens-of-tanks-to-be-scraped-in-redesign-for-army-of-the-future-70j09mdnh>



Increased onshoring of capability

The pandemic has also brought into focus the vulnerability of global supply chains which may lead to governments looking to onshore supply and manufacturing capability and increase scrutiny on investments from outside into their industries. The UK government for instance has, in light of the Huawei controversy, recently been more interventionist towards outside investment in aerospace and defense assets. The UK is more open than most countries but Brexit and the COVID-19 pandemic have put more scrutiny on supply chains and a broader view will be taken by governmental procuring authorities on what constitutes a sovereign capability. The proposed National Security and Investment Bill, for instance, seeks to curtail foreign takeover deals of UK assets where the government decides there are unacceptable risks to the country; companies from any country that propose a takeover in 17 key sectors, including energy and cryptography, will be required to tell the government their plans. Similarly, Australia in 2020 introduced provisions that require certain proposed foreign investments to be notified and a 'no objections' notification be issued before that foreign investment can be made. Whatever the specifics of such legislation, these should be seen as part of a

wider trend where national procuring authorities try to protect what they see as sovereign capabilities by putting up legislative and regulatory barricades to foreign investors.

The pandemic will be a great driver of supply chain consolidation with those chains involving fewer people in fewer geographies with increased proximity to the procuring country. Given the broad recent trend of Chinese expansionism and the decline in West-Sino relations, we anticipate a movement to 'de-emphasize' Chinese involvement in defense supply chains and manufacturing, in particular in micro-electronics, perhaps offering opportunities to locate these capabilities in other regions that offer comparable cost bases such as India and eastern Europe, if not home nations. The recent news, for instance, that Exception PCB (whose parent company is China's Shenzhen Fastprint) produces circuit boards for the new Lockheed Martin F-35 multirole combat aircraft may see a drive to address the perception that the West has ceded control of the micro-electronics arena in defense avionics to China and the US and UK may try to reclaim their sovereign capabilities defense procurement and supply.⁹

⁹ <https://news.sky.com/story/f-35-jets-chinese-owned-company-making-parts-for-top-secret-uk-us-fighters-11741889>

The pandemic will be a great driver of **supply chain** consolidation with those chains involving fewer people in fewer geographies with increased proximity to the procuring country.



Two opportunities for private equity

The landscape of aerospace and defense that was thought by many to be immune to shifts in the market has been anything but. There are several opportunities for investment, that much is indisputable.





Where real thought is needed, however, is in exactly which areas PE houses, with their particular demands, can invest. There are some areas of A&D investing, for instance, that will simply be outside the scope of PE, as the relevant contracts will be too long-term or too capex and R&D heavy. There are, however, two imaginative approaches to profit in the sector. Firstly, investing in 'traditional' areas of A&D expenditure such as equipment parts of planes, ships and armor, in particular in the supply and maintenance contracts. This is then balanced with the potential to invest in high-margin developing capability in new technology-focused areas.

First approach: supply chain consolidation

The aerospace industry has seen major players look to protect their balance sheets and pause new orders. This has created several problems for businesses in the lower tiers of the aerospace supply chain, many of whom are small and family-owned, as the primes and OEMs become more financially intrusive into their supply chain and more supportive of consolidating it. This creates significant opportunities for longer-term focused PE funds (over short term-focused funds) that are looking to build scale from a fragmented and depressed market.

In defense, while budgets are likely to increase, focus on new programs such as space and cyber may see procurement in other more traditional areas dry up. This may create heightened competition for fewer defense programs, and the possible re-emergence in the US at least of the trend of lowest-price, technically acceptable contracts, which is also likely to accelerate consolidation.

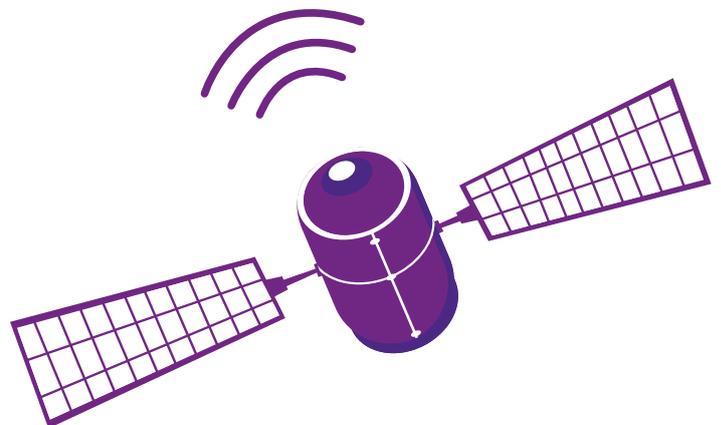
Many Tier I, II and III suppliers have encountered major cashflow problems since the pandemic and their survival has been contingent on financial help from government schemes and from large primes and OEMs. Jim Adams, National Aerospace and Defense Industry Leader from KPMG in the US says that soon many of these suppliers will likely be consolidated in order to achieve economies of scale and to gain greater access to capital. "The liquidity crush among the supply base is acute and may accelerate vertical re-integration," Adams says. "The number of mergers will accelerate as lower-tier suppliers join together to create economies of scale and gain access to more capital."



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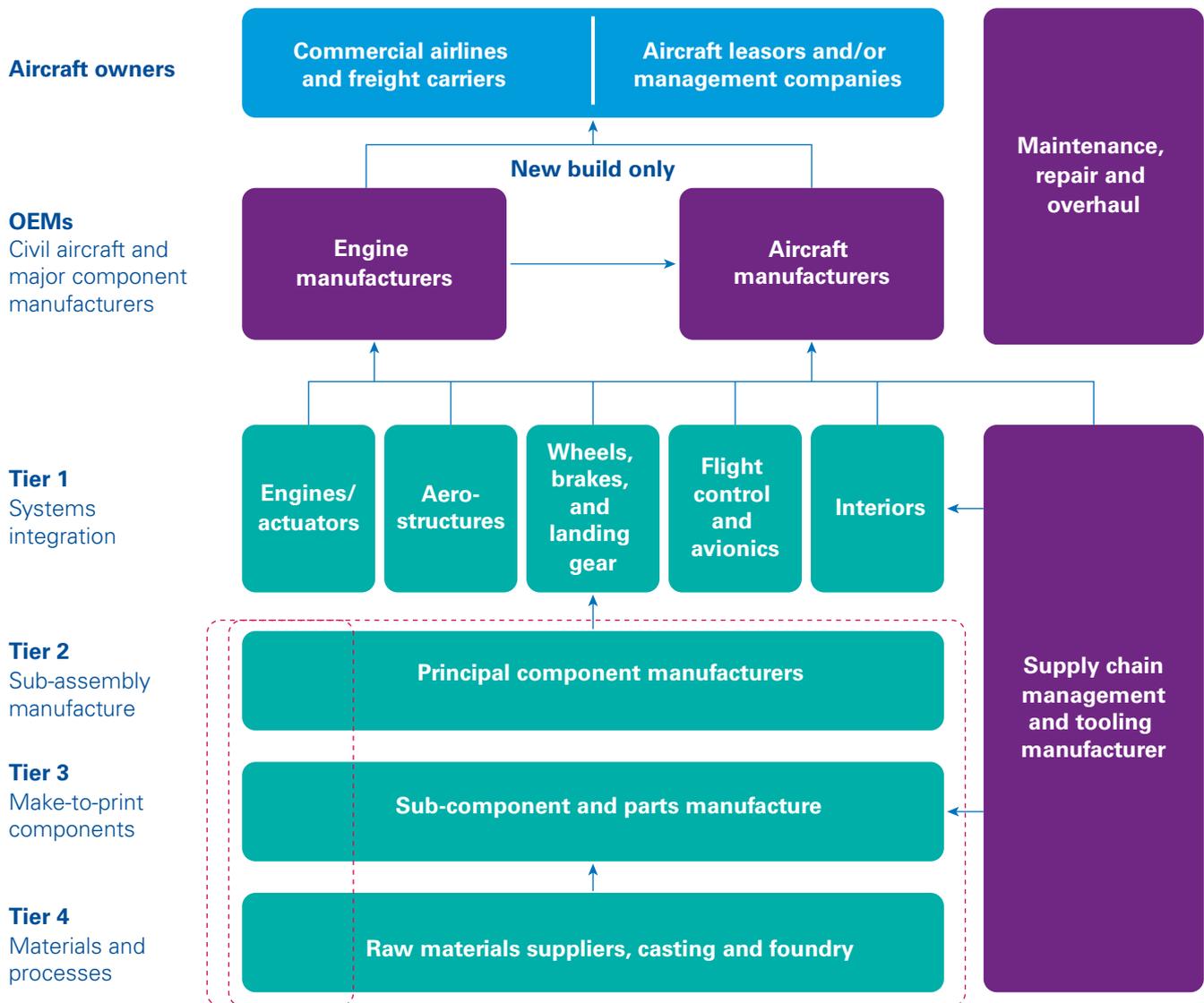


PE can play a huge role in bringing similarly competitive supply chain activity to Europe if built into a pan-European platform. However, it should be noted that the fragmented nature of the European market (the EU and NATO commonality notwithstanding) means that scalability may be a challenge if a PE house were to follow the example of Blackstone’s involvement in MB Aerospace and Carlyle’s in Paradigm.¹⁰ In Europe a feature of the A&D industry is that there is a ‘hollow middle’ with a few large primary contractors and many small companies with annual revenues under USD100 million, with little in between. Stéphane Souchet, Global Head of Industrial Manufacturing at KPMG in France notes that the French aerospace industry, for example, has more than 400 small suppliers, many of whom are

within the ecosystem of Airbus. Germany too has many of its smaller suppliers family-owned.

If the European market is assessed to be too fragmented, potential investors could consider synergies in other supra-national organizations such as the Five Eyes intelligence alliance comprising Australia, Canada, New Zealand, the United Kingdom and the United States. These countries are bound by the multilateral UKUSA Agreement, a treaty for joint cooperation in signals intelligence which sees commonality of equipment offering opportunities in the manufacturing and supply of those assets. There is also a commonality in these countries’ approach to procurement which can or may aid scaling and efficiencies.

Simplified aerospace component supply chain



¹⁰<https://www.blackstone.com/press-releases/article/blackstone-completes-acquisition-of-mb-aerospace/>



Glynn Bellamy, Partner Lead, Aerospace from KPMG in the UK says that there is a real consolidation play available as OEMs and primes are unlikely to drive vertical integration since they are currently focusing on cash conservation and operational disposals that reduce fixed cost and capex requirements. He does however expect consolidation at Tiers 2 and 3 and vertical integration across Tiers 2–4.

However, any moves in aerospace may need to be executed quickly. Jim Adams from KPMG in the US says that he expects the commercial aerospace market to bounce back far quicker than was predicted at the end of 2020, with the current level of the global vaccine rollout. If commercial aerospace gets back to pre-pandemic levels by 2024, the orders of planes are going to require parts from suppliers in the next 12–18 months; it is too short-sighted to say aerospace is down and out. Commercial will come back and there is a small window available for a bold consolidation play before the market becomes stronger again.

There are several recent examples of value-driven operational investors consolidating A&D supply chains and driving cost synergies both in both the US and Europe, including Transdigm and Precision Castparts. Private equity has also entered this space. In 2019, CVC acquired ONTIC which makes OEM-licensed parts for legacy aerospace platforms for USD1.3 billion and JF Lehman has used its AGI asset as a buy and build vehicle to consolidate lower value sub-systems and components.¹¹

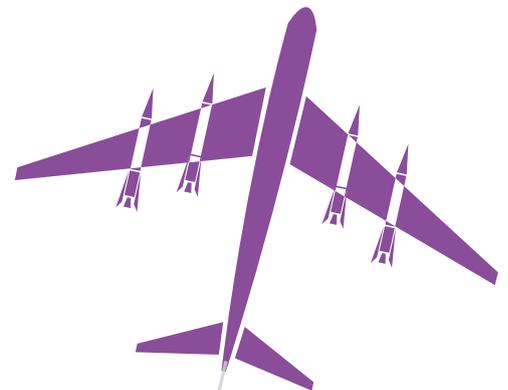
¹¹ <https://www.jflpartners.com/portfolio-details/1/aeronauticalgeneral-instruments-limited>



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Jim Adams

National Aerospace and
Defense Industry Leader
KPMG in the US





Second approach: technology-focused innovation

For more growth-oriented investors, the current expansion of defense capability to include cyber, EW and ISTAR creates opportunities to invest in higher-end platforms and new technologies with the attendant first-mover advantages. Veritas Capital's portfolio provides several interesting examples of large, successful investments in these capabilities. To date, there remains to be anything like United States levels of investment in Europe. Arguably KKR's 2016 ~USD1.3 billion purchase of Hensoldt, Airbus's defense electronics and sensor technologies business¹² was a comparable example, but even that was not really next-generation enough. Thus, there is a massive potential opportunity for European counterparts to catch up. The key to this is uncovering creative models that provide steady cash flow streams while allowing scope to invest in higher-end and riskier capabilities.

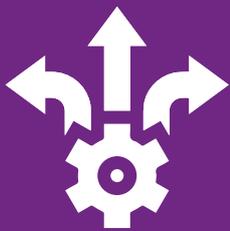
The challenge is that these sub sectors, particularly the cyber market, are still so nascent that most of its firms have not yet developed beyond the threshold of maturity that would normally be required by a PE investor. The space perhaps holds more obvious attraction to the angel/venture capital/growth equity/SPAC investment community, but this would deprive PE houses of the opportunity of bringing their

expertise to bear on assets that could grow into extremely successful businesses. SPACs in particular, with their ability to generate large checks, have the potential to prevent PE from entering the market here; thought should be given to ways to address this challenge or indeed to PE houses adopting the tactic of creating SPACs themselves. A potential way through this could be provided by imaginative ways of incubating good but small businesses. There is, for instance, scope for public-private partnerships and encouraging small industry to focus on the needs of the military. In the United States, military services do a good job of picking start-ups as do the prime movers among the biggest industry players (for example Lockheed Martin's Skunk Works¹²). KPMG personnel in both the UK and Australia emphasize this point; for the determined and free-thinking investor ready to grapple with a degree of risk, there is a good opportunity to capture and support start-up and small enterprise energy towards solving strategic and tactical issues. Given that real 'blue-sky' assets are likely too experimental and unproven to be attractive to PE, houses should be watchful for cutting-edge assets that become available to the market as divestments from parent companies that no longer see them as core to their own business.

¹²<https://lockheedmartin.com/en-us/who-we-are/business-areas/aeronautics/skunkworks.html>



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Synthesizing the twin approaches

Private equity needs to be creative to operate successfully in these areas, both marked by a degree of uncertainty that is new in the case of the supply chain ecosystem and endemic in the technology sphere. Perhaps the best way to play themes such as cyber security, EW and Space is to invest in business models that are underpinned by a high degree of recurring, rich cash flow, while allowing for room around optionality to make selected bets on newer technologies. For example, an investment in a systems integrator might allow for optionality around investing in cutting-edge cyber security. In the space arena, it will be key to invest in capabilities that enable the provision of high-end components/materials/structures to prime contractors leading key programs.

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