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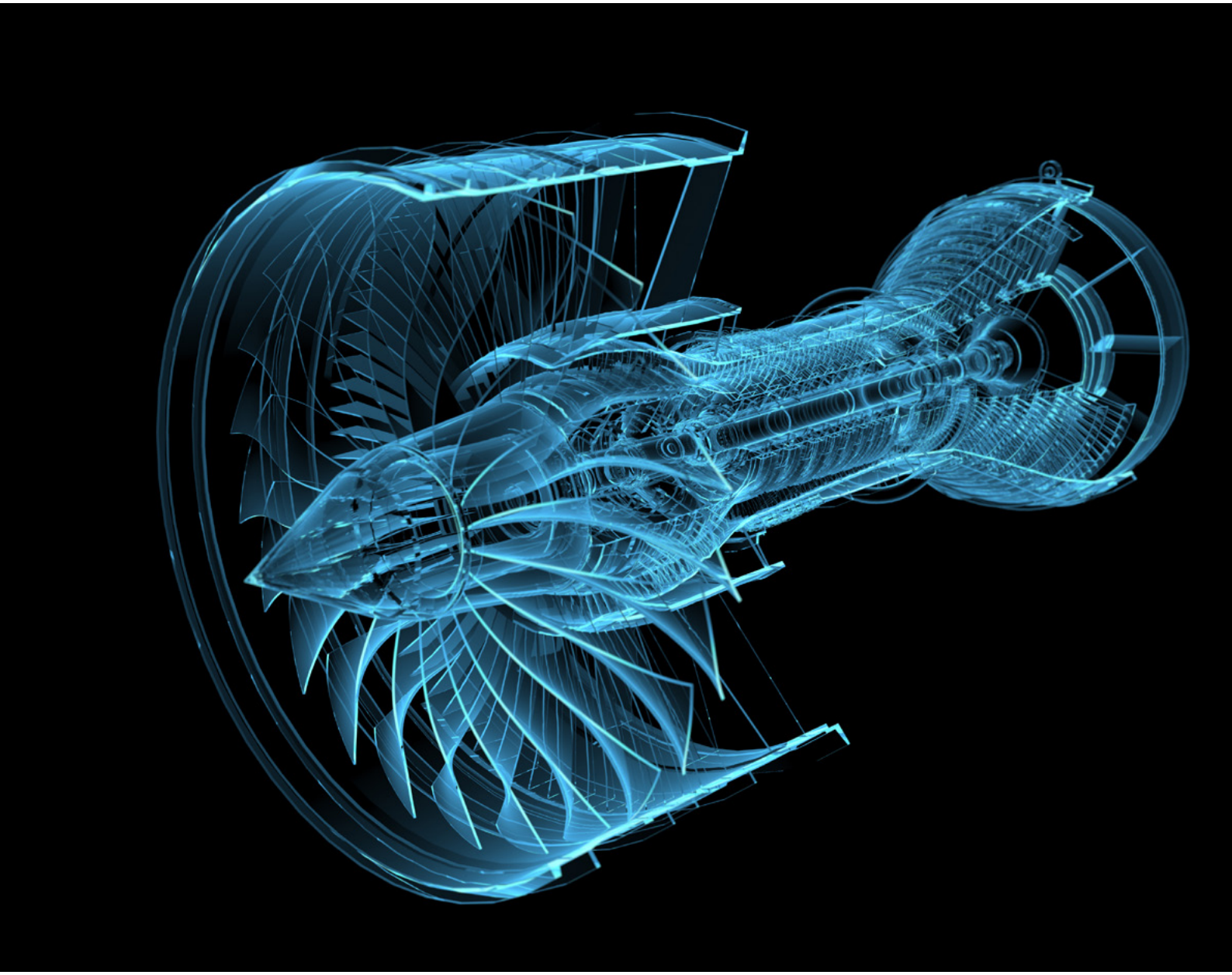
The quiet triumph of British engineering: Competitive advantage in premium cars, civil aerospace and power machinery



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Executive summary

A country in control of its trade policy does two things. First, it finds out what it does best. These are the goods and services that attract most demand in overseas markets. Second, it finds out where its best markets are, which is a combination of its biggest export markets and its fastest growing. Put the two together and you have the beginnings of a trade policy.

The UK exited the Customs Union almost five years ago, and yet – astonishingly – this exercise appears not to have taken place. No official document proclaims the UK's fastest-growing exports. Nor is public debate any better informed on the location of our growth markets. Today, few people could answer the basic question: 'what are the UK's fastest-growing exports?' And so, our trade policy is effectively blind.

Competitive advantage in UK manufacturing

Analysing UK trade data over the past 25 years, three industries instantly stand out: premium motor vehicles, civil aerospace, and specialist machinery – especially construction, mining and power-generating machinery. These are the industries where the UK makes high-value goods that have delivered rapid export growth in overseas markets. This is where UK companies have built competitive advantage.

Their ascent has been rapid. Back in 2000, UK exports were dominated by electronic goods and chemicals, which delivered 31 per cent of goods exports (minus precious metals). Now they deliver just 17 per cent. In contrast, autos, aerospace and machinery combined delivered just 25 per cent of UK goods exports.[1] Today, they deliver 35 per cent of UK goods exports – and this will likely rise to 40 per cent in the next three years,[2] thanks to investment and a huge backlog of orders.

The rise of UK autos and aerospace has been especially swift. Twenty-five years ago, the auto sector delivered 9.4 per cent of UK goods exports (minus precious metals).[3] Having grown by 4.2 per cent per annum from 2000 to 2019, it now delivers 12.5 per cent of goods exports. Aerospace exports have grown even faster, by 4.9 per cent per annum. Their share of UK exports has increased from 6.6 per cent to 11.4 per cent. And note, that figure excludes revenue that accrues from Rolls-Royce's long-term services agreements.[4]

Meanwhile our diverse machinery sector has quietly shined. With prowess in niche subsectors – power generation, construction and farming equipment, and mining machinery – the sector now delivers 11.1 per cent of UK goods exports, a whisker behind aerospace. And the companies involved, such as JCB, are global standouts with only a handful of competitors.

1 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025.
2 Author's prediction, based on investment and orders.
3 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025.
4 Rolls-Royce generates around 63 per cent of its revenue in civil aerospace from long terms service agreements, which are linked to flying hours.

Who's buying our exports?

But the big news is 'where' we export to. In each of these three sectors, UK exports to global markets – that is, markets outside the EU – have grown exceptionally fast. From 2000 to 2019, automotive exports to *global markets* grew by a staggering 8.1 per cent per annum; aerospace exports by 5.3 per cent per annum.[5] The 3.5 per cent growth notched up by machinery exports in global markets may not look much, but it far outpaces the 0.6 per cent per annum rate at which our goods exports to the EU grew, pre-2019.

Table E.1: The performance of autos, aerospace and machinery exports in global (non-EU) markets

UK's top goods-export sectors	Annual growth in exports to non-EU markets, 2000 to 2019	% of UK exports to global markets, 2024
Auto vehicles	8.1%	65%
Aerospace	5.3%	61%*
Machinery	3.5%	58%
Combined	5.5%	61%

Source: UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1. April 2025. Precious metals excluded. Growth calculated as compound annual growth rate using deflated data, deflated using ONS IDEF sectoral deflators.*This historically low number is caused by difficulties at Boeing, and low, post-pandemic deliveries of wide-body jets. The non-EU share in UK aerospace exports is typically 65-70 per cent.[6]

The killer point is how our markets have shifted. Those rapid growth rates in non-EU exports mean that global markets now take most UK exports. If UK companies can sustain long-term growth rates in these fast-growing markets, then overall goods exports are set to accelerate.

- **Back in 2000, just 30 per cent of our vehicle exports went to global, or non-EU, markets, as measured by value. Now it's 65 per cent.**[7] This is due to the popularity of premium British marques in global markets – in particular in the US and China. For example, Jaguar Land Rover (JLR) now sells more than 60 per cent more vehicles in North America than in the whole of Europe: 120,279 in 2024/25 versus 71,575.[8]
- **In aerospace, fast-growing global markets typically take around 65 to 70 per cent of UK aerospace exports**. An astonishing rebound in demand means aerospace will become the UK's biggest export industry in the next two to three years. Rolls-Royce's new UltraFan design should see Rolls re-enter the market for narrow-body aircraft. UK suppliers for aircraft interiors will see a boom in aircraft refurbishment.
- **The UK has niche engineering expertise in naval power systems, construction machinery and nuclear engineering.** Non-EU navies are the biggest buyers of Rolls-Royce marine turbines,[9] and the US alone takes 32 per cent of all UK exports of construction machinery.[10] The AUKUS agreement (a trilateral security partnership between Australia, the United Kingdom, and the United States) will make Australia the UK's first major export customer for naval reactors. This has triggered a renaissance in nuclear engineering.

5 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1. April 2025. Precious metals excluded. Deflated using ONS IDEF sectoral deflators for global exports.

6 The average for 2010 to 2019 was 71 per cent. It is UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025.

7 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2024 Q4. February 2025. SIC 291.1: Motor vehicles.

8 JLR Annual Report, 2024/25. Page 28. 'Europe' here excludes the UK.

9 Rolls' marine MT30 gas turbines are currently used in the overseas navies of the US, Japan and Korea, and will shortly be used by those of Australia and Canada. In Europe, only Italy uses them (in one ship: the *Trieste*).

10 CEA (2024) *UK Imports and Exports: construction and earthmoving equipment Q1 2024*. Available at: https://thecea.org.uk/hubfs/26098716/CEA%20Market%20Insights%20-%20UK%20imports%20and%20exports%20Q1%202024.pdf?hsLang=en (Accessed: 1 July 2025). Page 3.

Autos and aerospace: The pandemic effect

Export potential is clouded by recent history. The UK's two biggest export industries in the 2015 to 2019 period – autos and aerospace – were unfortunately the two industries that were worst hit by the pandemic and supply chain dislocation. Output dropped by almost 30 per cent in the European car industry, and Boeing/Airbus took an identical nosedive. This had a uniquely damaging impact on the UK's goods-export data.[11]

In 2025, however, the worst is past. In aerospace, UK manufacturing faces a novel challenge: scaling up production. As of July 2025, Airbus has a 766-plane order book for the Airbus A350 and a 289-plane order book for the A330neo.[12] Rolls-Royce is the sole engine supplier on both models. Consequently, the UK content for both models is extraordinarily high – up to 40 per cent.[13]

Meanwhile, the seven-year hiatus in auto investment is over. From late 2025, car production is set for a steady growth, thanks to gigantic investment in premium marques, especially at JLR, Bentley and Rolls-Royce. What's more, the UK's independent trade policy looks set to give the British car industry a unique competitive advantage: low- or zero-tariff access to all the principal global car markets. The UK is beginning to differentiate itself globally as a country with lower tariffs that can also negotiate competitive, low-tariff access with trade partners.

The source of competitive advantage

This paper shows that niche sectors within three UK industries – autos, aerospace and machinery – have quietly triumphed in global markets over the past 25 years. This analysis will:

- Examine the *source* of global competitive advantage in these three industries.
- Suggest how policy can entrench competitive advantage.
- Identify new industries where UK competitive advantage can trigger rapid growth.

The purpose of this paper is to help the Government develop a coherent strategy for industrial and trade policy. This paper makes three core observations:

1. **Automotive: Design, customisation and craftsmanship are differentiators in the UK auto industry.** The Government should pivot spending from research and development (R&D) and general subsidies to enterprises that excel in these activities. Trade policy should prioritise premium marques and the Government should make an increase in the 100,000-vehicle quota a prime objective of US trade diplomacy.
2. **Aerospace: The 1050-plane backlog of orders for the Airbus A350 and A330 means rapid export growth for UK suppliers of engines, wing parts, landing gear and interiors.**[14] But UK small and medium-sized enterprises (SMEs) must be able to scale up as Airbus increases production rates. Rolls-Royce's UltraFan could be the biggest UK export of the 2030s, creating up to 40,000 jobs.[15]
3. **Machinery: Competitive supply chains will anchor manufacturing in the UK.** Tactical assistance should help SMEs to upskill their workforce and access growth capital. This will boost UK value-add in fast growing exports, especially in power-generating machinery.

11 For a thorough analysis, see Radford, P. (2025) *Less than Meets the Eye: The Real Impact of Brexit on UK Trade.* Policy Exchange. Available at: https://policyexchange.org.uk/publication/less-than-meets-the-eye/ (Accessed: 20 August 2025).

12 Airbus (2025) *Orders and Deliveries*. July 2025. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries (Accessed: 30 June 2025). These figures increased after the June 2025 Paris Air Show.

13 The UK used to maintain a 20 per cent workshare share in the Airbus programme and so became solely responsible for supplying the wings. These comprise approximately 20 per cent of the value of an aircraft (minus engines). The engines are worth around 20-25 per cent of the finished value of the aircraft. In addition, Safran in Gloucester supplies the main landing gear for the A350-900. Parts from overseas suppliers are present in all the above, however UK suppliers are also present in other elements of the aircraft, especially seating, avionics, communications and fuel systems.

14 Airbus (2025) *Orders and Deliveries*. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries (Accessed: July 2025). The backlog of orders is 766 for the A350; 289 for the A330. Both are wide bodies.

15 *Financial Times* (2025) 'Rolls-Royce calls for government to back plans for new aircraft engine', 17 June. Available at: https://www.ft.com/content/85f41678-b967-41a5-8038-db7b05f942ef (Accessed: 30 June 2025).

Strategically, the most valuable support is that which aids the competitiveness of UK suppliers in the auto, aerospace and machinery industries. Succeed, and the big original equipment makers (OEMs) will invest in UK production without taxpayer support. Fail, and OEMs will forever demand subsidies, while UK content in big-name supply chains will gradually dwindle.

The strategic possibilities

The UK is now free to pursue unique trading interests. The following chapters will show how the UK is already diverging from the EU in the direction of free trade to increase the attractiveness of the UK as a destination for investment in export-led industries. This process would benefit from transparent industry reporting. For example, the leading trade association the Society of Motor Manufacturers and Traders (SMMT) should publish UK vehicle-export data in value terms as well as volume terms. This would show how the industry is already two-thirds global. This is not a big 'ask' since the taxpayer has contributed around £5 billion to the UK automotive industry over the past five years.

Two new industries deserve special mention. This is because analysis of UK competitive advantage shows they have natural potential for rapid global growth.

- **Small modular reactors** (SMRs) will require all those aspects of machinery expertise in which the UK excels: power engineering, reliability, global trust and proven expertise. SMRs could create a £250 billion export industry,[16] but only if the UK SMR programme is sufficiently large, to trigger a genuinely competitive supply chain in the UK.
- **Unmanned air vehicles** (UAVs) or drones also play to the UK's core competitive advantages. These include wing design and testing, composites, powerplants, avionics, automation, technology integration – and entrepreneurial flare. UK enthusiasts could build the world's most dynamic drone industry, *if* the Ministry of Defence (MoD) creates a genuinely open and competitive commercial landscape.

Competitive advantage is the surest foundation for rapid export growth. By focussing resources and assistance on the *sources* of competitive advantage, public policy has the best chance of promoting export-led growth in UK manufacturing.

16 Rolls-Royce: *Small Modular Reactors*. Available at: https://www.rolls-royce.com/innovation/small-modular-reactors.aspx#/ (Accessed: 11 July 2025).

1. Automotive

One dataset electrifies our pre-Brexit trade records: vehicle exports to *non*-EU markets. At 8.1 per cent per annum, the growth rate clocked up by our auto exports in global markets is *by far* the fastest growth of any sector in UK manufacturing during the 2000 to 2019 period. Nothing else comes close. The raw numbers are staggering. Back in 2000, the UK exported just £4.8 billion of cars and automotive parts to global markets. By 2019, this had increased to £24.9 billion-worth.[17] In real terms, exports quadrupled.

But the raw data hides a critical fact. The cars the UK exports into global markets are almost exclusively premium vehicles. These include high-end sports utility vehicles (SUVs) such as Range Rovers, luxury cars such as Bentleys and Rolls-Royces, sports cars like Aston Martin and the compact MINI series. Rapid export growth in these models demonstrates where the UK auto industry has developed global competitive advantage.

On the other hand, the UK's mass-market car manufacturing has become far less competitive. Much of it migrated to Germany, Spain and elsewhere in the EU in the decade leading up to 2016. Most of our automotive exports to the EU are mass-market models, and these grew by just 1.4 per cent per annum over the 2000 to 2019 period as we became less competitive in making lower-value cars.

Although it enjoyed strong growth and specialisation between 2000 and 2019, the automotive industry was hit hard by the pandemic. Even by the end of 2024, output from UK factories was still only half of 2016 levels in volume terms. But to grasp future prospects, it is necessary to examine exactly what happened to UK brands from 2019 onwards.

The big skid: Volumes down 46 per cent

UK auto production fell more than 50 per cent from 2016, from 1.7 million that year to 775,000 in 2021, according to the SMMT.[18] In 2024, production was still at 780,000.[19]

Since a steady 75 to 80 per cent of UK-assembled cars are exported,[20] there has been a large impact on export volumes. By 2022, exports of passenger vehicles had fallen by 55 per cent compared to 2017.[21] This had a substantial impact on the UK's overall exports.

- From 2020 to 2022, auto exports were down an average of £9.4 billion per year in all markets (2019 prices).[22]
- In 2021, and again in 2022, the auto sector accounted for approximately one-quarter of the total shortfalls in UK goods exports, as compared to 2019.[23]

Domestic data, however, hides a global challenge.

17 ONS (2025): UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025.

18 SMMT (2018) *2017 UK Car Manufacturing Declines By -3% But Still Second Biggest Output Since Turn of the Century*. Available at: https://www.smmt.co.uk/2017-uk-car-manufacturing-declines-3-still-second-biggest-output-since-turn-century (Accessed: 30 June 2025).

19 UK factories produced 779,584 cars in 2024, according to SMMT. *Industry Facts*. Available at: https://www.smmt.co.uk/industry-facts/ (Accessed: 11 July 2025).

20 77 per cent in 2024. SMMT. *Industry Facts*. Available at: https://www.smmt.co.uk/industry-facts/ (Accessed: 11 July 2025).

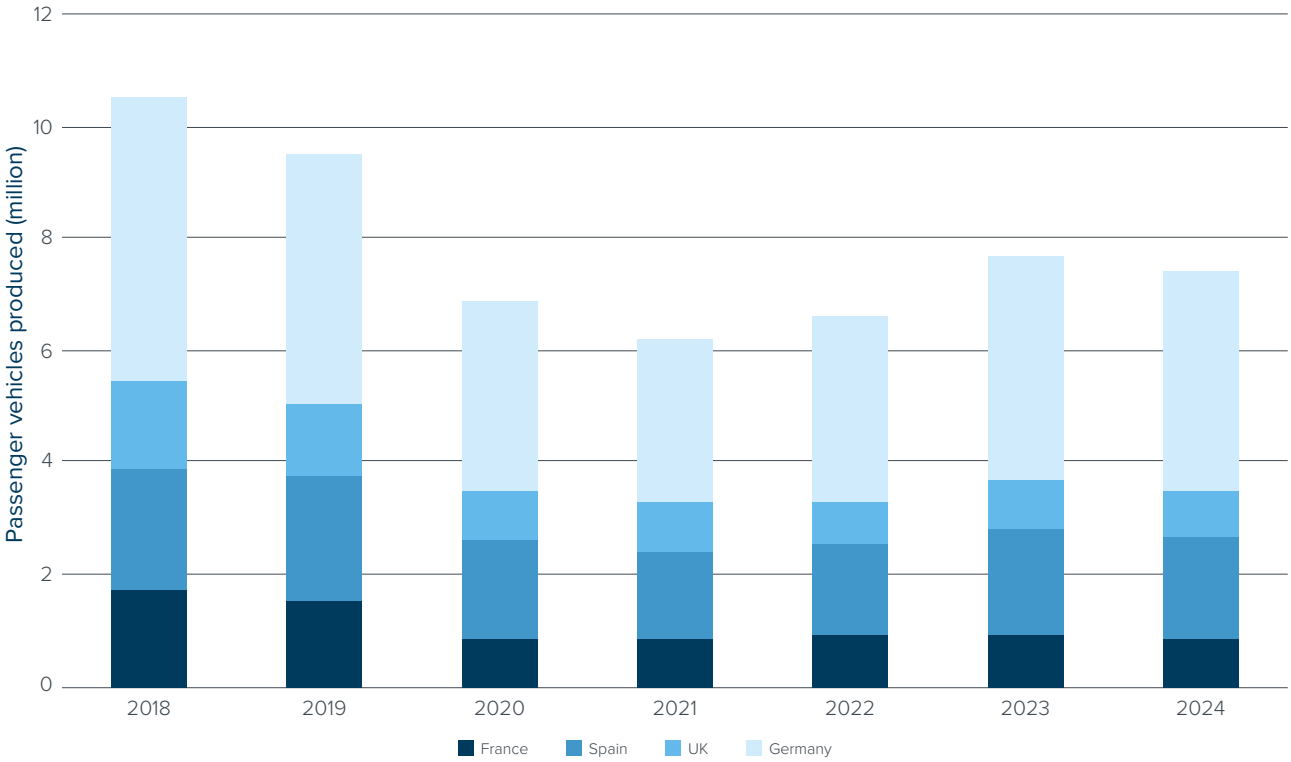
21 606,000 vehicles in 2022, versus 1.34 million in 2017. SMMT (2018) *2017 UK Car Manufacturing Declines By -3% But Still Second Biggest Output Since Turn of the Century*. Available at: https://www.smmt.co.uk/2017-uk-car-manufacturing-declines-3-still-second-biggest-output-since-turn-century (Accessed: 11 July 2025). SMMT (2023) *UK car production down but electric vehicle output surges to new record*. Available at: https://www.smmt.co.uk/uk-car-production-down-but-electric-vehicle-output-surges-to-new-record/ (Accessed: 11 July 2025).

22 ONS (2025): UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual. All years from 2020 to 2023. Deflated using ONS IDEF deflators for SITC 7.

23 See Radford, P. (2025) *Less than Meets the Eye*. Policy Exchange. Available at: https://policyexchange.org.uk/publication/less-than-meets-the-eye/ (Accessed: 17 July 2025). Pages 41 to 45.

Global car production fell from around 2018 onwards. Until the end of 2021, the UK's drop in passenger vehicle output exactly matched Germany's (down 31 per cent from 2017, in volume output).[24] According to data from the European Automobile Manufacturers' Association (ACEA), the UK now lags behind Germany in volume terms but is recovering faster than France. By the end of 2024, UK output was at 60 per cent of 2019 levels, whereas output in Germany was at 88 per cent. Output in France was still down at 54 per cent of 2019 levels.[25]

Figure 1.1: Passenger car production: Germany, France, Spain and UK, 2018-2024



Source: European Automobile Manufacturers Association (ACEA). Economic and Market Report, Full Years, 2020 and 2023.

From 2019 onwards, Europe's auto industry hit multiple challenges as Covid lockdowns gave way to a chronic shortage of microchips in 2022 and 2023. For the UK, the chief problem was the opposite of the one envisaged by Brexit: an inability to meet demand. Huge backlogs built up. By March 2023, JLR's backlog of orders topped 200,000 units, or about six months' worth of production.[26]

Brexit did have one major impact. There was a virtual investment holiday from 2016 to 2023 as global car companies sat out the period of uncertainty between the referendum and agreement on the UK-EU Trade and Cooperation Agreement (TCA). Then, Covid held up decision-making. As we shall see, investment has now returned. In 2023 alone it reached more than £20 billion.[27] What this means is that recent low output from UK car factories is part of a European phenomenon. It is not primarily the result of anything intrinsic to UK car manufacturing, or access to markets.

24 ACEA, full year reports, 2018 to 2023.

25 Ibid.

26 JLR (2023) *JLR Sales Continue to Increase Year on Year in First Quarter*. Available at: https://media.jaguarlandrover.com/news/2023/07/jlr-sales-continue-increase-year-year-first-quarter (Accessed: 30 June 2025).

27 Society of Motor Manufacturers and Traders (2023) *UK Auto manufacturing charges up with £20bn investment boost in 2023*. Available at: https://www.smmt.co.uk/uk-auto-manufacturing-charges-up-with-20bn-investment-boost-in-2023/ (Accessed: 18 August 2025).

Unfortunately, the EU car market is still struggling in terms of production *and* sales. Output dropped by 6.2 per cent in 2024.[28] This means auto production in the EU is weaker than other European manufacturing sectors. This hit Nissan UK, which primarily exports to the EU. Nor will the turmoil abate any time soon. Europe-wide mandates for electric vehicle (EV) production are currently smashing head-on into consumers' ambivalence towards EVs. Huge stocks of EVs have led to steep discounts of up to one-third in the UK.[29]

While the UK's volume figures underperform the EU average, European manufacturers appear closer to crisis. By late 2024, Germany's Volkswagen was planning to shut three factories and lay off tens of thousands of workers.[30] In the UK, factory shutdowns are temporary as assembly lines are retooled for electric vehicles, or (in the case of Jaguar) brand re-launches.[31] Meanwhile, lower-priced Chinese EVs have triggered protective tariffs from the EU. This indicates a clear sense of threat-perception on the part of the EU's auto industry. The fact that the UK has not followed suit implies the UK industry feels less vulnerable.

UK changes gear to premium manufacturing

To see why the UK industry feels more confident of Chinese competition, it is necessary to look under the bonnet of the UK car industry and appreciate how radically it has changed over the last 15 years.

First, the UK auto industry has spent the best part of two decades moving upmarket. Today, the UK's 15 car plants make many more high-value and bespoke vehicles than they did two decades ago. This means that the UK car industry has an unusual look about it.

It is possible to briefly contrast one end of the UK auto industry with the other. Two of Britain's high-end manufacturers, Bentley and Rolls-Royce, assemble only around 15,000-20,000 vehicles per year, combined, according to their annual reports. This equates to one-twentieth of Nissan UK's output.[32] But the average value of output is far different: Nissan's models average out at £20,384[33] per car; Bentley's, £253,469.[34] Combined, Rolls-Royce and Bentley employ approximately the same number of people as Nissan – 6,500.[35]

In other words, just two of the UK's top-end luxury manufacturers are roughly equal to the UK's biggest volume manufacturer, in terms of direct UK employment. This illustrates the extent to which volume output in the UK auto industry doesn't equate to value added nor scale of operation. This is even clearer in the UK's export data.

28 ACEA (2025) *Economic and Market Report: Global and EU auto industry – Full year 2024*. Available at: https://www.acea.auto/publication/economic-and-market-report-global-and-eu-auto-industry-full-year-2024/ (Accessed: 30 June 2025). Page 12.

29 *The Times* (2024) 'Electric car prices slashed by a third to meet net-zero sales targets', 9 November. Available at: https://www.thetimes.com/uk/transport/article/electric-car-prices-discount-7dwnhn2x6 (Accessed: 30 June 2025).

30 Schmidt, A. et al (2024) *VW labour chief sounds alarm on mass layoffs and three German plant closures*. Available at: https://www.reuters.com/business/autos-transportation/volkswagen-plans-major-layoffs-shut-least-three-german-plants-works-council-head-2024-10-28/ (Accessed: 30 June 2025).

31 SMMT (2024) *Car Output Slips in October as UK and EU Markets Stall*. Available at: https://www.smmt.co.uk/car-output-slips-in-october-as-uk-and-eu-markets-stall/ (Accessed: 30 June 2025).

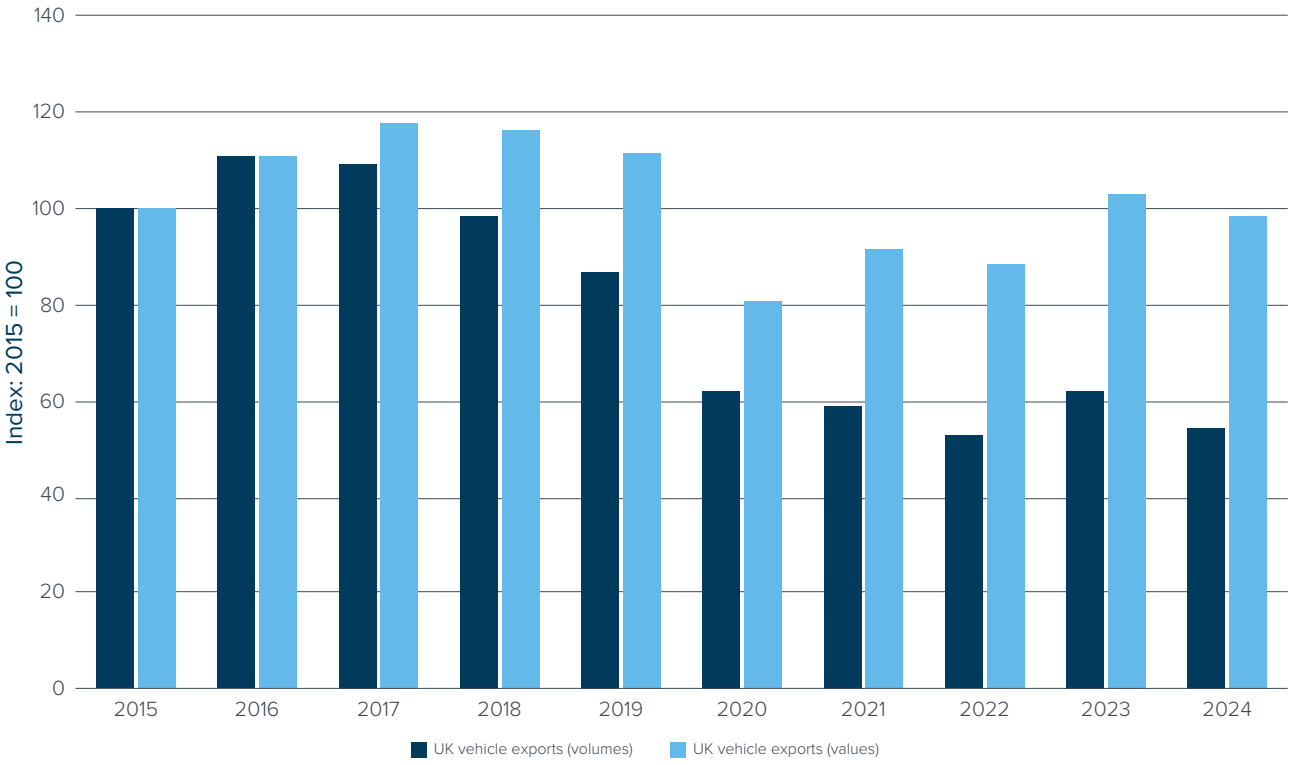
32 282,124 in 2024. SMMT (2025) *Vehicle production dips amid EV transformation and intense market pressure*. Available at: https://www.smmt.co.uk/vehicle-production-dips-amid-ev-transformation-and-intense-market-pressure/ (Accessed: 11 July 2025).

33 Keighley, T. (2024) 'Nissan's Sunderland plant boosts volumes and turnover as supply challenges ease', *Business Live,* 12 April. Available at: https://www.business-live.co.uk/manufacturing/nissans-sunderland-plant-boosts-volumes-28984493 (Accessed: 30 June 2025).

34 Bentley generated first half (2024) revenue of £1.4 bn from sales of 5476 vehicles. Bentley Media (2024) *Bentley announces its 2024 half-year financials*. Available at: https://www.bentleymedia.com/en/newsitem/1612-bentley-announces-its-2024-half-year-financials (Accessed: 8 September 2025).

35 Approximately 2,500 at Rolls-Royce and 4,000 at Bentley. The Manufacturer (2023) *£4bn for 'UK PLC': Rolls-Royce Motor Cars – The Great British success story.* Available at: https://www.themanufacturer.com/articles/4bn-for-uk-plc-rolls-royce-motor-cars-the-great-british-success-story/#:~:text=More%20than%202%2C500%20people%20are,1%2C000%20direct%20and%20indirect%20jobs. (Accessed: 11 July 2025). Bentley (2025) *Extraordinary Journeys Begin for Bentley's Largest Ever Trainee Intake*. Available at: https://careers.bentleymotors.com/content/Bentley-Life---Early-Careers-Intake/?locale=en_GB (Accessed: 11 July 2025).

Figure 1.2: Volume versus value: UK exports of auto vehicles, 2015 to 2024, indexed to 2015



Source: Volume: SMMT January bulletins, 2016 to 2024, plus annual bulletins on UK commercial vehicle production. Value: ONS UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025, Q1, Published April 2025. Line 29.1, which excludes auto parts and vehicle bodies. Deflated using the ONS IDEF deflator for machinery exports to all markets.

The chart above shows two different measures for UK vehicle exports (passenger and commercial). Both sets of data are indexed to 2015. Exports *volumes* (the light blue column) were 1.3 million units in 2015. Volumes rose to 1.4 million vehicles the following year, before declining to 668,000 in 2022. This trajectory mirrors UK production and is similar to the production curve across Europe, though at the lower end.

But UK export *values* tell a different story. In 2015, vehicle exports (the dark blue column) were worth £37 billion (2022 prices). Values rose to £43.5 billion in 2017, before falling to a low of £32.7 billion in 2022. By last year, export values had climbed back to £36.6 billion, which is almost what it was in 2015.

The movement towards high-end production gives the UK auto industry a global competitive advantage. This is plain from the differing responses to the threat of competition from Chinese-made EVs. The EU is imposing tariffs to protect EU-based car manufacturing. When asked why the UK Government wasn't doing the same, the official response was that the UK auto industry hadn't complained.[36] This is a clear indication of the comparative health of the UK auto industry.

How has this divergence occurred? The answer lies in the way the UK auto industry evolved in the 20 years before Brexit, and specifically how UK mass-market manufacturing reacted to high subsidies elsewhere in the EU.

36 Reuters (2024) *Britain has no plans for EU-style tariffs on Chinese EVs*. Available at: https://www.reuters.com/business/autos-transportation/britain-has-no-plans-eu-style-tariffs-chinese-evs-2024-10-14 (Accessed: 30 June 2025).

UK autos have already gone global

One of the flawed assumptions in post-Brexit trade commentary has been the belief that EU membership benefited UK car manufacturing. The trade data tells a different tale.

- **From 2000 to 2019, UK auto exports stagnated in EU markets,**[37] having peaked at £23.5 billion in 2007[38] (see below, 2022 prices).
- **Meanwhile, automotive imports from the EU soared** from £19 billion in 2000 to £51 billion in 2019 (2022 prices). This delivered a very strong import growth rate over that period: 5.3 per cent per annum.[39]
- **Consequently, the UK-EU deficit in auto goods rose,** from £7.5 billion (2022 prices) in 2000 to £32 billion in 2019, and £33 billion in 2024.[40] Only energy delivered a similar, negative hit to the UK balance of trade during this period.

What actually occurred on the ground was that global car companies took advantage of large subsidies available elsewhere in the EU by disinvesting in the UK and moving operations to continental car plants – principally Germany, Austria and Spain – and then sold those vehicles tariff-free back into the UK. The UK Government could have stopped or slowed this disinvestment, but only via counter-subsidies, or (post 2019) by trading with the EU on World Trade Organization (WTO) terms. With the Government unwilling to match EU-levels of subsidisation, more and more UK auto production moved across the channel.

There was a silver lining to this disinvestment: the industry focused its own investment cash on the part of the UK industry that enjoyed a natural competitive advantage. Slowly, but ineluctably, investment kept moving upmarket into premium brands.

The biggest beneficiary of this trend is Jaguar Land Rover (JLR). The Coventry-based company is now one of the UK's most valuable exporters. Company revenue hit an astonishing £29 billion in 2024/25.[41] Admittedly, some of the company's production is based overseas, including Slovakia, India, and Brazil, but UK production has also been very strong, in particular at Solihull (Range Rovers) and Ellesmere Port (Discovery Sports and Evoques). Although JLR in the UK delivers fewer vehicles than Nissan's Sunderland plant (257,110 to 282,124 in 2024)[42] JLR's UK factories employ almost double the number of people: 11,000[43] to Nissan's 6,000.[44]

The UK's luxury and sports-car makers – Rolls-Royce, Aston Martin, Bentley, McLaren, Morgan and Lotus – are performing spectacularly well. In a June 2025 report, the SMMT reported that these small volume manufacturers (SVMs) now employ 15,000 people in the UK and deliver £5 billion worth of exports,[45] or around 13 per cent of the total for the auto sector. This high-value, low-volume subsector has supply chains and innovation expertise that reach deep into the aerospace and tech sectors. The result is some of the highest levels of domestic content in UK car assembly.[46]

37 Of the UK's top 10 export industries, only computers/electronics and chemicals performed worse.

38 2019 prices. ONS: UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2024 Q1.

39 ONS (2025): UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. Deflated using ONS IDEF import deflator.

40 ONS (2025): UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. Deficit calculated in current prices, then deflated using ONS IDEF ('Total World') import deflator for SITC 7.

41 JLR Annual Report for 2024/2025.

42 SMMT (2025) *Vehicle Production Dips Amid EV Transformation and Intense Market Pressure*. Available at: https://www.smmt.co.uk/vehicle-production-dips-amid-ev-transformation-and-intense-market-pressure/ (Accessed: 30 June 2025). As a rough guide, UK factories appear to account for approximately three-fifths of JLR global volume output.

43 JLR. *Careers*. Available at: https://www.landrover.co.uk/careers/index.html (Accessed: 30 June 2025).

44 Nissan (2023) *Nissan Sunderland Plant passes 11 million milestone*. Available at: https://global.nissannews.com/en/releases/nissan-sunderland-plant-passes-11-million-milestone (Accessed: 30 June 2025).

45 SMMT (2025) *The UK's Small Volume Auto Manufacturers: An Enduring British Success Story*. Available at: https://www.smmt.co.uk/wp-content/uploads/2025/06/SMMT-UK-Small-Volume-Manufacturers-Report-2025-FINAL-001.pdf (Accessed: 30 June 2025).

46 Ibid. Page 5.

The UK's trading interests have changed

This move into high-value auto manufacturing has transformed the UK's trading patterns. In 2000, auto exports to global (or non-EU) markets were worth just £6 billion (2022 prices). In 2024, they were worth £26 billion, a fourfold increase. No other sector of UK goods exports comes close to matching this achievement.

Figure 1.3: UK motor vehicle and parts exports to EU and non-EU countries, 2000 to 2024 (2022 prices)

Source: ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2024 Q4. February 2025.

The effect has been to turn the UK's trading interests upside down. Back in 2000, the EU took 70 per cent of UK vehicle exports. By 2024, however, the EU accounted for just 35 per cent of the value of vehicle exports, according to ONS data.[47] This is not the result of the UK's exit from the Customs Union: the industry's drive into premium vehicles is a trend that commenced almost 20 years ago.

However, this revolution is obscured from public view. The SMMT's monthly bulletins only report on exports in terms of volumes – or units – and those are the numbers reported in the media. In volume terms, the EU has taken a steady 60 per cent of UK car exports over the past few years.[48] This is because exports to the EU are dominated by mass-market models, principally Nissan.[49] Consequently, the notion that the EU takes most UK vehicle exports has become an accepted fact in UK policy and media circles.[50]

47 ONS (2025): UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1. May 2025.

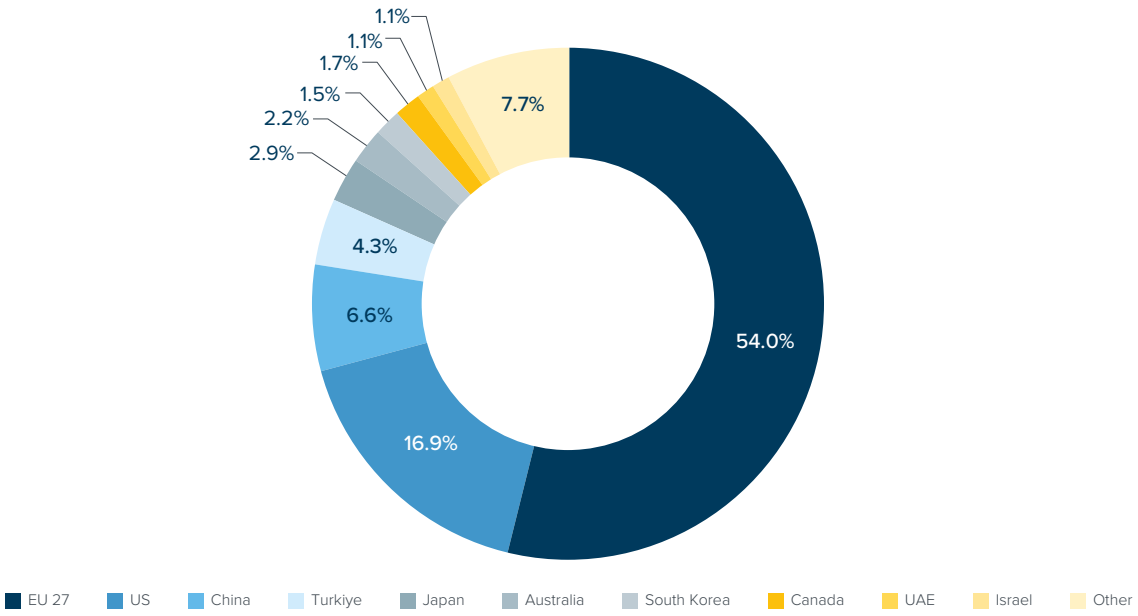
48 Although this dipped to 54 per cent last year.

49 See for example, Nissan exports versus JLR exports. Europe typically accounts for around 20 per cent of JLR sales (71,706 versus a total of 354,662 in 2022/23)(JLR, Annual Report, page 16). Of Nissan UK's output in 2022, 70 per cent was exported to the EU, 22 per cent remained in the UK, and eight per cent was exported to other markets. Nissan UK Newsroom. *British-built Nissan Qashqai confirmed as UK's best-selling new car of 2022*. Available at: https://uk.nissannews.com/en-GB/releases/british-built-nissan-qashqai-confirmed-as-uks-best-selling-new-car-of-2022 (Accessed: 17 July 2025).

50 See for example, BBC News (2021) *UK car production slumps to lowest level since 1984*. Available at: https://www.bbc.co.uk/news/business-55817920 (Accessed: 18 August 2025).

The following two charts report UK passenger vehicle exports for 2024; first by volume, then by value. Figure 1.4 is taken directly from the SMMT's published data on car-export volumes. It shows that the EU took 54 per cent of UK car exports. The US took 16.9 per cent, and China 6.6 per cent. The remaining global markets take only around 20 per cent of exports. Clearly, the EU dominates UK car exports.

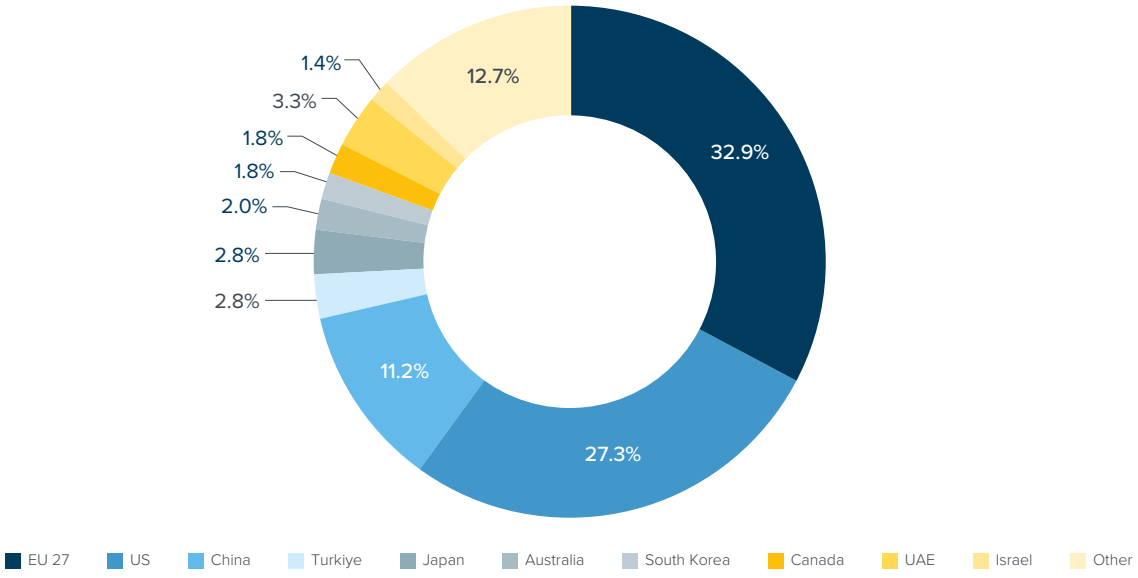
Figure 1.4: UK car export markets, 2024 (measured by volume)



Source: SMMT. *UK Car Manufacturing*. Available at: https://www.smmt.co.uk/vehicle-data/car-manufacturing (Accessed: 30 June 2025).

But analyse car UK car exports by *value* and a whole different picture emerges. The share of exports taken by the EU drops from more than half to under one third: 32.9 per cent. Meanwhile, non-EU market shares rise. The US' share rises to more than one-quarter, just six percentage points behind the EU's. China's share of UK auto exports grows by more than 60 per cent, to 11.2 per cent. Other countries also see their share increase. So, in value terms, global markets predominate with more than two-thirds of car exports.

Figure 1.5: UK car export markets, 2024 (measured by value)



Source: Value data, UN Comtrade. (Accessed: April 2025).

Economists who comment on the UK's strategic trade interests should digest value-based data in the UK auto industry. As recently as December 2024, Dennis Novy, Thomas Sampson and Catherine Thomas at the Centre for Economic Performance published an analysis of UK trade, which argued for the primacy of maintaining access to EU markets.[51] The paper argued: '"Global Britain" as a strategy for international trade is a fantasy.' Figure 1.5 shows that in the UK's most-valuable export industry, 'Global Britain' is already a reality.

Global markets like luxury vehicles

The above data provides two key insights for policy makers.

First, global markets account for the rapid growth in premium marques. Typically, North America takes around 25 per cent of the output of British luxury vehicle brands; China not much less.[52] EU markets rarely take more than 20 per cent of production: 18 per cent in the case of JLR.[53]

The trend towards global – that is, non-EU – exports is especially pronounced in the small volume manufacturers (SVM) sector. In its June 2025 report on luxury vehicles, the SMMT reported that Europe (ex-UK) accounts for just 20 per cent of SVM exports.[54] For example, the EU accounts for just 18 per cent of Bentley sales.[55] While Rolls-Royce doesn't release market share, its two biggest markets are the US and China. Meanwhile, Asia accounts for 31 per cent of SVM markets; the US, 35 per cent.[56] This is the direction of travel of the UK auto industry. What's more, markets for small volume, high value sales are exceptionally diffuse. According to the SMMT, UK SVMs are exported to 120 markets around the world.[57]

Second, luxury manufacturing has weathered recent downturns comparatively well. 2024 saw a pronounced dip in UK production, with volume output down 13.9 per cent. Worst hit was MINI, with production down 40 per cent at its Oxford plant, although Nissan's 13 per cent decline hits the UK's trade figures hardest. Toyota's output dropped 20 per cent.[58] Meanwhile, luxury manufacturing mostly performed well.

- **JLR** production from its UK plants – Solihull, Halewood and Castle Bromwich – increased 7.8 per cent in 2024.[59]
- **Rolls-Royce Motor Cars** announced its third best annual sales figures in January 2025, with a 10 per cent increase in sales of its 'bespoke' offerings.[60]
- **Bentley's** production volumes have collapsed back to 2016 levels, 10,770, but revenue per vehicle keeps rising – by 10 per cent in just two years.[61]
- **Aston Martin's** unit production has been steady at around 6,000 per year since 2021, but average selling prices are rising at an average 15 per cent per year.[62]

51 Novy, D. et al (2024) *Brexit and UK trade*. Available at: https://cep.lse.ac.uk/_NEW/publications/abstract.asp?index=10634 (Accessed: 30 June 2025).

52 For example, North America accounted for 22 per cent of JLR sales in 2022, according to the JLR 2022/23 Annual Report; China 26 per cent. In 2024/25, North America accounted for 28 per cent of JLR sales; China 19.5 per cent.

53 JLR Annual Report 2024. Market share (including vehicles made overseas) was: UK 18 per cent; China 24 per cent; North America 22 per cent, Europe 18 per cent, and rest of world 17 per cent.

54 SMMT (2025) *The UK's Small Volume Auto Manufacturers: An Enduring British Success Story*. Available at: https://www.smmt.co.uk/wp-content/uploads/2025/06/SMMT-UK-Small-Volume-Manufacturers-Report-2025-FINAL-001.pdf (Accessed: 30 June 2025).

55 For Bentley, the figures for 2023 were: the US (28 per cent), and China (22 per cent). Europe (ex-UK) was 18 per cent, the same as JLR. Bekker, H. (2024) *2023 (Full Year) Global: Bentley Worldwide Car Sales by Country and Model.* Available at: https://www.best-selling-cars.com/brands/2023-full-year-global-bentley-worldwide-car-sales-by-country-and-model/ (Accessed: 30 June 2025)

56 SMMT (2025) *The UK's Small Volume Auto Manufacturers: An Enduring British Success Story*. Available at: https://www.smmt.co.uk/wp-content/uploads/2025/06/SMMT-UK-Small-Volume-Manufacturers-Report-2025-FINAL-001.pdf (Accessed: 30 June 2025). Page 10.

57 SMMT (2025) *The UK's Small Volume Auto Manufacturers: An Enduring British Success Story*. Available at: https://www.smmt.co.uk/wp-content/uploads/2025/06/SMMT-UK-Small-Volume-Manufacturers-Report-2025-FINAL-001.pdf (Accessed: 30 June 2025).

58 SMMT (2025) *Vehicle Production Dips Amid EV Transformation and Intense Market Pressure*. Available at: https://www.smmt.co.uk/vehicle-production-dips-amid-ev-transformation-and-intense-market-pressure/ (Accessed: 30 June 2025). The downturn was mostly due to retooling at UK factories, and depressed sales of EVs in the EU.

59 Ibid.

60 Rolls-Royce (2025) *Landmark investment crowns record year for bespoke at Rolls-Royce Motor Cars*. Available at: https://www.press.rolls-roycemotorcars.com/rolls-royce-motor-cars-pressclub/article/detail/T0447359EN/landmark-investment-crowns-record-year-for-bespoke-at-rolls-royce-motor-cars (Accessed: 30 June 2025).

61 Bentley Newsroom (2025) *Bentley marks sixth consecutive year of profitability funding significant site capital investments in 2024*. Available at: https://www.bentleymedia.com/en/newsitem/1688-bentley-marks-sixth-consecutive-year-of-profitability-funding-significant-site-capital-investments-in-2024 (Accessed: 30 June 2025). Interestingly, Bentley has stopped reporting volumes, but its operating profit remains high.

62 Aston Martin (2024) *FY 2024 Results*. Available at: https://www.astonmartin.com/-/media/corporate/documents/2024-results/aml-fy-2024-results-presentation-vf.pdf?rev=8f6ab94b8ddb4ada8a8b89ba4f4b114f (Accessed: 30 June 2025). Page 15

This market shift towards premium brands and heavy customisation changes the calculus for UK export interests. The slowest-growing segment of UK auto exports – mass-market models to EU countries – has now shrunk to one-third of our export total. Meanwhile, our fastest-growing markets are buying premium vehicles that are heavily customised. Exports to the US, China, Turkey, Australia, South Korea, Canada and the UAE together delivered 53 per cent of passenger vehicle exports last year, as measured by value.[63]

This is an historic inflection for UK automotive exports. While those non-EU countries accounted for one-quarter or one-third of UK car exports[64] a long-term compound annual growth rate (CAGR) of eight or nine per cent hardly registered in the UK's aggregate export data. But if that eight per cent growth rate can be sustained into the late 2020s, our aggregate trade numbers will grow quickly. To see if this is likely to happen, analysts need to see *who* is investing in *what*.

Current prospects

According to the SMMT, total investment in the UK auto industry hit £20 billion in 2023.[65] This was more than the previous seven years combined.[66] Admittedly, the industry suffered an investment holiday until the end-shape of Brexit became certain. This was inevitable. Unfortunately, Covid and then supply chain dislocation attenuated the period of uncertainty for UK-based auto manufacturing.

These matters are now settled, and investment has returned – albeit with taxpayer assistance. By an odd irony, Brexit achieved what a decade of offshoring didn't: it frightened UK Governments into stumping up EU-levels of subsidies to keep manufacturing in the UK. With taxpayers' cash pumped onto corporate balance sheets,[67] the UK auto industry has just walked into a wave of investment.

63 See Figure 1.5.

64 See Figure 1.3.

65 SMMT (2023) *UK auto manufacturing charges up with £20 billion investment in 2023*. Available at: https://www.smmt.co.uk/uk-auto-manufacturing-charges-up-with-20bn-investment-boost-in-2023 (Accessed: 30 June 2025).

66 Ibid. SMMT estimates investment for 2015 to 2022 at £16.2 billion.

67 For example, £2 billion in the 2024 budget. Webb, D. et al (2025) *Government support for employment in the automotive manufacturing sector*. House of Commons Library. Available at: https://commonslibrary.parliament.uk/research-briefings/cdp-2025-0093/ (Accessed: 30 June 2025).

Table 1.1: Recent major investments in the UK auto-industry

Company	Investment	Upgrades
JLR	£18 billion	Converting the Wolverhampton engine plant to electric drive, and Halewood to EVs. Castle Bromwich will be a body panel and bespoke paintwork site. Includes £250 million for an electric propulsion test and development facility at Whitley, and £250 million for Halewood. Includes also support for EV, autonomous, AI and digital technologies. Some investment will go overseas.[68]
JLR/Agratas	£4 billion	Building a gigafactory in Somerset. The plant is designed to contribute almost half of the projected battery-manufacturing capacity required for the UK automotive sector by the 2030s.
MINI (BMW)	£600 million	Converting the Oxford plant to EVs plus body pressing at Swindon. This will enable two all-electric models to be built in UK: the three-door Cooper and a compact crossover, the Aceman. Production capacity set to reach 200,000 units per year.[69] (Temporarily on hold, owing to slow EV sales in the EU.)
Nissan	£2 billion	Building a new Leaf at the Sunderland plant, plus an all-electric Juke and Qashqai.[70] The company's EV36Zero project will create a renewables-powered EV-manufacturing hub for Nissan, close to the Northeast's offshore wind industry.
Nissan/Envision AESC	£1 billion	Expanding battery-making facilities in Sunderland (first opened in 2012).[71] Will result in three separate battery-making facilities.
Bentley	£2.5 billion	Turning the Crewe factory into a carbon-neutral car manufacturing plant.[72] Customisation facilities will be a major recipient. Parallel investment at the Mulliner coachbuilding facility, also in Crewe. This is for bespoke builds.
Rolls-Royce	£300 million	Expanding Goodwood to include five new buildings and create 1,000 new jobs.[73] Investment includes 'Bespoke' capabilities, which enable customisation and Coachbuild facilities.[74]
Aston Martin	£2 billion	Investing in new technology, including EV enablers.[75] The company has factories at St Athans, Wales, and Gaydon, Warwickshire.

The critical point in the table above is the balance of investment. Just £3 billion of the sums announced in the last 18 months will go to mass-market brands; the rest is going to premium marques. This means the balance of UK auto exports will continue to move relentlessly up-market.

68 JLR (2023) *JLR to invest £15 billion over next five years as its modern luxury electric-first future accelerates*. Available at: https://www.jlr.com/news/2023/04/jlr-invest-ps15-billion-over-next-five-years-its-modern-luxury-electric-first-future (Accessed: 30 June 2025). Updated to £18 billion in its FY 24/25 Annual Report.

69 BMW (2023) *MINI Plant Oxford goes Electric: £600m investment for all-electric MINI production in the UK*. Available at: https://www.press.bmwgroup.com/united-kingdom/article/detail/T0436869EN_GB/mini-plant-oxford-goes-electric (Accessed: 30 June 2025).

70 Ryan, A. (2023) *Nissan to invest £2bn in Sunderland electric vehicle factory*. Available at: https://www.fleetnews.co.uk/news/nissan-to-invest-2-billion-in-sunderland-electric-vehicle-factory (Accessed: 30 June 2025).

71 Ibid.

72 BBC News (2022) *Bentley pledges £2.5bn for Crewe plant in electric cars move*. Available at: https://www.bbc.co.uk/news/uk-england-60138564 (Accessed: 30 June 2025).

73 Dunn, K. (2024) *Rolls-Royce given permission for expansion plans*. Available at: https://www.bbc.co.uk/news/articles/c6pmdzlmq09o (Accessed: 30 June 2025).

74 PR Newswire (2023) *£48bn for UK Plc Rolls-Royce Motor Cars: The Great British Success Story*. Available at: https://www.prnewswire.co.uk/news-releases/4bn-for-uk-plc-rolls-royce-motor-cars-the-great-british-success-story-301809925.html (Accessed: 10 July 2025).

75 Aston Martin (2023) *Aston Martin to create industry leading ultra-luxury high performance electric vehicles*. Available at: https://www.astonmartin.com/en-gb/our-world/news/2023/6/26/aston-martin-to-create-industry-leading-ultra-luxury-high-performance-electric-vehicles (Accessed: 30 June 2025).

This investment is arriving like rain after a drought to the UK's 2,500 automotive suppliers, who have not enjoyed any solid foundation for investment since 2016. Critically, many of these suppliers are SMEs, and they contribute an estimated £4.2 billion of value add each year to UK auto manufacturing.[76] While only around 50 per cent of the content of the average UK-assembled car actually comes from UK components,[77] those suppliers tend to be at the advanced end of the auto technology supply chain.

- **Precision-engineered components for engines and powertrains**, including machining, aluminum die casting, and high-performance ceramics. For example, UK factories produced 905,000 vehicles last year, *but 1.6 million engines*.[78] The UK remains a net exporter of car engines.
- **Materials and lightweight vehicle structures,** including composite materials: carbon fiber, glass fiber resin systems, and body design. This is especially relevant to the SVM sector, with crossovers into aerospace.[79]
- **EV and advanced propulsion**, in particular solid-state batteries and sodium-ion batteries, new battery materials, battery testing and specialty EV applications.[80] Though note, the UK is a leader in innovation and design, *not* manufacturing.

SMEs in the UK struggle to attract growth capital, especially when they are innovators.[81] Auto-focussed organisations help. For example, the UK's Advanced Propulsion Centre says SMEs that previously completed its accelerator programme have gone on to raise a £300 million in private investment since 2015.[82]

Investment specifically in battery manufacturing is triggering investment further up the auto supply chain. This includes lithium mining in Cornwall, which is also an SME endeavour, although typically in partnership with global companies. Plans include processing to create lithium carbonate and hydroxide.[83] The scale is potentially significant given the large deposits, and commercial activity is steadily progressing.

- In March 2025, Cornish Lithium has gained approval for the UK's first geothermal lithium-production plant.[84]
- Imerys British Lithium's pilot plant near Roche – also in Cornwall – is already producing battery-grade lithium carbonate.[85]
- Lithium extraction, refining and recycling facilities have been approved or are under construction in Weardale, Basingstoke and the Teesside Freeport area.

British Lithium alone aims to supply sufficient lithium to power 500,000 cars by the end of the decade.[86]

76 SMMT: Industry Facts 2024. Page 16.

77 The Automotive Council UK estimated local contact at 41 per cent in 2016. Halweg, M. et al (2015) *Growing the Automotive Supply Chain: Local vehicle content analysis*. Available at: https://www.automotivecouncil.co.uk/wp-content/uploads/2015/09/UK-local-sourcing-content-research-September-20151.pdf. (Accessed: 17 July 2025).

78 SMMT (2025) *SMMT Motor Industry Facts 2025*. Available at: https://www.smmt.co.uk/smmt-motor-industry-facts-2025/ (Accessed: 30 June 2025).

79 For example, Maclaren has worked with GKN Aerospace on developing a new production method for carbon fibre structures, called Automated Rapid Tape.

80 Aston Martin's Project ELEVATION is a prime instance. This is a six-partner industry-academia collaboration that includes Catapults.

81 See Radford, P. (2025) *A Nation of Innovators: How the Industrial Strategy can kick-start growth in advanced manufacturing*. Civitas. Available at: https://www.civitas.org.uk/publications/a-nation-of-innovators/ (Accessed: 30 June 2025).

82 Advanced Propulsion Centre UK. *£3 million injection for automotive SMEs*. Available at: https://www.apcuk.co.uk/news-events/news/3-million-injection-for-automotive-smes/ (Accessed: 30 June 2025).

83 For example, British Lithium (Imerys) and Cornish Lithium.

84 Duckett, A. (2025) *Cornish Lithium gets greenlight to build UK's first plant to recover lithium from hot water*. Available at: https://www.thechemicalengineer.com/news/cornish-lithium-gets-greenlight-to-build-uk-s-first-plant-to-recover-lithium-from-hot-water/ (Accessed: 30 June 2025).

85 Imerys British Lithium. *Explore the Future of Lithium Production with Imerys British Lithium.* Available at: https://imerysbritishlithium.com/ (Accessed: 30 June 2025).

86 Kollewe, J. (2023) 'Cornish Lithium secures £53.6m to open first mine for the metal in Britain', *The Guardian*, 8 August. Available at: https://www.theguardian.com/uk-news/2023/aug/08/cornish-lithium-secures-536m-to-open-first-mine-for-the-metal-in-britain (Accessed: 30 June 2025).

The great EV car smash

There are however clear reasons for caution. Virtually all of the investment listed above is predicated on a shift to electric vehicles. This is driven by the UK Government's regulatory phase-out of internal combustion engine (ICE) vehicles. And hasn't 2024 just witnessed plunging EV sales across Europe?

At time of writing, the EV industry in Europe is in crisis. With Northvolt in administration, the long-term prospects for the continued, rapid scale up of EV manufacturing in Europe look hazardous. The European Automobile Manufacturers' Association, ACEA, has called for urgent relief measures from carbon dioxide targets for cars and vans.[87] And while demand slackens, Chinese EVs have demonstrated a clear competitive edge in European markets.

Whatever happens, the European auto industry faces a traumatic decade. Governments across Europe are telling the auto industry what to make, regardless of what customers want to buy. And the cars that governments want European consumers to buy are being made more competitively in China. Analysts should fasten their seatbelts.

But amongst the nightmarish vortex of fines, subsidies, duties, patchy infrastructure and consumer apathy, the UK industry sits on one semi-firm foundation. The one globally accepted insight into EV adoption is that first movers are primarily found at the premium end of the market.[88] This factor is clearly operative among UK manufacturers. At time of writing, none of the three companies who appear most distressed by zero emission targets (Nissan, Ford and Stellantis) sit within the UK's premium range.[89]

Meanwhile, global markets appear highly receptive to the UK's premium EV line up. In its May 2025 annual report, JLR announced growing demand for its plug-in, hybrid electric vehicles (PHEVs), with *global* retail sales for PHEVs up 22 per cent (year on year) and Range Rover PHEV sales up 38 per cent.[90] This data signals a sharp divergence with European trends. In October, ACEA reported that volumes for PHEVs' registration in the EU were down 7.9 per cent (year on year), with declining market share.[91]

What's more, EV appeal seams to increase the further marques move upmarket. JLR now has an astonishing 61,000-strong order book for the forthcoming Range Rover Electric, which will be the first in its line-up of all-electric vehicles.[92] When Rolls-Royce announced its first EV model, the US$413,000 Spectre, it instantly gained orders from 300 customers in the United States.[93]

87 ACEA (2024) *European auto industry calls for urgent action as demand for EVs declines*. Available at: https://www.acea.auto/press-release/european-auto-industry-calls-for-urgent-action-as-demand-for-evs-declines/ (Accessed: 30 June 2025).

88 *Financial Times* (2024) 'EU shift to electric vehicles riddled with obstacles', 21 November. Available at: https://www.ft.com/content/ae4b5261-91ff-4b41-aa27-0ae4b9791b5a (Accessed: 30 June 2025).

89 Jasper, C. et al (2024) 'Labour poised to water down electric car rules amid crisis in industry', *The Telegraph*, 26 November. Available at: https://www.telegraph.co.uk/business/2024/11/26/britain-poised-to-water-down-electric-vehicle-rules/ (Accessed: 30 June 2025).

90 JLR (2025) *JLR Delivers Strong Full Year Performance*. Available at: https://media.jaguarlandrover.com/news/2025/05/jlr-delivers-strong-full-year-performance (Accessed: 30 June 2025).

91 ACEA (2024) *New car registrations: +1.1% in October 2024; year-to-date battery-electric sales -4.9%.* Available at: https://www.acea.auto/pc-registrations/new-car-registrations-1-1-in-october-2024-year-to-date-battery-electric-sales (Accessed: 30 June 2025).

92 JLR (2025) *JLR Delivers Strong Full Year Performance*. Available at: https://media.jaguarlandrover.com/news/2025/05/jlr-delivers-strong-full-year-performance (Accessed: 30 June 2025).

93 Frank, R. (2022) *Rolls-Royce says it already has hundreds of U.S. orders for its $413,000 Spectre electric vehicle*. Available at: https://www.cnbc.com/2022/10/18/rolls-royce-has-over-300-orders-for-its-413000-spectre-electric-vehicle.html (Accessed: 30 June 2025).

Thankfully, the UK Government has clocked the importance of PHEV models to UK manufacturing because it has announced that sales of hybrids will be permitted up until 2035.[94] Potentially, that deadline can continue to be rolled forward. Nevertheless, the next 10 years will be a white-knuckle ride for the UK auto industry – and for legislators. But there are key takeaways from this analysis.

- **First, the interests of our auto manufacturing industry should not be tied directly to domestic legislation on consumer uptake.** For the UK, car manufacturing is primarily an export industry, and a premium one at that. It's for other countries to legislate on what vehicles should enter their markets and UK factories to respond. UK policy should focus on what can be driven in the UK, not what's made here.
- **Second, it makes no sense for the UK to align national EV market regulation with the EU** – as suggested by the *Financial Times*.[95] This is anachronistic. EU markets now take just one-third of UK car exports by value and that portion will shrink quickly. Alignment would have made sense in 2000 to 2009, not now. Alignment would serve the interests of EU-based auto manufacturers, not our own. Remember, by value, the EU now accounts for just one-third of car exports, or around one-quarter of UK-based assembly.

Trade conflicts vindicate the UK's decision to leave the Customs Union

If Brexit had never happened, the UK's auto industry would now be in deep strategic trouble. This is because trade conflicts between the EU, China and the US would permanently imperil exports to our two fastest-growing markets. And note, the US and China together accounted for 39 per cent of all UK passenger vehicle exports in 2024; the EU took just 32 per cent.[96]

US trade deal reveals strategic advantage

First the US. The US passenger vehicle market is now worth £8 billion to £9 billion to UK exports. For context, this is more than twice our entire agricultural exports to the EU. Without a trade deal, the US' initial 27.5 per cent tariff on imports of UK cars would have brought this huge and fast-expanding export trade to a screeching halt.

Thanks to the UK's exit from the Customs Union, the Government was able to negotiate this down to a 10 per cent base-level tariff in May 2025.[97] But the trade deal announced on 8 May 2025 is a reprieve for the UK auto industry – nothing more. The problem is the 100,000-vehicle quota imposed on imports from the UK. In effect, this turns it into a 'standstill' agreement for UK cars. The UK exported 101,000 vehicles to the US in 2024 (according to the SMMT;[98] US-reporting trade data suggests 110,000). So, in effect, the number of vehicles exported from the UK will be frozen.

What's more, ministers will need to work out how to allocate the quota. This will be divisive, to put it mildly. The UK national interest is to prioritise high-value cars, but this approach will not please BMW (which owns MINI) or Toyota.

94 Jolly, J. (2024) 'New hybrid car sales allowed until 2035 in UK, government confirms', *The Guardian*, 16 September. Available at: https://www.theguardian.com/business/2024/sep/16/new-hybrid-car-sales-allowed-until-2035-in-uk-government-confirms (Accessed: 30 June 2025).

95 See, for example, *Financial Times* (2024) 'EU shift to electric vehicles riddled with obstacles', 21 November. Available at: https://www.ft.com/content/ae4b5261-91ff-4b41-aa27-0ae4b9791b5a (Accessed: 30 June 2025). John Gapper calls for the UK to 'align policy' with the EU.

96 UN Comtrade. See Figure 1.5

97 Courea, E. (2025) 'British officials hopeful that US will start lifting car tariffs this week', *The Guardian*, 10 June. Available at: https://www.theguardian.com/politics/2025/jun/10/uk-us-car-tariffs-steel-aluminium-deal (Accessed: 30 June 2025).

98 SMMT (2025) *SMMT response to President Trump tariff news*. Available at: https://www.smmt.co.uk/smmt-response-to-president-trump-tariff-news/ (Accessed: 30 June 2025).

Nevertheless, the UK's auto industry is now indebted to those policymakers and official negotiators who insisted the UK leave the Customs Union in 2019. That decision has been vindicated by the lowest possible tariff rates that any county has negotiated with the US. If the UK were still in the Customs Union, a fast-growing £9 billion export market would begin to fall victim to structural tensions in EU-US trade, for which UK-US trade bears no responsibility.

Meanwhile, the prospects for the EU bloc look bleak. The EU has not matched the UK's trade concessions in its broad, outline agreement. Nor will it, since the point of Trump's trade policy is to force manufacturers to relocate to the US, and the EU has a US$31.5 billion surplus in trade in autos with the US.[99] [100]

At time of writing, importers of EU-assembled cars into the US will have to pay a 15 per cent tariff as opposed to a 10 per cent tariff on cars imported from the UK.[101] If the UK can raise that 100,000 quota, UK brands will start to take market share off EU brands. In trade deal terms, that would turn a 'reprieve' into a 'win'. Raising that quota – even by 25,000 – should be the top priority for UK trade negotiators.

Staying neutral in the China-EU auto conflict

The UK has also swerved a mirror trade war with China. In October 2024, the EU imposed additional tariffs of up to 35 per cent on Chinese EVs to protect European manufacturing. Tellingly, the UK did not follow suit. At time of writing, the UK retains its standard, nine to 10 per cent global tariff on imports of Chinese vehicles. This demonstrates a clear divergence of trading interests as between the UK and the EU, which will have a profound long-term impact.

- **If the UK had replicated EU tariffs, this would have hit Chinese investment into the UK EV industry.**[102] It should be noted that both JLR and Nissan are to some degree dependent on Chinese technology for their battery strategies.
- **If the UK had increased tariffs on Chinese imports, this would have invited reciprocal tariffs on our second biggest auto-export market**. China has warned of tariffs on internal combustion engines (ICEs)[103] in retaliation to the EU's tariff hike. Non-tariff barriers (NTBs) would not have been far behind. Outside the EU, we aren't a target.

The UK Government has taken a relaxed view of Chinese EV imports because our trading interests are radically different to the EU's. Thanks to that great auto offshoring of 2000 to 2019, our mass-market manufacturing has already shrunk dramatically. Only Nissan will face the full blast of EV competition from China. Meanwhile the EU's huge, mass-market car industry is exposed to China's superiority in EV technology. Hence the radically different threat perception.

As it is, European auto manufacturing will now pay a painful price for pulling assembly from the UK during the period 2000 to 2019. With little mass-manufacturing left to defend against Chinese brands, the UK Government finds it easier to prioritise consumer interests and its own EV adoption targets. UK customers are responding. By May 2025, MG had a 4.4 per cent share of new car registrations in the UK; BYD, two per cent; OMODA, one per cent; and Polestar 0.8 per cent, despite the UK's nine to 10 per cent tariffs on Chinese vehicles.[104] The UK car market is changing quickly.

99 TradeMap. Accessed November 2024.

100 Diligent readers will note this precisely matches our own auto deficit with the EU, though it arouses less ire.

101 The key 'unknown' at time of writing is what quota will be applied to imports of EU cars. This will drastically affect the impact that the new US trade policy has on EU-US trade in cars.

102 Reuters (2024) *China tells carmakers to pause investment in EU countries backing EV tariffs*. Available at: https://www.reuters.com/business/autos-transportation/china-tells-carmakers-pause-investment-eu-countries-backing-ev-tariffs-sources-2024-10-30/ (Accessed: 30 June 2025).

103 Fletcher, I. (2024) *How EU Tariffs Will Impact the Battery Electric Vehicle Market*. Available at: https://www.spglobal.com/automotive-insights/en/blogs/2024/11/how-eu-tariffs-will-impact-the-battery-electric-vehicle-market

104 SMMT. *UK car registrations*. Available at: https://www.smmt.co.uk/vehicle-data/car-registrations/ (Accessed: 30 June 2025).

The UK will benefit in three ways from keeping markets open to Chinese brands.

- **First, UK industry can safely assume that China will remain open to UK auto exports.** This export trade was worth £3.1 billion in 2024.[105] To put this number in perspective, it's worth almost the UK's entire agricultural exports (£3.8 billion).[106]
- **Second, UK consumers can buy EVs more cheaply than EU consumers.** This will accelerate the UK EV transition and encourage investment in charging infrastructure.
- **Third, the UK will become a more attractive destination for Chinese auto investment.** Politically, China will now favour battery investment in non-EU countries that aren't hostile and have tariff-free access to the EU (Turkey and the UK).

Nissan is the only major UK company that has to panic about Chinese EVs. But around 70 per cent of Nissan's UK production goes to the EU anyway.[107] In effect, the EU is protecting Nissan UK's factory production while simultaneously taking the political and economic flak from China. This is probably not what EU negotiators had in mind when they used the TCA to bind the UK into the EU auto market, but it's too late. China will now displace EU auto suppliers in the UK (which is the EU's biggest auto market), while the UK becomes a springboard for auto exports into the EU.

The long-term benefits of trade sovereignty

Tariff wars with the US and China are a demonstration of why size does *not* always matter in trade relations. The UK is now free to formulate its *own* trading interests and negotiate accordingly. The benefits have rapidly materialised: the UK car industry now has better access to global markets than EU-based manufacturers, and UK consumers can buy EVs more cheaply than EU citizens. Led by national self-interest, the Labour Government is free to set the UK on a divergent course from the EU.

Staying out of the EU's trade conflicts will transform the UK's prospects as a destination for automotive investment. In the last 12 months, the UK has demonstrated a commitment to lower trade barriers, whichever party is in government. This means global car companies can be confident that cars assembled in the UK will have better access to the big three global markets – the EU, the US and China – than cars assembled within those economies themselves. This is a powerful new source of competitive advantage.

Analysts can now sit back and watch free trade work its magic. It should not be long in coming. Just three weeks after the UK-US deal was announced, Toyota said it would open a Corolla assembly line in Derby to make 10,000 vehicles annually for the US market.[108]

But the big prize will be JLR's Defender. JLR will face increasing pressure to bring Defender production back from Slovakia to Solihull or Halewood.[109] Currently, *all* Defenders face high tariffs in US markets, since they are *only* made in Slovakia (and with a healthy contribution from local suppliers).[110] This makes ongoing US-EU trade antagonism a strategic liability for JLR's Slovakian plant. This is because the Defender is a top seller in US markets. Only by bringing production and parts-supply back to the UK can JLR be confident that future Defenders will sustain optimal access to Chinese, European *and* US markets.[111]

105 UN Comtrade. See Figure 1.5

106 ONS (2025). UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025.

107 Nissan UK Newsroom (2023) *British-built Nissan Qashqai confirmed as UK's best-selling new car of 2022*. Available at: https://uk.nissannews.com/en-GB/releases/british-built-nissan-qashqai-confirmed-as-uks-best-selling-new-car-of-2022 (Accessed: 17 July 2025).

108 Owusu, T. (2025) *Toyota moves production of popular US sedan to Britain*. Available at: https://www.thestreet.com/automotive/toyota-moves-production-of-popular-us-sedan-to-britain (Accessed: 30 June 2025).

109 Halewood is the most likely. In April 2023, JLR announced that Halewood would manufacture a 'baby' Defender after the completion of the gigantic refurbishment project. Robinson, J. (2023) 'Jaguar Land Rover to make 'Baby Defender' at Halewood plant', *Liverpool Echo*, 10 August. Available at: https://www.liverpoolecho.co.uk/news/liverpool-news/jaguar-land-rover-make-baby-27492975 (Accessed: 17 July 2025).

110 Defender engines are made in Wolverhampton, although not much else. UK auto exports to Slovakia in 2024 were just US$402 million. They would be far higher if JLR had retained UK supply chains for the Slovakian-assembled vehicles.

111 JLR has already committed to building 'baby' Defenders at Halewood.

Buses and motorbikes make a comeback

Passenger vehicles are not the only UK automotive exports. Other subsectors are experiencing a gentle renaissance.

- **Commercial vehicle production has doubled since 2020,[112] and reached 126,000 vehicles in 2024:[113]** This is the best performance for the commercial sector in 16 years. It mostly involves vans, and the recent rise follows Stellantis' switch to EV production at Ellesmere Port. High output is partly due to demand from the EU. Around 65 per cent of UK production is exported, virtually all – 98 per cent – to the EU.[114]
- **Triumph Motorcycles will re-start mass production at Hinckley:** Owing to 'strong demand from Europe', the company plans to assemble 20,000 bikes per year at its Hinckley plant.[115] This reverses a 2020 decision to offshore production of most models to plants in Thailand. Norton Motorcycles is also resurrecting itself with a design, engineering and assembly plant[116] in Solihull. This will have the capacity to assemble 8,000 motorbikes per year.
- **A rapid transition of UK bus manufacturing into low-emission power:** Around 45 per cent of new bus registrations in the UK are already electric or hydrogen.[117] Wrightbus in Northern Ireland is the standout. Now owned by a Bamford, it has prime engineering credentials. Wrightbus has pioneered hydrogen-powered buses. Headcount is set to hit 2,000 this year, partly thanks to a £500 million contract to supply 1,000 buses to Go-Ahead.[118] Wrightbus also has multiple export orders from Germany.[119]

So, what's the UK competitive advantage?

The success of premium UK marques in global markets indicates core competitive advantage in niche aspects of motor manufacturing. For example, Rolls-Royce Motor Cars credits success to a 'combination of design, technology, engineering and craftsmanship.'[120] But what do these advantages consist of, and what can UK policy do to entrench them?

- **Customisation:** All premium brands report that customisation is a fast-growing part of their businesses. They are all investing heavily in bespoke capabilities that give customers direct design input into their purchase. This trait stretches from the humbler reaches of a MINI[121] to the point where customers essentially design their own Rolls. Customisation doesn't just require specific skills (below). It involves non-systematised manufacturing processes, and facilities where designers engage one-on-one with customers.
- **Craftsmanship:** This is part of the UK customisation story. Premium marques increasingly promote 'British craftsmanship' as a market differentiator. This extends from hand-stitched leatherwork and timber veneers to exquisite embroidery, gold inlays and full-scale artworks. The overseas selling power of hand-crafted British interiors is helping to grow career pathways in industrial craftsmanship beyond tiny pockets in UK industry.

112 SMMT: Industry Facts 2024.

113 SMMT (2025) *Exports push commercial vehicle production to best performance in 16 years*. Available at: https://www.smmt.co.uk/exports-push-cv-production-to-best-performance-in-16-years/ (Accessed: 30 June 2025).

114 Ibid.

115 British Motorcycle Federation (2022) *Triumph to make many more bikes in the UK*. Available at: https://www.britishmotorcyclists.co.uk/triumph-brings-production-home/ (Accessed: 30 June 2025).

116 Norton (2021) *Norton's new headquarters revealed*. Available at: https://nortonmotorcycles.com/stories/nortons-new-headquarters-revealed/ (Accessed: 30 June 2025).

117 SMMT (2024) *Next stop, Net Zero: Britain boasts Europe's biggest new zero emission bus market, February 2024*. Available at: https://www.smmt.co.uk/next-stop-net-zero-britain-boasts-europes-biggest-new-zero-emission-bus-market/ (Accessed: 30 June 2025).

118 Wrightbus (2024) *Wrightbus signs landmark deal with Go-Ahead*. Available at: https://wrightbus.com/en-gb/wrightbus-goahead-historic-deal (Accessed: 30 June 2025).

119 Wrightbus (2024) *Wrightbus secures further German order for 46 hydrogen buses*. Available at: https://wrightbus.com/en-gb/Wrightbus-secure-further-German-order-for-hydrogen-buses (Accessed: 30 June 2025). In May 2025, Wrightbus secured an order for 12 buses from WestVerkehr. This brought the total Germany order book to 173.

120 Rolls-Royce (2024) *Rolls Royce Motor Cars 2023 – A year of success*. Available at: https://www.press.rolls-roycemotorcars.com/rolls-royce-motor-cars-pressclub/article/detail/T0438978EN/rolls-royce-motor-cars-in-2023:-a-year-of-success (Accessed: 30 June 2025).

121 BMW Group: MINI increases personalisation and usability across new MINI family.

For example, McLaren hires from boat-builders, tailors and dress makers.[122] UK competitive advantage in the auto industry appears to increase the further a marque departs from the mass-production lines towards hand-built attention to detail. Craftsmanship is the market differentiator.

- **Auto design:** This is the UK's stand-out advantage. UK auto styles are undisputed trend-setters in global forecourts, from the Land Rover Defender, to MINI, to Aston Martin, to Bentley. The UK is home to some of the best car design studios in the world, headed by JLR's gigantic operations at Gaydon.[123] Nor is this confined to passenger vehicles. Triumph Motorcycles made such a success of modern classics at Hinckley that India's reborn Royal Enfield set up its R&D next door. The trick is integrating customisation and craftsmanship into design.
- **Motorsport Valley:** Seven out of 10 Formula One (F1) teams are based in the UK. 'Motorsport Valley', which stretches from the Thames Valley to the West Midlands, is now home to one of the world's greatest concentrations of advanced auto engineer expertise. It includes infrastructure such as F1 wind tunnels, composite facilities and R&D centres. F1 teams incubate engineering brilliance, which then finds employment in the UK's commercial car industry. The steady renaissance in UK motorbike design, engineering and manufacturing is also centred in the West Midlands.
- **Finally, there's a dedication to innovate:** The current UK auto industry would be unimaginable without the Warwick Manufacturing Group (WMG). This organisation sustained and promoted indigenous expertise in UK auto manufacturing from the 1980s onwards, when UK production either collapsed or was dependent on imported design. WMG was built on personal commitment and belief in UK auto manufacturing. Industrial self-confidence is a vital, national asset. And the UK auto industry possesses it.

In terms of research, the UK auto industry is awash with Government-backed research into auto technologies, especially EV powertrains.[124] But similar funding in other UK industries – notably the pharmaceuticals industry – has achieved next to nothing for manufacturing. The fruits of research programmes are exploited overseas, and UK taxpayers get little return.[125] For this reason, heavy research spending is not automatically a source of competitive advantage for the UK auto industry. Currently, China is easily the world leader in EV battery technology, and there's no obvious sign that UK-based research will change this.

122 SMMT (2025) *The UK's Small Volume Auto Manufacturers: An Enduring British Success Story*. Available at: https://www.smmt.co.uk/wp-content/uploads/2025/06/SMMT-UK-Small-Volume-Manufacturers-Report-2025-FINAL-001.pdf (Accessed: 30 June 2025). Page 12.

123 JLR (2019) *Jaguar opens the doors of its new design studio*. Available at: https://media.jaguarlandrover.com/en-us/news/2019/09/jaguar-opens-doors-its-new-design-studio (Accessed: 30 June 2025).

124 For example, the £850 million Automotive Transformation Fund, the £130 million Battery Industrialisation Centre.

125 See, for example, Radford, P. (2022) *The case for low corporate taxation: Lessons from the International Pharmaceutical Industry*. Centre for Brexit Policy. Available at: https://centreforbrexitpolicy.org.uk/wp-content/uploads/2022/11/The-Case-for-Low-Corporate-Taxation.pdf (Accessed: 30 June 2025).

How to sustain global competitive advantage

What should the UK do to capitalise on its current good fortune? For the moment, the UK auto industry is in a strategic sweet spot. Little of our output directly competes with Chinese models. This differentiates us from European manufacturing. Our premium marques are popular in fast-growing, global markets. These now deliver almost two-thirds of exports, so our fastest-growing markets are now – finally – also our biggest.

But the UK auto industry is no different to any other: if it doesn't invest in the source of competitive advantage, it will wither. There are five ways that Government policy can entrench competitive advantage in the UK's auto industry.

- **Prioritise access for premium vehicles in UK trade policy formulation:** The UK Government prioritised auto interests in trade negotiations with the US. Policy should now focus on getting the US quota raised. Elsewhere, UK negotiators need to ensure that national emissions regulations do not impede future access for UK vehicles – specifically for PHEVs and small volume manufacturers. This means an ongoing programme to monitor regulatory development in target markets in North America, the Middle East and Asia.[126] This also means gathering supportive data.
- **Tactical support for SMEs that support customisation, craftsmanship, design and engineering:** There are around 2,500 companies in the UK's auto supply chain. Most are SMEs. Previous research by Civitas shows the two biggest challenges for manufacturing SMEs are high energy costs and low skills availability.[127] The Government should pivot financial support from R&D to SMEs that help British marques distinguish themselves in global markets. Support should focus on skills development and energy costs.
- **Transparent reporting on UK vehicle exports and markets:** The importance of premium manufacturing and global markets will remain obscured so long as UK media is only fed volumetric data. The SMMT should help to correct this. Its European equivalent, the European Automobile Manufacturers' Association (ACEA), reports on values as well as volumes – without apparent strain. If that were done, the media, MPs and the public would better grasp the strategic importance of markets in North America, the Middle East and Asia.
- **Institutionalise design acumen:** The past 20 years has seen the UK unusually blessed with auto design talent, spearheaded by Ian Callum. Before this generation retires, the auto industry and WMG should consider setting up an auto design academy so the UK's leadership in auto design can be perpetuated. Royal Enfield's Leicestershire tech centre shows that design can stand alone as an export business.
- **Benchmark apprenticeship schemes:** Virtually every major brand has set up an apprenticeship scheme, including Aston Martin, Bentley, Rolls-Royce, and Wrightbus (which has established a learning academy). The Government should ask the SMMT to benchmark the success of these apprenticeship schemes – and their graduates – so that industry can disseminate best practice among SMEs in the UK supply chain.

126 Regulations on emissions are already impacting market access for UK companies in valuable target markets. See, for example, SMMT, The UK's Small Volume Automotive Manufacturers. Page 11.

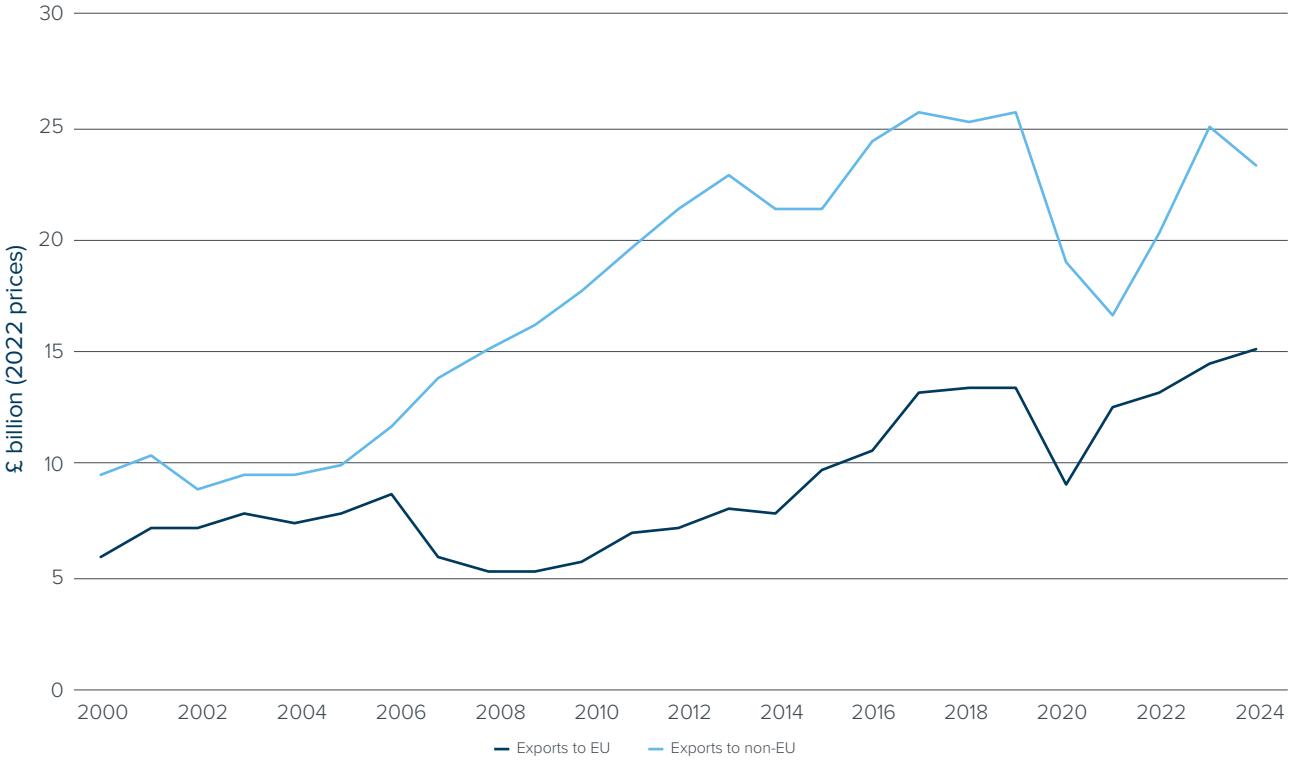
127 Clark, R. (2024) *SME Manufacturers: Meeting the challenges of affordable energy and a skilled workforce*. Available at: https://www.civitas.org.uk/publications/sme-manufacturers-meeting-the-challenges-of-affordable-energy-and-a-skilled-workforce/ (Accessed: 30 June 2025).

2. Aerospace

Aerospace is the rising star of UK engineering exports. It now delivers exports worth more than £40 billion per year. Counting all markets together – EU and global – it is our fastest-growing export industry. From 2000 to 2019, aerospace exports grew at a compound annual growth rate (CAGR) of 4.9 per cent per annum. This outstrips every other major sector. Consequently, aerospace's share of UK exports has soared. Back in 2000, the sector accounted for just 6.6 per cent of UK goods exports, now it's 11.4 per cent.[128]

Fast growth is partly due to the distribution of markets. Aerospace is a naturally global industry. A majority of UK aerospace exports has always gone to non-EU markets. Over the past 25 years, markets outside the EU have averaged 66 per cent of aerospace exports and reached as high as 75 per cent.[129] This means aerospace exports were the *least* exposed to slow-growing EU economies of any major UK industrial sector during the pre-Brexit decades. And, as we shall see, many aerospace exports to the EU end up being re-sold into global markets.

Figure 2.1: UK exports of aerospace goods to EU and non-EU countries, 2000 to 2024 (2022 prices)



Source: ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2024 Q4. Deflated using ONS IDEF export deflators for SITC 8.

128 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025.
129 Ibid.

Unlike the auto and machinery sectors, however, the UK is a clear *global* leader in aerospace. The US International Trade Administration (ITA) estimates the UK has the world's second largest aerospace industry, with a 17 per cent global share.[130] This makes the UK aerospace industry second only to the US'. By contrast, our auto industry ranks 19th globally.[131] In the opinion of the ITA, aerospace is the 'crown jewel' of UK exports.[132]

Actually, our aerospace exports are bigger than the raw data suggests. Around 63 per cent of the revenue that Rolls-Royce Plc generates from commercial aviation (essentially turbo jets on wide-body airliners) is paid via service agreements.[133] This means around £4 billion to £5 billion of UK aero-engine exports can be added to that £40 billion number, because these values currently accrue to UK's trade in services account. Factor that in, and aerospace already ties with automotive as the UK's most-valuable export industry.

Happily, aerospace is a lucrative industry to be in.

- **High wages:** According to industry body ADS, annual salaries are 39 per cent higher than the UK average.[134] This is also a sign of global competitive advantage.
- **Productivity growth:** Productivity is allegedly the great failure of the UK economy, but productivity in UK aerospace has grown by 71 per cent over the past 10 years.[135]

Around 70 to 80 per cent of the UK's aerospace output is exported. Most civil aerospace exports end up either with Airbus or Boeing, in the form of jet engines, wings, undercarriage assemblies, aircraft seats, avionics displays, aircraft lighting, fuel systems, galley equipment, and literally hundreds of components.[136]

What this means is that UK export prospects mostly hang on the commercial success of an overseas duopoly. To date, that's served the UK extraordinarily well. Post war, the UK aerospace industry lacked the luck and capital to build an indigenous airliner that was globally successful. Since giving up on building indigenous airliners, the UK industry has soared. UK companies entrench themselves in overseas supply chains and deliver ever more advanced components.

Nosedive 2020: How the UK came off worst

The UK aerospace industry suffered more from the pandemic than any other industrial sector. When global travel collapsed, airlines stopped taking deliveries and deferred orders. In 2020, aerospace exports were down 28 per cent on their 2017 peak. Rolls-Royce revenue from civil aerospace collapsed from £8.1 billion in 2019 to £5.1 billion in 2020.[137] This made aerospace by far the worst-impacted UK export industry of the post-Brexit period, and for reasons wholly unconnected with Brexit.

Worse – far worse – was that until the Paris Air Show in mid-2023,[138] the aviation industry assumed air travel would take the rest of the decade to recover. Naturally, investment stalled. Rolls' capital expenditure dropped from five to six per cent of revenue in 2017 to 2019 to just 2.8 per cent in 2021.[139] Second and third-tier suppliers had to quickly cut overheads.

130 International Trade Administration (US) *United kingdom Country Commercial Guide*. Available at: https://www.trade.gov/country-commercial-guides/united-kingdom-aerospace-and-defense (Accessed: 30 June 2025).

131 International Organization of Motor Vehicle Manufacturers. *2024 statistics*. Available at: https://www.oica.net/category/production-statistics/2024-statistics/ (Accessed: 14 July 2025).

132 International Trade Administration (US) *United kingdom Country Commercial Guide*. Available at: https://www.trade.gov/country-commercial-guides/united-kingdom-aerospace-and-defense (Accessed: 30 June 2025).

133 Rolls-Royce (2024) *Investor Presentation*. Available at https://www.rolls-royce.com/~/media/Files/R/Rolls-Royce/documents/investors/rolls-royce-investor-presentation-march-2024.pdf (Accessed: 10 July 2025). Page 23. This was up from 54 per cent. in 2012.

134 ADS. *Our Sectors*. Available at: https://www.adsgroup.org.uk/about/sectors/ (Accessed: 30 June 2025).

135 ADS (2025) *UK Aerospace Outlook 2025*. Available at: https://www.adsgroup.org.uk/facts-figures/adsaerospaceoutlook2025/ (Accessed: 30 June 2025).

136 This includes the plastic levers that hold up tray tables. They are made by IPC Mouldings in a factory just outside Carrickfergus.

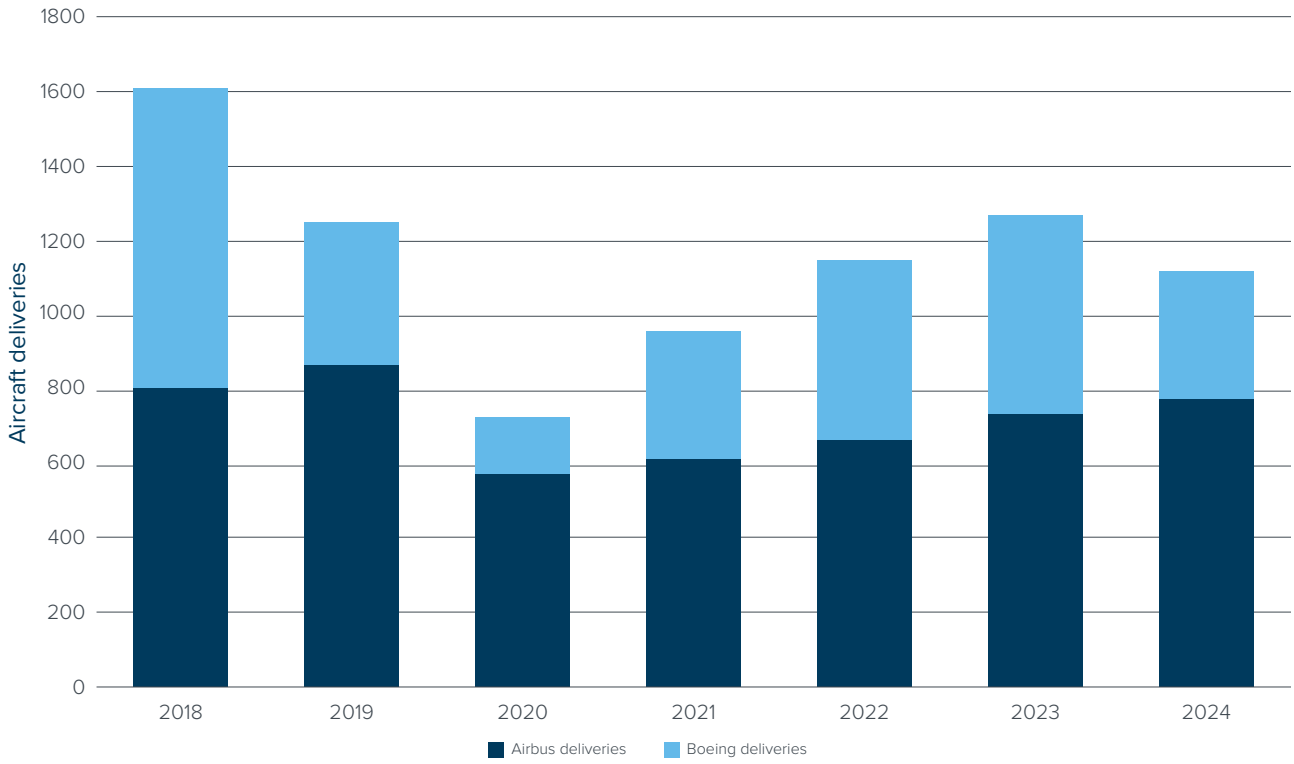
137 Rolls-Royce (2020) 2020 Annual Report, page 3.

138 Hepher, T. et al (2023) *New orders and supply chain progress as Paris Airshow grapples with pandemic aftermath*. Available at: https://www.reuters.com/business/aerospace-defense/new-orders-supply-chain-progress-paris-airshow-grapples-with-pandemic-aftermath-2023-06-22/ (Accessed: 18 August 2025).

139 Rolls-Royce Annual Report, 2021, page 16.

It's easy enough to track this collapse because aircraft deliveries by Airbus and Boeing are an excellent proxy for UK output. Their aircraft are where most of the UK's commercial aerospace kit ends up. The chart below tracks aircraft deliveries from 2018. Two things stand out. First, the industry was already in a cyclical downturn when the pandemic hit. Second, Boeing's output suffered most. Despite a positive start to 2025, Boeing's deliveries are still far short of what they were in 2018.

Figure 2.2: Boeing and Airbus aircraft deliveries, 2018-2024



Source: Boeing, Fourth Quarter Delivery Media releases for January 2019 to January 2025. Airbus, Orders and Deliveries, August 2024. Includes Airbus: A220, A320 family, A330, A350, A380; Boeing: 737, 767, 777, 787.

The chart above shows how challenging the last five years have been for UK aerospace. For the UK's biggest exporter, however, the big dip was even more gut-wrenching. By the mid-2010s, Rolls-Royce had effectively withdrawn from the narrow-body airliner market. This means almost all its civil aviation interests are in wide-body airliners: the Airbus A350, the Airbus A330neo and (to a small and declining extent) the Boeing 787. Sadly, that large-airliner subsector was hit harder by the pandemic and has recovered more slowly.

Table 2.1: The slowdown and recovery in Airbus aircraft deliveries, 2020 to 2024

Airbus deliveries	2020 vs 2019	2021 vs 2019	2022 vs 2019	2023 vs 2019	2024 vs 2019
Narrow body (A320 & A220)	-30%	-23%	-18%	-7%	-2%
Wide body (A350 & A330neo)*	-53%	-55%	-47%	-45%	-49%

Source: Airbus orders and deliveries. March 2025. *Includes deliveries of 17 Airbus A380s in 2019 to 2021, when the programme terminated.

At Airbus (see above), deliveries of narrow-body aircraft were almost back to pre-pandemic levels by the end of 2024. Not so for wide-body jets. In 2024, wide-body deliveries at Airbus were still down by almost half as against 2019. What this means is that Rolls is still in turbulence because of its reliance on large airliners. And given that turbojets contribute around 25 per cent of the value of a wide-body airliner, this means UK industry as a whole has been most exposed to that part of the civil aerospace industry that was hardest hit by the pandemic.

Even that's not the whole story. With most of Rolls' revenue in civil aerospace dependent on 'power-by-the-hour' contracts, income from long-term service agreements remains well below 2019 levels.

Table 2.2: Rolls-Royce civil aerospace revenue, 2019 to 2023

Rolls-Royce – civil aerospace revenue	2019	2020	2021	2022	2023
RR: Large Engine Flying Hours (LEFH) vs 2019	100%	43%	58%[140]	65%	88%
RR: Revenue Civil Aerospace (£bn, 2019 prices)	8.1	4.8	4.3	5.1	6.2

Source: Rolls-Royce Annual Reports, 2019 to 2023; ONS UK trade in services: service type by partner country, non-seasonally.

The UK's exposure to the aircraft industry has caused mayhem throughout the UK supply chain. This includes 3,000 or so UK-based SMEs active in the aerospace sector.[141] By mid-2021, Rolls' spend on its own subcontractors had plummeted to under one-third of its pre-Covid level.[142] Other suppliers hit reverse thrust. Thomson Aero Seating cut its UK workforce in half.[143] And that matters more than might appear. The UK is home to the world's highest concentration of aircraft seat makers, much of which graces the front end of an aircraft and much of which is based in Northern Ireland.[144] So when airlines stopped spending, a whole UK subsector saw demand suddenly collapse.

Rapid growth prospects

The above helps explain why UK exports have been hard hit since 2020. But here the bad news ends. The good news is that UK aerospace is now set up for ultra-rapid growth. This is partly re-bound, partly good fortune, and partly niche expertise in specific subsectors.

First, the rebound. Since late 2023, a surge in demand for new airliners has transformed the prospects for the global aerospace industry. By mid-2025, both Airbus and Boeing had accrued gigantic backlogs for jets: Airbus for 8,530 aircraft;[145] Boeing for 5,943.[146] Air India alone placed orders with Boeing and Airbus for 570 aircraft during 2023 and 2024.[147] In June 2025, the UK industry aerospace organisation, ADS, reported order backlogs for 15,818 aircraft.[148]

140 LEFHs for 2021 is absent from RR published material, but it can be calculated from reported changes in LEFHs reported in 2022. RR Annual Report, February 2022.

141 This is the ITA estimate. The UK aerospace industry body, ADS Group, has 1,300 members; 90 per cent are SMEs.

142 Rolls-Royce Investor Presentation, March 2021: page 13.

143 Baraniuk, C. (2024) *Crash dummies and robot arms: How airline seats are tested*. Available at: https://www.bbc.co.uk/news/articles/c74l9p2x3dxo (Accessed: 30 June 2025).

144 Precise numbers are difficult to compile. However, Invest Northern Ireland estimates that 30 per cent of the world's aircraft seating is made in Northern Ireland.

145 Airbus (2025) *Orders and Deliveries*. May 2025. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries (Accessed: 30 June 2025).

146 Boeing (2025) *Orders & Deliveries*. June 2025. Available at: https://www.boeing.com/commercial#orders-deliveries (Accessed: 30 June 2025).

147 Reuters (2024) *Air India confirms order for another 100 Airbus jets*. Available at: https://www.reuters.com/business/aerospace-defense/air-india-orders-additional-100-airbus-jets-2024-12-09/ (Accessed: 30 June 2025).

148 ADS (2025) *ADS Aerospace Sector UK Outlook 2025*. Available at: https://www.adsgroup.org.uk/facts-figures/adsaerospaceoutlook2025/ (Accessed: 30 June 2025).

At the time of writing, neither Airbus nor Boeing can make aircraft fast enough to meet demand – a position neither envisaged just two years ago. True, Boeing had another poor year in 2024, with just 348 deliveries. However, the company is already producing jets at the same rate as in 2023,[149] and industry analysts anticipate a return to 2019 levels by 2027.[150] So, although Boeing is lagging, it is recovering.

Just as the downswing disproportionately hit UK suppliers, the upswing will disproportionately benefit them.

- **Over-exposure to Airbus:** UK industry is currently slanted towards Airbus. Besides making the wings for all aircraft assembled in Europe, Rolls-Royce has sole-supplier status on Airbus' two wide-body jets, the A350 and A330neo.
- **Under-exposure to Boeing:** Airbus has rapidly overhauled Boeing in respect of orders and deliveries. This is partly owing to production and safety challenges at Boeing. Rolls has only a minor market share on the Boeing 787 and is excluded entirely from Boeing's heavily delayed 777X programme.

Given the UK's specific interest in Airbus wide-body jets, any analysis of UK aerospace exports must focus on the imminent prospects of two specific airliners: the Airbus A350 and the Airbus A330neo. Since mid-2023 orders have soared. By July 2025, Airbus' backlog of orders for these two aircraft types reached a jaw-dropping 1,055 aircraft.[151]

Airbus A350

The Airbus A350 is currently the world's top-selling wide-body airliner. As of July 2025, Airbus has an order book for 766 A350 airliners,[152] which are currently the largest aircraft that Airbus makes. The UK contribution includes the wings (Airbus, Broughton), the wing box (also Broughton), the engines (Rolls, mostly Derby),[153] the main landing gear (Safran, Gloucestershire on the A350-900), the fuel system (GKN, Bristol). Then there's cabin windows (GKN), UHF and VHF communications (HR Smith), galley equipment (IPECO) and multiple avionics and electrical systems.

UK content on most models (that is, the A350-900) is likely to be around 35 to 40 per cent, and higher if the cabin configuration is slanted towards first class, business class and premium economy seating, where UK manufacturers predominate (see below). What this ultimately means is that the A350 carries a higher proportion of UK value-add of any major aircraft since Concorde.

Thanks to recent orders from Turkish Airlines, Air India, IndiGo, and Vietnam airlines, Airbus plans to ramp up production of the A350, from three or four per month in 2024 to six per month during 2025, then 12 per month in 2028.[154] *This means the most important vehicle for UK aerospace exports will see production triple in just four years*. This will have a gigantic impact on UK manufacturing. With an order backlog of 766 jets (July 2025),[155] the imminent increase in production all but guarantees that aerospace will be the UK's most valuable export industry by 2028.

149 Reuters (2025) *Boeing deliveries rise 63% in February from a year earlier*. Available at: https://www.reuters.com/business/aerospace-defense/boeing-deliveries-rise-63-february-year-earlier-2025-03-11/ (Accessed: 30 June 2025).

150 Holve, G. (2025) *Airbus and Boeing Report February 2025 Commercial Aircraft Orders and Deliveries*. Available at: https://flightplan.forecastinternational.com/2025/03/12/airbus-and-boeing-report-february-2025-commercial-aircraft-orders-and-deliveries/ (Accessed: 30 June 2025).

151 Airbus (2025) *Orders and Deliveries*. July 2025. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries (Accessed: 11 July 2025).

152 Airbus (2025) *Orders and Deliveries*. July 2025. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries (Accessed: 14 July, 2025).

153 Five out of every seven of the Trent XWB engines are assembled in Derby. The remainder are assembled in Dahlewitz, though mostly from components made in the UK.

154 Kaminski-Morrow, D. (2024) *Airbus raising monthly A350 production to 12 in response to strong widebody demand*. Available at: https://www.flightglobal.com/air-transport/airbus-raising-monthly-a350-production-to-12-in-response-to-strong-widebody-demand/158010.article (Accessed: 1 July 2025).

155 Airbus (2025) *Orders and* Deliveries. June 2025. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries (Accessed: 14 July 2025).

Airbus A330neo

The A330neo is an old model with fresh engines that has suddenly leapt to popularity. The key selling point is availability. Industry sources suggest customers are likely to receive orders for an A330neo approximately two years earlier than an equivalent order for a Boeing 787.[156] The UK content includes updated wings (from the original A330), an updated engine (Rolls-Royce Trent 7000), nose and main landing gear, and also the fuel systems and some avionics. This again achieves a UK content in the region of 35 to 40 per cent, possibly higher depending on the interior fit-out.

A slew of major orders in mid-to-late 2024 has transformed prospects, including orders from Cathay Pacific, Virgin and VietJet. As of July 2025, the order backlog stands at 289 aircraft.[157] Airbus is in the process of doubling production rates from two per month to four per month.

A rebound in investment – and research that delivers competitive advantage

The rush of orders during 2024 has transformed the prospects of the UK aerospace sector. In late 2024, industry body ADS estimated the backlog of guaranteed business for the UK aerospace sector stood at £241 billion – or 12 years of work.[158] Investment in aerospace manufacturing has rocketed in response. And this is an important fact for economists. Aerospace is the UK's second biggest goods-export industry: that investment air pocket that lasted from 2000 to mid-2023 materially impacted aggregate investment across the UK economy.

- **Rolls-Royce:** The engine maker expects the number of aircraft it powers to increase by seven to nine per cent per annum for the rest of the decade.[159] In other words, Rolls expects output to increase around 50 per cent faster than the trend growth rate for aerospace exports pre-2019. That is a game-changer fact for UK exports. To cope, Rolls is increasing engine assembly-capacity at Derby by 40 per cent.[160] This represents a major investment in UK manufacturing capacity.
- **Airbus:** The company has a rolling expansion plan at Broughton, North Wales. This is its principal wing-assembly site in the UK. In 2024, the company announced plans to hire 500 additional engineers to cope with increased A320neo output. The refurbished West Factory will commence production in 2025.
- **Safran:** The French engine/aerospace combine purchased Dowty in the UK and is expanding its landing gear facilities in Gloucester to include a new tech hub. Incidentally, Safran looks set to win EU approval for its US$1.8 billion acquisition of Collins Aerospace, which is in turn one of the UK's top aircraft seat manufacturers.

Thus, all the top-tier UK civil aerospace exporters are expanding manufacturing facilities.

The Aerospace Technology Institute (ATI) has received £1.95 billion in research and development funding from the Government from 2013 out to 2026, which was matched by industry for a combined total of £3.9 billion.[161] Much of this investment ends up in areas of specific British expertise such as carbon composite materials for aircraft wings, or turbine blades for engines. The end of 2024 saw an extra £975 million for the ATI to roll the process over into 2029.[162]

156 Habib, A. (2024) *Airbus A330neo Tops Widebody Orders With 57 New Aircraft Since July*. Available at: https://simpleflying.com/airbus-a330-neo-aircraft-orders/ (Accessed: 1 July 2025).

157 Airbus (2025) *Orders and Deliveries*. June 2025. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries (Accessed: 14 July, 2025).

158 ADS (2024) *Aircraft production ramps up in Q3, but not enough to avoid decline in current 2024 deliveries, says ADS Group*. Available at: https://www.adsgroup.org.uk/knowledge/aircraft-production-ramps-up-in-q3-but-not-enough-to-avoid-decline-in-current-2024-deliveries-says-ads-group/ (Accessed: 1 July 2025).

159 Rolls-Royce (2024) *Rolls-Royce announces investment in large engine assembly, test and shop visit capacity*. Available at: https://www.rolls-royce.com/media/press-releases/2024/15-03-2024-poweroftrent-rr-announces-investment-in-large-engine-assembly.aspx (Accessed: 1 July 2025).

160 Ibid.

161 GOV.UK (2021) *UK Aerospace Technology Institute (ATI) Grant funding programme: Early Impact Evaluation*. Available at: https://assets.publishing.service.gov.uk/media/60f816d1d3bf7f568a2d94a9/ATI_EIE_Final_Report.pdf (Accessed: 11 July 2025)

162 Prime Minister's Office et al (2024) *PM boosts UK aerospace industry with £975 million to drive growth and jobs*. Available at: https://www.gov.uk/government/news/pm-boosts-uk-aerospace-industry-with-975-million-to-drive-growth-and-jobs (Accessed: 1 July 2025).

UK aerospace research appears sufficiently advanced to attract global capital. In 2023, Boeing opted to co-invest with the University of Sheffield in an £80 million project to devise composite manufacturing techniques specifically for the aerospace industry.[163]

As with autos, much of this investment is net-zero related.

- In March 2024, the previous Government promised £200 million of joint investment to fund zero-carbon aircraft technologies.[164]
- In June 2025, the Government promised £250 million for aerospace technology projects to 'drive' greener air travel.[165]
- The Government is also investing in technologies to help the aviation industry meet a 10 per cent sustainable aviation fuel (SAF) target by 2030.[166] [167]

There is, however, a major difference between subsidies in the UK aerospace industry, and the (far larger) subsidies given to the auto industry. Most aerospace manufacturing in the UK has limited competition globally – perhaps one or two other companies – although competition is intense. What this means is that Government 'investment' has a higher chance of generating a return in UK manufacturing. In aerospace, what it's actually doing is sustaining technological leadership in various aircraft components. Where research is successful, it's more than likely the resulting products *will* trigger manufacturing in the UK. Thus, competitive advantage is preserved.

Competitive advantage in UK aerospace

So, what are the areas of unique, UK competitive advantage in the aerospace industry? The question is best answered by stepping through the principal components that UK factories supply to aircraft manufacturers. What stands out is how specialised the UK aerospace industry has become.

Wings

UK participation in Airbus has resulted in unrivalled expertise in wing design, testing and construction. The UK supplies all the wings used in Airbus aircraft that are made outside China.[168] Successive UK governments have done whatever was required to keep it that way. Today, wings constitute around 15 to 20 per cent of the value of an airliner.[169] Since Airbus now has a backlog of 8,754 aircraft, UK wing factories are humming.[170] UK expertise spans design (Bristol), testing (Bristol) and assembly (Broughton and Belfast).[171]

Currently, the big money is going into carbon composites. This is the focus of Boeing's investment at Sheffield. UK suppliers are present at all stages of the supply value chain.

163 Boeing (2023) *UK Government, Boeing and partners announce £80 million aerospace manufacturing investment*. Available at: https://www.boeing.co.uk/news-releases/2023/uk-government-boeing-and-partners-announce-aerospace-manufacturing-investment (Accessed: 1 July 2025).

164 HM Treasury et al (2024) *£360 million to boost British manufacturing and R&D*. Available at: https://www.gov.uk/government/news/360-million-to-boost-british-manufacturing-and-rd (Accessed: 1 July 2025).

165 Department for Business and Trade, and Jones, S. (2025) *£250m for green aerospace projects ahead of Industrial Strategy*. Available at: https://www.gov.uk/government/news/250m-for-green-aerospace-projects-ahead-of-industrial-strategy (Accessed: 10 July 2025).

166 ADS (2024) *ADS Aerospace Sector UK Outlook 2024*. Available at: https://www.adsgroup.org.uk/facts-figures/ads-aerospace-sector-uk-outlook-2024/ (Accessed: 1 July 2025).

167 GKN, for example, is collaborating with multiple UK institutes in a £40 million project to work out how to use liquid hydrogen in aircraft fuels systems. GKN (2024) *GKN Aerospace Joins HyFIVE Consortium to Lead Liquid Hydrogen Fuel System Development for Zero-Emission Aviation*. Available at: https://www.gknaerospace.com/news-insights/news/gkn-aerospace-joins-hyfive-consortium-to-lead-liquid-hydrogen-fuel-system-development-for-zero-emission-aviation/ (Accessed: 1 July 2025).

168 The former Spirit plant in Belfast assembles wings and mid-fuselage sections for the A220.

169 The Airbus consortium originally operated on a national workshare basis, with suppliers from participating countries allotted percentages on each model. The UK was a 20 per cent participant in Airbus, and became sole supplier for wings, partly thanks to Filton's expertise in wing design. See Airbus (2025) *A daring vision takes flight: 25 years of Airbus as an integrated company*. Available at: https://www.airbus.com/en/newsroom/stories/2025-07-a-daring-vision-takes-flight-25-years-of-airbus-as-an-integrated-company (Accessed: 11 July 2025).

170 Airbus (2025) *Orders and Deliveries*, June 2025. Available at: https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries. (Accessed: 11 July 2025). Boeing has a backlog, of 5,923 as of July 2025. The former Spirit factory in Belfast makes some wings for smaller aircraft.

171 The former Spirit factory in Belfast makes aircraft parts for both Airbus (A220) and Boeing. Airbus is in the process of acquiring the facility – or at least the bits that don't make wings for Boeing.

For example, Gloucester-based Renishaw makes the four-laser additive manufacturing system[172] that GKN uses to make the rear-wing spars from which Airbus builds its wings.[173] GKN is a major participant in Airbus' SusWingS 'wing of the future' programme that's testing new designs in Bristol.[174]

Turbojets

Rolls is the sole engine supplier for the Airbus A330neo and Airbus A350 airliners, and engines constitute around 25 per cent of the value of these wide-body jets.[175] Both these models are profiting from Boeing delays. This more or less guarantees increased turnover in Rolls' civil aerospace business for the rest of the decade. Some units, nevertheless, will be assembled at Dahlewitz, in Germany.

However, Rolls' 'UltraFan' design for a planetary-gear turbojet is a potential game changer because it will allow Rolls to re-enter the market for narrow-body jets. Currently, Rolls has a low overall market share on all commercial jets owing to its absence from the single-aisle jet market (A320s, A220s, and the 737 Max).[176] But Rolls is already working to downscale the UltraFan design so it can compete on these smaller aircraft.[177] If successful, this will triple Rolls' addressable market in the 2030s.[178]

Seating

With two major manufacturers, Northern Ireland is a global leader in the world's aircraft seat-making industry.[179] Incidentally, Northern Ireland also accounts for around half of the UK's output of aircraft interior equipment. According to the UK's Aerospace Technology Institute, the UK accounts for 30 per cent of global aircraft seating,[180] and we dominate in premium seating.[181] Two new startups – Alice Blue Aero (Craigavon, 2021) and Unum (Crawley, 2022) – demonstrate the UK industry has sufficient confidence to generate boutique-like spin offs.

The UK's point of advantage appears to be top-end design, craftsmanship, engineering (the seats have to be ultra-light), technology integration, creditable safety standards, and – a related capability – crash testing. All aircraft seating companies are re-investing following the post-pandemic bounce-back in orders.[182] UK companies are heavily invested in the premium end of the market, which in turn means wide-body jets.

172 Renishaw (2022) *Flexible Additive Manufacturing takes flight at £32m aerospace facility in Bristol, UK*. Available at: https://www.renishaw.com/en/flexible-additive-manufacturing-takes-flight-at-gbps32m-aerospace-facility-in-bristol-uk--47465 (Accessed: 1 July 2025).

173 GKN (2018) *Backgrounder*. Available at: https://www.gknaerospace.com/media/evzolc5f/a350-xwb.pdf (Accessed: 1 July 2025).

174 GKN (2024) *GKN Aerospace continues to pioneer next-generation wing technologies in Airbus SusWingS programme*. Available at: https://www.gknaerospace.com/news-insights/news/gkn-aerospace-continues-to-pioneer-next-generation-wing-technologies-in-airbus-suswings-programme/ (Accessed: 1 July 2025).

175 MBA Aviation. This aviation asset valuation company estimates that for 'current tech' aircraft, engines account for 27.5 per cent of the value of a commercial aircraft.

176 In contrast, Rolls maintains an approximate 50 per cent market share for wide-body powerplants. Sandle, P. et al (2023) *Rolls-Royce can grow market share and improve profit, says CEO*. Available at: https://www.reuters.com/business/autos-transportation/rolls-royce-can-grow-market-share-improve-profit-says-ceo-2023-12-20/ (Accessed: 11 July 2025).

177 Reuters (2024) *Rolls-Royce exploring technology for narrow-body jet market*. Available at: https://www.reuters.com/business/aerospace-defense/rolls-royce-exploring-technology-narrow-body-jet-market-2024-07-23/ (Accessed: 1 July 2025).

178 In September 2023, ADS estimated that narrow bodies represented 88 per cent of the record backlog of 14,535 aircraft. Engines for narrow-body aircraft are worth just over one-quarter the value of engines for wide-body jets.

179 The claim of 30 per cent originates from Invest NI. It can't be verified through other sources though it's reported by the BBC. Baraniuk, C. (2024) *Crash dummies and robot arms: How airline seats are tested*. Available at: https://www.bbc.co.uk/news/articles/c74l9p2x3dxo (Accessed: 30 June 2025).

180 Aerospace Technology Institute (2020) *Insight*. Available at: https://www.ati.org.uk/wp-content/uploads/2021/08/insight_14-the-uk-cabin-opportunity.pdf (Accessed: 18 August 2025).

181 In May 2020, ADS estimated that the UK was home to 30 per cent of the world's aircraft seat manufacturing. ADS (2021) *Insight 14: The UK Cabin Opportunity*. Available at: https://www.ati.org.uk/wp-content/uploads/2021/08/insight_14-the-uk-cabin-opportunity.pdf (Accessed: 1 July 2025).

182 See, for example, Welsh Government (2024) *More than 900 workers sitting comfortably following Welsh Government support for business growth*. Available at: https://www.gov.wales/more-900-workers-sitting-comfortably-following-welsh-government-support-business-growth (Accessed: 1 July 2025).

Table 2.3: Aircraft seat manufacturing in the UK

Company/owner	location	Headcount	Speciality
Thompson Aero Seating	Portadown, Northern Ireland	650	Business-class seating. Expertise in entertainment integration.
Collins	Kilkeel, Northern Ireland	800	Business class, premium and economy. Includes luxury pods.
Safran	Cwmbran, Wales	900	Flat beds and first-class pods. Owns the Zodiac brand. Makes seats for all classes.
Acro Aircraft Seating	Crick, Northampton	<200	Lightweight seating.
Mirus Aircraft Seating	Hingham, Norfolk	<200	Lightweight seating, premium des.
Alice Blue Aero	Craigavon, Northern Ireland.	<50	Business class pods.
Unum Aircraft Seating	Gatwick	<50	Business class seats.

Source: Multiple industry sources.

Before the pandemic, sales of aircraft interior equipment were growing at twice the rate of new-built aircraft.[183] ADS estimates that interiors can be worth up to 10 per cent of the value of an aircraft, with seating/inflight entertainment delivering around one-third of that value-add.[184]

The benefit to UK of leadership in aircraft seating is two-fold.

- **Increased spend on premium interiors:** Interiors and seating are a point of differentiation for airlines. Companies like Singapore Airlines and Qantas are now spending small fortunes fitting out aircraft with premium-quality seats and pods, which are nuggets of luxury design and technology integration. This means the proportion of aircraft interior spend that goes on seating will rise as production of the A350 and A330neo ramps up. Since UK manufacturing is comfortably entrenched at the top end of the market, this trend preferences UK suppliers.
- **The imminent rise of refurbishment programmes:** Those huge backlogs in aircraft orders mean airlines face delays to new deliveries. This in turn means airlines are about to invest huge sums in renovating existing aircraft. BA alone is spending £7 billion on aircraft refurbishments[185] – much of it on seats; much of it in the UK.[186] Refurbishment programmes mean demand for premium seating will run well ahead of increased aircraft production. BA is also investing in the facilities where aircraft refurbishments will take place (Cardiff).

183 ADS (2021) *Insight 14: The UK Cabin Opportunity*. Available at: https://www.ati.org.uk/wp-content/uploads/2021/08/insight_14-the-uk-cabin-opportunity.pdf (Accessed: 1 July 2025). Page 5.

184 Ibid.

185 Gavine, A. (2024) *British Airways reveals pax ex initiatives as part of £7bn transformation plan*. Available at: https://www.aircraftinteriorsinternational.com/news/airline-news/british-airways-reveals-pax-ex-initiatives-as-part-of-7bn-transformation-plan.html (Accessed: 10 July 2025).

186 According to BA, the company's new first-class seats on refurbished Airbus A380s are 'curated by expert designers and world-class manufacturers from all corners of Great Britain and Ireland, including London, Glasgow, West Yorkshire, Kilkeel and Dublin'. BA Media Centre (2024) *Taking luxury to new heights: British Airways unveils its brand-new First class*. Available at: https://mediacentre.britishairways.com/pressrelease/details/21380 (Accessed: 1 July 2025).

Avionics

The UK avionics industry benefits from expertise in military avionics. Two companies – BAE Systems and Thales UK – are leading suppliers. Other suppliers with a global footprint include Meggitt, Qinetiq and Ultra Electronics.[187] Components include flight controls, navigation and communications systems. BAE Systems' flight control portfolio is Boeing-oriented;[188] Thales' is more Airbus-leaning. The latter contributes cockpit touchscreen displays, navigation equipment, and an 'Integrated Modular Avionics' unit to the A350, as well as the flight management system for the A320. Qinetiq and Honeywell produce cockpit displays and pilot assistance technologies.

Two challenges and an opportunity

The UK industry is facing a novel set of challenges, unanticipated by either Brexit or recent de-industrialisation: high demand. Essentially, airlines cancelled or delayed orders from early 2020 until late 2023, thinking air travel would take the best part of a decade to recover from the pandemic. In response, Airbus, Boeing and their whole supply chains slowed production. They also stopped investing. Unexpectedly, demand recovered quickly in late 2023, and so orders piled up far faster than slimmed-down and under-invested supply chains could possibly deliver.

The current situation can be broadly summarised as follows:

- **At Airbus, huge order backlogs guarantee increased exports so long as suppliers can ramp up output**: But that's the issue. The Airbus CEO, Guillaume Faury, says that suppliers ramping up production quickly enough is Airbus' 'most urgent challenge', and he anticipates that supply chain issues will persist for two to three years.[189]
- **Boeing's epic problems are hopefully on the mend, but no-one can anticipate its production rate:** Certification of the new Boeing flagship, the 777X, is now running six years behind schedule.
- **Engines:** BA is complaining of Rolls' inability to provide engines for its 787s. And supply constraints for turbines are even more acute for narrow bodies. Airbus' Faury has commented on the 'gliders' (he means narrow-body jets) stacking up at Toulouse because of engine-delivery problems at CFM, and Pratt and Whitney.

The big companies have – or should have – the resources to cope. But the UK aerospace industry is surprisingly SME-intensive. Airbus UK spends approximately £3.9 billion per year with UK suppliers, and it reports that 50 per cent of that is with SMEs.[190] What's more, Airbus says it spent an average of £103,100 per micro firm in 2022, which represented 40 per cent of average turnover.[191] This means that attempts to aid the rapid scale-up in the UK aerospace industry must focus on SMEs. They face two principal challenges.

- **Access to relevant skills:** ADS estimates a shortage of around 10,000 workers in the UK aerospace industry.[192] ADS members report that a worker shortage is the biggest challenge they face. Apprenticeship schemes currently work well for big companies, not for SMEs. SME engagement in apprenticeships appears to be falling.[193]
- **Access to growth capital:** This is the second top challenge to SMEs, according to ADS. Members claim this factor also challenges SMEs' ability to secure new work, given long investment cycles. According to ADS, supplier contracts are likely to move to France, Germany, Spain and the US where government assistance is available.[194]

187 ITA. *United kingdom Country Commercial Guide*. Available at: https://www.trade.gov/country-commercial-guides/united-kingdom-aerospace-and-defense (Accessed: 14 July 2025).

188 BAE Systems. *Flight control systems*. Available at: https://www.baesystems.com/en/product/flight-control-systems (Accessed: 1 July 2025).

189 Bloomberg (2024) *Airbus CEO Sees Supply Chain Issues Lasting 2-3 Years*. Available at: https://www.bloomberg.com/news/videos/2024-06-04/airbus-ceo-sees-supply-chain-issues-lasting-2-3-years (Accessed: 1 July 2025).

190 Airbus. *Airbus in the United Kingdom*. Available at: https://www.airbus.com/en/about-us/our-worldwide-presence/airbus-in-europe/airbus-in-the-united-kingdom (Accessed: 26 November 2024).

191 Ibid.

192 ADS (2025) *Behind the numbers: What's causing the UK's commercial aircraft backlog and declining orders?* Available at: https://www.adsgroup.org.uk/knowledge/behind-the-numbers-whats-causing-the-uks-commercial-aircraft-backlog-and-declining-orders/ (Accessed: 1 July 2025).

193 Lords Knight and Willets, in partnership with Engineering UK. Fit for Future, January 2024. Page 3.

194 ADS (2025) *Behind the numbers: What's causing the UK's commercial aircraft backlog and declining orders?* Available at: https://www.adsgroup.org.uk/knowledge/behind-the-numbers-whats-causing-the-uks-commercial-aircraft-backlog-and-declining-orders/ (Accessed: 1 July 2025).

These are critical issues. What's at stake is a high UK content share on the most commercially successful airliners of the 2020s. The UK's aircraft interior industry deserves special focus because it is the fastest-growing part of the supply chain. It is also particularly SME-intensive. According to ADS, 250 UK companies supply equipment for aircraft interiors.[195] Many of them are niche design companies or systems integrators. For example, ADS claims 97 of its members are involved in inflight entertainment systems, with a third concentrated in the Southeast.[196] Almost all of these cabin interior companies are SMEs. Many work directly with airline clients. They are all fighting to retain or increase their market share of cabin fit outs.

The key takeaway is that skills shortages are already impacting expansion. In late 2024, for example, seat manufacturer Thompson in Northern Ireland struggled to multiply production rates because it could not recruit the relevant skills.[197]

It would be a tragedy for UK manufacturing if, at the moment of greatest commercial success, our fastest-growing export industry loses market share because it cannot expand fast enough. This analysis suggests energies should focus on four specific areas.

SME priorities – Skills availability and access to capital

Recent industry research by Civitas supports ADS' assertion that skills and capital are the principal challenges to throttling up the UK aerospace supply chain. A June 2025 report by Civitas – *A Nation of Innovators*[198] – identified access to capital as the biggest challenge faced by innovator engineers in the UK today. Another Civitas research project – *Meeting the challenges of affordable energy and a skilled workforce*[199] – showed SMEs struggling to recruit the skills they need to grow.

On skills, one option is to think tactically. The UK Government could temporarily subsidise wages to allow SMEs to expand quickly. It would make sense to fund this by diverting spending from research programmes, on the basis that nothing is going to increase exports faster than helping SMEs to retain or expand market share in a subsector where they have demonstrated competitive advantage. This approach has two great advantages.

- **Practicality:** The ADS could funnel requests for support, which would ensure funding gets to where it's needed. The idea isn't new or even that radical: JCB's Lord Bamford promoted the idea of wage support during the last downturn in 2009.[200]
- **Effectiveness:** Industry research shows that SMEs have little confidence in apprenticeship schemes. Nor are universities creating engineers with sufficient practical skills. SMEs' overwhelming preference is for in-work training support.[201]

Access to capital is a harder nut to crack. But there is a clear national case for using taxpayer funds as a source of growth capital for the UK aerospace industry.

- The industry is fast-growing, and the industry has massive backlogs.
- Investment will help keep UK SMEs in European and US supply chains.
- Aerospace demonstrates probably the fastest productivity growth in UK industry.

195 ADS (2021) *Insight 14: The UK Cabin Opportunity*. Available at: https://www.ati.org.uk/wp-content/uploads/2021/08/insight_14-the-uk-cabin-opportunity.pdf (Accessed: 1 July 2025).

196 ADS. *ADS Group In Flight Entertainment Member Companies*. Available at: https://www.adsgroup.org.uk/member-capabilities/manufacturing-organisations/product-manufacturing/platform-systems/in-flight-entertainment/ (Accessed: 1 July 2025).

197 Baraniuk, C. (2024) *Crash dummies and robot arms: How airline seats are tested*. Available at: https://www.bbc.co.uk/news/articles/c74l9p2x3dxo (Accessed: 30 June 2025).

198 Radford, P. (2025) *A Nation of Innovators: How the Industrial Strategy can kick-start growth in advanced manufacturing*. Civitas. Available at: https://www.civitas.org.uk/publications/a-nation-of-innovators/ (Accessed: 30 June 2025).

199 Clark, R. (2024) *SME Manufacturers: Meeting the challenges of affordable energy and a skilled workforce*. Civitas. Available at: https://www.civitas.org.uk/publications/sme-manufacturers-meeting-the-challenges-of-affordable-energy-and-a-skilled-workforce/ (Accessed: 1 July 2025).

200 Reuters (2009) *JCB chief urges UK pay subsidies for manufacturers*. Available at: https://www.reuters.com/article/world/jcb-chief-urges-uk-pay-subsidies-for-manufacturers-idUSLN107325/ (Accessed: 1 July 2025).

201 Radford, P. (2025) *A Nation of Innovators: How the Industrial Strategy can kick-start growth in advanced manufacturing*. Civitas. Available at: https://www.civitas.org.uk/publications/a-nation-of-innovators/ (Accessed: 30 June 2025). Pages 26 to 29.

Rolls-Royce and UltraFan

There is no getting around Rolls' global importance to UK prosperity and exports. The company employs 22,000 people in the UK and contributes an astonishing 0.7 per cent to UK GDP.[202] Each year, Rolls spends £2.3 billion on over 2,300 companies. On its own, Rolls contributes two per cent of all UK goods exports.[203] It is easily the UK's top engineering exporter, and the repository of some of the UK's most advanced engineering.

This means Rolls' long-term competitiveness is an issue of national importance.

Rolls-Royce's future in civil aerospace is vested in its UltraFan design. This is an ultra-high bypass ratio engine, meaning a very high proportion of the air passing through the engine avoids the core altogether. In theory this is highly efficient, but only if the fan spins far more slowly than current gearing can efficiently deliver. Step forward the novel, 'planetary' gear system, developed by a 50:50 joint venture with Liebherr-Aerospace in Friedrichshafen, Germany.[204] The engine has already been tested at full power, 87,000 horsepower, which is the equivalent of a Boeing 777-type engine. Rolls claims a 25 per cent reduction in fuel burn compared to the first versions of the Rolls' Trent, which is the engineers' current turbofan.[205]

But the showstopper is Rolls' ability to scale down the UltraFan design. Rolls withdrew from the narrow-body engine market in 2011, and promptly watched it soar. The UltraFan is Rolls opportunity to re-enter a vast market with a game-changing engine. Industry sources estimate that as of February 2023, narrow-body aircraft comprised 20,000 of the 27,000 commercial aircraft in service around the world.[206] This makes Rolls' endeavour to re-enter the narrow-body market an issue of profound importance to British exports.

At the Paris Air Show in June 2025, CEO Tufan Erginbilgiç suggested that the ability to scale down its UltraFan for the single aisle market could create 40,000 jobs in the UK.[207] Note, this is twice Rolls' current UK workforce. Erginbilgiç claimed the UltraFan could be 'the single biggest item for economic growth for the UK'.[208] Given the scale of potential sales, Rolls' entrenched competitive advantage, and the proven efficiency of the engine, Erginbilgiç's assertion is hard to fault – so long as UK companies dominate the supply chain.

Now is the moment for targeted action, because Rolls will shortly begin to build that supply chain. The more UK companies become suppliers, the bigger the export value. And remember, the UltraFan may dominate turbofan exports for 30 years. The Trent engine has.[209]

ADS should start by identifying the UK companies likely to become the most competitive suppliers in the UltraFan programme and then identify what Government can do to enhance their chances of gaining a stake in the programme.

If Government has doubts about why this is important, it should take a long hard look at the current Trent programme. It should note that Rolls already assembles Trent engines in Dahlewitz, Germany and at Changi in Singapore. And it should ask Rolls about the current level of UK content in Trent XWB engines assembled at Derby.

202 Rolls-Royce. *Our UK Contribution*. Available at: https://www.rolls-royce.com/country-sites/uk/our-uk-story/uk-contribution.aspx (Accessed: 1 July 2025).

203 Ibid.

204 Liebherr. *UltraFan engine*. Available at: https://www.liebherr.com/en-gb/aerospace-and-transportation-systems/markets/engines-and-nacelles/case-studies/ultrafan%C2%AE-engine-7172840 (Accessed: 1 July 2025).

205 Rolls-Royce (2021) *Rolls-Royce UltraFan power gearbox tops world aerospace record*. Available at: https://www.rolls-royce.com/media/press-releases/2021/31-08-2021-rr-ultrafan-power-gearbox-tops-world-aerospace-record.aspx (Accessed: 1 July 2025).

206 Aerospace Global News: The state of the commercial engine market in 2023. https://aerospaceglobalnews.com/news/the-state-of-the-commercial-engine-market-in-2023/ Accessed July 2025.

207 Jasper, C. (2025) 'Rolls-Royce boss urges Labour to back £3bn jet engine project', *The Telegraph*, 18 June. Available at: https://www.telegraph.co.uk/business/2025/06/18/rolls-royce-boss-urges-labour-to-back-jet-engines/ (Accessed: 1 July 2025).

208 Ibid.

209 Rolls-Royce. *Celebrating 30 years of Rolls-Royce Trent engines*. Available at: https://www.rolls-royce.com/products-and-services/civil-aerospace/widebody/celebrating-30-years-of-trent.aspx (Accessed: 1 July 2025).

Capital ownership

Then there's the sensitive issue of foreign ownership. With a few exceptions – Rolls-Royce, GKN, BAE Systems – almost the entire UK aerospace industry is owned by companies based overseas. Just as with the auto industry, this makes UK taxpayers vulnerable to requests for 'support' whenever strategic decisions are in the offing. Such requests are invariably accompanied by threats to move operations overseas if that 'support' is not forthcoming.

Given that aerospace will almost certainly be the UK's biggest export industry within five years – and given the scale of ongoing government support – then the issue of commercial ownership requires strategic consideration. Currently, a huge proportion of UK aerospace is effectively owned by French interests – including Thales, Safran, and (although it's a complicated equation) Airbus. This exposes the UK's best export prospects to a high degree of political-industrial risk from one specific country.

The challenge should be addressed at two levels.

- **Small companies and startups:** Scaleups struggle to secure growth capital in the UK, and ADS makes clear that 'access to affordable and appropriate financing' is an industry challenge.[210] The challenge will be acute if the UK Ministry of Defence wants to cultivate a UAV industry in the UK, as discussed below. One way to assist is for the Government to set up an investment fund dedicated to the UK SME aerospace sector. The British Business Bank is ideally placed to act as a cornerstone investor, although innovator-entrepreneurs should be brought in to identify good investment opportunities.
- **Primes and major aerospace suppliers:** The UK Government cannot reverse the last 20 years of corporate history, in which UK companies have been absorbed by overseas entities. However, the UK Government should consider taking strategic stakes in companies that are purchasers of UK-supplied equipment. The most obvious candidates are Airbus, Safran and Thales. The objective should be to ensure that the UK has sufficient equity to ensure UK industrial interests are not subordinated to French interests.

Drones and unmanned aerial vehicles

Last, there's the big prize. The fastest-growing subsector in aerospace is in unmanned aerial vehicles (UAVs). This analysis shows that the UK possesses global competitive advantage in all the core aspects of UAV design and manufacturing. For that reason, becoming the global leader in UAVs should be the great strategic goal of the UK aerospace industry.

Fortunately, the UK Government appears heavily invested in drones as part of future military capabilities. The UK Defence Review, released in June 2025, committed to a £4 billion investment in autonomous systems.[211]

But spending does not guarantee UK production; and UK production does not guarantee a global export industry. That will only emerge when UK enterprises can efficiently integrate all aspects of drone design, testing and manufacturing into ultra-fast development cycles. Fortunately, the UK already has competitive advantage in all the elements required to be the world's leading maker of military drones: propulsion, avionics, wings, control systems, landing gear, communications, fuel systems, and AI-based automation. The UK industry also includes electronic warfare systems, and excellent integration expertise.

210 ADS (2024) *ADS Aerospace Sector UK Outlook 2024*. Available at: https://www.adsgroup.org.uk/facts-figures/ads-aerospace-sector-uk-outlook-2024/ (Accessed: 1 July 2025).

211 Ministry of Defence et al (2025) *Major £5 billion technology investment accelerates UK defence innovation in a European first*. Available at: https://www.gov.uk/government/news/major-5-billion-technology-investment-accelerates-uk-defence-innovation-in-a-european-first (Accessed: 1 July 2025).

In addition to the above, the UK has three core advantages, that very few other countries possess.

- **Composites:** The UK is a global leader in aerospace composites, including research into efficient manufacturing processes for composite materials.
- **Design and testing:** The UK has some of the most advanced aerospace design teams in the world, plus the requisite testing facilities. This expertise is extremely difficult to replicate.
- **Domestic demand:** All three branches of the UK armed forces are keen adopters of UAV technology. That means defence procurement can stoke the competitive instincts of different branches of the UK military.

In combination, these factors give the UK innate competitive advantage in UAVs. We have the potential to host a boom industry with staggering export opportunities. What the UK does *not* have, however, is a commercial environment that encourages rapid UAV development. An industry that takes around 20 years to create and deploy a new-generation fighter (the Typhoon or the F-35) is not in any way suited to creating UAVs with a lifecycle measured in months.

To succeed, a drone industry will need to be diffuse, agile, creative, and wide open to the sort of entrepreneur-innovator-enthusiasts who pioneered UK military aviation design in the 1920s and 1930s. This is an unreasonable expectation of a defence incumbent like BAE Systems. BAE Systems is simply not structured to pelt through UAV designs like they're going out of fashion.

Consequently, industrial consolidation is the last thing the UK industry needs. For example, the acquisition of small UAV companies like Malloy systems by BAE Systems will stifle dynamism. If this trend persists, it will kill the UK's prospects for a UAV industry stone dead.

A solution is at hand, however. The UAV industry in the UK is, for the moment, a more or less military-led monopsony. The UK Government is therefore in a position to shape the corporate landscape. It doesn't have to let defence giants like BAE systems gobble up nimble challengers like Malloy, if it doesn't want to. It just has to decide it wants to cultivate an industry where small teams can feasibly create, test and commence manufacturing *without* being absorbed into a defence prime. This will encourage maximum creativity. Several options present themselves:

- **Shared facilities for UAV startups:** Creating shared assembly, testing and avionics integration facilities for UAV startups would help unleash design genius. One quick way to do this would be to require BAE Systems to create a new division that can help build prototypes. Its Wharton site has many requisite skills and work there is on-hold until Türkiye confirms its order for Typhoons.
- **Competitive procurement cycles:** The UK should hold yearly, tri-service competitive evaluations of UAV platforms and systems, with sufficient prize money to trigger SME initiatives. Regular competitive rounds would provide a structure for SME innovation. They would also create a reliable procurement pathway where SMEs partner with their customer in UK forces. The US' Defense Innovation Unit should be a model.
- **Commercial stakes in SMEs:** Teams of aerospace designers are more likely to bid for contracts if they know they can access growth capital. Part of the UK's £4 billion budget for autonomous vehicles should comprise a fund for cornerstone investment into pioneering UAV teams.

The objective should be to create a genuinely vibrant, fast-evolving and creative UAV ecosystem, where development, integration and manufacturing facilities are accessible to small-scale entrepreneurs and startups, and where UK defence procurement is sufficiently agile to respond instantly to successful designs. Create this commercial environment, and the genius and exports will follow.

3. Machinery

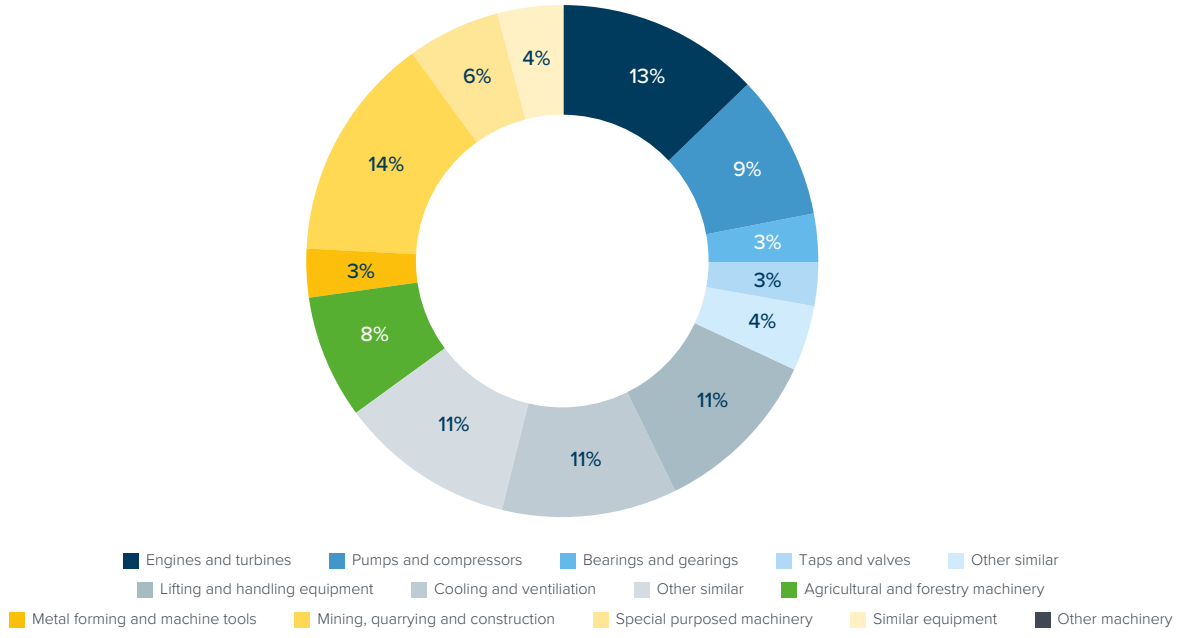
The UK's machinery sector is the unsung hero of British exports. It covers multiple subsectors – from pumps and turbines to tractors and excavators – so it lacks a single, powerful lobbying group. Partly as a result it receives a fraction of the public largesse conferred on the auto and aerospace industry. And yet, through the pandemic and subsequent supply chain disruptions, our machinery sector held steady. Exports dipped only slightly while its two big sisters both had infarcts.

What's more, the UK's machinery sector has outperformed other, flashier export industries. Since 2000, our computers and electronics exports have crashed, and our pharma exports have sickened. Our chemicals exports are in steep decline, thanks to high energy costs and lower North Sea production. But machinery exports keep growing, with a 20-year compound annual growth rate (CAGR) of 2.9 per cent per year. In 2024, the sector delivered £38.5 billion of exports, or 11 per cent of UK goods exports.[212] This is just a fraction less than the UK's aerospace industry.

Britain's metal-bashing heritage

The UK machinery sector is extremely diverse, and so a quick dash through output will establish what companies actually do, and in what proportion. The following chart depicts UK domestic turnover rather than exports, though the two closely correlate (see below).

Figure 3.1: Turnover in the UK machinery sector, 2022



Source: ONS Annual Business Survey 2024. Data for 2022.

212 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025).

- **General purpose machinery (SIC 28.1) (shades of blue). Exports: £15.2 billion.**[213] This subsector includes industrial engines and turbines. Rolls-Royce exports modified turbines for the oil and gas industry – with the Middle East a gigantic market. They are mostly used to pump gas. Rolls also makes turbines for warships. Perkins makes engines for Caterpillar and has major operations in Peterborough. Pumps and compressors deliver a further nine per cent of turnover; Scotland's Wier Group is our premier exporter. Bearings, gearings, taps and valves make up the balance. These goods – collectively called 'general purpose machinery' – deliver 38 per cent of UK machinery exports[214] – and exports have been growing above trend: 3.7 per cent per annum from 2000 to 2019.[215]
- **Other general-purpose machinery (SIC 28.2) (shades of grey). Exports: £10.7 billion.**[216] This is a truly diverse sector. Lifting and handling equipment includes elevators and conveyors, as well as fork-lift trucks. The companies involved are mostly foreign-owned: Hyster-Yale (Northern Ireland) and Toyota (Sunderland) for lift trucks. Kone PLC makes elevators in Staffordshire, and Linde Material Handling makes a whole range of handling equipment in East Kilbride. Cooling and ventilation equipment is more of a domestic business, but one specific category ('other similar', above) includes classified equipment which ends up on military and naval platforms. Exports grew by three per cent per annum up to 2019.[217]
- **Agricultural machinery (SIC 28.3) (green). Exports: £1.9 billion.**[218] This is a small sector for the UK, and it's had a hectic time. Mighty Massey Ferguson has been absorbed by a French group (AGCO) and left Coventry; McCormick has shipped out of Doncaster for Italy. Into the breach has stepped JCB, with Fastrac, the world's fastest tractor. This yellow icon is designed in the UK and assembled in Rocester. Meanwhile, New Holland has a 40-hectare, 60-year-old plant in Basildon that has now built 2 million tractors and exports to 120 markets.[219] Growth has been slightly slower, at 1.9 per cent per annum up to 2019.[220]
- **Other special purpose machinery (SIC 28.9) (shades of yellow/gold). Exports: £9.1 billion.**[221] The UK has global expertise in two subsectors: 'Mining and crushing machinery', much of which is designed and made in Northern Ireland. In fact, more than 40 per cent of the world's tracked, mobile-crushing and screening products are made in Northern Ireland.[222] And then there's the 'construction machinery' industry, in which the UK is a world leader: besides JCB's 11 factories, US-based Caterpillar assembles its monster kit at 10 factories across the UK.[223] Growth is below average at 1.8 per cent per annum up to 2019.[224]

213 Ibid.

214 See all the blue-shaded segments in Figure 3.1.

215 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025). Deflated using ONS IDEF 'Whole World' deflators for SITC 7

216 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025).

217 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025). Deflated using ONS IDEF 'Whole World' deflators for SITC 7

218 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025).

219 Abbott, G. (2023) 'Factory tour: building over 90 tractors daily in Basildon', *Irish Farmers Journal*, 31 May. Available at: https://www.farmersjournal.ie/machinery/tractors/factory-tour-building-over-90-tractors-daily-in-basildon-766857 (Accessed: 14 July 2025).

220 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025). Deflated using ONS IDEF 'Whole World' deflators for SITC 7.

221 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025).

222 Jain, A. (2020) *Northern Ireland: Engineering Excellence for the Materials Handling sector*. Available at: https://www.investni.com/media-centre/features/northern-ireland-engineering-excellence-materials-handling-sector (Accessed: 1 July 2025).

223 Caterpillar. *Caterpillar in the U.K.* Available at: https://www.caterpillar.com/en/company/global-footprint/eame/united-kingdom.html (Accessed: 26 November 2024).

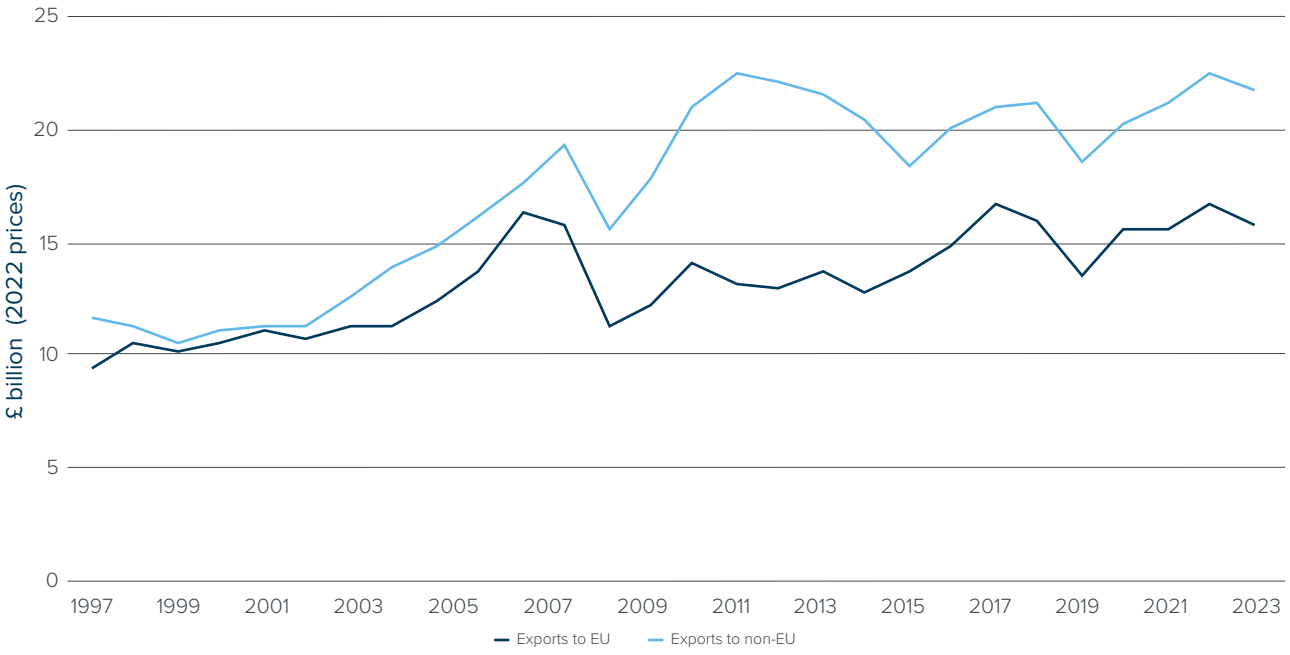
224 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025). Deflated using ONS IDEF 'Whole World' deflators for SITC 7.

What do we export?

The UK's export markets have shifted over the past 20 years – but less briskly than in other sectors. In 2000, exports divided cleanly between EU and global markets. They diverged gradually until around 2012. Since 2015, exports to the EU have performed comparatively well, although non-EU exports are still, on average worth 34 per cent more.

Virtually all of the goods in this sector consist of heavy capital equipment: excavators, tractors, mining machinery. Companies like JCB and Caterpillar tend to manufacture regionally, so investment in the UK is often intended to serve European markets.

Figure 3.2: UK machinery exports to EU and non-EU countries, 2000-2024



Source: ONS: UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1. Deflated using ONS IDEF export deflators for Transport and Machinery

Different subsectors have a different export-market focus.

- **Strongly global:** An increasing proportion of general-purpose machinery (SIC 28.1 – engines, turbines pumps and so forth) goes to non-EU markets, which now take 63 per cent of exports.[225] This is largely owing to the demand for turbines and related machinery in the oil and gas industry, including in the Middle East.
- **Moderately EU-oriented:** A far higher proportion (49 per cent) of our lifting and handling equipment (SIC 28.2) and associated machinery goes to the EU. An even higher proportion (58 per cent) of agricultural machinery (SIC 28.3) exports go to the EU.[226] Again, this is because tractors fit awkwardly on ships. Consequently, manufacturing is regional.
- **Strongly US-focused:** Only 40 per cent of our mining and construction machinery (SIC 28.9) exports go to the EU.[227] But the US takes almost one-third of all exports of UK construction machinery (32 per cent in 2023, worth £1.6 billion).[228] This market share is well ahead of the norm in UK manufacturing. Ireland and Poland are the UK's next biggest export markets, with Australia and Turkey also figuring in the top 10.

225 ONS (2025) UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1, May 2025. (Accessed: 14 July 2025).

226 Ibid.

227 Ibid.

228 CEA (2024) *UK Imports and Exports: construction and earthmoving equipment Q1 2024*. Available at: https://thecea.org.uk/hubfs/26098716/CEA%20Market%20Insights%20-%20UK%20imports%20and%20exports%20Q1%202024.pdf?hsLang=en (Accessed: 1 July 2025). Page 3.

Our machinery exports have one critical, defining characteristic: *the companies involved tend to have very few global competitors*. Caterpillar and JCB are, respectively, the world's largest and third-largest construction machinery companies. Rolls-Royce has only a few competitors in marine turbines, and turbines for the oil and gas industry. What this means is that the companies involved tend to be long-term incumbents who have developed sustained competitive advantage based on reputation, intellectual property and reliable engineering.

Strategic competitive advantage

In general terms, exports heading to fast-growing, non-EU markets tend to be related to propulsion machinery (SIC28.1), or mining and construction (SIC28.9). So, it's worth examining what makes these two subsectors competitive.

Top performer 1: Construction machinery

Within the UK's construction machinery industry, JCB is a clear standout. Half of the Staffordshire-based JCB workforce – 15,000 people – is in the UK (the same proportion as Rolls-Royce, incidentally) and over 75 per cent of the equipment manufactured in JCB's UK factories is exported. The company estimates export revenues of £3 billion from UK factories.[229] The company's competitive advantage rests on three factors.

- **Mass:** The UK has the largest construction equipment manufacturing industry in Europe, and probably the fifth largest in the world. It is a major export industry: it employs around 40,000 workers, and around 60 per cent of production is exported.[230] The UK's Construction Equipment Association reports that, in historical terms, exports are currently at a very high level.[231] They are also diffuse. The UK exports to around 160 countries. Having JCB and Caterpillar co-located across the country appears to deliver a perfect mix of competition and critical mass for the supply chain (for example, tracks for track-wheeled vehicles).
- **Innovation:** JCB has won 30 Queen's Awards for innovation and enterprise since 1969. It invented the backhoe loader and makes the world's fastest tractor. The company is now pioneering hydrogen as a power source for construction vehicles.[232] The mining and construction industry more generally is an early adopter in terms of AI. For example, Northern Ireland's Tribe Tech is now shipping autonomous drilling rigs to Australia.[233]
- **Leadership:** Home-grown JCB isn't just a star UK exporter, it's possibly the best-run major engineering company in Britain. Family-owned, it has built itself into the world's third-biggest construction equipment company without asking for subsidies. Chairman Lord Bamford is personally leading a team of 120 engineers on the company's hydrogen projects. Above all, JCB is profitable. It posted a record turnover of £6.5 billion in 2023 (when most of UK engineering was still coming off life support) and generated a profit before tax of £805.8 million.[234] The take-home is that leadership matters.

229 JCB. *Lord Bamford Chairman of JCB*. Available at: https://www.jcb.com/en-gb/about/lord-bamford (Accessed: 1 July 2025).

230 CEA (2023) *The UK's Construction Equipment Sector Report 2023*. Available at https://26098716.fs1.hubspotusercontent-eu1.net/hubfs/26098716/CEA%20UK%20Construction%20Equipment%20Sector%20Report%202023.pdf . (Accessed: 14 July 2025

231 CEA (2024) *UK Imports and Exports: construction and earthmoving equipment Q1 2024*. Available at: https://thecea.org.uk/hubfs/26098716/CEA%20Market%20Insights%20-%20UK%20imports%20and%20exports%20Q1%202024.pdf?hsLang=en (Accessed: 1 July 2025).

232 Lister, M. (2024) *JCB are building the future with hydrogen engines*. Available at: https://drivinghydrogen.com/2024/08/07/jcb-are-building-the-future-with-hydrogen-engines/ (Accessed: 1 July 2025).

233 McAleer, R. (2024) *Mallusk-based Tribe Tech ship first autonomous drill rig to Australia*. Available at: https://www.irishnews.com/news/business/mallusk-based-tribe-tech-ship-first-autonomous-drill-rig-to-australia-JIJLTUQPLFCFRO6ZEEQ6ELHKNE/ (Accessed: 1 July 2025).

234 JCB (2024) *Profits grow at JCB as market outlook becomes more uncertain*. Available at: https://www.jcb.com/en-gb/news/2024/09/profits-grow-at-jcb-as-market-outlook-becomes-more-uncertain (Accessed: 14 July 2025).

Top performer 2: General purpose machinery

Then there's general purpose machinery (SIC 28.1). It's impossible to tease military-purpose machinery out of trade and industry databases because it's hidden in unclassified categories. But analysis of global defence procurement programmes shows there's one area of machinery that's experienced a brisk reversal of fortunes – naval power systems. Over the past decade, Rolls-Royce has successfully sold its marine turbines into overseas warships programmes, including Japan's Mogami-class destroyers and the ASEV-class 'super' destroyers which are currently under construction.[235] Rolls' turbines also power Korea's Daegu-class frigates.[236] Thanks to several contract wins in the past four years, market penetration is set to expand quickly.

- **The Type 26 Frigate Programme**: In a turnaround for UK naval design, both Australia and Canada have selected a UK design for their forthcoming anti-submarine frigate procurements. This will expand the range of UK-origin naval machinery ending up in allied naval vessels, to include gearboxes, weapons handling systems, navigation systems, and highly sophisticated sonar systems. Rolls' turbines will power the ships, and in both cases, this marks a return of British powerplants to those navies' surface vessels. In August 2025, Norway selected the Type 26 design – with almost all UK sensors and weaponry – with five or six vessels to be built on the Clyde.
- **The Type 31 Frigate/Arrowhead Programme:** This is a Babcock initiative, whose design has won orders from Poland and Indonesia, and looks set to win a three-ship order from Denmark. Although not as lucrative to UK industry as the Type 26 exports, Babcock currently has interest in the design from 17 countries. According to company sources, a handful of these expect to build in the UK. Even ships built overseas will likely include exports of gearboxes, and weapons-handling and launch systems, plus some radar and sonar systems. Thales UK will export its combat management system, while MBDA will supply the anti-air missile systems.
- **The AUKUS design for Australian submarines:** Australia's selection of a UK design for its submarine fleet was a coup for UK strategic interests. The 2023 decision will also transform exports of naval machinery. Although the Australian submarines will be built in Adelaide, much of the content will originate in the UK. Besides the nuclear powerplant, this is likely to include valves and cooling systems (Weir), sonars, and the weapons handling systems. The win also represents a vote of confidence in Rolls-Royce's reactor technology.

These contract wins are significant because they demonstrate a resurgence of competitive advantage in UK naval systems engineering – specifically in power generation. The UK ceased to be a major exporter of naval vessels in the 1970s. From the 1980s to the 2010s, very few major units left UK yards for foreign navies. Our exports of naval machinery and technology fared little better. Spanish, German, and French designs proved far more popular with foreign naval forces, along with US weapons and combat systems.

Now, however, top-tier naval forces are selecting UK designs, systems, plant – and now the warships themselves. The Norwegian contract alone is estimated to be worth a colossal £10 billion.[237] It will sustain around 2,000 jobs on the Clyde into the 2030s, with another 2,000 in the marine engineering and weaponry supply chain. And it will be the first time that a UK shipyard has delivered a complex new warship to an overseas navy since Argentina took delivery of the Type 42 destroyer, Hercules, in 1977.[238] Meanwhile, the Danish navy looks likely to select a UK design for its next generation of frigates, with much of the build taking place at Babcock's newly built frigate construction hall in Rosyth.[239]

Meanwhile, even Belfast's moribund Harland and Wolff shipyard looks set for commercial growth. Doing what British shipyards should have done decades ago – put itself in the hands of a successful overseas shipbuilding – it is now embarked on a £115 million investment programme. Quite apart from the yard's naval support ship contract, this will deliver bloc-assembly capacity. This will help BAE systems and Babcock to ramp up frigate production rates and bid for more exports.

235 Rolls-Royce (2024) *Rolls Royce MT30 selected to power Japan's ASEV*. Available at: https://www.rolls-royce.com/media/press-releases/2024/30-05-2024-rr-mt30-selected-to-power-japans-asev.aspx (Accessed: 1 July 2025).

236 Rolls-Royce (2023) *Celebrating the success of the FFX II naval programme*. Available at: https://www.rolls-royce.com/media/our-stories/discover/2023/celebrating-the-success-of-the-ffx-ii-naval-programme.aspx (Accessed: 1 July 2025).

237 Ministry of Defence et al (2025) *Boost for UK Growth and Security as Norway Selects UK Warships in £10 billion partnership*. Available at: https://www.gov.uk/government/news/boost-for-uk-growth-and-security-as-norway-selects-uk-warships-in-10-billion-partnership (Accessed: 5 September 2025).

238 The ship was built by VSEL in Barrow, and delivered in time for the Falklands War.

239 Sheppard, D. et al (2025) 'UK in advanced talks to build warships for Denmark and Sweden', *Financial Times*, 2 September. Available at: https://www.ft.com/content/c84e2df3-2cc0-453c-9f11-b1db1ba99b28 (Accessed: 5 September 2025).

Export success has happened because British naval engineering is returning to the standard that once made the UK one of the world's top naval exporters. And this renaissance is happening as defence budgets are set to rise quickly, including among Europe's NATO members.

So, what's the source of the UK's new-found competitive advantage?

- **Design**: UK companies benefit from increasing disaggregation in warship design. It is increasingly feasible for procurements to mix and match weapons, sensors, systems, and plant for any chosen design. This helps BAE Systems and Babcock develop a more tailored approach to export bids. The UK is now home to multiple world-class naval designers: BMT in Bath, BAE Systems (multiple locations) and Babcock, which riffed its own version of the Danish Iver Huitfeld design before selling it – plus further redesign work – to the Polish and Indonesian navies.
- **Reputation:** In 2024, the Japanese Navy stuck with Rolls-Royce's MT30 marine turbines to power its follow-on class of destroyers.[240] In May 2025, the Korean Navy did the same for its Batch IV FFX-class destroyers.[241] These selections send an echoes-round-the-world signal of confidence in UK power-generation engineering. Within a decade Rolls-Royce will be supplying engines for the principal escorts of virtually all the UK's important naval allies (except in Europe): specifically, Japan, Korea, Australia, Canada and New Zealand.
- **Nuclear engineering.** The UK also benefits from its status as one of only three Western countries to build nuclear power for naval vessels. In the UK, this involves multiple companies besides Rolls-Royce. Sheffield Forgemasters, now owned by the Ministry of Defence, forges the heavy pressure vessels used for the small reactors in submarines. The company has also produced reactor vessels for numerous civil purposes since the 1960s. In other words, there's a local reactor supply chain in the UK, and ours is good. If it weren't, Australia would likely have chosen a US design.

Investment in UK naval machinery

In terms of investment, the 2020s are already unlike any other decade for over 50 years. Consider the trend that since the 1960s British shipbuilding has been in continuous decline. Shipyards have only ever closed. And yet Babcock has now begun to churn out Type 31 frigates from a new shipbuilding hall in Rosyth. On the Clyde, BAE Systems is spending £300 million on shipbuilding facilities,[242] which includes a vast, new frigate-building hall that dominates the Govan skyline. And Govan now has an order backlog of around 10 major warships. This is unprecedented for a British shipyard in modern times.[243]

BAE Systems' submarine yard in Barrow is also expanding at breakneck speed. The company is building gigantic new engineering facilities, partly to support work on Australian submarines. The company's workforce is expected to grow by around half, from around 10,000 to 12,000 now to around 17,000.[244] This is sufficient to require town planning officials to manage an expansion of the town of Barrow solely to support new jobs in engineering.[245] That hasn't happened in a British ship-building town for decades.

AUKUS has also triggered investment at two inland facilities.

240 Rolls-Royce (2024) *Rolls Royce MT30 selected to power Japan's ASEV*. Available at: https://www.rolls-royce.com/media/press-releases/2024/30-05-2024-rr-mt30-selected-to-power-japans-asev.aspx (Accessed: 1 July 2025).

241 Rolls-Royce (2025) *Rolls-Royce MT30 selected for Korean FFX Batch IV Programme*. Available at: https://www.rolls-royce.com/media/press-releases/2025/27-05-2025-rolls-royce-mt30-selected-for-korean-ffx-batch-iv-programme.aspx (Accessed: 20 August 2025).

242 BAE Systems (2024) *Construction of new £12m shipbuilding academy starts in Glasgow*. Available at: https://www.baesystems.com/en/article/construction-of-new--12m-shipbuilding-academy-starts-in-glasgow (Accessed: 1 July 2025).

243 The hulls for the first three Type 26 frigates, Glasgow, Cardiff and Belfast, are essentially complete.

244 Westmoreland and Furness Council (2024) *Decision set to be made on Team Barrow funding*. Available at: https://www.westmorlandandfurness.gov.uk/news/2024/decision-set-be-made-team-barrow-funding (Accessed: 1 July 2025).

245 Westmoreland and Furness Council (2023) *Top civil servants in Barrow to discuss vision for town's transformation*. Available at: https://www.westmorlandandfurness.gov.uk/news/2023/top-civil-servants-barrow-discuss-vision-towns-transformation (Accessed: 1 July 2025).

First, Australia is investing £2.4 billion over 10 years to help Rolls-Royce build reactors for nuclear submarines in Derby.[246] Construction work has already started, and it will see the company's Raynesway site approximately double in size. This will trigger around 1,000 additional jobs – including in engineering.[247] The expansion will include anticipated additional work on civil reactor programmes. In total, the expansion involves 15 new buildings stretched over 104,430 cubic metres.[248] And note, this is additional to that 40 per cent expansion of Derby's aero-engine manufacturing facilities.

Second, Sheffield Forgemasters has embarked on a gigantic recapitalisation programme that reached £1.3 billion-worth in June 2025.[249] Now owned by the Ministry of Defence, plant expansion includes installation of a 13,000-tonne heavy forging press for the manufacture of nuclear-grade components for civil and military use.[250] This will be a unique facility in the UK. Its installation solidifies Sheffield's resurgence as a centre of advanced metal manufacturing. Expansion for the AUKUS contract also involves a new, 21-acre site for machining.

The civil/military machinery sector is also investing in skills, including via apprenticeship programmes.

- BAE Systems opened a new £12 million shipbuilding academy on Clydeside in October 2024.[251] Nearly 300 apprentices and graduates attended in its first year.[252]
- In 2022, Rolls opened a new Nuclear Skills Academy, which is set to graduate 200 students per year for the next decade.[253]
- Sheffield Forgemasters has an apprenticeships scheme that brings in 20 to 30 candidates per year.[254]
- Babcock in Rosyth is now running the biggest apprenticeship scheme it has ever had.

Government has got in on the act. Before he left office, Prime Minister Sunak announced a plan to invest £763 million in nuclear-related skills and education.[255] The initiative will support a doubling in the number of nuclear apprentices and graduates, and a quadrupling in the number of specialist science and nuclear fission PhDs.

246 Hurst, D. (2024) 'Australia's $4.6bn Aukus funding to help create more than 1,000 jobs in UK, Rolls-Royce says', *The Guardian*, 25 March. Available at: https://www.theguardian.com/world/2024/mar/25/australia-aukus-funding-uk-jobs-rolls-royce (Accessed: 1 July 2025).

247 Rolls-Royce (2024) *Rolls-Royce welcomes Australian investment in AUKUS preparation plans*. Available at: https://www.rolls-royce.com/media/press-releases/2024/21-03-2024-rr-welcomes-australian-investment-in-aukus-preparation-plans (Accessed: 1 July 2025).

248 Nuclear Information Service (2023) *AUKUS and SMR hopes prompt Rolls Royce expansion plans*. Available at: https://www.nuclearinfo.org/article/aukus-and-smr-hopes-prompt-rolls-royce-expansion-plans/ (Accessed: 1 July 2025).

249 Sheffield Forgemasters (2025) *Sheffield Forgemasters details 1.3bn GBP plans*. Available at: https://www.sheffieldforgemasters.com/news-and-insights/news/06/sheffield-forgemasters-details-1.3bn-gbp-plans/ (Accessed: 1 July 2025).

250 Sheffield Forgemasters (2024) *Forge project at Sheffield Forgemasters enters second phase*. Available at: https://www.sheffieldforgemasters.com/news-and-insights/news/05/major-open-die-forge-project-at-sheffield-forgemasters-enters-second-phase/ (Accessed: 1 July 2025).

251 BAE Systems (2024) *£12m Applied Shipbuilding Academy opens in Glasgow.* Available at: *https://www.baesystems.com/en/article/12m-applied-shipbuilding-academy-opens-in-glasgow* (Accessed: 14 July 2025).

252 BAE Systems (2025) *Princess Royal officially opens Glasgow Shipbuilding Academy. Available at: https://www.baesystems.com/en/article/princess-royal-officially-opens-glasgow-shipbuilding-academy* (Accessed: 14 July 2025).

253 Rolls-Royce (2022) *Rolls-Royce Submarines opens Nuclear Skills Academy*. Available at: https://www.rolls-royce.com/media/press-releases/2022/26-09-2022-rr-submarines-opens-nuclear-skills-academy (Accessed: 1 July 2025).

254 Sheffield Forgemasters (2024) *Sheffield Forgemasters welcomes 23 new Apprentices for 2024 intake*. Available at: https://www.sheffieldforgemasters.com/news-and-insights/news/12/sheffield-forgemasters-welcomes-23-new-apprentices-to-site-for-2024/ (Accessed: 1 July 2025).

255 Prime Minister's Office et al (2024) *PM announces national endeavour to strengthen the UK's nuclear deterrent.* Available at: https://www.gov.uk/government/news/pm-announces-national-endeavour-to-strengthen-the-uks-nuclear-deterrent (Accessed: 1 July 2025).

A competitive advantage in small modular reactors

The astute reader will see exactly where this chapter is headed. The UK has achieved competitive advantage in niche machinery sectors based on specific capabilities: military-grade engineering, machinery design, power generation, innovation and expertise with small nuclear reactors. With these capabilities, one programme screams out as a future export industry: small modular reactors (SMRs).

The commercial proposition behind SMRs is straightforward: up to 90 per cent of the components of an SMR reactor can be built in factories and then assembled on site. This will dramatically reduce the cost of building nuclear-powered generating capacity. Even without the UK's resurgence as an exporter of advanced, power-generating machinery, the UK has clear advantages in the race to build SMRs. Among Western countries, only France, the UK and the US already make similar reactors for nuclear-powered submarines. There is, therefore, limited competition when it comes to manufacturing SMRs that are inherently safe.

And yet the export potential is vast. Rolls-Royce has forecast exports of £250 billion, with the industry generating 40,000 jobs in the UK – mostly in the North and the Midlands.[256] As the sole supplier of small reactors to the Royal Navy, Rolls is ideally placed to develop SMRs in the UK. A glimpse of the company's recent investor presentations shows it anticipates SMRs will deliver 20 to 25 per cent of its business in the long term.[257] That represents a huge expansion of the company's core business.

The vital aspect, however, is UK value add. Rolls originally estimated it could source 80 per cent of the value of its SMRs *from within the UK supply chain*.[258] This is the one SMR fact that should grab political attention. Analysts should note that an 80 per cent UK value-add is a far, far higher share than for virtually any other finished product in UK manufacturing. British-made cars hover around 50 per cent,[259] except at the ultra-luxury end of the market. This 80 per cent claim means the prospects for UK engineering in SMRs are breathtaking.

Sheffield's breakthrough

Part of the UK's claim to future SMR mastery is a technical masterstroke at Sheffield Forgemasters. This is a company few had heard of three years ago, but which is suddenly attracting visitors from around the world. In March 2022, the company announced it had learned how to industrialise a welding technique – 'local electron beam welding' (LEBW) – for what are called thick-section materials.[260] This dramatically reduces the time Forgemasters will take to produce the core, heavy-pressure vessels in submarine reactors. What used to take months now takes hours.

The world instantly took notice. SMR aspirants from the US and France instantly sidled up to the aged Sheffield stalwart. In November 2024, Sheffield Forgemasters signed a Memorandum of Understanding (MOU) with US-based Holtec for the manufacture of component parts for Holtec's SMR-300 SMR.[261] With the promise of a heavy castings factory in the UK, this meant Holtec's bid for UK SMRs targeted a UK content threshold of 70 per cent for its UK SMRs, which is still extraordinarily high.[262] Forgemasters also signed civil nuclear MOUs with GE Hitachi, Rolls-Royce SMR, X-Energy, Cavendish Nuclear and EDF.[263]

256 Rolls-Royce. *Small Modular Reactors*. Available at: https://www.rolls-royce.com/innovation/small-modular-reactors.aspx#/ (Accessed: 26 November 2024).

257 Rolls-Royce (2024) *Investor presentation*. Available at: https://www.rolls-royce.com/~/media/Files/R/Rolls-Royce/documents/investors/rolls-royce-investor-presentation-march-2024.pdf (Accessed: 1 July 2025).

258 Rolls-Royce. *About the Rolls-Royce SMR*. Available at: https://www.rolls-royce-smr.com/about-the-rolls-royce-smr (Accessed: 1 December 2024).

259 See Chapter 1.

260 Sheffield Forgemasters (2022) *Sheffield Forgemasters announces landmark welding breakthrough*. Available at: https://www.sheffieldforgemasters.com/news-and-insights/news/03/sheffield-forgemasters-announces-landmark-welding-breakthrough/ (Accessed: 14 July 2025).

261 Sheffield Forgemasters (2024) *Sheffield Forgemasters expands SMR pact with Holtec*. Available at: https://www.sheffieldforgemasters.com/news-and-insights/news/11/sheffield-forgemasters-expands-smr-pact-with-holtec/ (Accessed: 1 July 2025).

262 Hakimian, R. (2025) *Final tenders submitted in Great British Nuclear SMR competition*. Available at: https://www.newcivilengineer.com/latest/final-tenders-submitted-in-great-british-nuclear-smr-competition-11-04-2025/ (Accessed: 1 July 2025).

263 Sheffield Forgemasters (2024) *Sheffield Forgemasters expands SMR pact with Holtec*. Available at: https://www.sheffieldforgemasters.com/news-and-insights/news/11/sheffield-forgemasters-expands-smr-pact-with-holtec/ (Accessed: 1 July 2025).

A damaging procurement

The UK Government announced the winner of the UK SMR competition on 10 June 2025. To no one's surprise, the name was Rolls-Royce. A harsh critic might observe that the UK Government had simply wasted two years coming to a forgone conclusion before immediately opening up the entire UK small nuclear reactor industry to US competition. This delay has needlessly compromised Rolls' first-mover advantage, as the Rolls-Royce CEO Tufan Erginbilgiç explicitly warned.[264]

Worse, the delay has imperilled the UK supply chain. In April 2024, Rolls cancelled plans for a £200 million UK factory for heavy pressure vessels.[265] In October 2024, a frustrated Rolls-Royce sold a 20 per cent stake in its SMR programme to ČEZ Group,[266] to help fund development. This was a clear warning shot to ministers. It is naïve to suppose that a chunk of the future UK supply SMR chain did not disappear along with that equity stake. Prior to the UK win, Rolls reportedly favoured a South Korean supplier for its all-critical heavy pressure vessels,[267] in obvious preference to Sheffield Forgemasters.

Despite the probable loss of UK supply chain content, the UK retains core competitive advantage in multiple aspects of SMR engineering. These competitive advantages should now be front of mind, as the UK and US adopt a joint and open approach to the development of small and advanced modular reactors. These advantages could – still – create a vast, new, clean-energy export industry in the 2030s, because the UK has competitive advantage in four areas.

- **Trust:** Rolls-Royce is trusted by overseas governments, and AUKUS demonstrates confidence in the company's nuclear engineering. Meanwhile the success of UK naval engineering exports demonstrates global confidence in UK power-generation machinery.
- **First-mover advantage:** Rolls-Royce and Sheffield Forgemaster have a technological lead. As Rolls-Royce CEO, Tufan Erginbilgiç has commented:

  > *'First mover advantage on a new technology is very important… if you are the first one going into execution, you will build the supply chain, you will enable the supply chain.'*

  In its June 2025 press release, Rolls asserted that it retains 'first-mover advantage'.[268]

- **Vitality:** Genuine enthusiasm is a core characteristic of successful UK engineering – from premium auto design to Bamford's quest for hydrogen-powered construction machinery. In SMRs, young British engineers have an unrivalled opportunity to forge an enterprise that will do more to de-carbonise power generation than any other single technology.[269]
- **Leadership:** The UK's single biggest advantage is Tufan Erginbilgiç himself. He appears the most charismatic CEO to lead a major British engineering company for decades. No other CEO in post-war British history has feasibly suggested they can build a £250 billion export engineering industry in this country. He believes passionately in SMRs and forecasts a nuclear business that will exceed Rolls' current defence interests.[270]

264 Oliver, M. (2024) 'Race to build Britain's first mini-nukes delayed again in Budget', *The Telegraph*, 31 October. Available at: https://www.telegraph.co.uk/business/2024/10/31/race-to-build-britains-first-mini-nukes-delayed-again-reeve/ (Accessed: 1 July 2025). Department for Energy Security and Net Zero et al (2025) *Golden age of nuclear delivers UK-US deal on energy security*. Available at: https://www.gov.uk/government/news/golden-age-of-nuclear-delivers-uk-us-deal-on-energy-security (Accessed: 17 September 2025).

265 Lowe, T. (2024) *Rolls Royce pulls plug on £200m plans for small modular reactor factory*. Available at: https://www.building.co.uk/news/rolls-royce-pulls-plug-on-200m-plans-for-small-modular-reactor-factory/5129163.article (Accessed: 1 July 2025).

266 Rolls-Royce (2024) *Rolls-Royce SMR and ČEZ Group partner to deploy SMRs in UK and Czechia*. Available at: https://www.rolls-royce.com/media/press-releases/2024/29-10-2024-rolls-royce-smr-and-cez-group-partner-to-deploy-smrs-in-uk-and-czechia.aspx (Accessed: 1 July 2025).

267 Kim, T. (2025) *Doosan emerges as potential supplier of Czech SMR components*. Available at: https://www.newsarticleinsiders.com/news/articleView.html?idxno=2744 (Accessed: 1 July 2025).

268 Rolls-Royce (2025) *Rolls-Royce welcomes Great British Nuclear decision on SMRs*. Available at: https://www.rolls-royce.com/media/press-releases/2025/10-06-2025-rr-welcomes-great-british-nuclear-decision-on-smrs.aspx (Accessed: 1 July 2025).

269 'Enthusiasm' was specifically cited in the Sheffield Forgemasters press release announcing its latest intake of apprentices. Sheffield Forgemasters (2024) *Sheffield Forgemasters welcomes 23 new Apprentices for 2024 intake*. Available at: https://www.sheffieldforgemasters.com/news-and-insights/news/12/sheffield-forgemasters-welcomes-23-new-apprentices-to-site-for-2024/ (Accessed: 1 July 2025).

270 Rolls-Royce (2024) *Investor presentation*. Available at: https://www.rolls-royce.com/~/media/Files/R/Rolls-Royce/documents/investors/rolls-royce-investor-presentation-march-2024.pdf (Accessed: 1 July 2025). Page 14.

The big challenge: the UK engineering supply chain for SMRs

The critical factor now is how much of the supply chain for small reactors can still be captured by UK-based suppliers. Competitiveness is key. If the UK Government obliges Rolls to adopt UK suppliers, that will simply make Rolls' SMRs less competitive in global markets. And the global market is potentially huge. Then again, if the UK Government is only funding three SMRs, it has limited bargaining power.

There is hope. On the same day the SMR winner was announced (10 June 2025) the Government also announced a surprisingly large £425 million investment at Sheffield Forgemasters, which it owns.[271] The stated purpose was expansion to support the AUKUS submarine programme. This was, however, just the latest instalment in a recapitalisation at Forgemasters that had already reached over £800 million.

The timing is probably no coincidence at all. Holtec lost its SMR bid, despite indicating a high 70 per cent supply chain share for UK suppliers. So, it is unlikely that Rolls-Royce would have promised much less. This in turn makes it likely that Rolls must have reached an understanding with Sheffield Forgemasters to supply the heavy castings for its programme, but that its bid was conditional on increased capacity at Sheffield Forgemasters. Time will shortly tell, but Rolls' press release on 10 June was bizarrely short on facts – and enthusiasm.[272]

Nevertheless, the key point is that UK industrial strategy must concentrate on what's going to make potential UK suppliers competitive in the emerging SMR supply chain. This should involve focussing skills/training budgets on relevant enterprises and providing access to growth capital for local business that want to scale up. These will be the two key challenges standing in the way of UK engineering businesses that want to expand into SMR supply chains in the UK and the US.

Innovate UK should also work directly with the AMRC at Sheffield to ensure it knows how best to support bids to supply parts for SMRs.

Executive personnel: No time for pride

Then there's Sheffield Forgemasters itself. As company owner, the MoD should now recruit an executive team at Forgemasters from the best comparable engineering companies around the world. Then it needs to incentivise them and the workforce. Get it right, and Forgemasters could become the core supplier in a vast, new nuclear-engineering export industry. But this won't happen unless the MoD is ruthless and acts like a private sector investor. Ideally, it should already be charting a course to privatisation that incentivises the workforce by providing pathways to share ownership.

271 Blackburn, R. (2025) 'Exclusive: Sheffield Forgemasters to get £420m to build nuclear-powered attack submarines', *The Yorkshire Post*, 10 June. Available at: https://www.yorkshirepost.co.uk/news/politics/sheffield-forgemasters-funding-nuclear-attack-submarines-5168671 (Accessed: 1 July 2025).

272 Oddly, Rolls' Press Release on 10 June was short on facts, such as numbers of UK workers involved or the percentage of the SMRs to be delivered from within the UK. These numbers would normally be to hand, because they would have formed part of the bid. That they were not included in the press release implies there was some degree of conditionality in its bid. The author's assumption is that Rolls' bid was contingent on increased government investment at Sheffield Forgemasters' to increase capacity.

Conclusion

UK exports of auto, aerospace and machinery goods are set for a period of sustained growth. The core reason is competitive advantage in niche subsectors. And this observation is frequently lost amid negative commentary because analysts do not look below the surface of the data.

For example, it is perfectly true that the volume of UK auto vehicle exports is around half what it was in 2015. But the UK's accelerated shift into premium car manufacturing means the value of UK auto vehicle exports is almost back to its 2015 levels.

Similarly, UK aerospace exports have had a frightful half decade since the pandemic. But the reason was a traumatic downturn in commercial airline manufacturing. And to compound the problem, the worst-hit segment – wide-body airliners – just happened to be the segment where UK content was concentrated.

These are critical observations for public policy. Hard-won UK competitive advantage has been obscured since 2020 by a series of global events. But UK competitive advantage in autos, aerospace and machinery rests on solid ground. And rather than squander support across multiple sectors, the UK Government should train its resources on the 'Big Three' manufacturing-export sectors that have demonstrated global competitive advantage.

Specifically, the Government should focus on what needs to happen to make UK SMEs more competitive in supply chains in these industries, and specifically in major projects, such as Rolls' UltraFan and SMRs. Nothing is more likely to generate export-led prosperity than high UK content in these programmes.

Rapid growth is predicated on the following observations:

- **Aerospace:** This will be the UK's most valuable export industry by 2028,[273] which is the date by which Airbus intends to build 12 A350s per month. Not since Concorde has a major aircraft carried a higher proportion of UK-origin equipment, and the order backlog now stands at 766 aircraft. Meanwhile, UK suppliers – especially premium seat manufacturing – will expand rapidly as airlines switch budgets to refurbish aircraft they cannot replace.
- **Automotive:** All growth in the UK auto exports is driven by premium marques, not mass-market models. What's more, the markets buying premium cars are predominantly outside the EU, which is why the EU now accounts for just 33 per cent of UK auto exports.[274] Investment is moving up-market. Premium vehicles have just collared around three-quarters of the £23 billion of investment pumped into the UK car industry since 2022, so this trend will continue.
- **Machinery:** The UK's diverse machinery sector receives only a fraction of the public subsidies of the auto and aerospace industries, and yet it is almost as big. This is thanks to niche areas of competitive advantage, especially in power-generation equipment, and mining and construction machinery. Rolls' determination to build a small modular reactor-building export industry in the UK is a £250 billion game-changer.[275] The project has excellent commercial prospects because it is based on the proven competitive advantage of UK companies in multiple areas of heavy engineering. And if UK suppliers can break into the supply chain for US suppliers, then the UK has a vast, new global export industry on its hands.

273 See Chapter 2.

274 UN Comtrade. Accessed March 2025. See Chapter 1.

275 Rolls-Royce: *Small Modular Reactors*. Available at: https://www.rolls-royce.com/innovation/small-modular-reactors.aspx#/ (Accessed: 11 July 2025).

Automotive

- **Prioritise access for premium vehicles in UK trade policy formation:** The UK Government must focus on getting the 100,000-vehicle quota imposed by the US on imports from the UK raised, even by 25,000.
- **UK negotiators should also ensure national emissions regulations do not impede future access for UK vehicles** – specifically for PHEVs and small volume manufacturers – by monitoring regulatory development in target markets in North America, the Middle East and Asia, as well as gathering supportive data.
- **Tactical support for SMEs that support customisation, craftsmanship, design and engineering:** Most of the 2,500 companies in the UK's auto supply chain are SMEs. The Government should pivot financial support from R&D to SMEs that help British marques distinguish themselves in global markets. Support should focus on the two big challenges for SMEs: skills development and energy costs.
- **Transparent reporting on UK vehicle exports and markets:** The SMMT should follow the example of its European equivalent – the European Automobile Manufacturers' Association (ACEA) – and report on *both* value and volume data. This would allow the media, MPs and the public to better understand the strategic importance of markets in North America, the Middle East and Asia.
- **Institutionalise design acumen:** At the earliest opportunity, the auto industry and WMG should consider setting up an auto design academy so the UK's leadership in auto design can be perpetuated.

Aerospace

- **Shared facilities for UAV startups:** It would be highly beneficial for UAV startups to create shared assembly, testing and avionics integration facilities. A quick way to do this would be to require BAE Systems to create a new division that can help build prototypes.
- **Competitive procurement cycles:** The UK should hold yearly, tri-service competitive evaluations of UAV platforms and systems, with sufficient prize money to trigger SME initiatives. The US' Defense Innovation Unit should be a model for this.
- **Commercial stakes in SMEs:** If aerospace designers know they can access growth capital, they are increasingly likely to bid for contracts. Part of the UK's £4 billion budget for autonomous vehicles should therefore comprise a fund for cornerstone investment into pioneering UAV teams.

Machinery

- **Anchoring supply chains in the UK:** It would be a tragedy if Rolls' SMRs were a huge export success, but most of the components were fabricated overseas. Policy should be tactical: it should focus on what needs to take place for UK suppliers, including Sheffield Forgemasters, to be efficient and competitive. It should also focus on the UK companies that have the best prospects for becoming strategic partners in the supply chains for US designs, including specifically Holtec.
- **Assistance for ramp-ups:** Naval machinery deliveries will expand rapidly in the next five years, thanks to the construction of 11 Type 26 frigates and up to 11 Type 31 frigates.[276] As spending on naval re-armament increases, UK machinery suppliers have a once-in-a-lifetime opportunity to use economies of scale to forge global competitive advantage.
- **Benchmark apprenticeship schemes:** Industry heavyweights, such as BAE Systems, Rolls-Royce and JCB, have established apprenticeship schemes. The Government should benchmark their success. It should analyse how SMEs in these companies' supply chains can replicate best practice in their apprenticeships. This will anchor up-stream engineering expertise in the UK and entrench competitive advantage.

Best prospects

This paper has focussed on competitive advantage – because that's what ultimately generates export-led growth. It has sought to identify the source of UK competitive advantage in those subsectors where UK exports are fastest growing. Three traits emerge.

- **Design, customisation and craftsmanship are UK differentiators:** This is most obvious in the premium auto industry, where the value of premium models depends on those three factors. These premium models are also responsible for that standout nine per cent compound annual growth rate (CAGR) of exports in global markets up to 2019.[277] It's also a factor in the aviation industry, with the rapid expansion of manufacturing in premium seat manufacturing, and cabin interiors more generally.
- **Technical leadership in niche subsectors delivers growth:** In aviation, the UK is a world leader in turbofans, wings, landing gear, avionics and interior fitouts. In machinery, the UK is a world leader in construction machinery and power-generation machinery – for civil and military use. In each of these subsectors, the UK has limited global competition and global demand is soaring.
- **The vital importance of SMEs in supply chains:** Export success depends on the vibrancy and efficiency of suppliers. Research shows that the biggest challenges for manufacturing SMEs in the UK are skills availability and high power costs. For innovators, the biggest challenge is access to growth capital. Therefore, government support should focus on SMEs in the UK's 'Big Three' export industries to help lower power costs, improve skills, and gain access to capital.

The take-home for the UK Government is to act strategically in terms of which industries it supports. If it wants to promote export growth, it should direct support to where it will increase competitiveness in the UK's most successful export industries. In the auto industry, this means initiatives under the new DRIVE35 programme should specifically target the skills and efficiency of auto suppliers, especially those involved in design, customisation and craftsmanship. This is where funding will have the greatest impact on securing global competitive advantage for the UK auto industry.

276 Six out of eight Type 26s are either under currently construction or scheduled for order by the Royal Navy. The Royal Norwegian Navy will order five or six. Babcock at Rosyth is building five type 31s for the Royal Navy, and looks set to build three for the Royal Danish Navy. UK machinery, weapons and sensors will also be exported to Poland for three Type 31s and to Indonesia for two.

277 ONS: UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2025 Q1. Deflated using ONS IDEF deflator series, for 'Whole World' Exports, SITC 7.

In aerospace, this means initiatives and support should aim to entrench expertise and efficiency in the supply chains for wings, engines, avionics and aircraft interiors. This includes especially the incipient supply chain for Rolls' Ultrafan project. This analysis suggests the claim by Rolls' CEO – that the Ultrafan project could be 'the number 1' project in the UK to deliver exports – are credible, given Rolls' track record.[278] But real export success will depend on UK companies becoming part of the Ultrafan supply chain. The Government should tactically support any company that needs to scale up output for Airbus as production rates increase for the A350 and A330neo, including especially seat manufacturers.

This paper shows that UK companies have competitive advantage in the capabilities required in two new industries where global demand is set to rocket.

Unmanned aerial vehicles (UAVs): UK industry has all the niche expertise required to become the global leader in the design and manufacture of drones: propulsion, composites, wing design, avionics, automation – and tech-integration. But UAV development is being stifled by defence contractors who have too much to lose from the demise of manned aircraft. To succeed, the Ministry of Defence needs to cultivate a free-wheeling commercial environment where small teams of UAV innovators can access shared test and assembly facilities, and partner with elements within the UK armed forces to prototype new designs.

Small modular reactors (SMRs): Similarly, the UK has competitive advantages in the core industrial activities required to design, manufacture and export SMRs. This is why Rolls-Royce originally estimated it could source 80 per cent of its supply chain within the UK. But a UK-centric supply chain will not emerge unless the UK Government aids supplier competitiveness, and helps Sheffield Forgemasters evolve into a commercial entity that can stand on its own feet.

UK engineering is in far better shape than it appears. In the decades before Brexit, the UK auto, aerospace and machinery industries developed global competitive advantage in subsectors that are set for rapid growth over the next five years. If Government focuses support on SMEs in those supply chains, our export industries will grow rapidly.

Analysis of competitive advantage also highlights strategic opportunities in new industries. Drones and SMRs represent the best opportunities for building vast, new manufacturing industries in the UK. They include all the aspects of engineering where UK companies have demonstrated expertise in the last 25 years. As a result, they are the UK's best hope for creating major new export industries of the future.

278 Jasper, C. (2025) 'Rolls-Royce boss urges Labour to back £3bn jet engine project', *The Telegraph*, 18 June. Available at: https://www.telegraph.co.uk/business/2025/06/18/rolls-royce-boss-urges-labour-to-back-jet-engines/ (Accessed: 1 July 2025).

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In this report, Phil Radford questions why the UK's approach to trade has such little focus on our fastest-growing exports and why debate is not better informed on the location of the country's future growth markets. Could policymakers answer the basic question: 'What are the UK's fastest-growing exports?'

Through analysing 25 years' worth of UK trade data, Radford identifies three engineering industries where UK companies have built competitive advantage: premium motor vehicles, civil aerospace and specialist machinery (especially construction, mining and power-generating machinery). For these 'Big Three' industries, UK exports to global, non-EU markets have grown extraordinarily fast since the turn of the century. Non-EU markets now take most UK exports – something that will only accelerate if UK companies can continue long-term growth rates in the fast-growing markets.

Focusing on competitive advantage, because that's what ultimately helps to generate export-led growth, Radford identifies the source of UK competitive advantage in those subsectors of the Big Three industries where UK exports are growing fastest. A number of important traits emerge, including where design, customisation and craftsmanship are UK differentiators; where technical leadership in niche subsectors helps to deliver growth; and the vital importance of small and medium-sized enterprises (SMEs) in supply chains.

In highlighting key observations on the source of the Big Three industries' existing competitive advantage, this report aims to help the Government develop a clear policy for both its industrial and trade strategies. The key takeaway is that the Government needs to act strategically if it wants to promote UK export growth both now and over the long term.

UK engineering is in far better shape than it appears, argues Radford, because in past decades the auto, aerospace and machinery industries developed global competitive advantage in subsectors that are set for rapid growth over the next five years. If the Government focuses support on SMEs in those supply chains, our export industries should grow rapidly.

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