

## Business

# Team Tempest need wingmen to see jets soar without limits

RAF's next warplane is key to maintaining Britain's global reach and aviation industry but requires foreign partners to take off, reports *Alan Tovey*

A year ago Britain unveiled its vision of what the RAF's next warplane might look like. Farnborough air show crowds were wowed by Team Tempest, a collaboration between BAE Systems, Rolls-Royce, MBDA and Leonardo, and the Government. Gavin Williamson, defence secretary at the time, revealed a mock-up of the "sixth generation" fighter, calling it a "bold statement" of Britain's "future air combat power".

Due to enter service in 2035, Tempest's design signalled a stealthy aircraft able to avoid radar detection. Its twin engines and large size hinted at long range, able to project national power by striking distant targets. It would feature advanced engines, electronics, lasers and even be capable of operating autonomously.

Developing Tempest would "leave industry, our military, the country, and our allies in no doubt that the UK will be flying high in the combat air sector", Williamson said.

While impressive, Tempest was just a vision. What it eventually looks like – if it ever happens – could be radically different. What it did show was that the Government was serious about protecting Britain's £6bn-a-year military aircraft industry, which supports 18,000 well-paid jobs and generates huge exports. Tempest came alongside the launch of the Combat Air Strategy, a policy sketching out hopes of protecting national security, while maintaining

Britain's position as a global power, both by recognising the value of the industry as well as generating intellectual property.

While Britain may have a proud history of building warplanes, those behind Tempest were clear the country could not go it alone. Other countries need to join.

"Partners are needed from a funding perspective," says Martin Taylor, chief operating officer of BAE's air division. "Other countries are interested. Tempest is more than just equipping the RAF, it's also about working with the Government and others."

Discussions about other nations joining are under way. Italy, Japan, Sweden and Turkey are interested. A progress update is expected soon.

It's not that Britain hasn't co-operated internationally on warplanes before. Typhoon – which Tempest will replace – is a joint project between Britain, Germany, Italy and Spain. France was a member but left to develop its rival Rafal after political and workshare disagreements, causing delays. Having two similar European combat aircraft raised the cost of each, and also split the market for global customers.

Tempest faces similar issues. France and Germany are working together on their own system. Spain announced it was joining that project at the Paris air show. "You can argue the only beneficiary of competing European projects is the US," says Doug Barrie, military aerospace fellow at the International Institute for Strategic Studies (IISS).

Faced with such competition, why doesn't Britain buy its planes from the US and benefit from economies of scale? After all, Nato membership means we are unlikely to go to war without the US on our side.

But the future is uncertain and Tempest could still be flying in 2070. IISS's Barrie cautions: "Who would bet on US foreign policy that far ahead? With America's current leadership it's hard to predict what it will be in 24 hours."

BAE's Taylor agrees, pointing to another factor. "We've sold UK designs



A Eurofighter Typhoon sits on the runway alongside the 'Tempest' concept model at BAE Systems' facility in Warton, Lancashire

to the US before – the Harrier and Hawk, and they've built them themselves as the AV-8B and T-45. But when we wanted to upgrade their systems for UK needs we couldn't. Building our own gives us authority to develop to our needs."

What's more, the UK is already buying the F-35 from the US. Britain is the only Tier 1 partner in the project, with BAE building 15pc of each jet. But Taylor warns this has its own issues as they are designed with US needs first. "Foreign buyers aren't going to be at the front of the queue when it comes to saying what capabilities they want," says Taylor. Tempest will allow Britain

*'My grandfather used to say that the opposition were not the enemy. The real enemy is the Treasury'*

to be at the front of its own queue, while sustaining our industrial base.

About 1,000 people are working on Tempest at the moment, with a £2bn budget from the Government and industry. This is a fraction of what will be needed to get Tempest in service. However, Jefferies analyst Sandy Morris says the intent is there. "BAE and co are perfectly serious and any country currently flying the Typhoon should be looking at Tempest," he says, referring to nations such as Saudi Arabia, which bought the earlier jet.

But rather than focus on an actual airframe, Morris says Tempest should be viewed as a way of keeping Britain at the forefront of developing the many technologies needed for a warplane. "Tempest is keeping the technology alive and funded," he says. At BAE's Warton base, the company showcases systems it believes Tempest will contain. Alison Heminsley,

simulation and training technologist, explains how it will be able to operate without a pilot on board. "Shooting down a drone is a different situation to shooting a manned aircraft," she says.

Tempest's cockpit might not be a cockpit in the traditional sense: a mock-up of it has no instruments or dials. Instead everything is projected virtually in the pilot's vision, and gesture controls are used. Jean Page, human factors technologist, says: "If we have artificial intelligence that can fly the plane, the pilot might be there as a mission manager, making decisions."

However, the biggest challenges Tempest faces will not be the engineering required, but the politics. "Developing Typhoon was a mess," says aerospace analyst Howard Wheeldon. "France was in then out, Germany delayed [the project]. Tempest needs partners but we will

have to choose them more carefully."

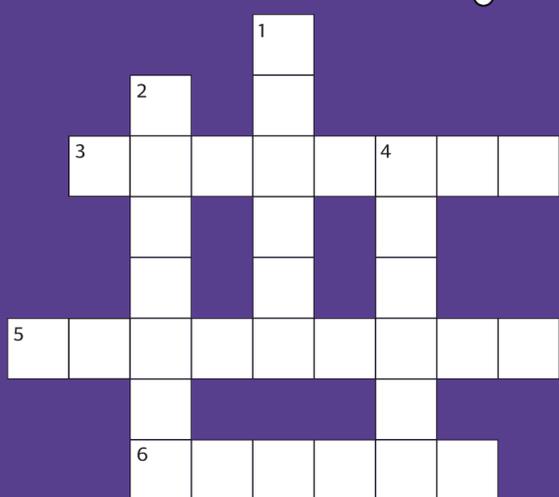
However, the UK could find its choice limited. "There's a huge danger Tempest and the European project could split the market," says Justin Bronk, air power expert at think tank RUSI.

Despite the noble intentions of the Combat Air Strategy, BAE's Taylor acknowledges the challenges of getting the Treasury on side. He admits the Chancellor may not see "a pound spent on defence bringing guaranteed income and return".

In a debate on the Combat Air Strategy last week, Conservative MP Robert Courts summed up the hurdles Tempest faces, recalling the words of his grandfather, a wartime pilot. "He used to say the opposition were not the enemy; they were just people who were playing the same game but at the other end of the pitch," Mr Courts said. "The real enemy is the Treasury."

## The Telegraph • PUZZLES

# A puzzle a day keeps the mind at play



### Across

3. \_\_\_\_\_ brow, sign of concentration (8)  
5. Great help (anagram) (9)  
6. Very quick (6)

### Down

1. Alan \_\_\_\_\_, famous codebreaker (6)  
2. Crosswords, sudoku etc (7)  
4. Sorcerer; genius (6)

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# Macron's plan to sell Paris airport stake flies into heavy weather

President is accused of disposing of the family silver with privatisation scheme, reports *Oliver Gill*

Most experienced travellers will warn you to give Paris's Charles de Gaulle airport a wide berth. "A fine example of an inefficient airport," reads one review on website Skytrax. "The worst airport in the world," a particularly frustrated user rails on TripAdvisor.

Online reviews can be cruel, but Charles de Gaulle's legendary bad reputation comfortably predates the web. Its fashionable modular extensions, seen in the Eighties as groundbreaking, have become increasingly confusing. Instead of Terminal 2, 3 or 4, the airport has 2A to 2G, baffling those desperate to make a connection.

Hopes have been raised, however, that president Emmanuel Macron's privatisation plans are the answer. Shorn of the French government's controlling stake, Charles de Gaulle and sister airports Orly and Le Bourget

## €20bn

The value that ADP will fetch if president Macron goes ahead with his privatisation plans for Charles de Gaulle airport

can be dragged into the 21st century. "It [Charles de Gaulle] has Seventies architecture, which is brilliant for architecture students but not necessarily for travellers," says HSBC aviation analyst Andrew Lobbenberg.

Critics, of which there are many, claim the proposals are the latest attempt by a French leader to "sell off the family silver".

After a break of more than a decade, the prospect of a new wave of privatisation was introduced by

Macron in late 2017, months after his fledgling political movement swept to power. In what would be France's biggest ever sell-off of public sector assets, Macron proposed selling umbrella group Aeroports de Paris (ADP), which also owns minority interests in other European airports. Also put up for sale was gas and power company Engie and the country's national lottery, which has been linked with a sale to Britain's Camelot.

Macron's reforms are now in danger of falling over, however. Anti-capitalist sentiment, the extreme end of which has manifested itself in demonstrations and riots by *les Gilets Jaunes*, continues to simmer.

The government is not just facing dissent from one side of the political spectrum. Communists have joined forces with free-marketeers from Les Républicains. There is widespread opposition to Macron's plans. It has gathered sufficient support to trigger the use of a highly bureaucratic process originally put in place by former president Nicolas Sarkozy.

Officials have given those campaigning against ADP's privatisation the chance to hold a national referendum on the matter. Before this can take place a 10th of the French voting public – some 4.7m people – must sign an online petition backing a vote. By the end of last week roughly 400,000 people had already signed up, just two weeks in.

RBC Capital analysts now believe there is a 75pc chance the sale, which would have valued ADP at €20bn (£17.9bn), will be blocked.

Perception is a major problem. The last attempt to enact sweeping privatisation, which saw swathes of toll roads offloaded, left a sour taste.

Lobbenberg says: "What people don't like about it is that it [the privatisation of ADP] goes back to the privatisation of the French road networks in the 2000s in which owners and investors were perceived by the public to have made a lot of money at the expense of users."

One of those to reap the benefits was infrastructure behemoth Vinci. And

unfortunately for Macron, Vinci is considered one of the front-runners to buy the government's stake, creating an alarming sense of déjà vu.

Meanwhile, opinions differ as to what the impact of privatisation might be. Lobbenberg believes that ADP "might be run smarter if privatised". But he points out that there is a wall of cash that is waiting to invest in the airports, no matter who owns them. "Their [ADP's] access to capital is fine," he says.

*'It has Seventies architecture, which is brilliant for architecture students but not necessarily for travellers'*

John Strickland, an aviation director of JLS Consulting, is less confident. "There is concern in the French aviation sector were this not to go ahead it could limit the ability to invest for the future and there is a real need for this," he says, but adds that any referendum is more likely to delay rather than prevent privatisation.

Airports remain high on the public agenda in Britain as well as France. Heathrow has recently unveiled its plans for the third runway. After decades of delays, it is desperate to get spades in the ground as soon as possible. The UK has been "gifting growth to the Netherlands" because Heathrow is full and the expansion process has been slow, Heathrow boss John Holland-Kaye says.

Strickland suggests that the ADP privatisation could be bad news for Heathrow. "It would lead to stronger competition between European hub airports," he says. By implication, if ADP's privatisation is delayed or cancelled, this would be good news for Britain's busiest airport.

Another aviation industry veteran is less convinced. "I don't think whether it goes private or public, will make any difference. They are trying to make it easier to do transfers," he says, before adding: "But the transfers are awful at the moment."