

£550m F-35 missile contract signed

Known as SPEAR3, the next-generation missile can travel long distances at high-subsonic speed and over the next decade will become the F-35's primary air-to-ground weapon.

At 1.8 metres long, the missile system has a range of more than 140-kilometres and, powered by a turbojet engine, can operate across land and sea, day or night, to overpower enemy air defence systems, while the pilot and aircraft remains a safe distance away.

Its ability to attack moving targets will enhance the UK's future combat air capability and provide immense lethal capability to the Queen Elizabeth class carrier strike group.

Defence Minister Jeremy Quin said:

"The development of this next-generation missile will allow us to protect our personnel and assets on the ground, from thousands of metres in the sky above."

"Our commitment to this system will secure hundreds of highly skilled jobs across the UK and showcase British technology and weapon expertise on the world stage."

Following a successful development phase, the new seven-year demonstration and manufacture contract with MBDA will support more than 700 UK jobs, including the creation of 190 highly skilled technology jobs in system design, guidance control and navigation and software engineering.

At the peak of the contract, 570 people will work on various aspects of the system's development in Bristol, Stevenage and Bolton. Another 200 jobs are expected to be sustained along the supply chain that includes L3/Harris, Roband, Collins, EPS and MSB.

Colonel Martin French, DE&S' Lightweight and Medium Attack Systems (LMAS) team leader, said:

"The placement of this contract marks the next major stage of the SPEAR3 weapon system's development and is a result of months of detailed negotiations between MBDA and the LMAS project team.

"Building on the successes and technology achievements of the previous four years' work with MBDA, we now enter the exciting and challenging demonstration phase where we start to prove the system against the UK's requirements and ramp up activities to integrate this highly-capable weapon system onto the F-35B aircraft."

With its unique combination of stealth, cutting-edge radar, sensor technology, and armed with SPEAR3, the F-35 will protect aircraft carriers

from enemy ships, submarines, aircraft and missiles.

The UK currently has 21 fifth-generation F-35Bs, having received three new jets on 30 November. The platform's Initial Operating Capability (Maritime) was recently declared and, later this year, F-35 jets will sail with HMS Queen Elizabeth on her maiden Global Carrier Strike Group '21 deployment.

The initial demonstration phase will assess the weapon system against the UK military's requirement through, testing, simulation and trials, which will include controlled firings from a Typhoon aircraft.

The contract forms part of the Complex Weapons portfolio with MBDA, which is on track to deliver £1.2 billion saving to UK defence. It also allows the MOD and MBDA to maximise the export potential of complex weapons, including the first-in-class SPEAR3, which supports UK prosperity and the international agenda.

[£213 million UK Government funding to help UK scientists](#)

- Scottish science facilities to share £213 million UK Government investment
- The funding will enable researchers to respond to global challenges such as Covid-19 and climate change
- Part of the UK Government's flagship R&D Roadmap which committed to making the UK the best place in the world for scientists and researchers to live and work

The UK Government has today (Wednesday 6 Jan) announced a major £213 million government investment to upgrade the UK's scientific infrastructure, with Scottish facilities to benefit.

The investment will equip the UK's leading scientists, universities and research institutes with new state of the art equipment to drive forward exceptional research that will help the UK respond to major challenges, including the Covid-19 pandemic and achieving net zero carbon emissions.

The £213 million pot includes £27 million for upgrading and purchasing core equipment for the use of researchers across the UK.

The Science and Technology Facilities Council (STFC) will receive a £20 million investment to upgrade campus infrastructure at its sites in Edinburgh, Oxford, Liverpool City Region and North Yorkshire. This will enable the Council to continue developing flagship projects covering a range of topics, from pre-launch satellite testing to the search for dark matter.

The STFC will receive a further £10 million for laboratory upgrades to support the scientific programmes across laboratories in Edinburgh, Oxfordshire, Liverpool, and North Yorkshire. Investments will enable projects including quantum physics with ultra-cold atoms, artificial intelligence and pre-launch satellite testing.

Medical Research Centre units in Glasgow, Edinburgh and Dundee will share £2.8 million to buy high spec equipment such as microscopes and key computational resources to support Covid-19 research, and long-term programmes in cell biology, human genomics, and wider virology.

This will enable researchers to detect and model disease in more detail than ever before, helping the UK respond to Covid-19 and boosting resilience for future pandemics, as well as other global diseases, such as cancer and dementia.

£34 million will go to upgrading the UK's digital research capabilities, enabling some of the country's brightest minds to conduct pioneering analytical research that will help inform long term policy decisions. Urban data centres in Glasgow, Liverpool and Oxford will share more than £1 million for new hardware to pursue research that will show how Covid-19 has affected social and economic activity in different parts of the UK.

Meanwhile, the University of Essex will be backed to conduct a large-scale household survey to understand how the pandemic has affected issues such as home schooling and family relationships.

The funding package also allocates £15 million for the Capability for Collections Fund (CapCo) to renew and upgrade the most vulnerable research facilities across the UK within galleries, libraries, archives and museums. It will focus on conservation and heritage, modernising these spaces which will help serve local communities for generations.

The investment will ensure the UK is the best place in the world for scientists, researchers and entrepreneurs to live and work, while continuing to attract scientific talent from across the globe.

Science Minister Amanda Solloway said:

The response from UK scientists and researchers to coronavirus has been nothing short of phenomenal. We need to match this excellence by ensuring scientific facilities are truly world class, so scientists can continue carrying out life-changing research for years to come.

From the world's most detailed microscopes tracking disease to super computers supporting COVID-19 research, our investment will enhance the tools available to our most ambitious innovators across Glasgow, Edinburgh and Dundee. By doing so, scientists and researchers will be able to drive forward extraordinary research that will enable the UK to respond to global challenges as we build back better from the pandemic.

UK Government Minister for Scotland Iain Stewart said:

The UK Government is committed to supporting Scotland's world-leading scientists and researchers so their hard work can continue to improve lives in the years ahead.

The strength of our Union and the role of the UK Treasury is driving forward pioneering research that will deliver for the whole of the United Kingdom, helping us to respond to huge challenges, such as the Covid-19 pandemic and climate change.

The £213 million investment, delivered through the government's World Class Labs funding scheme and made through seven of UK Research and Innovation's (UKRI) research councils, covers investments in all disciplines from physical sciences to arts and humanities.

Professor Ottoline Leyser, Chief Executive of UKRI said:

Research and innovation infrastructure is key to delivering the Government's R&D Roadmap, with some of the most innovative ideas with transformative R&D potential requiring people to have access to world-leading infrastructure, including national research facilities, equipment and instrumentation, networks of technologies and digital infrastructures, and knowledge-based resources such as collections and museums.

World-leading infrastructure will help to bring together talent from the public and private sectors and across disciplines to tackle society's most complex challenges. It will act as a magnet for international talent and users, contribute to local and national economies, and generate knowledge and capability critical to UK policy, security and wellbeing. It will also ensure the UK is the world's most innovative economy by promoting investment in science, research and innovation.

The funding forms part of a £300 million commitment to upgrade scientific infrastructure across the UK, made by Business Secretary Alok Sharma, as part of the government's ambitious R&D Roadmap published in July 2020.

[**A47 junction upgrade gets go-ahead for February**](#)

Highways England has announced that construction on a £14 million upgrade to

the A47/A141 roundabout in Guyhirn will begin in February 2021.

The current A47 Guyhirn junction, which is used by more than 20,000 vehicles per day, experiences high levels of congestion during peak hours due to the lack of lane space and poor visibility as drivers approach the roundabout.

The current lack of capacity will be made worse in the coming years due to proposed commercial and housing developments in the area.

The project will increase the size of the roundabout by creating two lanes on all approaches to the roundabout. This will include an additional lane over the existing carriageway on the River Nene Bridge.

Once complete in April 2022, the £14 million upgrade will help reduce delays and traffic queues at the roundabout, improve safety by increasing visibility for drivers on the approach, make journey times more reliable, and introduce new pedestrian crossings and footpaths.

Chris Griffin, Highways England Programme Lead for the A47 schemes, said:

The Guyhirn roundabout is a key junction along the A47 which connects people, communities and businesses in Cambridgeshire and Norfolk through to Kings Lynn and the A1(M). Around 15 to 20 percent of traffic here is lorries, which is higher than average, and shows the importance of this stretch of road for connecting communities and services in this rural location.

Upgrading the junction will not only help reduce delays and make journey times more reliable, it will also provide the additional capacity which will be crucial to the proposed commercial and housing developments in the area, which is good news for the local, regional and national economy.

Highways England is improving the A47 in six places between Peterborough and Great Yarmouth as part of a £300 million-plus investment, including the Guyhirn junction.

This proposal is one of six projects that Highways England is doing to improve the A47. Three sections of the 115-mile stretch of the A47 between Peterborough and Great Yarmouth will be upgraded to dual carriageway. Norfolk sections will be upgraded between Blofield and North Burlingham and from North Tuddenham to Easton, while in Peterborough the A47 between Wansford and Sutton will also be dualled. There will be further junction improvements at the A11 Thickthorn roundabout for Norwich, and at Great Yarmouth junctions.

During construction, Highways England will aim to provide a safe environment for all those working on or travelling through our roadworks, while keeping delays to a minimum and motorists informed about our work.

For the safety of the public and workers, road closures will be needed when work starts in February and then in autumn 2021 for resurfacing. Advanced

notice of these road closures will be given on the project website, via social media and early warning road signage.

For more information on the project, visit our [A47 Guyhirn junction web page](#).

To keep up to date with the latest travel information follow [@HighwaysEast](#) on Twitter or visit the [Highways England website](#).

General enquiries

Members of the public should contact the Highways England customer contact centre on 0300 123 5000.

Media enquiries

Journalists should contact the Highways England press office on 0844 693 1448 and use the menu to speak to the most appropriate press officer.

[IT maintenance disrupts IPO service to search and classify trade mark goods and services](#)

News story

Search service unavailable from 6 January 2021.



To ensure IPO services operate smoothly, maintenance to our IT systems is required. As a result of the latest work customers will experience disruption to the IPO's new service to search and classify trade mark goods and services. While essential work takes place the service will be unavailable from 6 January 2021.

Alternative services are available. Customers can make use of the [Nice trade](#)

[mark classification system](#) that groups together similar goods or services into 45 different classes. They can also make use of the [TMClass classification search tool](#).

We will update customers once maintenance to the UK classification system is completed.

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[New funding for innovative space tech to help solve problems on Earth](#)

Through the UK Space Agency, the government is giving a cash injection to 5 projects specifically designed to bring together UK business expertise with universities to help build space solutions to global problems, on UK soil.

One of the projects, involving the University of Southampton, will use artificial intelligence to automatically detect buried archaeological remains on satellite imagery, providing construction companies with higher accuracy at an earlier stage. This will save them time and money during the planning permission process and help them to reduce their carbon footprint.

Meanwhile the University of Leicester will use satellite analytics to track the greenhouse gas and pollution emissions of shipping fleets, ushering in a new approach that could help shipping companies to face down climate change.

Another, run by the University of Edinburgh, will support Malawian farmers by developing land-classification maps of high potential agricultural sites, providing a vital tool that can enable effective planning of large-scale agriculture in the region.

Science Minister Amanda Solloway said:

The UK's space sector is flourishing and it is vital we give our most innovative space businesses and universities the right support to collaborate, share best practice and drive forward new ideas that could help enrich all our lives.

Today's funding will provide lift off to some of the country's most ambitious space collaborations, accelerating potentially game-changing technologies that will help the UK respond to global challenges such as cutting carbon emissions.

The UK Space Agency funding will see the national Space Research and

Innovation Network for Technology (SPRINT) support the new space projects, with industry working alongside scientists from the University of Southampton, University of Edinburgh and University of Leicester.

SPRINT provides unprecedented access to university space expertise and facilities to help businesses develop new commercial products.

The scheme has previously supported 87 collaborative projects with 70 companies, developing space hardware or using space-enabled data and transferring space know-how and expertise to develop products destined for non-space use.

Professor Martin Barstow, Leader of the SPRINT project and Director of Strategic Partnerships for Space Park Leicester, said:

We appreciate the vote of confidence for SPRINT that the UK Space Agency has given in making this funding award.

We are very grateful to the Agency for providing this new support for SPRINT, which allows us to support more companies in their development journey.

Ross Burgon, Head of the national SPRINT programme, said:

SPRINT has developed a novel approach to knowledge exchange and industry/university collaboration for the space sector.

We've spent the last two years building and demonstrating the efficacy of our approach and this new partnership with the UK Space Agency is a great milestone for us to further our mission to support business growth through university collaboration.

The SPRINT approach makes it much easier for both companies and academics to build successful, productive and collaborative partnerships that are focused on growing the space sector and that also demonstrate the increasing benefits of space sector knowledge in addressing challenges across many other sectors.

What is space archaeology?

It is archaeology using satellites or high-flying aircraft to take pictures remotely of the Earth's surface to find hints of ancient features buried under the ground. Things may show up visually or near infrared may show small differences in vegetation, with growth on top of buried stone likely to be less healthy.

Dr Fraser Sturt, a professor of archaeology at the University of Southampton, said:

Aerial photography transformed archaeology in the early 20th century, revealing sites in a way that few people could have conceived of in the past. Advances in Earth Observation and Machine learning offer another leap forward, helping us to identify and monitor sites across of space and time.

This information is critical not only for our understanding of the past, but how we manage the built environment and its development in the future.

In December 2020, the government redefined treasure to increase protection for archaeological finds to ensure more significant artefacts are saved for the public. For the first time, the official treasure definition will not be based solely on the material qualities of an artefact. The changes will make the treasure process more transparent and efficient for museums and the public.

ArchAI Ltd – University of Southampton

This project will use AI to automatically detect archaeology on Earth observation data. Knowing where archaeology is located at the earliest planning stages will allow accurate estimates of time and cost involved with acquiring planning permission and significantly reduce the risk of discovering unexpected archaeology during construction. This means that ArchAI will lower the cost of construction and ensure that vital historical sites are preserved.

Absolar Solutions Ltd – University of Southampton

The collaboration will develop Absolar's Carbon Action Planning Tool that integrates satellite images, solar radiation and LiDAR with other data sources to provide organisations with a clear view of a building's current energy performance, develop plans for achieving Net-Zero carbon emissions and reduce their energy costs while tracking and reporting on their progress.

XCAM – University of Leicester

Critical equipment for use in the space industry is often built in clean rooms to make sure it is not contaminated with small particles. Cleanliness is vital because if equipment is contaminated it might fail completely or not operate as it was designed to do.

This project uses a novel machine learning solution to improve the accuracy of clean room monitoring, and to efficiently report problems in real time. In addition, this solution will be used to monitor potential contamination of sensitive equipment during the launch of spacecraft, which is something that has never been done before.

Redshift Associates Ltd – University of Leicester

This collaboration will develop analytics to track the carbon and pollution

emissions of ships, with a new approach to establish emission audits of shipping fleets and their individual vessels. The project builds upon previous work developing analytics solutions for ports and harbours, extending this to coastal and international waters.

Trade in Space – University of Edinburgh

Trade in Space and Geospace Agricultural are collaborating with the University of Edinburgh School of Geosciences to support the generation of a land use classification map of key agricultural production regions of Malawi.

This will be a vital tool that can enable effective planning of large-scale agriculture in the region, following the model set by the 'Jacoma Estates' mega-farm in the area, which has already provided productivity improving micro-financing, and a route to market for over 5,000 Malawian smallholder farmers.