

Can the UK's race to space take off? (6 January 2023)

By Rebecca Morelle

Science Editor, BBC News

The first-ever orbital rocket launch from British soil is set to blast off on Monday, marking the start of the UK's race to space.

The ambition is to turn the country into a **global** player in space - from manufacturing satellites, to building rockets and creating new spaceports. But can the UK **carve out** a place in an increasingly **crowded** market - and why try to reach for the stars?

"We are the guinea pigs," says Melissa Thorpe.

"It is the first time any of us have done this, so it's been quite a learning experience."

Melissa is in charge of Spaceport Cornwall, which is about to attempt its very first **foray** into space. She's showing me around their base at Newquay Airport. There's all the usual **hubbub** of activity: passengers arriving, suitcases being loaded, planes being fuelled. But there's also something more surprising on the tarmac: a 21m-long rocket.

A team is busy prepping it for the first ever launch from UK soil that will take satellites into orbit around the Earth. The Cornwall rocket launch will begin its journey to space on this modified jumbo jet. But this is a blast off with a difference. There won't be a vertical launch from the ground. Instead, the rocket is fixed underneath the wing of a modified jumbo jet. Once the plane is mid-air, the rocket will be released and fire its engines to head into space.

Prospects

Setting up the UK's first spaceport has taken years and a lot of hard work, plus an entirely new regulatory framework to ensure these launches are safe.

The hope is it will make a difference to the local area, one of the poorest in the UK, by bringing in new companies and creating new jobs. "We were at the heart of the Industrial Revolution. We're not new to **pioneering** technologies. "But there's a wider ambition too. If this succeeds, it should help to position the UK as a leading place for space.

A little bit of history

However, this isn't the first **attempt** at creating a British launch industry. A white and red rocket, nicknamed "the lipstick", was supposed to be the start of something big for the UK.

It blasted off in 1971, sending a satellite into space. The programme was called Black Arrow, and this was the first British-built rocket to deliver a British-built satellite into orbit - although it took off from Australia.

But the costs were **deemed** too high by the government, so that first launch **turned out** to be the last.

Satellite building

The UK's launch industry hit a long pause after this, but another aspect did take off in Britain - satellite building. In fact, this has helped to drive a **thriving** space sector, which, according to a recent government report, is worth £16.5bn a year to the UK economy and employs nearly 50,000 people.

Nine small satellites will be sent into space from Cornwall.

Until now, Dr Alice Bunn, President of UKSpace, the trade association of British space companies says, satellites built in the UK have had to be shipped abroad to get into space, but this first launch will change that. Actually, it comes at a time when satellites have become integral to our lives - although Alice says most people are unaware of how dependent we are on this technology.

"Think about satellite navigation systems, environmental monitoring, emergency response - let alone all the telecommunications capability - that we can provide from space. It really is a running thread through our lives," she says.

Mini factories

Besides, some companies have big plans with this technology. Welsh company Space Forge want to use satellites to make materials. The Cardiff-based company Space Forge thinks a whole **host of** new materials can be made in orbit.

In a cleanroom, one of their small satellites is being **painstakingly** prepared for its journey. It's one of nine being sent into space by the Cornwall launch. Space Forge describe their shoe box-sized satellites as mini factories.

"In space, with the absence of gravity, you can mix together any different materials you want," says Chief Technology Officer Andrew Bacon.

"So if you take the whole periodic table, and start putting things together - like lead, aluminium, rubidium, einsteinium - there are billions of new alloys that you can now make that you couldn't make on Earth."

The new materials could be used in electric vehicles, green technology or computing, he explains.

The location(s)

Moreover, he thinks there are some big advantages to launching these satellites close to their Welsh base.

"The fact that we can just drive down the road for a couple hours to get to our spaceport is a huge impact," Andrew says.

The SaxaVord Spaceport is being constructed on a peninsula **jutting out** into the sea, at the northernmost tip of the UK. There's a good reason why they've chosen such a **remote** place, where sheep and Shetland ponies **outnumber** the inhabitants.

"What we're doing needs to be as far away as possible from population centres, so that when the rocket leaves, there's no real danger to people **nearby**." The remote site is located far from densely populated areas.

SaxaVord is aiming for the UK's first vertical rocket launch to take satellites into orbit, with up to 30 launches a year once it's fully up and running. It's not the only spaceport to be based in Scotland. Others are planned in Sutherland in the Highlands and Benbecula in the Outer Hebrides.

Hopes

The hope is that these could all boost local economies, and that's especially important in Unst.

"This island's suffered quite badly from depopulation over the last 20 or 30 years," explains Scott Hammond, the deputy CEO of SaxaVord.

Ahsan Zaman's just finished his aerospace degree and says the new push for space in the UK is opening up opportunities for science and engineering graduates. He's proud to be working on the project.

"If we're successful, then we'll forever be known as the first people to do it in the UK. So yeah, it is an honour as well as exciting."

SpaceX, a serious competitor

While the launch industry is just starting to come together in the UK, it's much better established in other parts of the world. Indeed, one company in particular now dominates the market: Elon Musk's SpaceX. With their reusable rockets, the company has massively **cut the price** of sending satellites into space. SpaceX rockets have been dominating the launch industry. So, can the raft of small new rocket companies compete?

Skyrora's CEO Volodymyr Levykin says he wants his rockets to offer a more **bespoke** service.

"We want to be like a satellite taxi service," he explains.

"To launch whenever the customer wants us to launch and deliver them to an exact position they need to be in orbit."

He thinks because more and more small satellites are being built, the market to launch them will grow - but not every company will make it.

"Some of us, of course, will fail," he says.

"But there are some who are believers in this emerging market. And we decided to invest earlier rather than later, to be ready when the market actually will start to boom."

The UK government's support

The UK government says it wants to push the space sector and is investing in research and development. The new launch industry will need longer-term help from the government.

But UKSpace's Alice Bunn says the support needs to be long term. She says this could mean the government signing up as a customer for launches, for example.

"We need to think a little bit creatively, industry and government working together, just to get us off the ground here."

Sky-high rewards

All eyes are now on Cornwall, waiting for the first UK launch to blast off. It will be just the start for this new industry and there will be many challenges ahead. But as the well-known mantra goes, space is hard - and anyone working in this sector knows this. The hope is that with this high risk, comes the possibility of sky-high rewards.

WORK ON THIS DOCUMENT :

- 1- **Lexical task** : Search synonyms for the words in bold
- 2- **Answer the following questions** to get the gist of this article. Don't forget to **reformulate** :
 - a- Why does Melissa Thorpe qualify themselves as " guinea pigs"?
 - b- What makes this Cornwall rocket launch so different?
 - c- What are the prospects of such an activity?
 - d- Is it the 1st time that the UK has created a rocket launch industry ? Explain in your own words.
 - e- Explain the importance of satellites for the UK's economy but also in our lives.
 - f- Why can some of these satellites be called " mini factories"?
 - g- Why is The SaxaVord Spaceport based so far away? Will it remain the only site ?
 - h- What kind of spin-offs could it have ?
 - i- How does Skyrora's CEO Volodymyr Levykin want to compete with SpaceX ?
 - j- What will be needed ?
 - k- Will it be a piece of cake/ a bed of roses ?