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Start-ups and Space

New Space Economy

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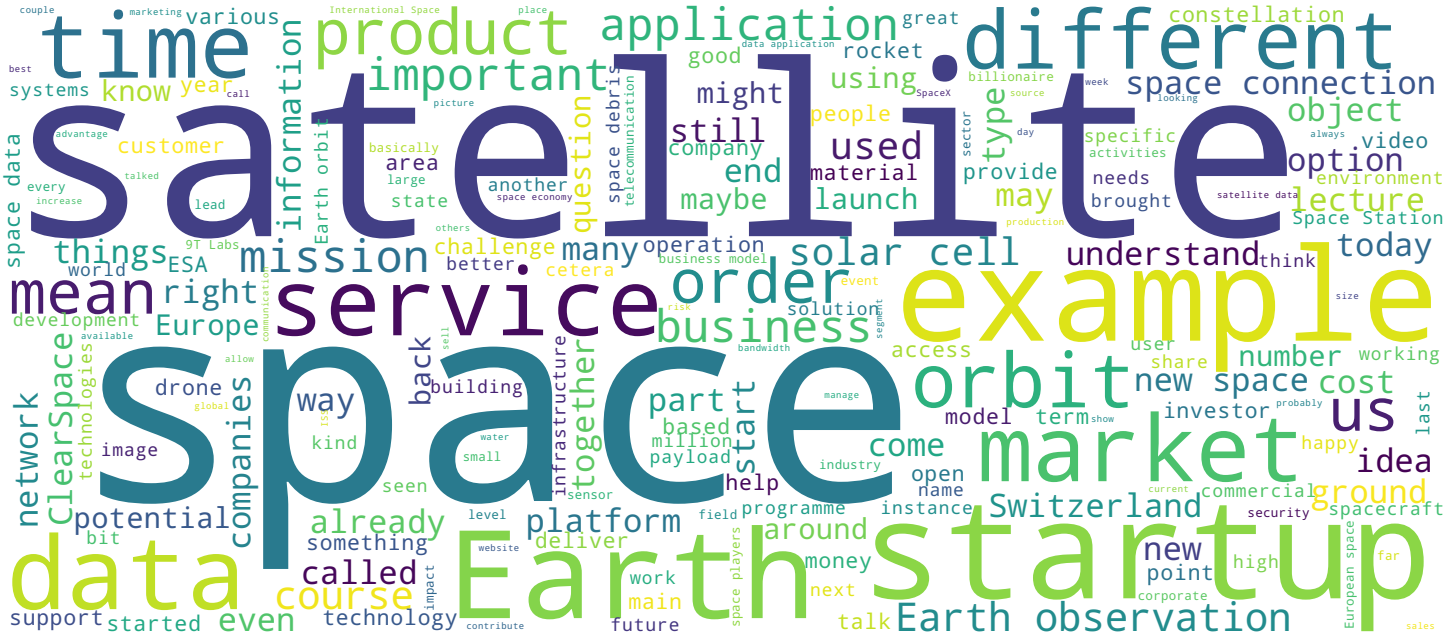

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Video

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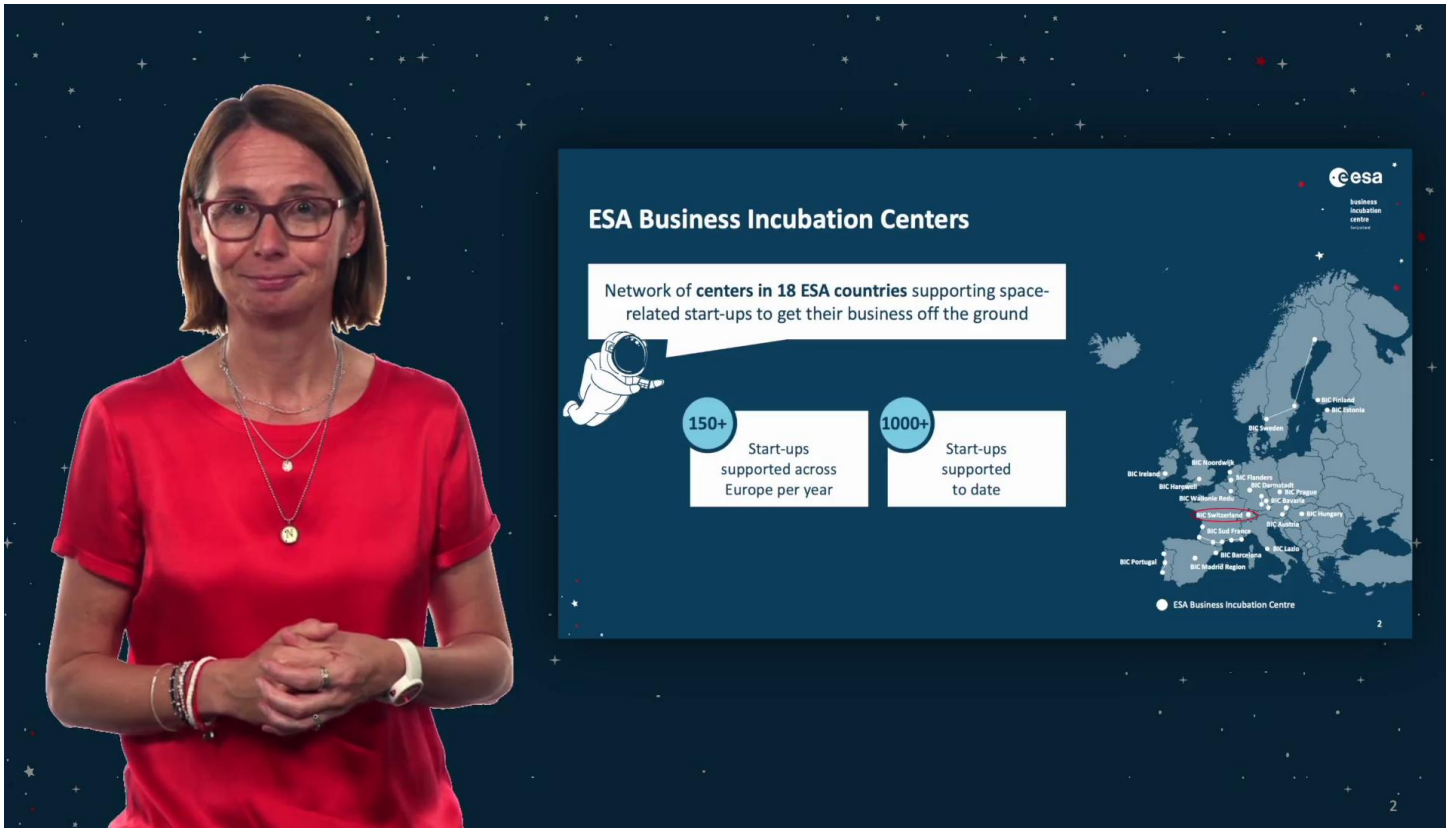

Welcome. Welcome to this lecture on startups and space. My name is Nanja, and I'm heading a startup programme here in Switzerland together with the European space agency, ESA. And the programme is for startups which have a connection to space. And this lecture is about startups and space and we will answer such questions as startups and space, do they go together at all? And are startups in space only for billionaires? So I will take you on a little journey. And at the end of the lecture, I hope to have answered some of these questions. To start with, I would like to mention that the programme I'm leading here for Switzerland is actually part of a larger programme across Europe. These ESA business incubation centres exist in many countries, and you see it here on the map. The ESA BIC in Switzerland only started at the end of 2016, rather late, but we quickly advanced to one of the most renowned programmes across Europe. And this is also thanks to the great startups that we could support here in Switzerland. And I will share some examples with you today.

Notes

Summary

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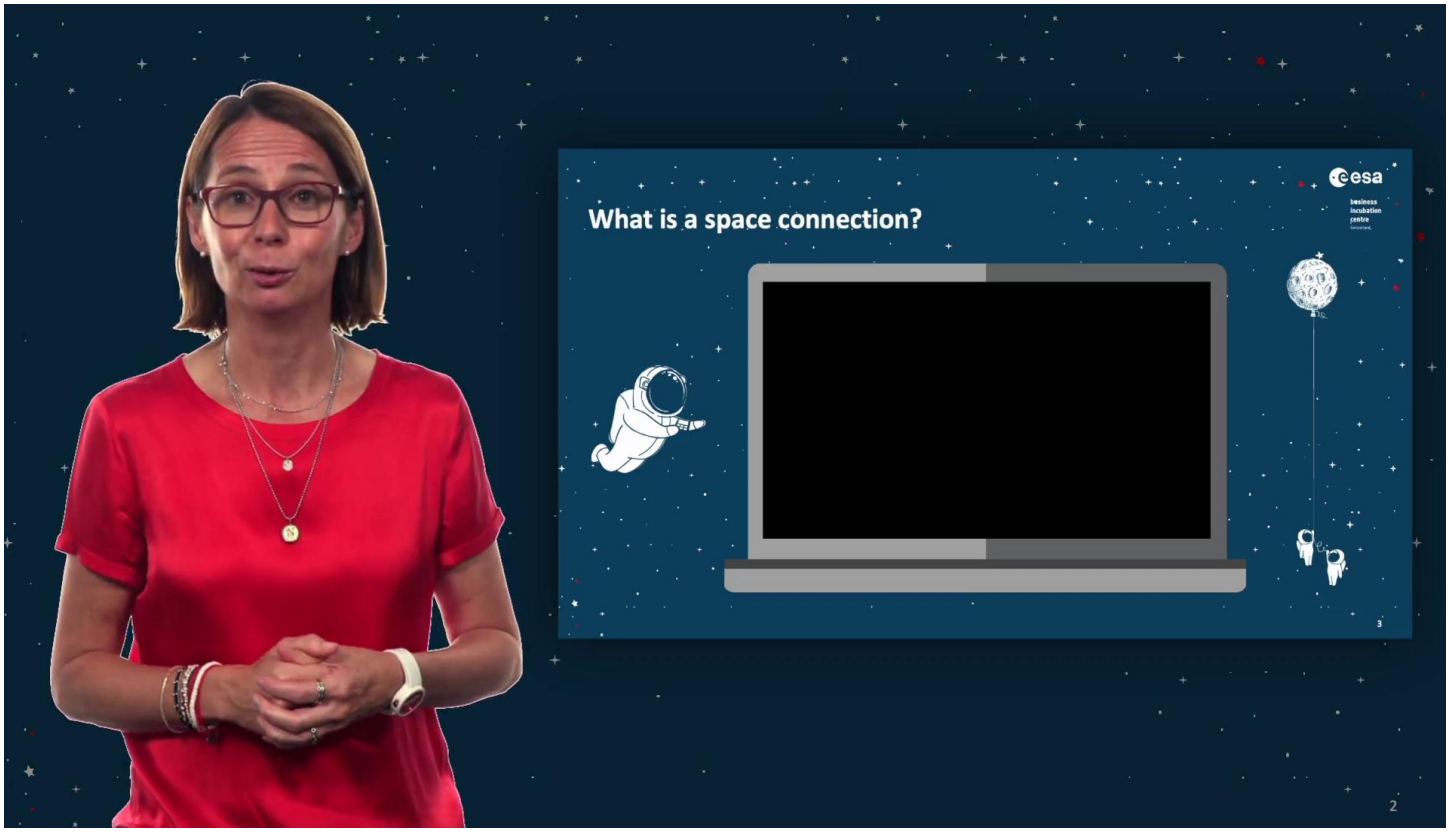

Before we go into the examples, I will briefly talk about the space connection, because the startups that we support actually need such a space connection. Now, what is this about? What do I mean by that? In order to facilitate your understanding, I brought you a little video and I would like to share it with you now.

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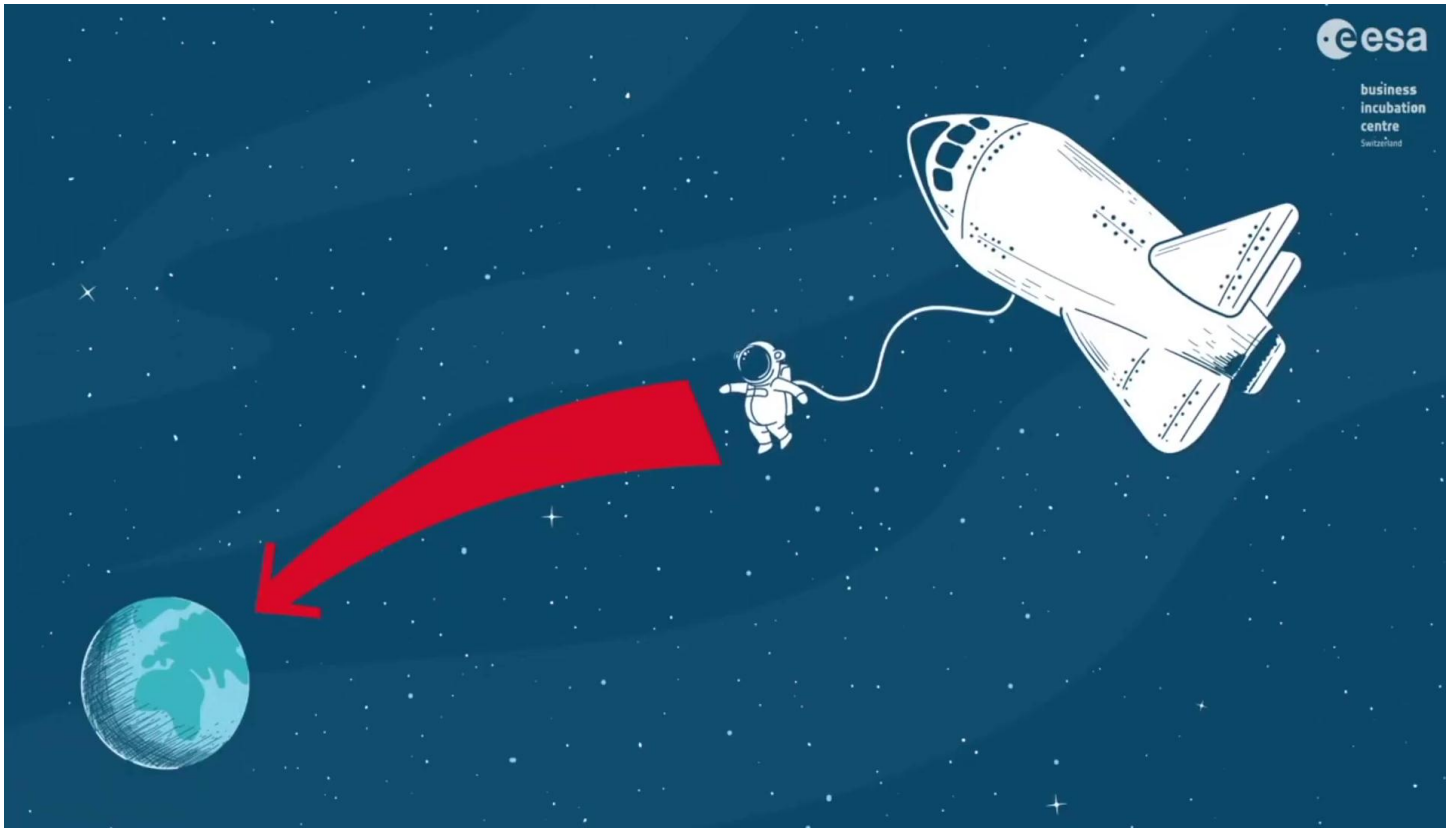

Space is open for business. Why not explore your space connection? For entrepreneurs and startups, the possibilities are endless. You could apply technologies from space here on Earth.

Notes

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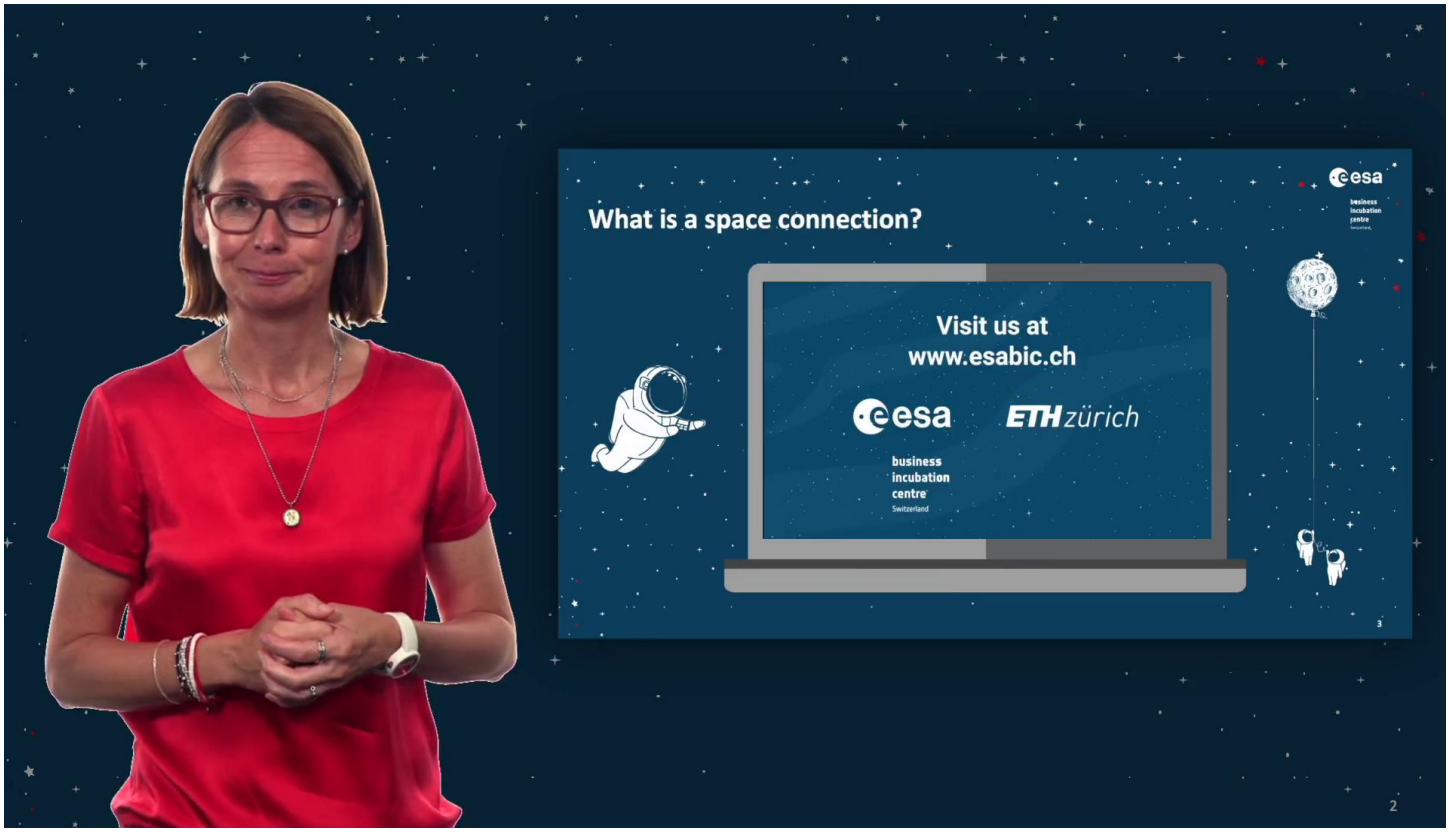
1m 59s



Today, the solar cells used in satellites in space are being used to build highly efficient solar panels for use on Earth. You could adapt technologies from Earth for use in space. One startup is reinventing their cybersecurity solution from the financial sector to protect communication via satellites. Or you could contribute to a whole world of space-data applications. One successful solution uses satellite imagery to help farmers deliver the perfect amount of fertiliser with pinpoint accuracy. Even if you haven't considered space as yet, you can benefit, whether it's from Earth to space or from space to Earth. We're here to get your ideas off the ground. So what's your space connection? So in the video we have seen three types of space connection, from space to Earth, from Earth to space, or using space data from satellites, et cetera. There's actually a fourth category, not in the video because it's so evident. There's also a few startups that have products and solutions purely for space. So let's get into some examples.

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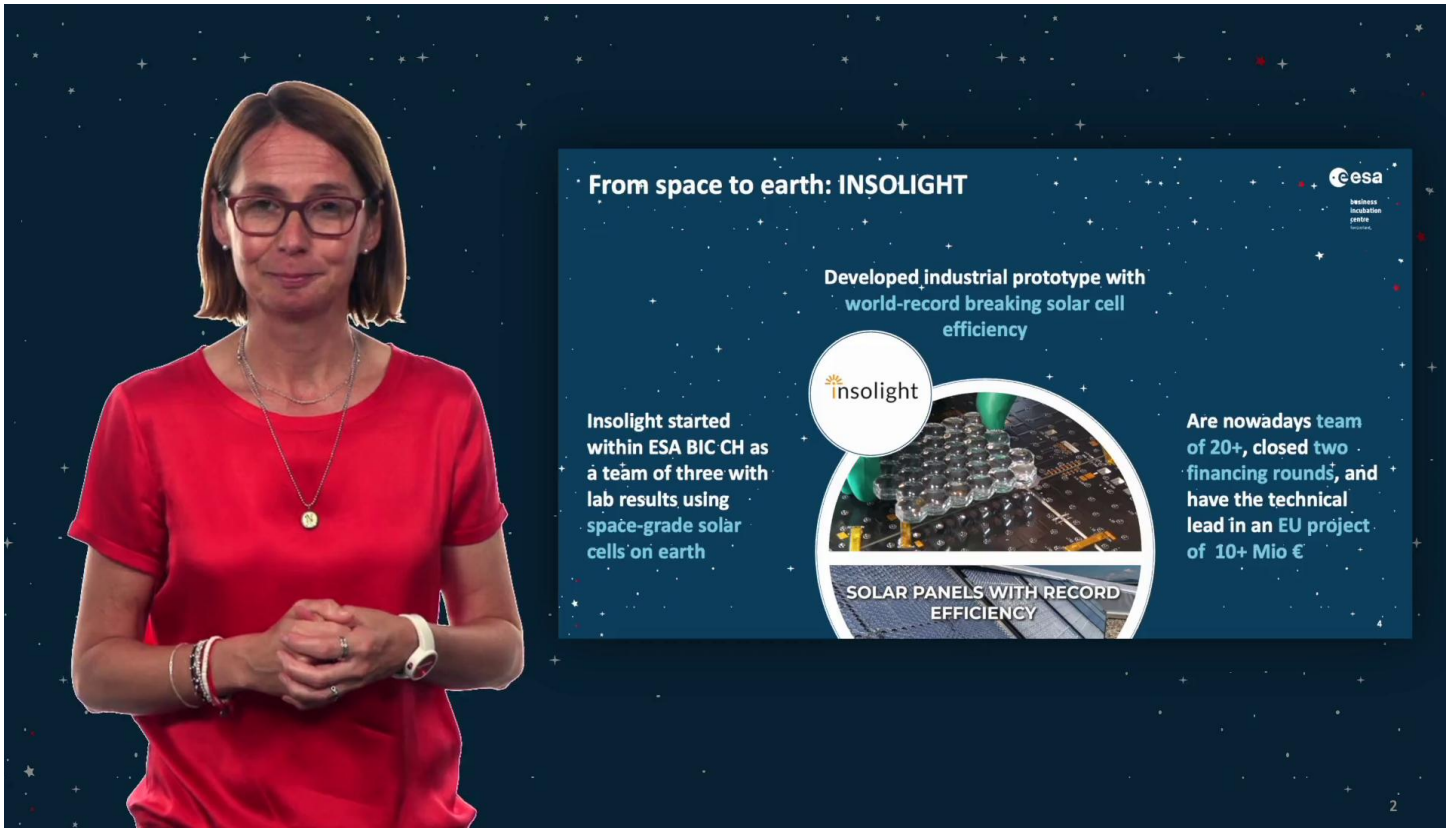

The first example is from space to Earth. The startup is called Insolight, and they actually use space solar cells here on Earth. So what are space solar cells? They are solar cells attached to satellites or the ISS, the International Space Station, in order to produce electricity in space. And Insolight actually uses these solar cells on Earth and was even beating the world record in terms of efficiency of any solar cell here on Earth. By now, they have industrial pilots running and they developed nicely since we supported them and also won interesting projects with the EU and others.

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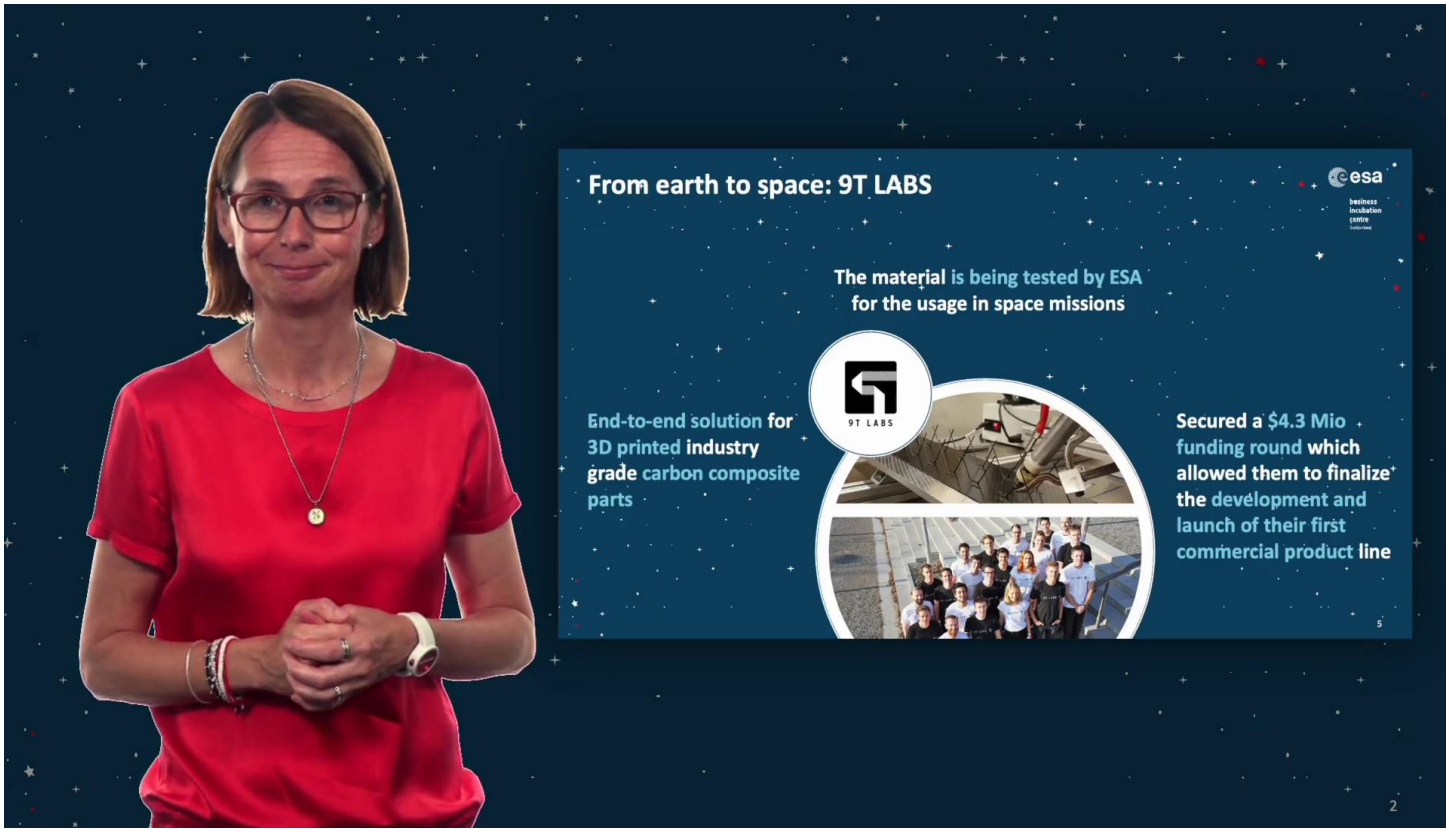
Summary

3m 39s



The second example I brought you is from Earth to space. And this startup is called 9T Labs. They are actually a material startup. They do carbon composite plastics, 3D printed in many directions, not possible easily so far. And ESA is actually evaluating their material in order to use it in space missions. So it's a material from Earth to use in space. And 9T Labs also developed nicely. They raised a couple of millions of money, and they used it in order to launch their first commercial product. And what I have deep respect for is that they launched their product during the pandemic last year online, a physical product, carbon composites, 3D printed, online. And that's a great achievement, and I wish them also all the best.

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Summary

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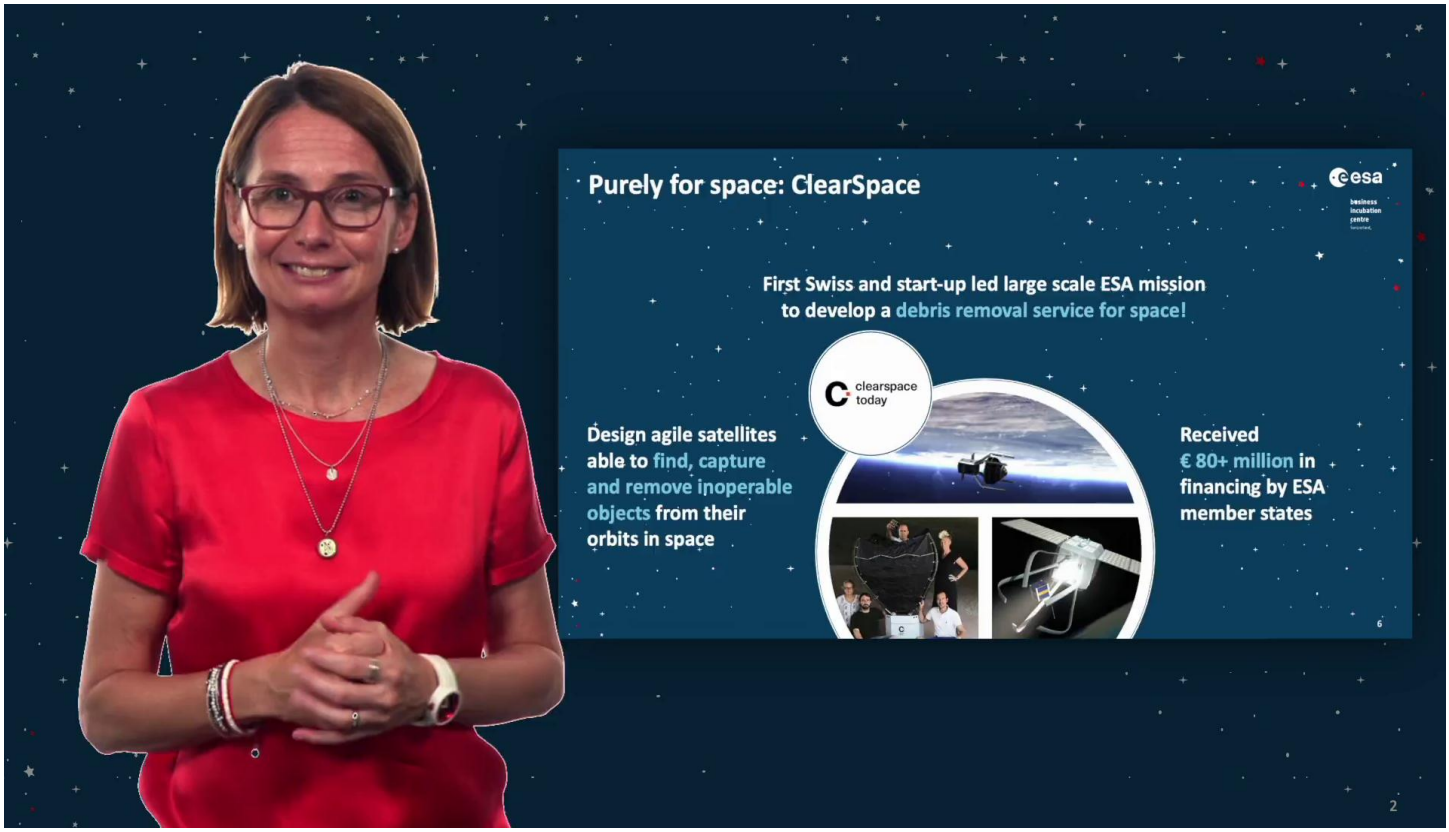

The third example I brought you is ClearSpace. That's actually a pure space startup of which kind there's not too many. ClearSpace will actually collect space debris, so space waste flying around the Earth, and take it back to Earth. You might not know, but this space waste flying around the Earth is actually a serious problem because there's ever more satellites in space, they collide, they stop to function, and this waste so far is hardly taken care of and brought back to Earth. And ClearSpace will actually collect this with an agile satellite which has such arms and will grab the waste and take it back to Earth. So the great thing about ClearSpace is that they won an ESA mission as a startup, a first ever against big space players, which exist in Europe. And not only that, but they are also the first ever prime contractor out of Switzerland in order to lead an ESA mission. And for that, ClearSpace gained over €80 million in funding through ESA member states in order to launch their mission to collect space debris. And you might wonder what happened with the big space players that ClearSpace actually won against. Now, they are also involved in the game. They are actually suppliers of ClearSpace. Now, that might sound a strange constellation, a startup in Switzerland having large European space players as suppliers. I only say, welcome to the new world of new space.

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Summary

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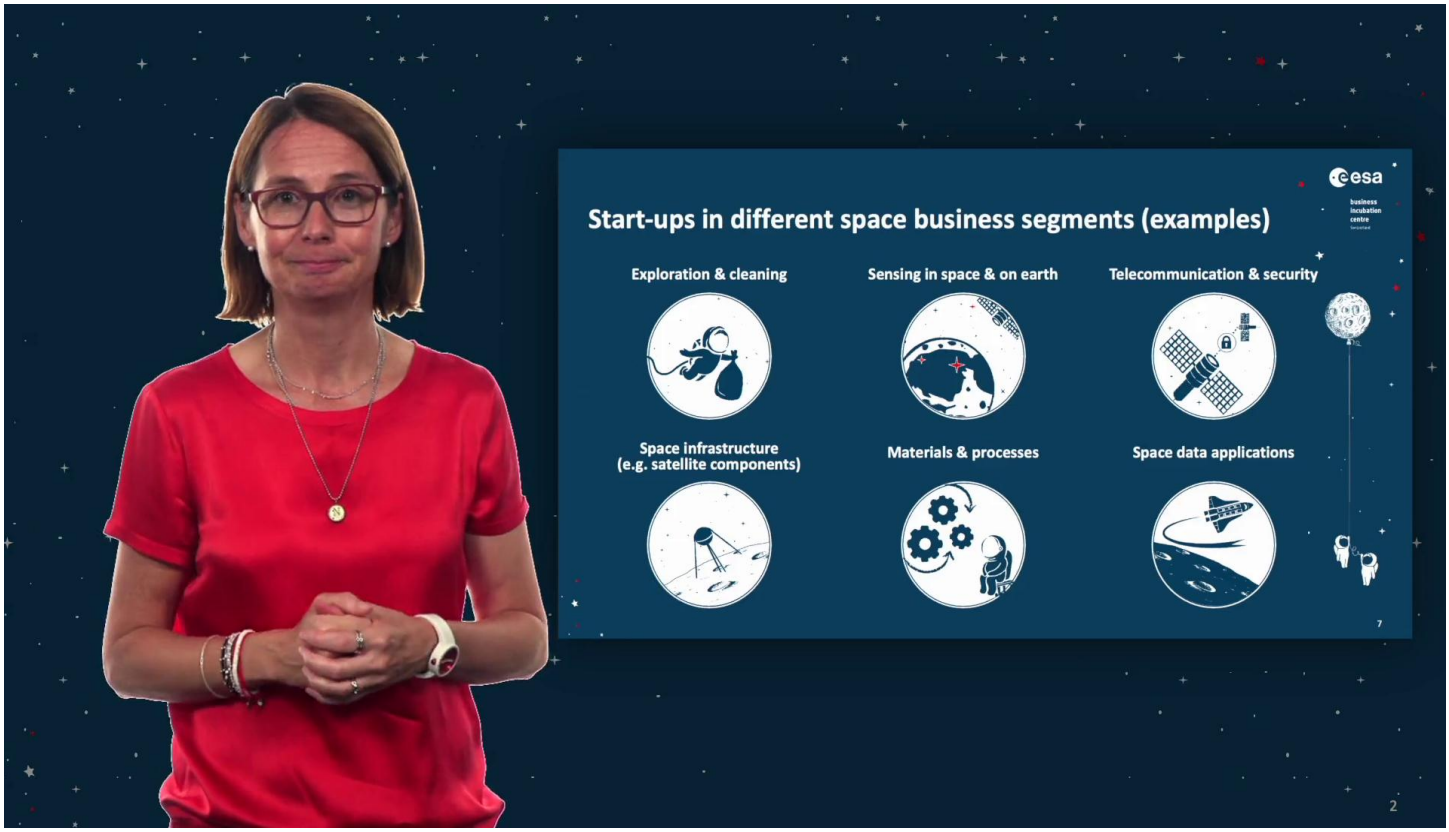

I've talked about some examples and you will find them in the space business segments here. And these graphs here illustrate the breadth of the space connection that the startups can actually have to be eligible for the programme. Obviously, materials are in their spacecraft infrastructure. These are, for example, the solar cells that I talked about. But there's also such things as cybersecurity, sensors, et cetera, et cetera. And I want to spend a minute on the space-data application. So these are simply applications of the data of satellites here on Earth. They can be for positioning, for example, of drones, for navigation, for Earth observation, for example, for optimising agriculture. All these things are space-data applications, and we have various of such startups in the programme as well. And if you would like to get an idea of the whole breadth of such space connections, please visit our website on www.esabic.ch, and you will get an idea.

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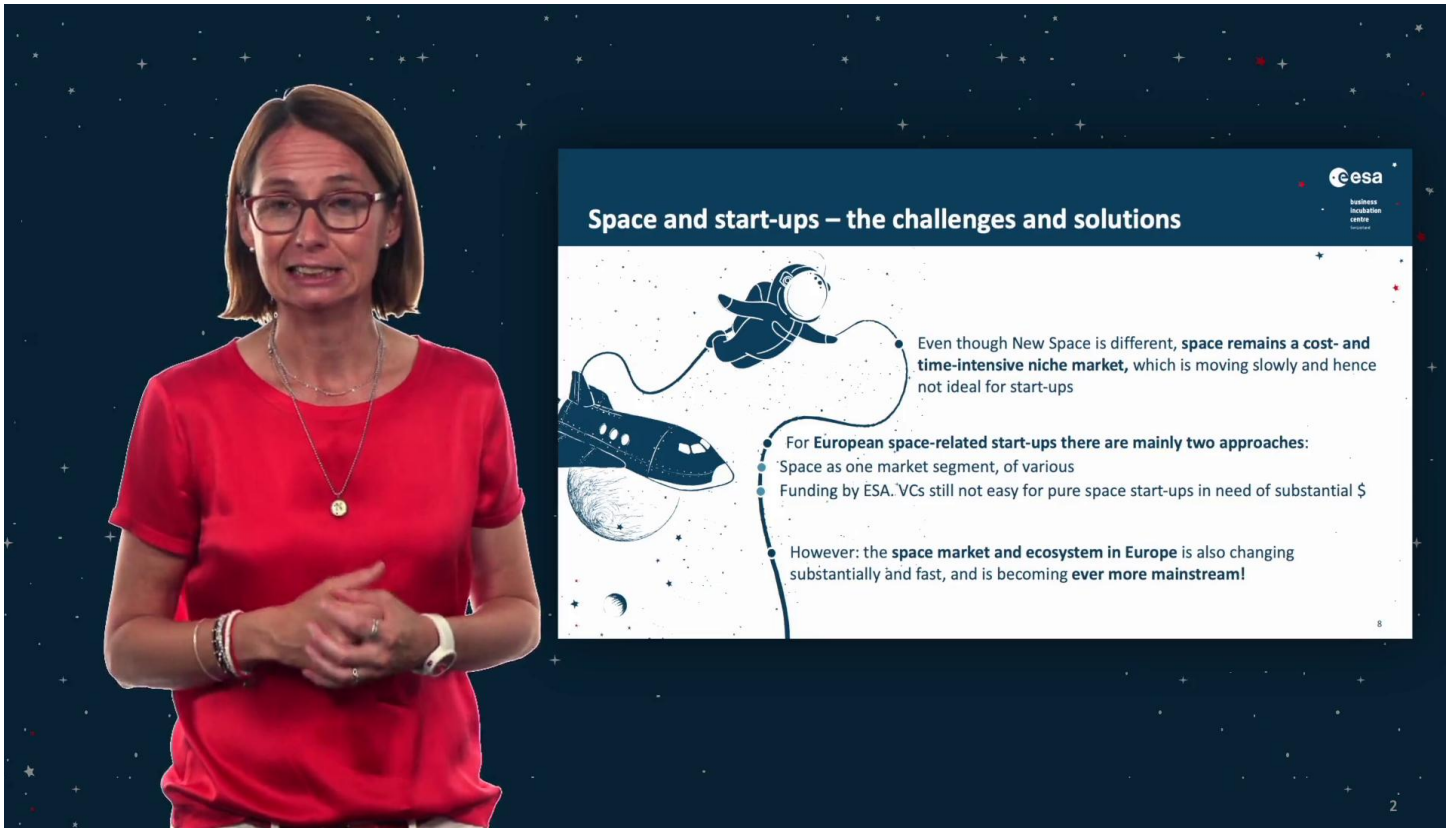

And I would like to come to a couple of final, very important comments about startups and space. The first one is that this whole development of new space is great and happening, but one still needs to keep in mind that space remains a niche market that is also slower than other applications and markets. And sometimes our startups are surprised to see that, to experience that. But that's reality. So if a start up needs to gain quickly traction, gain revenues, sell their products, space is probably not the first market they should go for. My second comment is actually about financing of space-related startups. There's actually, in Europe, two options to it. One option, I will take the example of 9T Labs, is that space and the space application is one market segment of various that the startup actually sells to. So you sell to market A, B, C, D, and maybe E is space. This means that you are not fully exposed to the space market and also make revenue in other segments. But still, it's sensible to do also business with space. And the benefits can be credibility, because if you manage to do something for space, you are already directly more credible for other markets like automotive or others.

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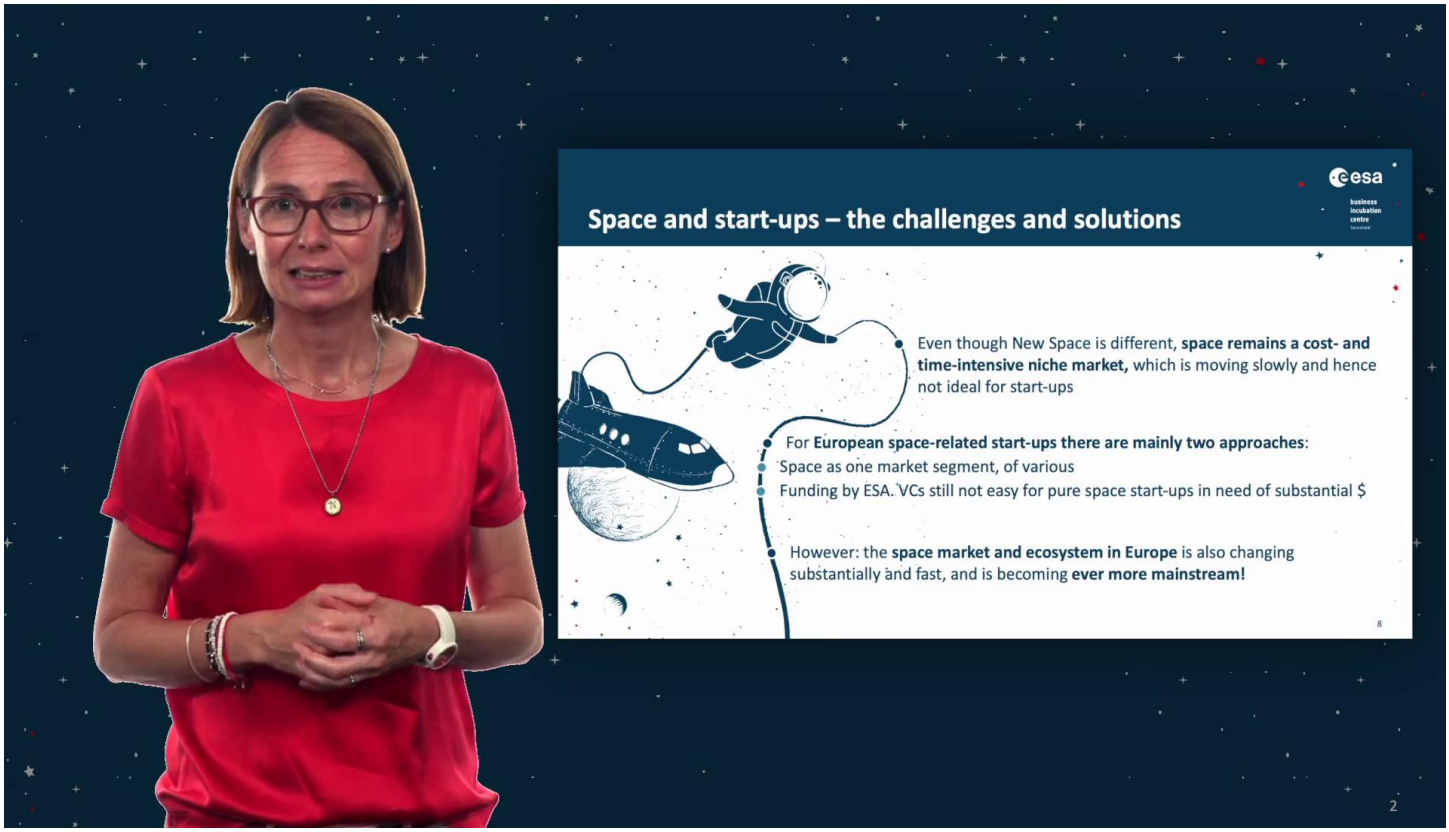

A second advantage is you can maybe get some R&D money for development from space for other markets. And thirdly, usually with the space applications, you're also pushing your boundaries as a startup, which is helpful. So the first option in terms of financing and running your startup is that space is only one segment on one market of various. A second option, which ClearSpace pursued, is that you get the financing through ESA. I mentioned this 80 million mission of finance that they got from ESA and the member states. And they did that because in Europe, particularly, the venture capitalists are still not so open to finance startups which need substantial financing, fundraising money for their venture, like ClearSpace, for example. So they were very happy to get the ESA support because they looked into other options as well, but that was difficult. Now, this is a bit more advanced and different in the US, in North America. You might have heard recently the billionaires, which one after the other go into space. So Richard Branson was already on his space excursion, and Jeff Bezos also was in one two days ago, the Amazon founder, and the third one, Elon Musk, is only a question of time.

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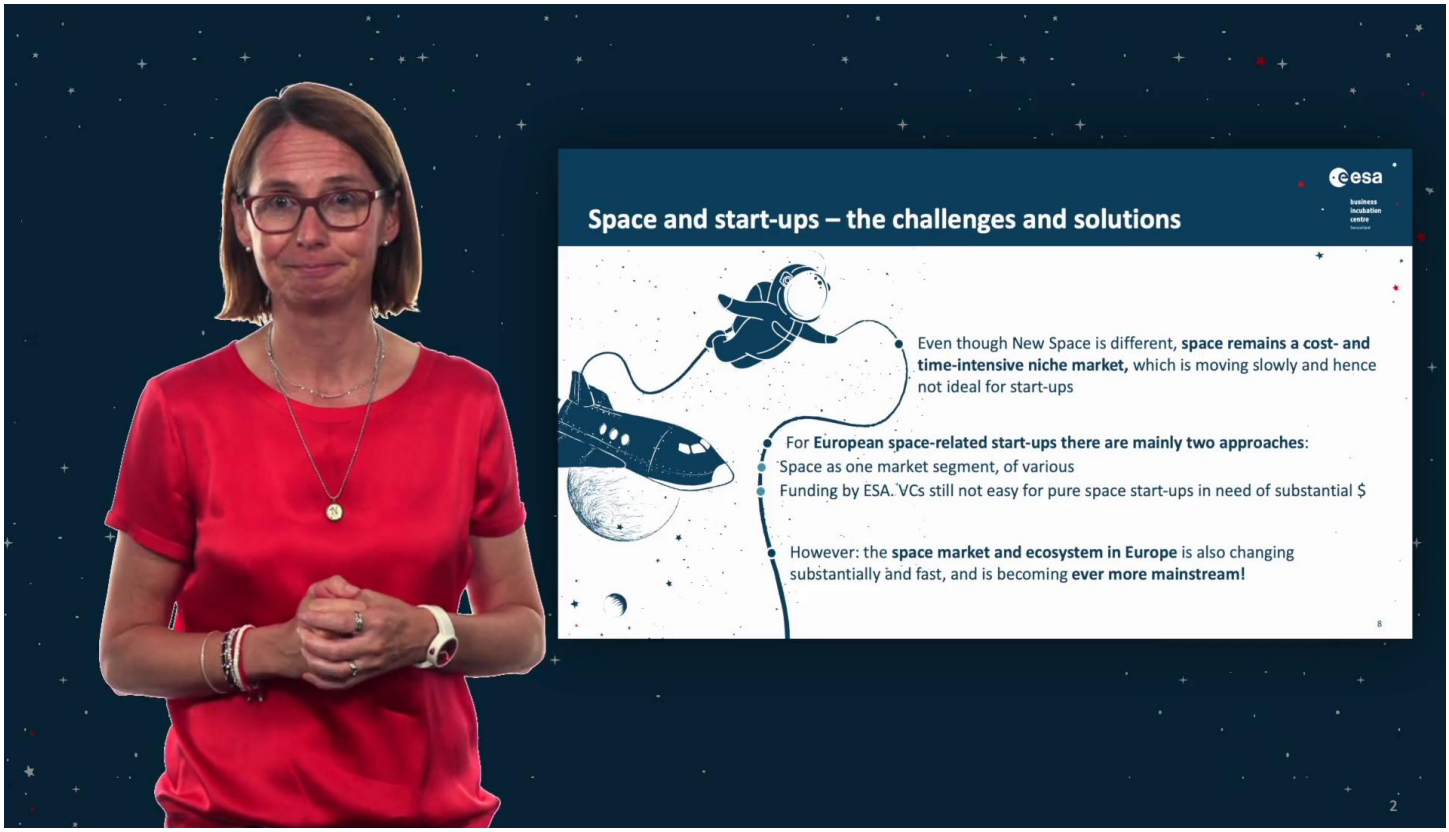

And these three very important space startups, private ones in the US, are all financed by these billionaires. But nevertheless, space startups in the US have it a bit easier. The investors are also a bit more risk-friendly than in Europe. Having said all that, when we started in 2016, the space world was still a very different one, and it's really changing a lot in Europe as well. And we are very happy about it because we are becoming, with space, ever more mainstream, which is great for us and our startups.

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And with this, I would like to thank you for your attention. If you have questions, please go to the website of our programme, esabic.ch.

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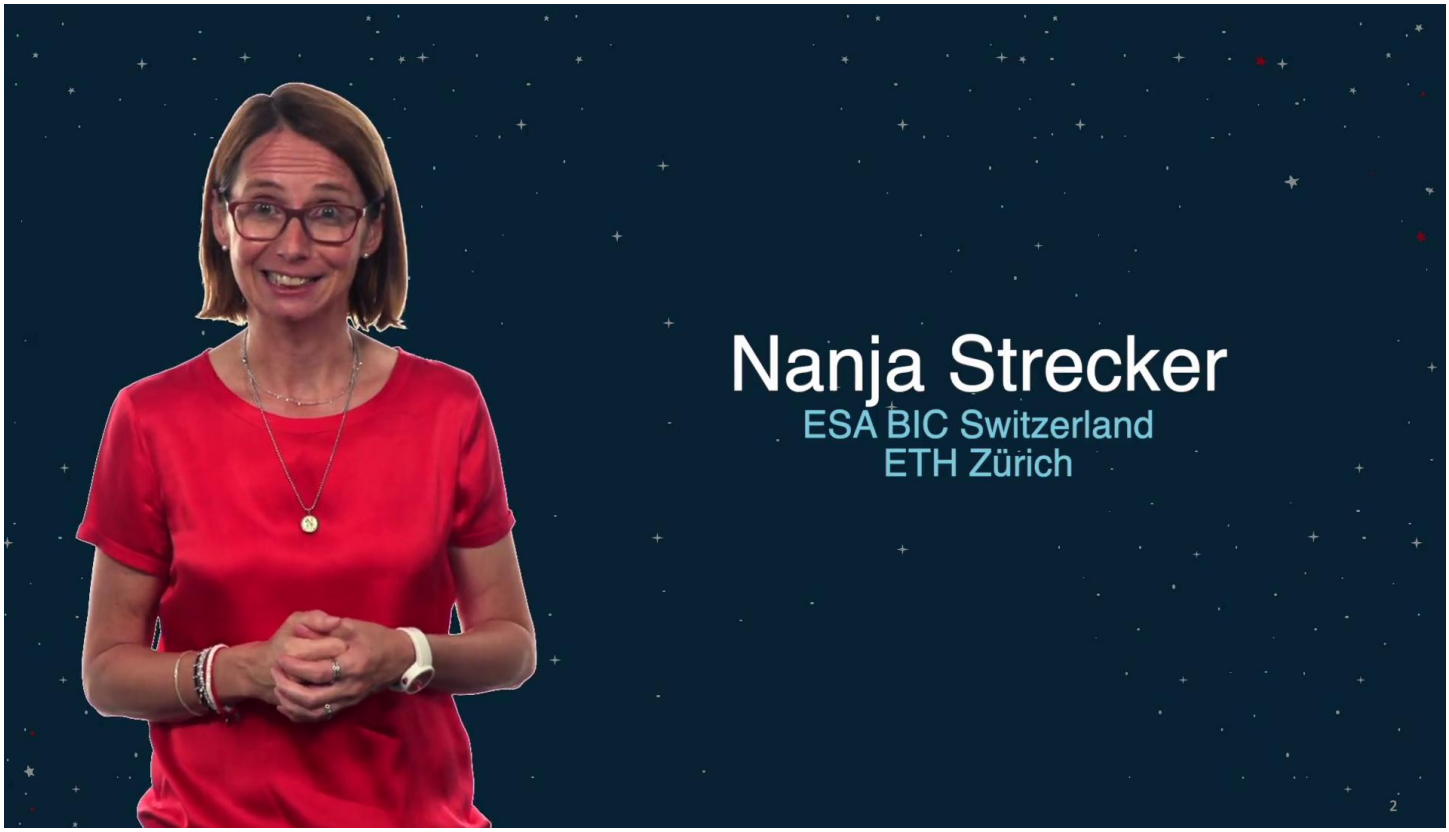

And you are also free to contact me via LinkedIn or email, and I'm happy to answer questions. Thank you very much, and enjoy the rest of the new space lecture series. Nanja.

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