

This is space, no rocket  
required. In association with

Lancaster University Management  
School, the receivers we provide

provide all those constellations  
across a wide range of different

frequencies. Using that  
capability gives you a very

robust, very accurate position.  
It's very different than the

type of receivers you get in the  
bones smartwatches. This is

highly specialised to kind of  
very, very precise position.

So today we are joined by Chris  
Mayne, Managing director of

Forsberg, and my copilot, Alan  
Cross, Northwest Space cluster

manager. Hi, Alan. Hi, Chris.  
Hiya. Hi. How you doing? We're

fine, aren't we? Yeah. How are  
you?

Go forward to this one. So  
Chris, thank you very much for

joining us. I wonder if you  
could start off the podcast just

by telling us a little bit about  
the business. Yeah. Well, first

it's a pleasure to be here. So  
thanks for having me. Yeah. So

Forsberg, we are a company based  
in Haitian and we do position,

navigation, timing, technology  
and as a business we're working

really to identify what the key  
customer needs are around

position, position in in  
particular and and and then how

that.

Translate into navigation and really try and find the best

technology to do what they needed to do to really advance

them to to go forward and deliver their operations in the

best way, perfect. So can you tell us a little bit about

position and navigation, what does that really entail? Yes. So

we provide GNSS receivers at the core of one of our sort of core

products that we provide. So I say GNSS because it's the full

constellation of satellites that provide positioning capability

of their GPS, the American constellation.

Galileo, the European, et cetera, the receivers we provide

provide all those constellations wide range across a wide range

of different frequencies and using that capability gives you

a very robust, very accurate position. So it's very different

than the type of receivers you get in this sort of the chip

sets and bones smartwatches. This is highly specialised

receivers are sent to your equipment to provide a very,

very precise position that can be used really with the

infrastructure around and.

There is different capability you can bring on. You can get

down to sort of centimetre level accuracy. So it opens up. So

what's the accuracy on someone listens to this on their phone.

What's the accuracy that they're gonna get? So well the phone,

phone technology has advanced a lot over the years. So it's got

better. But they use, if you use the raw GPS, you generally can

drift around because of various different environments. I'm not

going to go too scientific, but so the varies around building,

yeah better and whether they take in multipath.

Where the signals are bounced off different buildings or not,

it can lead to quite inaccurate and sort of positions. But then

they use other techniques to try and stabilise that a bit.

Whereas the precision receivers are very, very much focused on

using that raw data for a very accurate position or if it's not

accurate, reporting that back. And and so we take those

receivers and we integrate them into systems and we fuse them

with other sensors to improve the positioning. We use other

different techniques.

Moms platforms software to link up to the customer as a

business. So we have that capability. We have all of our

engineering that goes into the  
within goes on within Forsberg

and try and maximise really what  
we provide the customer, make

sure it hits all of their  
requirements and does what it

needs to. And through that we  
work with a huge variation of

different types of customers and  
it's one of the most exciting

things about working for  
forward. You, you're involved in

everything, you could be  
helicopters working and that

sort of.

Area and aerial survey type  
applications to supporting

vehicle testing and that sort of  
technology and container ports

working on cranes or forklifts.  
So it's not so, it's not so

someone's phone's going to get  
them a metre or two if they're

lucky, right accuracy, if  
they're really lucky, probably a

couple of bit more than that,  
right. So that's going to be by

services around that. Things  
like delivering pizza don't need

centimetre accuracy to know  
where your pizza is, although I

do.

Sometimes, yeah.

So, so these kind of like hyper  
accurate, isn't it? It is and it

varies as well because the the  
question you've asked is do you

actually need one centimetre accuracy and that's some of the

the stuff we work with. Everyone says they want one, everyone

says they want one centimetre, but do they all need? Yeah,

exactly. And what's the the right fit for the right customer

for the right operation. And that's where we work hard to

understand that that capability is actually needed to do the

operations that they want to do because you may need to get down

to centimetre.

People agriculture industries are quite an interesting one

because when I was first starting Forsberg it was quite

interesting learning about the agriculture and farming because

you just think well why do you need a highly accurate position.

And then when you think about it you've got if you can get your

wheels down a very very very accurate track that means you

can increase the yield because you can bring the crop right up

to the the tracks and also when you're spraying chemicals you

can reduce the amount that gets sprayed. So for, so for.

Context.

I might be dropping you in there now, that's right. Can you just

give us a brief overview of you mentioned these GNSS, that's the

global navigation satellite systems. So what's that

satellite, what's the satellite doing?

You know what, what, what's your equipment receiving? Yeah. So

it's all down to timing and at the end of the day, it's the

signal where's the GNSS receiver? Essentially taking the

time that the signal has left the satellite so when it's got

to the receiver and then using that time ranges using the

ranging to work out with the satellite where you know where

the satellite is, where you are and triangulation between

different satellites.

Usually I usually grab a, a, a PowerPoint at this point. Yeah.

Show it, show it visually. It's quite hard to describe. So yeah,

it's it's it's all about that that timing because they just

make atomic clocks aren't they? Yeah. Everything comes back to

timing. And when did that signal leave the satellite to? When did

you receive it on Earth. And then the art is they take into

account all the errors that could come in as you go through

unisphere or the reflections that could come into play and

and at those times.

Signals, so you, you know, you

you detect multiple satellites

at once and then you then can't  
calculate and accurately where

you are on the earth. Are the  
timing signals themselves, do

they have any value for  
products? Because I've had

things like blockchain or you  
know, financial transactions

apparently used these kind of,  
yeah. Well, yeah. So the timing

part of our business because we  
did position navigation and

timing. So yeah, it goes into a  
lot of different telecoms type

businesses, banking.

Because that that transaction  
has to be timed to eliminate

second. Yeah, exactly. So it's a  
very interesting area around

satellite navigation and where  
that the different types of

applications you get involved  
with the different types of

requirements that are needed.

It has been a fun, fun company  
to be part of. And yeah, a long

time. It's fascinating they got  
these that people just think sat

NAV. I was just sat NAV or I'm  
just dropping a pin on my phone.

Yeah. And actually what goes  
behind it is, is is is a modern

miracle really, isn't it? Yeah.  
And then with the, I think one

of the key things over the last  
number of years is the amount of

new satellites and the new constellations because then that

increases the amount of satellites you can see in the

sky, increases how robust the signal is because a lot of

people are when we go through different.

Examples and applications. There's a lot around visibility

of satellites and understanding that you need to clear line of

sight to to the satellite, because if you have blockages,

even trees can.

Back to if you're in a city and there's lots of tall buildings

in urban canyons, very, very difficult. So the more satellite

you have, the more chance you have to see satellites in Sky

obvious sort of statement. But and then there's other

technology that fits around that such as your inertial, which can

you've got your pitch role heading and your attitude

measurements and how that can fit in with the receiver to pick

up positioning when maybe your visibility or satellites drops

out. Do you know what's coming to my mind, Chris, is that am I

right in understanding that force big didn't actually think

it was?

Space based or space enable business, is that right? Yeah.

Well, we always, obviously the satellites are, we are

constantly looking at satellites. We're always looking

into space. But whenever you sort of classed it, are we a

space sector company? Yeah, um.

The immediate sort of thought that comes into well came into

our heads was well we're we are actually engaged with a few

space companies, but the supply we weren't really in that. Our

position in the supply chain didn't form the sort of basis

really of a lot of the business. It was a part of the business

but would inform a sort of a fundamental spine through the

business. And then it was talking to Alan that was which

has been the case, I think he's a theme running through these

podcasts.

And so you respect the business, so it's it's it's utilising that

space data and how are we utilising it and.

Yeah. So bring about that awareness of being in the space

sector and seeing ourselves within the Northwest Space

cluster and that being that type of business is, yeah, really

sort of changed how we represent ourselves in that area. Perfect.

So can I pick up on what you

were just saying? It wasn't

until you came and met Allen. So  
how did the Allen, how did you

meet Allen and how did that come  
about and how did he help you or

not? I think I reached out to  
you guys. I've been a, I think

I've been an event. We bumped  
into it an event, yeah. And then

came to see.

That's right. And I'll tell you  
what. So and this happened. So

this is back when I was a  
European Space Agency business

applications Ambassador. So my  
job was to find companies who

could be building services  
around satellite technologies

for for earthbound and  
applications. And I, so I was at

the time was actively trying to  
find businesses like yours who

were in the space sector capable  
for space, but maybe we're

identifying as space  
potentially. And what really

struck me when I came to  
Forsberg. So I had lots of these

meetings with different people.

Usually me and one other person  
when I came to Forsberg, there's

about 12 people led. There was a  
Charles that was the founder and

there was it was a really, it  
really struck me.

That from the gecko, you took it  
quite seriously. Yeah. And that

you were very interested in exploring what the context was

we were talking about and what opportunities this was going to

open up for you. Yeah. So that was about 2019. Yeah, it was,

yeah, 2019. And yeah, and it was really good as it was really

good conversation and just being about having a look at the, our

position within the space sector and the other types of

businesses and having a look at the funding calls that were

available and opened up more ideas on new sort of innovative

products.

We could pull together other partners that we could work with

because that's a big part of our business is identifying good

technology that we can work with that complements the technology

that we produce and the network has come about from working that

Northwest space cluster. So it's about awareness really that's

the way I look at it, more aware of where our position, how we

fit in and that's a good drawing someone did of this space

industry and where you fit in the space.

Industry and it was, it was superb showing the supply chain

all the way through to launch and then once the space vehicles

in space then the downlink from

the space and then the all the

different applications. And when you see it in that context it's

quite obvious when you see it, but the number of companies that are working to.

In a similar sense and positions with 75% of the space economy is

those applications. Yeah, it's how companies who might not

think of themselves as space are using the data from space.

And that leads to next, next question really Chris, but I'm

thinking about it is that you underpinning your business is

that I can a desire to innovate to use new technology and just

to be a cutting edge. So working with Alan and working in the

space sector, do you think that's had a huge impact on how

forsbergs using the innovation technology and emerging markets?

Yeah, I think so. I'm a big advocate of clusters and network

that that that type of networking and bringing.

Started your own, didn't. Yeah we started our own in the area.

Yeah. So that ohh the electric innovation clusters that's

around elect electronics in the Morecambe Bay area. So I didn't

know that you had started that and you started it with Kate

from like Technologies and Natasha who was at really knows

at system loco. So yeah and a chap called Phil Lee and you may

know sorry, sorry to pick up on that. So is that because.

Was you were you responding to I don't know a government call or

was this just you guys sitting down talking and going there's

something here if we work together we can be stronger yeah

so well it all come came about really because we're an electech

which is now coined phrase that seems to be used a lot so which

is good and all electronics businesses and for years we had

trouble identifying in the local sort of pipe talent pipeline the

right sort of skills that we needed in the business and.

Going to recruit into the area was quite challenging and I

think in about 2016 we looked at it's it's very difficult to

tackle this. We're Forsberg at the time, we're about 25 members

of staff. How do you tackle this as a smaller business in quite a

very large topic of conversation and through conversations with

other elect tech businesses in the area, we all had the same

sort of challenges. So there's a company called Miliamp, I know

you know Rich Grant, so rich.

It was great at identifying a boot camp that you wanted to

run. So he called it tech  
Lancaster. And the idea was to

train people level one, Level 2,  
engineering, electronics,

engineering given the  
fundamental skills and that

would help them then progress in  
careers and generate some

interest in electronics. So we  
did that as there were six

companies in one of them was  
milliamp, five other companies

including Forsberg and we got  
together supported the content

creation. So we'll content.

Was created in the end through  
through our businesses and

Nicola and Richard Lancaster is  
a fantastic job building up a

platform to deliver it on. So  
100 people ended up going for

that. And by the way, this was  
COVID had just kicked in. So we

had this nice pot of funding  
that was coming in and then

COVID happened and you took it.  
But when you're an agile

business pivoting, none of us  
were really that.

Deterred by having to pivot and  
change the way we approach the

course. But we set up Tech  
Lancaster and delivered it.

There was I think it was 100  
people roughly 100 people went

in 64 past and roughly about 40  
have gone on to get career

changes or new jobs in

electronics. But it was from  
that interaction that we started  
looking at well what are the  
problems can we tackle as a  
collective instead of trying to  
tackle them individually. So the  
concept that the cluster came  
out. So myself, Kate, Natasha  
and.

Still really took forward this  
idea of well, we could develop  
this cluster and start tackling  
these challenges that we face as  
smaller businesses in the area  
together. And the beauty of it  
is we're all businesses that at  
the fundamental core of our  
businesses are a big part of it  
would be is in electronics and  
embedded software and that type  
of work. But we're all in very  
different areas and even there's  
a couple of companies that do  
compete there are there's  
opportunities to collaborate as  
well.

So we thought let's build this  
cluster up, let's start tackling  
some of our challenges together  
and it's created quite a bit of  
momentum at the moment. And what  
about the innovation coming out  
of that then? Yeah, so coming  
back to the, the point about  
speculating, yeah, so and the  
and the cluster. So I'm a bit  
about advocate of clusters. I  
think it's a great opportunity

to look at common challenges  
that you face just those

conversations, sharing  
knowledge, sharing ideas that

type of conversation and.

Through engaging with the space  
cluster, you start to get, but

again, it's just about being  
flooded with more information

and knowledge about other  
businesses are out there and

especially some of the sort of  
Earth observational data that's

available and what's coming up.  
And it just sparks the ideas

really of well, how do we fit  
that into our business where,

who do we work with, what  
companies are there out there,

what could, how does this fit  
into our strategic model of.

And product portfolio and take  
it from there. So it's a

constant source of idea  
generation and you flagged one

up earlier today around lunar,  
yeah, lunar applications. Yeah,

applications, yeah, it's just.

As as a company we're Forsberg,  
we've tried to position

ourselves to be able to  
capitalise on good

opportunities. So then it's  
about going out there and

generate finding those  
opportunities and the more we

were involved with that space

side, it just creates more

ideas. So here's a question for you. So how Long's big been

around, so force were started in 1987, so it's an established

business right, not startup, it's been going a while it's

been going so.

So this opportunity that so basically this funding available

to look at how we're going to do position, navigation, timing and

comes to support human activities and robotic

activities on the moon, right. So there's no money available.

So I saw this and tagged you guys in, but then simultaneously

someone internal in your business step forward and said,

hey, look at this, we should do this. So my question is.

If you hadn't been contextualising yourself as a

space business.

Would you have considered that option if someone internally had

come, we can do stuff on the moon and you hadn't gone through

this change in the last few years, would that be something

you'd be able to be considering? Very difficult to say. You never

know what path you're going to take, but I'd definitely say the

again, that way awareness of the space sector and that

information that's flowing  
around catches your eye and

because.

It's talked about within the  
business and uh, different types

of ideas are flowing around,  
then it jumps out and it's that

that's the key thing. It's the  
old you're walking along a

supermarket looking at various  
different brands of product.

What makes things stand out? And  
it's the information about the

space sector makes that makes  
that opportunity jump out more.

You know, that's a bit of me  
that we could have a look at

that. Yeah, OK. So let's find  
out a little bit about the man

behind the business then. Yeah,  
so.

Be wrong for me not to have you  
on this podcast and not point

out that you do. Yeah, dig  
deeper. But also, you're a

Lancaster alumni as well. So,  
yeah, talking about we're

sitting here in Lancaster  
University today. So how has

Lancaster maybe shaped some of  
your thinking or maybe or maybe

not. But has Lancaster shaped  
some of your thinking in terms

of innovation and being a  
leader? Yeah. So I graduated

Lancaster University in 2005,  
and then I've kind of hung

around.

I rang around since and was very fortunate. I am yeah, an

entrepreneur and residence and I really started forward in 2006.

Staying in the area really from the get go of going from

university into my career, I wanted to keep that connexion

going back. So I've looked and done it in various sort of guys

over the years, but my engagement with Lancaster

University is quite hefty. In different areas we provide

student projects really to tackle it was a good way to feed

some project ideas and research opportunities to students, give

contextual learning and.

And also to make students aware of Forsberg. Forsberg are in

this area and we're the type of company we are. So we've

recruited well off the back of these projects and likewise

these things have come away from that experience saying that they

had a good good experience working with with our projects,

they had fun and they were apply, able to apply their

learning appropriately. I've also been, I've got involved

some of the leadership training courses and as you said I'm

entrepreneur in residence.

A couple of advisory boards and

really that again as part of the  
innovation agenda, my my own  
agenda, Forsberg's agenda and  
and part of the Electech  
cluster, I see engagement with  
academic institutes and we're  
using Lancaster University in  
this example. But crucial for  
identifying what research is  
actually going on in the  
university that can be applied  
to business and commerce and  
taken forward and actually  
making a really great impact.

On that research, but then from  
that interaction feeding into

the academics, what is actually  
happening in the industry right

now and shaping some of the  
research that goes on. And for

me personally, I find all of  
these interactions challenging

and learn something every single  
no, I learn something new every

single day. Yeah, ask some  
crazy, crazy questions that make

you think outside the box. So  
it's a it's all shaped shaped to

you when you're speaking.

To the the students and  
academics and that do you talk

about space? Not, not. I don't  
really go in and go space and

then that's where you going  
wrong. I know, yeah, that's what

we would do.

Space is exciting, but it's kind

of inherited within our within

the conversation and how we talk  
about the technologies that we

use and the different areas. So  
especially when we talk about

the different markets that we  
work with, yeah, the disc space

does catch people's eye. It's  
instrument with this because I

think there's an assumption with  
people out there with space and

it's quite a mystical thing, you  
know, it's something that other

people do.

I don't know enough about space  
to do it. And it's interesting

satire. Listen to you. And this  
has come out really in in the

last interview as well. And  
other interviews we're doing at

the minute is that people taking  
the leap. We mentioned The

Simpsons before we started  
recording, right? And there's a

line where Marge is trying to  
earn a bit of extra money and

she says, I'm going to teach  
kids to play piano. And Homer

says it didn't play piano. She  
says I don't. I've just got to

stay one lesson ahead of the  
kids, right? And that comes up

again and again, you know, every  
day.

School date. Making sure that  
you and it's an active process,

isn't it? Making sure you're on  
top of things and try not to get

overwhelmed or?

You know get imposter syndrome,  
you know this is not I couldn't

possibly do that and it's  
interesting to hear how you

personally and the business of  
taken of embraced that really

and it was very formal sort of  
the core core innovation strand

to our business really is that  
developing that capability,

bringing it forward,  
experimenting, learning from

that experiment, developing the  
next, the next iteration nitrate

and next iteration. It's yeah  
it's very important and if you

again I always look at it.

From how we bring that we could  
be bringing a product to market

engaging with the customers and  
or networking and unless you put

yourself into that situation and  
reflect back on it after and

just on it then.

Yeah. It's the best way to  
advance through. So you said to

airlift as well before the  
podcast, just when we were all

having to replay that, you were  
talking about you the UN

Sustainable Development Goals.  
Yes. And we've talked about this

before as well, haven't we,  
about space not being in one of

those kind of boxes. Yeah. Do  
you want to explain a bit about

where you're coming from on that one? Because I think it's really

interesting. Well, can I ask what the UN Space Sustainability

Goals are just for my?

My own so the the sustainable, the UN Sustainable Development

Goals are really about wicked problems. So the UN's climate

created these goals that we as a across the world should be

focusing on to try to increase equality across the world. So it

can be about gender equality, it can be poverty, it can be about

environmental. So they've got a sustainable development goals

that are very much identified and.

People are across the world are working towards them really crap

description there but anyway that's good that's the context

is going to put it into a Forsberg context. It's forms are

a way of governance across Forsberg as a business we're

we're we're a business but how do we feed into the wider

picture of sustainability. So our area is looking at the

engaging with local academic institutes and.

Trying to build up the talent pipeline, trying to give good,

good careers that type of work and trying to tackle the

education side of things. But then we also do the

environmental side. But ultimately there's 17 different

areas and it's a good way to cheque ethically and the the

business, the business model. But what's quite interesting is

the 17. So when you actually lay them out, you have one tile

missing because it's not balanced.

No, but the one big gap for me is space. There's nothing in

there for space unless it's inherited. And yes, in one of

the tyres is horizontal across all of them. Yeah, well, it's

like for example, you have.

The the environment and you have as I said health and well-being

and that those type of tiles sort of space has a great

position there because we're now going into space and all of

these sustainable development goals were set up for we have an

issue in this area.

And here are some goals that we can help that will help reduce

the issue. So we're going into space 0 if we having some

development sustainable goals now rather than trying to fix a

problem, trying to prevent a problem from having, which is

the issue, isn't it? And I said this to some of your students

the other week is the issue.  
There's no laws against

werewolves right? There's no  
there's somewhere else against

werewolves. There's no there's  
no laws determining how much.

I'm allowed to photosynthesize  
right because these aren't

issues that I face that anyone  
faces and so legislation and

policy almost always follows  
after always the challenge has

come around. So it's it's  
fascinating that push to see can

we be doing this now because  
surely that is the most

sustainable way of doing things  
is to start to bake it in from

day one. And I think The thing  
is from what you're kind of

saying Chris and where you were  
saying Alan is that rather than

looking at how all the other  
sustainable development goals.

And Kenny, space is actually  
putting it as a key area that we

must focus on. So rather than  
looking at it almost like we're

hitting space by doing  
environmental issues and I guess

you're, are you talking about  
the good dividends can approach

as well. It's about good growth  
about each part of your business

and having that kind of social  
purpose as well, not just being

an added on but being embedded  
into. Yeah, that's right. Yeah,

we used the good dividends model  
and our strategic Steve

Professor, Steve Kempster.  
Hello.

We're talking about in space.  
He's been yeah he's been superb

and I my my journey personally  
took about the university link.

So I give him a little bit of a  
shocker, yeah role of Steve

Kempster. So Steve's model is  
basically that rather than you

setting up a business and it  
being really focused on the

profit and the bottom line and  
only the bottom line, it's about

looking at all the different  
dividends in a business and

saying well actually how do we  
make sure that these are

sustainable that their social  
purpose.

I'm looking at regenerative  
businesses. So, and as a

fundamental benefit of that  
becomes the the growth in the

business and the profits and  
everything. But this is the way

that business was until about  
the 1950s, right at the end, who

was the guy in America? I've  
forgotten his name. I should

know that. Who came up and said  
the only stakeholder you need is

the shareholder, right, because  
there was a time. This is why

the workmen's social clubs. This  
is why where I grew up in care,

you're at the Yorkshire Metals Club, because there were there

were other, it was recognised.

Inherently that there were the workers were a stakeholder, the

communities you're based in at a stakeholder, the children of the

of the workers and the communities of a stakeholder.

And we dropped all that deliberately and it's

fascinating that in the drive to.

Solve it's, let's be honest, solve the climate issue that's

been the main driver in this, that this is then reopened.

Yeah, this this concept that actually businesses don't

operate in isolation, that they're part of the ecosystem of

humanity. Yeah. And, and The thing is though is that we've

got to make sure that it is not just a tagline or a PR exercise

that, you know, we go back to some of those traditional values

where it is embedded and it's lived and it's part of the

organisation and it's not just a case of PR to get customers and

get the bottom line.

Because ultimately that's just back to where we're not wanting

to be again and we're thinking about that good. And I think

going back to the the cluster

conversation that's that's

what's really exciting about the  
electric costs we're working in

is we all, we're all driving to  
for the region and drive social

and sort of economic benefits  
from from these interactions for

the region and they the  
stakeholders are connected to

that.

And should benefit as well.  
Yeah. In the space, in the space

cluster, one thing we always  
talk about is the point of the

cluster is to is to grow the  
space economy for economic and

societal development. Exactly  
those things.

OK, guys. Moving on, I'll be  
back.

So you could talk about that all  
day, you know, and I'm just

making sure that we, we we can  
get all our actually lots of

cool questions really to be  
honest. So thinking about the

commercial space sector in the  
UK.

What kind of opportunities do  
you think there are for

potential entrepreneurs? So at  
the moment, I'm working with a

lot of students who I've got  
really good cool ideas, quite

interesting in the space sector  
and Alan's been in speaking to

them. So what kind of ideas or  
can advice would you give to

people looking to set up a a  
space business or operating

space sector? Yeah. So well, I  
think the advice I would give

working with data from space is  
to look into that area because

that has grown exponentially.

Over the last few years and you  
look at the Leo satellites, the

Earth observational data that's  
coming from there, the increase

in the number of satellites in  
for a satellite navigation, all

the capability that's being  
brought about from that

technology is very exciting  
prospect. And then going back to

looking at what of the world's  
problems or what problem is

going on that you can actually  
solve with that data rather than

looking at the we've got this  
data, what do we do with it.

Let's look at the context of the  
problem. Yep, that talks about

that a little bit forward, but  
would like to find out what the

customer problem is and then  
address it. What's the world

problem that you're going to  
address with that and how can

you do that using all the assets  
that are in space and apply

that. That's the there's some  
exciting developments in that in

the technology that could really  
sort of propel us forward there.

That sounds like it's a massive market potentially.

A lot of the data is there already. That's the thing. It

is, yeah. It's just how do you want to be used? How do you

apply it and how do you apply it into something that's gonna have

that positive impact? Yeah, that's right. How do you secure

it? Because that's a lot in terms of cyber security and

space as well. Yeah, cybersecurity and is definitely

going to be an interesting area in the space sector, 100%

working on it. Yeah.

Work on that one. Top tips for managing a space business. I

think I'll probably just about to rattle off a common theme

here, but networking and trying to go in and meet other

businesses, find other partners, find lots of Alan, find it.

Finding aliens that can point you to funding opportunities,

spark interest. Even if you don't go for that funding

opportunity, it generates that that thought those ideas and

ultimately generates the innovation and really just

driving that awareness of what opportunities there are and how.

Out there to tackle them. So it's all, all that, that's my,

my top tip really is people.

Yeah, yeah, people engaging with

the right people and just  
building on it. And then we

talked about earlier, suddenly  
you find from those

conversations, the momentum  
builds quite quickly. And that's

when you get a real sense of  
pulse on the pulse that this is

starting to grow and this is  
going to become something. So

those conversations really do  
give you a good gut cheque for

how many people are like.

Don't know how many are gonna  
gonna go right now. There's only

one Alan incorrect incorrect  
incorrect. I will point out that

there are clusters all over the  
country. So wherever you listen

to, wherever, wherever you're  
listening to this, there is

someone you can speak to who's  
gonna there is gonna help you.

That's right. There are there  
are lots. That's definitely

something I've found.

Reaching into some of the the  
business contacts that we have

and the networks is there are  
some great people out there

wanting to join the dots and  
that's the key thing, make those

Connexions, join the dots, find  
opportunities. So yeah it's just

you finding there's people but  
there are lots of good people

out there. They're not perfect.  
OK we've kind of come to the end

of the podcast but before we  
finish I've got we quote for

yeah OK. So this quote from.

Stephen Hawkins and it says I  
don't think the human race will

survive the next 1000 years  
unless we spread into space.

There are too many accidents  
that can befall life on a single

planet. But I am an optimist. We  
will reach out to the stars.

What does that kind of say to  
you?

I mean the major thing I  
resonate with is the advancement

of technology and how far that's  
come and you see some of the

cutting edge technology that's  
coming up in the future around

quantum computing and and you  
already see the advantage, you

look, look how far the space  
industry is coming on and it's

such a small period of time as  
well so.

I'm a firm believer in  
technology and.

Driving there, our future. So  
yeah. Resonates nicely. Would

you go to space if you could?  
Ohh. Definitely. I can't. I

can't even go to a beach  
holiday. If there's a mountain I

can see. I want to stand on top  
of it. See this is the that's

the answer. This is what I'm

saying. When you asked me and I

said I called to Captain Kirk, I  
said because it's there and you

weren't having it. But I'm with  
you Chris. Yeah, yeah. Just

anything that's high that I  
could stand on and have a a

viewpoint for. So it doesn't get  
any. It doesn't get any better

than going into space and  
exploring how I can just see

you.

I had a space rocket together.  
Yeah, imagine ohh be pressed up

against the window. Yeah, smear.  
He wouldn't be RC cause of the

conversation we built up. Yeah,  
I'm not sure that's a good

thing.

Well, on that note, I think  
that's us done for today. Thank

you very much for your time and  
thank you for having me.

Thoroughly enjoyed that. Yeah,  
it's been great. It's been

fascinating. It's been good to  
really sit down with you

properly and have a dig into  
what you're up to and how things

are going with Marcus. Yeah.  
Thank you so much. No problem.

Thank you for having me. It's  
it's a pleasure.