BETTER FUTURES

Transcript- Policy 3 episode

transcript

Michael Laine:
Hi Everybody.
Welcome back to our show, to our channel.
We've taken the last couple of weeks off.
It's been really great for those that celebrate the holidays,
That was a big deal for us.

But, you know, it's time to time to get restarted,
get back to it.

Okay.

Just want to check in for a moment.
It looked like we were not streaming, but
it doesn't fact look like it's working.

So happy to see that.
It's a little nervous there for a minute. I don't know if anybody remembers, but our last episode at the end of the year, last year, there were some technical glitches and I had problems with the camera and I had problems with the microphone

and we muddled through.

But it was it was pretty stressful, so.

Okay, good.

I'm going to I'm going to ignore that. I assume everything is going well here and let's just keep going with it. So for those that are new to the channel,

I'm going to give you a quick brief update , I'm the President of LiftPort group with participating in the space research business for about 20 years.

First before LiftPort under the NASA Institute for Advanced Concepts Research Team as part of the space elevator team that we created LiftPort to keep going on the space elevator.

We did that for a couple of years, 2001, two and three under the NASA umbrella,
and then four or five, six and seven as part of the company.
We focused on the robotics and the mechanics of climbing.
So we have a bunch of a bunch of robots and stuff over here.

So pretty proud of that part of our team.
We also worked on carbon nanotubes
and other nanotechnologies.
While we never ultimately had the breakthrough necessary to build
a carbon nanotube tether to space, we did learn an awful lot.
So pretty proud of that part of the team as well. Ultimately, the company closed
as a part of the economic crisis in 2007 and eight
and we were pretty quiet for a long time.
We had an important
but otherwise failed Kickstarter in 2012.
As we started looking at the lunar elevator,
we asked for $8,000 and we got $110,000, which sounds like a win.
But ultimately it was a giant catastrophe. And I've talked about that before.
Fast forward to 2017 and 18. That's when the current version of LiftPort was started.
And we really got started growing our team a little bit in 2017 and 18.

Instead of focusing on the Earth elevator, we shifted gears to the lunar elevator,
which we're 100% focused on now. We haven't worked on the Earth
elevator for a long, long time now. During the pandemic, we wound up doing a lot of
events.

We called it conferences as a service,
and we did 27 digital conferences, virtual conferences, some for ourselves as our
own account, and then some for several other organizations
the Moon Society, Mars Society, SpaceX, the chief scientist of US Space Force, Mars
Coin and the Foundation for the Future.

So hats off to those folks

because honestly, they kept us alive and functioning during the pandemic
and now, as the pandemic has shifted yet again,
there's less of a need for virtual conferences.

We are going to continue doing hybrid events.
We've got some scheduled. We've
already done one with the Mars Society.
We've got some others on the books.

So we're going to do hybrid events, but we're also going to start building our own virtual conferences.
I'll share about that in a minute. And that led to doing podcasts.
So now I think we're up to our even dozen shows. We've done about 12 of these now.
They'll be available on various platforms in the next couple of days.
I'll make sure I get everybody the links probably on the next episode.
We've been doing a lot of stuff behind the scenes.

Before I jump in, we've got Taylor doing audio editing in the podcast.
Leah is kind of my right arm.
She's doing all sorts of stuff, usually behind the scenes.
So hats off to you. Thank you.

Yoosef is working on our YouTube channel.
Our new person, Rachel is writing a bunch of content.
What she's doing is she's taking our interviews and writing about them.
So I'm going to post a bunch of links here in the chat. So we're posting everything here
at the blog of Better Futures.
So tons of stuff is happening there.
What's happened to the kind of stuff
that's happening there?
We've had, you know, talks with Dr. Doug Plata,
so it's a little hard to do this.

Two things at the same time here.

Dr. Roger Launius, Dr. Robert Zubrin, James Burk of Mars Society.
So we've had some really great speakers of our on our on our show,
and Rachel has taken on the work of capturing that and
and turning it into text form and passing along.

So I really encourage all to come in and see what we're doing.
We are trying really hard to build this part of LiftPort.
We're calling it Better Futures, this part,
this new subsidiary of ours, into a fully fledged media space.
Media and news.

Well, yeah, a new site. So that's kind of that's
kind of some of the big stuff we're working on this year into 2023.
So definitely take a look at that. And with that, I'm going to jump in
to kind of today's program.
If you have any questions, please, please let me know in the chat
and let's let's get to it. So we're kind of alternating
between having guests and doing the policy analysis.
We do have a bunch of guests on the on the docket, but I don't want to do a spoilers
right now on that. But we got some really cool stuff coming
and I think it's going to be pretty,

pretty exciting.
So we are focusing on the intersection between space.
Of course, space, but the intersection that corresponds with space and national policy,
finance, commercialization and capitalization.
So that's a pretty big topic. And what we're doing
is we're going to host a conference series coming up at the end of March.
We're going to do we're going to do all of these one per quarter
for the whole year. And that conference is really going
to focus on how these things play together.
Right? How does national policy, both in the United States and beyond,
how does national policy, how how does it prime
the pump for commercial space efforts?

And then at what point do those commercial space efforts don't no longer need the federal support and they can stand on their own? So we're going to show
what we're going to do today is go through
a recently released report and kind of talk about that evolution.

But if you're interested in this kind of conversation, Dare Greatly.space is the home of both
our conference, our newsletter and our podcast.
So we're building this into kind of a full service brand.
Now this is all under the Better Futures subsidiary of LiftPort Group.
So if that's a little confusing, believe me, it has been confusing to us as well.
So hopefully that will become clearer over time.
You know, where we started doing these conferences as a service, as a way
to just keep the lights on literally and figuratively during the pandemic.

And we're trying really hard to get back into the business of working
on the lunar space elevator infrastructure and other lunar infrastructure.
So hopefully you'll see something about that in the coming months.
But for now, to keep the lights on still, guys do podcast still going to do conferences,
and we're doing podcasts and conferences for other clients as well.

So if that's something you're interested in, please let me know.
All right. And with that, I'm going to jump
first into the couple papers that came out this week.
So the very beginning of the year, we're starting off with some pretty neat stuff.
I have a I have two two papers.
This one I'm only going to talk about briefly the Center for Space
Policy and Strategy at Aerospace Corporation.
If I get time, I'm going to jump into this
a little bit further, enabling
a new space paradigm in harnessing space
mobility and logistics.
This is a pretty important document.
Probably.
I'm not going to get into it today.

I might have to save it for next week,
but I'm going to post a link to it
to just whet your appetite.
The Aerospace Corporation is
arguably it's one of the
think tank organizations
for the US Space Force,
Air Force and other components of the DOD.
These folks are really smart people,
and there's hundreds, maybe maybe a thousand or 2000
PhDs working at this organization
to just keep keep America's defense program
at the at the at the top of the food chain.
So pretty smart, folks. This was a really interesting document.
If you get a chance to read it, please do.

I may I may have a chance to
to get into it today. But in case I don't, I wanted to make sure
that everybody had access to it. So let me just post the link here.
I have a lot of tabs open, sometimes a little, sometimes a little
challenging running, running this show
because there's a lot of tabs happening.

So I really want you to pay attention to that.
If I get a chance, I'll come back to it. But I really want to spend the bulk of today's program
on another document that also came out this week.
Some in stock sharing this and share this. So the organization Euro Consult,
they do market intelligence for the space economy.

I learned something about them today that they're nearly 30 years old.
I was very surprised to see that because I don't think of the space commercial sector
as being 30 years old. I think of it more as a decade long.
So what that says to me is they're looking at the whole space economy from originally
from the government perspective, and by that by their name.

You can assume that they're in Europe. They are, but they're also all over there.
They've got a center in Washington, D.C. and a couple other places as well.
Really interesting organization.
We hope to have them as speakers
at the conference.
I was mentioning a minute ago, the Dare Greatly space conference.
But this is what they do.
They build market research reports
and they sell that.
Right. That's that's their job.
That's how they make money.
And just yesterday
they came out, oh, here's their locations.

Oh, go Paris, Washington, D.C., Montreal,
Yokohama, Sydney and Toulouse.
They just came out with this space
economy report.
I want to dig into it.
We're going to dig into a quite a bit
here.
But, you know, here's some here's some important here's some important numbers. There is a lot of money in this sector.
And it's one of the reasons why we're building the show
that we're building, why we're building the conferences that we're building, because we think it's pretty important that the space economy be tracked because it's going to change the world and somebody should be watching and paying attention.
I love this idea that the space economy could grow
just about $200 billion in the next eight years.

There's some people, by the way, that think that number is low.
Bank of America and Chase each came out with reports last year
and the year before that, both look at $100 billion sorry, trillion trillion dollar economy.
So even though this is 600 million,
600 billion,
I mean, I messed that up all the 642 billion by 2030.
Two other organizations owns Bank of America and Chase
both came out with reports that put the economy at over
$1,000,000,000,000.

So this is actually like it. And it's interesting to me that it's so light and I don't fully understand it, but we're going to talk about that a little bit here. Some of the value chain that they're building, market markets by client types. We're going to get into this a little bit more, but pretty fascinating document. I recommend taking a look at this free extract, which is here, just, you know, download it.
It's free.

They want your email address.

That's the tradethere.
Their document, their their core book
is $5,000.
So all the way up to $15,000.
We're going to talk about that again
in a moment.
But I mean, that's their business model.
So I got to say, hats off to them
for having nine editions
of this document
at these prices.
I think that's actually pretty reasonable
if you're the kind of organization that

that can benefit from this
and you have those kind of resources
with Forbes too small,
we would probably never be buying a report
like this,
at least not in our current iteration.
And this isn't the kind of thing
we would necessarily need,
but I'm certainly interested in it.
And they have a whole bunch
of other documents and other reports. So
if that's
your thing, I definitely recommend it.
I've been what I've been paying attention
to your consult for a couple of years
now, and they never cease to
surprise me.
So pretty, pretty impressed here.
Great organization,
good people, solid research.
I recommend
the the free extract, because that's
what we're going to be looking at today.
And with that, let me actually jump into it a
So it just came out yesterday.
I've talked a little bit about Euroconsult, but I'll I'll give you a little bit more.
I don't exactly know the direct relationship, but I understand that there's a lot of issuers that work
there International Space University folks.
So that to me, that gives them a certain amount of clout and credibility automatically.

Anybody who knows me knows that I've been a part
of the ISU community for a long time now.

I'm not afraid to throw my school under a bus when they make mistakes, because they definitely do.
But overall, I've been pretty impressed by the other folks I've met, either
classmates or former classmates and I tend to watch the organizations
that my classmates go out to because because they tend to be interesting
organizations.
So, yeah, EuroConsult has been around for a long time.
Let's go ahead and jump into this to this document.

First of all, you know, there's not really a great definition for what the global space market really is.
I know that the Bureau of Economic Analysis, that's the that's the U.S. federal program
that tracks things for the government. They they they ultimately are responsible
for things like the Consumer Price Index and other things like that.
Cost of living changes, things like that. And their version of what
the space economy is is pretty different from this.
Also, the Space Foundation out of Colorado Springs has a somewhat similar

but not the same report that they issued, usually around March or April.
The numbers are similar, but not the same, and the differences and nuance are kind of important.

For example, I don't really like the Bureau of Economic Analysis view because A, it's a much smaller number and B, I don't think it encompasses the depth and width of the space economy.

So take that for for what you want. So the very first thing I look at is like,
what is, what is the global space market
by their definition?
Because that's going to drive a lot of
this, you know, And so they answer that.
It provides a snapshot of market dynamics,
competition of evolutions and key drivers for all key segments of the space economy and its applications.
I think you'll see in a minute that the space economy and its applications might be the most important element to this. I just kind of keep that in mind
when I get to the application section.
Okay.
Also, and this is the piece that surprised
me, a minute ago where it said that data is derived
from over 30 years of tracking all levels of satellite space value chain Europe
and their space program and the United States
and our space program, they have evolved very differently
right?
They started roughly the same.
They started, you know,
NASA was a single budget and arguably
with a single mission
in the early days to go to the moon,
whereas the early days of ESA, by the way,
is quite a bit younger than than now.
So I don't know the exact year, but it's quite a bit younger.
You know, they have multiple budgets. You know, they have money from
multiple budgets, meaning multiple nations
and they don't have the same
North Star vision that America has often run under,
especially in the early days.

So when you're tracking data from all the way back 30 years ago, the NASA's of 30 years ago, the European Space Agency of 30 years ago was pretty different than where they are now.
So while their historical data is probably pretty easy to verify or current data because there's so many different organizations, probably very hard to track.

But I really like, I think the idea of their 30 year old model
and 30 year old databases to look at the
the the depth of time of these various programs.

I think that's very impressive.
So far as I know, there is no other organization that has that.

So if no other reason for you to be interested in the Euro consult paper, that that is a compelling reason. By my definition, by my standards, you know, this document's going to look at market dynamics.
Well, you know, that's a that's very different on our side of the Atlantic versus
their side of the Atlantic. But remember, I showed you all the places that they operate from.
They're not euro centric anymore. And so this is a global space economy.
And they really stress that. We talked a bit about the pricing.
I'm not going to try to sway you one way or the other.
I think I think understanding the the outlook of the commercial
and government satellite value chain is pretty important.
But I also don't really care about the satellite value chain.
Ultimately, while I think that's interesting and it's a driver of of most, you know, 90% you'll see at the moment most of the space market is driven by satellites.
I mostly only care about linear development. LiftPort focuses on lunar infrastructure development.
So while it's great to see a thriving environment, it's
not really the thing that we we at live for it
necessarily care that much about.

However, since it is the driver of the economy, the projections for the next ten years
are probably pretty darn important. And honestly, if we were going to spend
five grand, five €5,000 for the classic report,
I would almost certainly spring the extra 2500 in order to get the data sets,
because I would want to go deep into some of the data sets.
Again, I'm not aware of any organization that has their depth of where.
So there are great and we're going to talk about them.
There are great consultancies and advisory firms that do similar products,
so I don't want to put these folks ahead of everybody else.
That's not what I'm trying to do. I'm saying they are good in their own
right because we do hope to have a folks from Bryce from an
Astralytica, Astralytical space.

Capital has a really great report. There's a bunch of really good
reporting organizations out there, and we're going to go through
a lot of their stuff. So again, don't want to put one over the other.
I want to acknowledge them for their strengths and weaknesses.
But the downloadable dataset, if I was going to spend 5000,
I would spend 7500 for the data and I had to sign somebody on the team
to really dig into. That might be me because I'm a nerd for numbers like that.

All right, so what are we doing here?
What what is what does this paper really get you?
Well, first of all, it's long, right?
It's 80 pages,
but they're only covering
like one section at a time.
Basically one section per page.
So no matter how good their analysis is, you're only getting one page on the topic for me.
Page 35, Chapter two
Satellite Manufacturing.

Page 35.
Focus on the war in Ukraine and the impacts on the Russian industry.
Heck, I think that's probably worthy of 80 pages all by itself.
So I know that this document is written for senior executives that want
the summary of where things are but me, that probably wouldn't be sufficient.

I would want to look a little bit deeper.
So I want to know about the scope and definitions of their space
economy and space market. I'm not sure they're the same thing.
I definitely want to watch government funding trends.
I'll show, I'll show some areas I'm a little concerned about
deeper in the report this report's only a couple of pages long.
This is this is definitely a marketing product. They're not giving away the crown jewels
in this thing.

This is the free version of of a €5,000 document.
So they're not really giving us a lot of details, which is fair.
I think that's very appropriate. I'd love to see government funding trends.

I have some questions about how they break those up.
I'll share that in a minute. And I would love to see what the private investment trends look like.

So again, we're going to try and get some folks
from Europe consult to come to our conference.

Derek rightly thought space and then join us and kind of share some of the goodies.

Okay.

I think it's interesting that there is a manufacturing backlog in satellite development.
We all know that first COVID and then the first first COVID caused a total supply chain breakdown.
Specifically, ships got especially affected.

Then the US government put some restrictions on other nations being able to produce some of the high value chips and then the Russian invasion of Ukraine.
All of those things have had crazy impacts on satellite manufacturing.
And yet and yet 2022 was still a record breaking year for launching satellites.
I'm sure we're going to see that. We're going to we're going to see some stats about that here pretty soon.
Well, I'll come back to it. There's a there's another piece
I want to show. I am curious what they have to say about launch services
and the competitive landscape there. I know that that is going to change
an awful lot with the development of Starship
Singularity, like as starship comes online, maybe
maybe in the next 30 to well, maybe within the next 15 to 60 days,
depending on a lot of stuff that not, you know, Space X doesn't have total control over.
We haven't seen we haven't seen Space X get a launch license approved.
We haven't seen them clear the hurdles for the EPA, Environmental Protection Agency that they had.
So it's hard to say
clearly where they are.

Elon Musk posted something
just a couple of days ago saying that
they looked like it might be the end of
this month, might be next month.
So we'll see. He's been saying that for a while, so it's a little hard to tell.
And I'm a little surprised by their their their comments about shortage and heavy launch supply.

Yes, there there have not been very many heavy launches.
But, you know, StarLink or Starship is still a developmental rocket.
So it's going to be a while till it's in production.

They only launched the heavy once last year. There's another one coming up soon.
But I do wonder, does it even matter that there's a shortage of heavy launch
because the trend in the industry is to militarize your your spacecraft.
So nobody is building multitrillion dollar satellites anymore? I'm not aware of a single is there.

So maybe there's something from the like the back catalog at NASA or ESA, but or maybe even maybe even the Air Force Space Force that I'm not aware of, but I would say in general,
I am not aware of any multibillion dollar satellite that's still in development.

Maybe a big science platform, maybe something going to Mars.

But I can't think of any multibillion dollar satellite comparable to James Webb or something like that.
So I don't know why we need a whole lot of heavy launch necessarily.
So I think that's a little curious. Ground segment, satellite communication.
Satcom is going to be making some big changes this year.

We've already seen some announcements between T-Mobile being able to use their phones.
Apple is trying to build some emergency capabilities into their phones.
There's a small company called Lynx Light and X or Y and Link might be link.
They're trying to build a cell tower in space program.
They just they've launched one. They've got two more either are just about to launch or have just recently launched and and satellite communications is going to be a game changer this year.

Delta is offering free in-flight Wi-Fi on a few flights.

There's there's big programs to get
airlines connected in a way they never had been before.

So that's going to be exciting. So watch out for Satcom seconds, I think is going to be the game changer for 2023.

What's flip flops too far?
We know that Earth observation was the deciding factor
in 2022 for the Ukrainians to hold and then slowly push back the Russian invasion force.

There's a whole bunch of articles about how the commercial non classified data sets came together and helped out the Ukrainians. I definitely think that's worth looking up and investigating.
It's pretty interesting story, but I don't think that's going to be the story for 2023.

This comment about cloud computing based services, that's really compelling.
I think that's going to be kind of important.
The we all know that our lives are vastly better for having cloud computing services
available.

I could do an entire hour long program
on ranting on chatGPT and how they're doing some interesting
cloud computing work.

But there there's some really cool stuff
about cloud computing in space
doing doing it's called compute on space.
It's about actually doing the computations in space.
Now there's talk about building giant server farms on orbit.
I would have said I was skeptical of that, but literally yesterday, retired
three star general, Lieutenant General Kwast
joined a little known company called
Sky Corp., which I don't know, always, always makes me think of Skynet from Terminator.
But the guy I really admire, General Kwast and also another guy
I really admire Dennis Lingo. They've been talking about cloud computing
as a service in space for a long time, and then you tie that in with Chris Stott
and his company that is doing a cloud compute
on the moon and suddenly
that looks a whole lot more credible
than I have seen for a while now.
I've known Wingo. I known Dennis for probably
I probably known Dennis for 20 years now.

We're not beer drinking friends. I'm not going to claim that I know him
super well, but we run in the same circles for really long time and and I'm watching him operate, getting grant after grant. After grant. It's really quite impressive. And to see what he might be up to, it's it's pretty cool. So hats off to those folks. But it gives me pause that maybe space based cloud computing services looks really interesting and intriguing. I will throw in the caveat that whatever you're able to launch, whatever it is, there's a communications problem, too.

And from so there's an input output problem that's going to have to be dealt with.
I suspect that's going to have to become an optical link, which is still very, very early in its adoption and technology curves. So that's going to make that's going to make this a little challenging.
And then the other thing and the reason the original Iridium network
ultimately didn't work, it weren't technologically brilliant.

Dr. Pete Swan and a bunch of folks over there did a great job on the technology,
but it was an economic fiasco and a legal nightmare.

One of the problems the original Iridium had was it was way, way easier to build a cell tower in somebody's backyard than it was to build a satellite.

Now, yes, it's easier build satellites today than it was 30 years ago, 25 years ago.
But there is still this idea of technology freeze where you have to get the technology,
harden it for space, launch into space, deploy it to space, and now it's up

there as a fixed asset and the next cool whiz bang technology comes along
and you're automatically outdated in your technology because
you have an asset that's fixed in the sky that you have no way of upgrading.

So there's a technology freeze problem and an email problem,
a throughput problem. So while I have been
skeptical of cloud computing in space, the recent
with people I personally know have convinced me that maybe
there's definitely a path, but they still haven't solved
the technology freeze problem and they haven't solved the input output problem.

So I think that's something to be watching for. I think that industry is is ripe
for innovation and disruption. And if these folks figure it out,
that's going to be a really interesting business.

Finally, satellite navigation.

I mean, I couldn't get from my house to my doctor's appointment without the sat nav.
So I think everybody knows what that's what that's all about.
Okay. This is where we're going to spend kind of
So some of our time here, they've broken they've broken this report
into a couple of different parts. I'm going to assume that everybody has a basic
understanding of market segment one satellite manufacturing, launch ground segments, operations
and services. We're going to we're going to dive into those more. So just kind of hold
your questions on that for a second. The things I thought were interesting,
Are there applications like how
how are we using this once
we get an asset into the sky?
How are we using this?
So I think you all know about Earth
observation, sat com sat nav
explorations, a pretty small element here.
I mean, really? Yes.
We're always looking at new technologies.
Yes. We've got rovers on Mars.
Yes, we will have a rover,
I hope, in the next few weeks
on the moon.
China has one now.
Good job. China.
So that exploration market is
and application is really important,
but I would not say there's a driver
of any of these
big numbers
that we're going to see in a minute.
But I want you to take a close
look at the space logistics.
It's a new category.
And the and what I think is brilliant

is it's a gas station.
It's a gas pump as their icon.
I think that is really clever
and really accurate.
I want to point out the similarities
between the security icon of a shield
with the check box
and the customers icon of defense.
It's just a shield. You can imagine that each of these three
commercial, civil and government eyes, commercial, civil and defense all utilize each of these nine market segment applications. So those are satellite comms, Earth observation, satellite navigation, exploration, science, security space, logistics, technology and space tourism.
Now, anybody who knows me knows I've been skeptical of the space
tourism market for more than 15 years, maybe more than that.

Hats off to all the folks who are trying to do it.
I hope they are successful.

I have a lot of concerns about that.
I am glad that they are not the ones that we are betting all of our all of our futures on.
But good luck to them.
Sincerely. But back in the days when Spaceship One launched and the X Prize was finally one space tourism was all anybody was talking about. That was the total conversation.
And now arguably it's at the bottom of the list, and I think that's probably where it needs to be.

I hope that people that are able to fly enjoy their flight.
I hope they're safe and healthy and happy when they come back down.

But I don't think that's the market that we're going to pin our future on unless you decide
that the Starship Singularity is really about point to point from Los Angeles to New York or New York to to London, if you
count that as space tourism, then that's going to change everything.

But I haven't counted that as space tourism.
I think that's going to be a robust logistics market to get people to
and from, which is not on this list, this customer section.

You know, I've been referring to this as AC DC for a long time for about two years now, and I think of it as academics, civil defense and commercial AC DC.
They don't have the academic component in this list.
I think that's a pretty big error. Academic research was the earliest driver of space.
It was the pioneer driver of going to space. It's it's now not the driver,
but the let's see, it's not the driver, but it's the I don't know, it's maybe
the link, the link for it, the linkage for it that without the academic research you wouldn't be at the levels that we are going to space. So I think it's actually
a pretty big mistake to leave the academic component out and and I think that if we if we continue to ignore their contributions, it's just going to skew the data more and more.
And then the final thing on this page is the regions.

Take a close look at this map.

I don't really have any way of blowing it up without messing up my my presentation.
But couple of things to really pay attention to.
One, Mexico is considered a part of Latin America and Caribbean. I don't think that's appropriate.
It's not it's not accurate, I don't think. And Mexico has its own new it's only about six years,
so it's seven or eight year old space agency.
But hats off to our Mexican body is because they're doing feally good work there.
And I'll show you why I bring this up in the minute.
But one of their charts looks really misleading, and I think it's
because they put Mexico in the wrong box.

And then the other thing is Middle East and Africa. I think that is super misleading. Africa has about 17 national space agencies in various stages of development. Ghana announced their creation, their study of one just just last year. They have not fully enacted the yet. I think they have the potential to be a powerhouse.

There's talk about developing Africa into the African space agencies,
into the equivalent of the European Space Agency.

And I think that I think that should definitely be recognized as a as a potential near
near future change. But I also wouldn't put Middle East and Africa in the same box
because the United Arab Emirates has a very robust moon and Mars program
and both Israel and Iran have the capabilities of going to orbit,
where as Africa has some of those things. As far as I know, Africa does not have a single
launch facility in the whole continent. So I think it's actually really misleading to to push those two things together.

So, yeah, it's a little it's a little interesting. So interesting how they how they
dealt with their data. We talked about this a little bit already.
I'm trying to be mindful of time. Yeah, go ahead. Speed this up a little. Launch services.

That's what everybody pays attention to.
Launch, launch, launch schools. I think space acts and rewards in
and you know hats off to the folks of Virgin they launched yesterday
but didn't quite get what they wanted. I think there was another launch anomaly.

Yes, it was an Astro. I'm not sure. I think there were two launch anomalies yesterday.
But let's let that sink in for a second that there were two attempts to go to orbit from
two new players is a really big deal. Everybody pays attention to launch services. I'm going to let you laugh like I did when you see just how significant that is in the economy
and then the services component, I don't know, maybe maybe that's talking about Uber and Lyft.

Are they finally being recognized as in the space economy?
I really don't know the answer to that, but I do know for sure that Uber and Lyft are not recognized in the Bureau of Economic Analysis in the US Federal Reports.
So I'm perplexed by this. So let's look at this. It's a $464 billion economy.
By the way, this piece, this non contracted piece,
I don't know what this means. So I I'm I'm completely at a
loss what that is, you know, the civil sector, the defense sector, the commercial sector are all pretty well understood. By the way, I have some doubts about this.

The defense sector numbers.
I'm really curious where they got that.
That's not available in this report.
I don't know that I buy into that number
and I don't think
I buy into the government civil number
either 31 billion because NASA's budget
alone is 25 billion.
So that means the rest of the world
combined is only 6 billion. Absolutely not buying that again,
that's why this this 40 billion unaccounted for, they call it non contracted.
I don't understand that. I cannot figure that out.
But these civil numbers and defense numbers look low to me.
Whereas whereas I do believe their their commercial numbers.
Take a look at from this perspective the large
segment of the everybody is so excited about.
By the way, we're doing an analysis on the YouTube
channels that are space focused YouTube channels.
So far I have 125 channels. I know there's at least 50 to 100 more.
It totals 126 million subscribers and a combined view of
18 billion B, 18 billion views.

And a lot of them are paying attention to Space X, right?
A lot of them are paying space X,but space X and the whole launch services
market, all of it only accounts for $10 Billion, only accounts for 2% of the global space economy.
I have a hard time wrap my head around that because that feels like
that would be bigger with with government and defense numbers
if they lined up to where I think so.

I'm very perplexed by this. There's 364 billion to 464 billion.
I mean, I kind of feel stupid saying it needs to be better described, right?
Like how that's 80%.
That's about it's not quite 80, but it's about 80% of the whole market. And if they're getting down to the level where they're going to say, well, 1% and 2% of the market is
this needs to be better described. If I paid €5,000 for this and this was my report,
I would be angry about that because the bulk of the report is not in this case on the free version is not being supplied. This leaves me with a giant gaping question mark, which is quite irritating.
So maybe that's what you're paying €5,000 for, is to answer this question, which honestly, for some people that's a that that justifies €5,000.

I love this.

The combined client types of government and civil, if these numbers are correct, it's only 14% of everything. The rest of it, 78% is all commercial. And that is why billions of dollars
are moving into this sector from the venture capital Angel community.
That's one of the reasons that gives me hope that our LiftPort lunar space infrastructure can be built is that there is plenty of money going into this sector. For the first time in my career, for the first time in the last 20 years, billions of dollars are going into the sector because billions of dollars are being earned from this sector.

That's why I think we have a future.
That's why I haven't given up on working on the Lunar Elevator.
This tells me that there is a future in this field, so a little numbers like that
give me hope. And then probably the last thing I want to talk about today
is, again, this region section we've already talked about.

You know, there's 34 Latin American organizations. I gather, think that a big chunk of that
is because they put Mexico in with the Latin America segment and
and I don't have any facts for this. This is just guesswork and supposition.
But, you know, I kind of know what I'm talking about. So I think that this number
is kind of misleading. Same exact thing for Middle
East and Africa.
Breaking that out
would probably be a very revealing
It does not surprise me about Asia.
Asia is actively growing.
Korea just
announced a few weeks ago
the development of a
national space agency.
And I kind of feel like
this is underreporting Europe.
But again, I don't have any
I don't have any facts on that.
But but the European commercial sector
is growing pretty quickly.
So organizations like Starburst and a few
others are doing a lot of work in Europe.
So I think
I think the Principality
of Luxembourg itself
probably has 30 organizations
operating there.
So finally,
this brings me back to the question of
where where are they getting this data?
This data, it's great if it's true, but
I do have to question if there's a garbage
in garbage out problem,
because I suspect there's a lot
of unrecorded
transactions in this field.
So curious, but hard to say.
Hard to say.
I think I'm going to go ahead and end it
here.
Cash is King
is one of the most obvious sentences
I've ever seen in my life.
The market for where the near future looks

of unrecorded
transactions in this field.
So curious, but hard to say.
Hard to say.
I think I'm going to go ahead and end it here.

Cash is King is one of the most obvious sentences I've ever seen in my life.
The market for where the near future looks is definitely spooky, so this is worth watching.
The last thing to talk about is that Euro. So I'm going to read this directly. Euro consult anticipates satellite demand will experience a four and a half
times increase 450% increase over the next ten years with an average of 1704 for satellites
to be launched every year versus 382 over the past decade.
Okay. First of all, I think averaging over
the next ten years is crazy because I think there's going to be a spike.
So I wouldn't use the word average. I would have tried to turn that into a
you know, this says ten, ten times 1700 is 17,000.

There will be 17,000 new satellites in the sky in the next ten years.
That's how I would write that. And to compare that, there's about 7000 satellites today.
To compare that 20 years ago when I started in this field,there were 400 satellites.
So four to 7000 to 17000, I'd start 400 to 7000 in 20 years. And from 7000 to 17000 in ten years from now. I think that's astounding. I think that's astonishing and I think that gives us, you know,
a lot of hope in this industry and this the space economy that we're trying to grow.
And with that, I'm going to go ahead and close off.

Sorry.

When we come back to it here.
Taylor, thank you.
Appreciate that.
Appreciate that.
We're going to be running these programs every every week, twice a week on
on Mondays and Wednesdays at this time, 5:00
if you're on the West Coast of the U.S. and then happy to announce that the Mars Society is going to start a new program with us, Red Planet Live starting on January 17th.
They're going to run that program once a month. And we have some other stuff that we're not quite ready to announce yet. But watch this space.
We're trying to grow this this media channel.

So with that, everybody,
thanks very much for being a part of this.
Thanks for being a part of the show.
Happy New Year to everyone.
And let's watch how 2023 unfolds,
because I think it's going to be exciting.

All right.

Take care. Bye bye. Thank you.