



BETTER FUTURES

Transcript

Michael Laine (audio issues)

Hi Everybody. My name is Michael Laine, the president of LiftPort Group. We've been doing space research for about 20 years now. Sorry about that. Big project. Usually I spend 30, So, yeah. Hi, everybody. We've been doing space research for about four years now under the banner of LiftPort group. We started working on the space elevator initially under the umbrella and became a company in 2000.

Michael Laine (audio issues)

Three, four, five, six, seven. Over that time we worked on nanotechnology as a mechanical process finding string. It's pretty consistent. Those are good days. We have call that left something that was really complicated in 2007, just as a precursor of the economy, and it goes up. Fast forward to 2017 we've restarted the company to focus on a lunar elevator, which we are pretty comfortable saying if you go now with the current technology and sort of talk a little bit today, during the beginning days of and early, we had to make some changes during the pandemic, just to stay alive, to stay connected with the company.

Michael Laine (audio issues)

So we wound up pivoting to doing a lot of conferences and start making conferences as a service. We did some of them and pretty proud to report that those accomplishments had made it by the speakers. Hundreds of hours of content on our YouTube channel. And then as the pandemic, the season shifted, we're still doing the same type of things, meeting with people, telling stories, talking about space.

Michael Laine (audio issues)

But in the last maybe two months, three months, we shifted over to doing podcasts as a service. So you're going to start seeing more and more of our shows. We're going to go in and have a one on one conversations with some of the brilliant people that we've had on our past conferences and today's guest is kind of similar to that.

Michael Laine (audio issues)

We thought we that work for those folks that have been following us along most oof the guests up til now I've known a year or two or five of 15 years. Doug is new to me. I met him at the Mars Society Conference in Arizona, had just been there at the end of October. Serendipitously, we we both had a break and had a chance to go grab grab lunch at the same time, which wasn't that wasn't easy for me to do.

Michael Laine (audio issues)

I was running around like a crazy person trying to manage the digital side of it. So don't bother is the executive director of Developed Space. It's a member based organization were going to talk quite a bit about that. But before I do, just as I wanted to point out, we were within weeks of each other back in 2008 as our highest ISTC event.

I'm pretty sure was nice to see, but the minute that people had an interview with me and had an interview with you at the same event, but I never met you then. So we were you were within, you know, feet of each other at 1.7 years ago. So I know you've been around the field for a long time.

transcript



So I was I think it actually was further back than that. The video got posted seven years ago. I personally love it. The video was posted seven years ago. But when I listen to my own interviews, I maybe even eight or nine years ago were actually visited it. So it was pretty interesting. So we've been working for a long time.

Michael Laine (audio issues)

We just never actually have been able to meet. So it was really great. How of? Well, I want to start the way we usually run. This is the first time ever. So rather than me just reading a forum, I know that it was supposed pretty easily. I knew I really liked it. People tell their own stories, so those are origin story.

Michael Laine (audio issues)

Carl how did you get here? What's your role? What you doing? Most importantly, is this part of the story now? How you how did you decide your space?

Doug Plata

Okay, I appreciate it. Actually, I'm pretty sure that it was Space Access Society is where we had those interviews.

Michael Laine (audio issues)

Okay. Exactly. That's very possible that I read.

Doug Plata

But I am I getting some feedback here?

Michael Laine (audio issues)

It's not too bad.

Doug Plata

Okay, so my story starts in high school when I took physics and it just it absolutely clicked. And I knew that I was I'm trying to turn the volume down here and somehow.

Michael Laine (audio issues)

I'm going to be on my side while you're talking.

Doug Plata

Okay. Um, yes, I think that's a lot better. So what happened was I went into college. I was always wanted in third grade. I want to be a physician, but I but after taking physics, I'm like, Man, I really enjoy physics. It explains the world. You know, it, you know, as the kid who was always asking, Daddy, Daddy, why is this?

Doug Plata

Why is that? You know, because it is, you know. And so so I was trying to figure out what to do in college. And my cousin suggested, well, why not biophysics? You know, that that is sort of pre-med and yet you get the physics and they're like, Wow, I didn't even know that existed. So I took bio physics.

Doug Plata

I just ate it up, just thoroughly enjoyed the, the environment, the, the academia, everything. And then, and then I went ahead and applied to medical school, got accepted in and started medicine and medicine. I felt like I couldn't really express my physics side of me as much as I would like. But I wanted to be a physician. And so I pursued, you know, residency in family and preventive medicine and and then went on to practice.

Doug Plata

I'm doing urgent care and occupational medicine. And then it was in 2009, there was a news report that I read that really captured my attention, and that was the cross mission in which Nassar smashed a center upper

stage into a firmly shouted crater at the South Pole. The moon, in hopes that they would find ice, and they found ice on the surface of the moon, which is very remarkable.

Doug Plata

And the moment I read that report, the next thought that came to me is you could electrolytes, water, ice into propellant. I mean, maybe you could create a earth-moon transport system using that water ice for propellant. But it was just sort of a passing thought. And then I was in in 2011, I think it was I was looking at the astronomy picture of the day and there was some pictures of the Apollo program.

Doug Plata

And Michael, I'm 55 years old. How old are you?

Michael Laine (audio issues)

I'm also 55, But okay.

Doug Plata

So do you remember the Apollo program?

Michael Laine (audio issues)

Well, a bit.

Doug Plata

Not a bit me either. We we've gone her whole life, and all that we've seen is low-Earth orbit, but we haven't seen the Apollo program, we haven't seen Mars. We haven't seen a return to the moon yet.

Michael Laine (audio issues)

Yeah, they were. We, we were old. They were both.

Doug Plata

Yeah. Yeah, exactly. So I feel cheated. Do you feel cheated? Yeah. Yeah, exactly. So I was looking at the astronomy pictures of the day, and it must have been an anniversary of of the Apollo program. And I was looking at those pictures and I'm saying, man, I missed, you know, one of the most amazing things that humanity has ever done.

Doug Plata

And I felt bummed out about it. And so what I did is I started I remembered about the ice on the moon. And so I Googled around and I found a space forum called Permanent. And so I joined in. I was asking absolutely bonehead questions, but fundamentally, I'm asking what about this idea of harvesting ice and using it to refuel a lander and turning it into a ferry?

Doug Plata

And the more I looked into, the more I got convinced that actually this is doable. But there is a lot of technical challenges. And then I started listening to the space show, including consuming a whole lot of archives. And man, it was like a master's in space studies or something that I took just by listening to those archives.

Doug Plata

And I really owe a lot to the space show for for the space epic that I've become. And I began to realize that there's is there's not just a transportation issue, there are human factors, issues, there's policy issues, there's finance issues and the whole nine yards. And as I listened, I sort of considered different options and I sort of picked and said, okay, I think for radiation, I think this is the approach, I think for artists of gravity, this approach for telling robotics, I think we could do this, etc..

Doug Plata

And I began developing a concept of a much broader aspect than just Earth and transportation, but really developments in space development. I, I feel like I honestly looked at, you know, asteroid mining and free space and settlement and Mars. And even though I started with the moon, I was open to, you know, to other ideas. But I, I really came back and maybe, Michael, this is where I could share with with the audience why I think lunar development and Settlement is going to be the main thing in space for the next 50 years.

Michael Laine (audio issues)

Sure, I definitely want to do it, but I wanted to hear a little bit more of the story, right? So those things that we're finding with our audiences, they want to know how to, you. You understood that. That was interesting. That was you more interested in medicine. How do you how do you pull those two things together?

Doug Plata

I don't actually. I mean, I've had people encourage me to, oh, you should go into aerospace medicine. And to me that would be confining because that would be typically dealing with astronauts now, which is low-Earth orbit. And it would be limited. You know, it wouldn't have to do with tele robotics, would build habitats, wouldn't deal with growing food.

Doug Plata

You know, and I'm just I have broader interest than just medicine and so as yes, as I think there's many of us like this here I am at my office I just got done 5 p.m. with my shift.

Michael Laine (audio issues)

I I of.

Doug Plata

That and it pays the bills, you know, and then I use my free time like most as most of my free time as I can that my wife lets me to, to advance space development. And so I developed this website and it just kept growing as I got more details about different aspects of space development. So I developed the website, developed space dot info.

Doug Plata

It's a it's extremely extensive, one of the most extensive space advocacy websites on the Internet. It has 8 hours of reading material on all aspects of space development that's near or mid-term. And so I encourage the audience to go ahead and check it out and see, you know, see what you think about the plan for sustainable space development as described there.

Doug Plata

And it has evolved over time. My concepts have it has evolved significantly, but they've now settled down into a specific plan and I am rather convinced that we are on a at a tipping point in human history. I think that we really honestly are about to expand beyond Earth, and I think that's going to be the moon shortly thereafter.

Doug Plata

Mars and a fair amount later free space.

Michael Laine (audio issues)

Free space. I, I agree with that 100%. That's how that sort of turned out to be the biggest would be. I always thought that was a very nascent but but it's good to see the jump off point the way they will about before you start out or target is going to be necessary. So I'll be able to go back way before you got to Alaska right there are along the great journey the world and the leaders.

Michael Laine (audio issues)

The moon is critical. We might disagree on some important stuff.

Doug Plata

I sort of disagree in that. First of all, we know good and well that space sex is pushing hard for Mars. Under normal

circumstances. I think lunar development would happen first because, you know, it's closer, it's safer. But because of Elon and his company and the people in his company are very committed to Mars. Here's why I think not Mars is not going to be in the distant future.

Doug Plata

I think that I don't know if the moon is necessary to go. Mars is certainly helpful, but, you know, can you test out habitats on Earth and feel confident that they would work on Mars? I think that's part maybe how it is. Are you? I think maybe. But here's why. I think Mars is not going to be that far into the future.

Michael Laine (audio issues)

Of.

Doug Plata

Space. And this is reality. This is ground truth. Right now. SpaceX has built 200 plus Starship Raptor, two engines as of this as of this podcast, if you make the ratio of maybe 1 to 5 or 1 to 6 of super heavy is with all those engines and then starships with, you know, one fifth of those engines, the ratio comes to maybe about 33 starships engines, enough for 33 starships and then about three super habitats.

Doug Plata

And you can, you can use super heavy's a lot more frequently than than starships that go into orbit. That is a fleet. We never had 33 shuttles. We never had 33 Saturn five. So this is a totally new thing and this is sort of my point and that is a fundamental point of why I think it totally changes the finances and totally changes space policy.

Doug Plata

We have to think about it not by looking back at historical analogies, not looking at it as to what the government is doing. But look at through the lens of starship and when you have a hundred tons being delivered to the to the Moon and Mars or a hundred people per starship, and then you have a fleet and they are producing Raptor two engines, about one engine per day, and that's like a starship per week.

Doug Plata

But I'm sorry, is that one, is it one per day or one per week.

Michael Laine (audio issues)

Uh, I think there are a couple of weeks.

Doug Plata

But to get to 200 they have to be producing more than one a week. Does that take four years for you?

Michael Laine (audio issues)

But.

Doug Plata

So at any rate, and again, their rate of production is increasing. So in 2024.

Michael Laine (audio issues)

Four months, turn around is amazing, right? They got three launches in less than 36 hours that blessed to be different places, different requirements. Right. So like the throughput is of the you know, I'm working on I'm working on a paper around the Starship Singularity and I talked about that a while ago. But my book, okay, I'm not trying to the politics of it and I'm not trying to get into your work.

Michael Laine (audio issues)

So people who know me know that I've met him three time. And while I am very impressed by the organization of it, but it's not what they say, I am not that famous, but a human being That said, that organization, that is amazing. I think that starship is going to fundamentally change the world and we've only just scratched the surface of it.

Michael Laine (audio issues)

And if you think that they have the fact that they know that 97, 98, 99% success rate on their current rocket, that's pretty amazing. But then there's there's a maybe it was about a year and a half ago where he says that they're going to launch three flights a day. You're talking with they're doing three flights a day on her flight.

Michael Laine (audio issues)

I mean, people go to the International Space Station in a week to the same amount of mass up there as the International Space Station in a weekend that changes everything. And that's not even counting the down here on the down. There's changes happening in policy. And so it all over the world, just for.

Doug Plata

Michael, did you know, Cindy says that your sound is super quiet compared with when.

Michael Laine (audio issues)

I did. I appreciate your comments. I want more I though I think it's I think I have I'm guessing that has to do with you're on your phone so you're the first person that you interview with on the phone. And I'm wondering, if appropriate.

Doug Plata

Let's do a little experiment here. I'm going to turn my volume up on the speakerphone. Well, no, that wouldn't make any difference. Yeah, Or would it? Actually, it would. Maybe. Maybe. So. Here's a test. Michael, can you say something?

Michael Laine (audio issues)

You, sir, I can certainly consider that.

Doug Plata

That's not. That's not going to work. Okay? It was a try. What?

Doug Plata

I can't hear you at all now.

Michael Laine (audio issues)

Yes, I'll be clear. What I said was you take it. Okay? We're not going to try the we're not going to try to try to see this, but just keep going with the conversation and try to take a break.

Michael Laine (audio issues)

But this is what you do when you go. A lot of you know, this is our well, maybe you're 35 or 30, so it's the first time. So let's do it on a cellphone. So my hunch is that that that might be the core problem. But as long as I've been here for one, I'm not going to worry too much because we're getting work done through the sound on my side from the US.

Michael Laine (audio issues)

So when we built that into the podcast, it will have everybody, I'm pretty sure.

Doug Plata

Let me just say that I don't think I'm naive about the challenges of Starship. I don't assume full development of Starship, but I'm also not so cynical or skeptical or, you know, unreasonably skeptical. I think I'm a physician. I think of things statistically. I think of things in terms of probability, not, you know, not philosophically. Absolutely. Things are going to happen are absolutely it's not you know, what is the probability You try to be accurate.

Doug Plata

And so, Michael, like you and the listeners, if you were to go to a Web page, this is one of one of my Web pages and it would be developed space dot info slash levels and that's all lowercase. Michael, let me know when you get there. Okay. I can't hear you, but I'll just you so these so these showed the levels of development of starship what the easiest level first and the most difficult level being level six.

Doug Plata

Okay And so the question is what are the odds that each level development is going to succeed and then at each level of success, what would be the impact? Okay, what I would say is even the minimum level of development of, oh yeah, the the, the, the starship to orbit would be, I think, one of the easiest things to achieve Level two, I think is highly likely, and that is recovery of the booster.

Doug Plata

And it's likely because they're already doing that with, with Falcon nine. Okay. What are the impacts of, of just getting the upper stage to orbit with a reasonable amount of payload? The implication is that you now have a non reusable system, a super heavy lift vehicle that's non reusable yet is dramatically lower cost than SLS. And if you launch crew up to orbit in a dragon and transfer them in Leo over to the Lunar Starship in low-Earth orbit, then basically you have nearly the capability of doing the Artemis missions.

Doug Plata

Okay.

Michael Laine (audio issues)

Okay.

Doug Plata

If you get to level three, which I believe is is fairly likely and that is docking is no problem with with docked without the United States as docked without problem for 40 plus years, quality 45 years and transferring of fuel cryogenic fuel in Leo I believe that is not a not a particular technical challenge. And the reason I do that is based upon my interview with a leading researcher or leading engineer at United Launch Alliance, who has himself done a lot of work on that.

Doug Plata

And he says they can transfer cryogenic propellants in laboratory settings. We are and we have been for quite a few years transferring non cryogenic propellants in in low-Earth orbit at the International Space Station. And so you combine those two, he says that do it just to prove that it can be done. So I believe that that that is fairly likely when you do that now you have the capability of pushing significantly more payload on transmitter injection or a trans Mars injection than what the ESA less system can do, even even the BLOCK two.

Doug Plata

And so I think levels one, two, one, two, three is fairly likely. And with that you've got a very inexpensive earth, moon and earth Mars transportation system. You know, I'll explain that level for landing on the moon is also fairly likely in and remember, space X doesn't get just one chance at doing it. They have a fleet that can they can attempt at numerous times.

Doug Plata

And just like with the Falcon Falcon nine, they needed multiple chance at landing. But eventually they got it and then they have perfected it to where they're just not been land in fear of failure to speak of the most challenging part, as I see, is is deals with reentry. And this has to deal with very high speeds, hitting the atmosphere with very high heat load in a relatively short amount of time on both the Earth and Mars.

Doug Plata

We have seen they've had challenges with the tiles. And so I would say that this is this is probably the biggest challenge is level five and level six. And my point is, is that even if they don't ever achieve reentry to Earth, that nonetheless it is a remarkable capability unlike anything that we've ever seen and at a price which is far less than what we would ever expect from the government.

Doug Plata

And we have large payload or large number of people being able to go to the moon at a minimum. You basically are are having the capability of doing settlement in a short period of time because of the large number of people and large amount of payload that you can deliver.

Michael Laine (audio issues)

So I think a step further, if SpaceX were to evaporate tomorrow. The ripple effects that have happened already as a result of space X the engineers that have left that company about started 44 funded substantial companies. They're already talking about this SpaceX mafia like the way they talked about, but they come off the that the folks that have left that organization to go on to other things they're already having other of that.

Michael Laine (audio issues)

And then they're looking at all the other companies. There's, I believe, a reusable rocket, three companies here in the United States. So that is working for the of the work workforce. They are working on reusable rockets. They they've already about 50% larger than the starship. It's 160x now. Yes. It's probably years away y but they're putting their effort into it.

Michael Laine (audio issues)

India, Europe, they are working on the program. So to level one or two or three, there are plenty of other organizations that are working on their own version of that. So so, what I'm saying is that, its more than starship. Worship is the thing that we can point to, but it's so much bigger than that. And it's not just going to be our own here on the ground results as well.

Michael Laine (audio issues)

There are political in the interim report states and all those or this is going as SpaceX might be carrying the flag right now, I think they will be I think they're pretty far ahead, but they can be really hard to catch up. But there are plenty of organizations that are hopping on that proving that capability is SpaceX is not going to be the only game in town.

Michael Laine (audio issues)

And very, very above board. But these levels are going to happen, whether it be sex worker.

Doug Plata

Well, I would agree, but I'm going to really emphasize starship for for the following reasons. Number one, for what? God forbid. But this could happen if Elon were to be assassinated or otherwise die. Space X has already, I think, won the argument in that people are taking very seriously because of Space X and starship. People are taking very seriously the possibility that a super heavy vehicle possibly fully reusable, is actually possible.

Doug Plata

And even I would say the idea of a permanent base on the moon and Mars. I feel as though the progress that Space X has made has gotten rid of that giggle factor, you know? Well, So even if he were to die, we don't know what his would he call it. You know, no legacy plan is. In other words, we'll SpaceX continue if Elon dies.

Doug Plata

I think that the vision is sufficiently clear. I think people within space X would in and the investors remember that's privately held and that's majority of this I believe, held by Elon, so long as he has made the steps to ensure that it doesn't go to a sister who kills the program. Okay. Or something. You know, like, like happened with what's that really big plane.

Michael Laine (audio issues)

That's exactly what happened with Paul Allen.

Doug Plata

Yeah solar.

Michael Laine (audio issues)

Still the program.

Doug Plata

Yeah so long as Elon is smaller smarter than than that if you learn from that then if he dies and if space X just continues with Gwynne Shotwell you know at the lead I believe the vision is clear enough. I think the I think the workers are going to be absolutely committed to Elon's vision, even if he were to pass away.

Doug Plata

Also, StarLink really is providing the revenue for settlement now and specifically the settlement of Mars. And so I don't think that there is going to be a shortage of funding necessarily to get over the hump, to be able to reach the is at least minimal levels of starship development. So, frankly, well, you know, you can look at the industry that has been inspired and is pursuing, but as long as Elon is alive, I think Space X is going to be a hard leader to catch.

Doug Plata

And if he dies, I think Space X is going to be a hard leader to catch.

Michael Laine (audio issues)

Well, and to continue that to contrast that with the awards is they are entirely dependent. They have some of that, but basically was able to have their contract early, early on. So blue as well is the way that if something were to happen. BEZOS Right, yeah. The revenue they don't have the federal contracts, they don't have the relationships that they they are not as well protected financially.

Michael Laine (audio issues)

If something were to happen to the public. So I would just say for the record, I think both of those that are in great shape. All right. I think the world is not appreciate like what value they are bringing to the world.

Doug Plata

So let me just say, we have enough engines for a starship. I think when the Earth Mars window opens in 2024, I think SpaceX should be able to send a dozen, let's say, starships, on a trajectory to Mars. And the cool thing is this If you space them out with like a day between entry into Mars atmosphere, you can get the telemetry and have time to go ahead and tweak the landing sequence so that your second one can have a a shot at doing it with with adjustments.

Doug Plata

And then the third one with adjustments of the fourth with adjustments. So just like they needed, I don't know, five or six, I'm like that Falcon nine landing attempts before they nailed it. All right. If they need five or six landings on Mars before they nail it, then they could do it in 2024, most likely. But if it's a problem with the hardware, well, 2026 gives them time to adjust the hardware and they launch another fleet based on the telemetry of the crashes in 2024 and they have another multi opportunity to nail the landing on Mars.

Doug Plata

So when and if they have if they figure it out in 2024 or 2026, then I think that they will have multiple starships that will have successfully landed with a horrendous amount of payload. So so then the question is, in 2029, knowing how to successfully land and having a great amount of payload on the surface, would they take the risk of putting people into the craft in 2029?

Doug Plata

And I think the answer is probably yes. If they had multiple.

Michael Laine (audio issues)

By the way, a minor, minor change. But can you hear me through the computer now?

Doug Plata

Yes, I can.

Michael Laine

Fantastic. I'm going to turn off the phone and hopefully that has changed. If I can get some some comments from the audience, if that is better for sound. Yeah. So that better. Great. Okay. I think that was that was kind of insane. That was a user error. So that was that. Thank you. Yep. Getting echo. But I think we should be good now.

Michael Laine

Could I get a can I get one more comment? I think we're good on my side. And Doug, you can hear me five by five. I think they're.

Doug Plata

Absolutely.

Michael Laine

Fantastic. Sorry for the headache, folks. That was actually user error on my on my side. I don't exactly know what was different, but I was messing with the audio settings. Great. Fantastic. Thank you, Rachel. Appreciate that. Okay. We should be good, I'm sure. Hoping we didn't mess up other down here. All right, So. Okay, so you think we're going to give me that year again?

Michael Laine

2040? You think we're going to have, as you said, launch in 2029 and you sent me a message earlier about what you think 2040 might look.

Doug Plata

Like landing, attempts in 2024 and 20 humans on the surface, moderate risk of getting humans on the surface in 2029, if not 2029, highly likely 31 or 33. Okay, that's Mars. Meanwhile, I think I think we're having starships landing on the moon in high numbers. I think the atmosphere is more of a challenge than just landing on a on a on a in a vacuum on the moon.

Doug Plata

You know, it's just that's just a matter of propellant. Mars, you also is aerodynamics going on. And so and so if you have, let's say 30, 31 or 2031 foot in which we're having humans land by by by that time, that is that is what, nine years from now they will have thousands of Raptor two engines that have been produced.

Doug Plata

Right. Well on their way to developing the fleet of 1000 that Elon is aiming for because they have the factory in place and they just need to ramp up and get the efficiency and the production of of the engines and the starship bodies. And I think they can do the start starts to bodies out of no easier than engines possibly so okay so I honestly think in the early 2030s we are going to have hundreds of starships up to a thousand.

Doug Plata

I think that's reasonable. I don't think that's crazy talk. Okay. So if you have thousands if you have hundreds to a thousand starships that can go every two years and you have all sorts of flight experience by launching Starlink's and who knows what else. Okay. I don't see how we can look at 2040 and say, oh, we'll have 100 people on Mars.

Michael Laine

Right?

Doug Plata

I mean, what do you do with all those starships if you're not sending cargo and crew to the moon and Mars?

Michael Laine

Dr. Musk was a Dr. Zubrin was talking about two weeks ago that there was could be so much excess capacity that launch might be \$50,000 per trip. Right. And that people will people will people will sell their homes. They'll they'll move they'll emigrate on \$30,000.

Doug Plata

Right. But but even if it's \$500,000, you know, that is something that a person in a in a wealthy country could save up and sell their home here by the ticket and go and pay for the. You not only have to pay for the ticket, you have to pay for the habitat. You have. You have to prepay life support for the rest of your life.

Doug Plata

You're not going to they're not going to let you go if you can't pay for life support.

Michael Laine (audio issues)

Right.

Michael Laine

Right, right, right.

Doug Plata

So so what I'm saying is, like, what is NASA's policy on Mars right now? Oh, we're going to we're going to have the gateway and we're going to have, you know, plenty of mid 2040s. And this is why I'm saying starship just the current NASA's policy irrelevance.

Michael Laine

I'm going to read the text that you sent me earlier and I'm just going to quote I want to dig into it. And by the way, only have 15 minutes left. I want to get into insta. So don't don't spend too much time on this topic right. Point number four, you actually have five points. We've talked about a few of them, but I really want to dig into this number four here.

Michael Laine

Point number four, this is your text to me earlier today. Current American space policy will be overcome by events and hence will be understood as irrelevant and within about three years will be completely overturned as the decision makers in DC are forced to make policy changes if NASA is to remain relevant. So then it's fighting words for a bunch of people.

Michael Laine

So I, I, I'm about 90% with you. I don't think irrelevant is the word I would use, but I definitely think there's going to have to be some big changes. So so so defend it.

Doug Plata

Okay. Okay. Look if if SpaceX okay there's there's level of development. Okay. So if space X in ten years, if they have a hundred or 500 starships and they've successfully landed on the moon, if not Mars, okay. If Massa doesn't come on board, if the decision makers in DC don't say, Hey, NASA, forget, forget, you know, part of this nine, ten, 11 with now eight eight master astronauts, you know.

Michael Laine

Yeah.

Doug Plata

And we're going to have some sort of S.O.S. base transport to Mars. You know, if they don't give up on and say, we got to do a public private partnership with with Space X and take advantage of this capability, they do risk their relevance if they just on the current policy, it's going to be irrelevant. I'm sorry.

Michael Laine

I don't have a lot of confidence in the full Artemis program. Right. I think this was necessary to get started. I think things like the armaments accords are necessary. They're they're super.

Doug Plata

Michael Laine

Michael Laine

Doug Plata

Michael Laine

Yes. Loud and clear. Your connection went from five bars to zero. That it was a it was a network problem.

Doug Plata

Yeah. You know, I think I apologize. I think it's the phone is what's doing it.

Michael Laine

The door's nowhere. We gotcha. Thanks. And everybody's like. Everybody's, like, much better. So we're good. I really want to keep going on this topic, but I you know, I want to you know, the kind of the point of the great podcast is to talk about the money and policy and things like that. And I really agree with you that that NASA's going to have to make some pretty big changes.

Michael Laine

They the just the sheer budget numbers are going to have to shift. We are seeing that NASA's is going pretty solid support from the Congress. Space Force is getting support. They just got another, you know, half a billion dollars added to their to their budget space versus getting a little bit more recognition on Capitol Hill. But I want to I want to spend the next 10 minutes because we only have a little bit more time talking about your your program, your your organization.

Michael Laine

I want to talk about instabilities. So we need to kind of closed out part of this conversation to get to the rest of it.

Doug Plata

Okay. So I have started a new type of space advocacy organization. First of all, it is free to join. It's called the Space Development Network. And I think the name is pretty self-explanatory. It is free to join because I want it to be an organization that has no barriers to participation and it is its projects oriented. And it is for anybody who consider themselves to be a space advocate, whether low level, high level and what it is.

Doug Plata

This is, you know, we've been given certain talents, we have certain skills. And this is a way to network together with other space advocates. And you contribute, given what you are able to, of whether low level or high level. That's a Space Bell network. What we have done, we have about 150 members right now. What we have done is we organized ourselves into working groups based on interest and skills.

Doug Plata

And so, for example, one of the our most active ones has been the Agriculture Working Group. And we had people join join in on that Zoom teleconference. And we have come up with a basically consensus plan for agriculture and we have that on web page, develop space info, slash consensus, all lowercase. And that describes how we've gone through.

Doug Plata

We figured out what lighting approach, what radiation shielding approach, what what sizes of the green labs. And very, very interestingly, we started hydroponically, but we decided to make our own soil crushing rocks so you don't have to deal with the, the problems of of regolith on the moon and on Mars. We just keep regolith out of the habitats entirely.

Doug Plata

But by by crushing rock, you have the matrix there and then build up organic material over time. We actually make good soil because plants do better in soil. The microbes in the roots do better if you have soil. That's an example LED lighting and radiation. It's really interesting in comparing Moon and Mars Green Habs in terms of radiation shielding for the workers because on Mars, you have the potential of using natural sunlight.

Doug Plata

But then what about the radiation protection for the workers? So you can you can read the consensus plan, but this is this is the space development network. Now, my hope is, is that in the next 2 to 3 months, the space now network in terms of membership is going to grow dramatically. And that is because we are focused on focus on the initial orbital launch attempt of Starship.

Doug Plata

If the 2018 Falcon launch is any indication, I would expect that there will be between a there'll be about 100,000 base interested public going to Boca Chica to watch this most remarkable event, especially if they do the attempted landing on the ocean and hovering, and if they have stability to to horizontally translate and to be caught in the in the arms of of the of the Mecha zilla that is going to be like unbelievable.

Michael Laine

They'll be amazing. Right.

Doug Plata

You wouldn't want there to see this. You know so what we've done in the space development network this is this is a major project we have constructed out of sheet plastic, a full sized mockup of an inflatable lunar or Martian base, which we call the insta base. Michael, can you go to develop slash into the base? And so the picture this is an artist's rendering of our concept of fully inflatable habitat base, inflatable set or an initial permanent crew of eight.

Doug Plata

That could be a very historic crew. Okay. And if you scroll down, you'll see the picture of the actual mockup that we have created. Yeah, there it is. So we are going to go ahead and display that. We have got currently got permission from Rocket Ranch down there to display it on their property and it's not going to be just the mockup that will display.

Doug Plata

But we also are developing a number of displays to turn it into a space fair where people can come and there'll be signs describing different aspects of space development. There will be a mockup of a dexterous tell a robot and all sorts of rocket families and and regolith simulant and all these sorts of things and significant launch by significant launch, we'll keep displaying this again, again building up the sort of the professionalism of of the space fair.

Doug Plata

And we want to be able to sign up large numbers of of people to the Space Development network at these events. I'm hoping to be able to get at least one of these a YouTubers, these space YouTubers. They have anywhere from like 250, 90,000 viewers all the way up to like 1.6 million subscribers. If we can get it, have them come and tour the space fair and expose it to all those people.

Doug Plata

I think that's really good with our exposing this, but that is our first step. We actually want to take it up a level more professional level. It's going to cost more money, about \$70,000 to remake the insta base out of vinyl by paying the children's bounce house companies to do it professionally, then more durable in the end. Even looking further, we would like to actually establish get property and establish a moon mars analog base that would not be exploration oriented, but would be development and settlement oriented and actually be able to go as professional as possible.

Doug Plata

Well, even professional ears that are working to really develop against the base as a high level simulation of what could be launched to the surface of the moon and Mars.

Michael Laine

That is fantastic. That's going to be so great. You don't have a date for when the entire base is going to be operational down in Boca Chica. Yet to you.

Doug Plata

By the display or. Well, it's whenever the starship launches, I'm guessing 2 to 3 months now. But I've been saying that for the last 12 months.

Michael Laine

Yeah. You know, the FAA are sorry. The you know, the FAA through the EPA has put a bit a lock on that.

Doug Plata

So but then there's also the you know, are they they haven't done a full static fire test yet though. So we'll see.

Michael Laine

One step at a time. Okay. All right. With that, we do need to close down. I've posted a bunch of links. I do recommend, you know, if people are interested, get in touch with with develop space info. They've got a super extensive website. There's a ton of stuff there. And, you know, as as Doug said earlier, it's free to join.

Michael Laine

So if this is something you're interested in, I think the answer to base is a pretty neat idea. As a as a public outreach tool. If you learn nothing and you still have a public outreach tool, it's well worth the effort. And then if you learn something even better. So I'm excited about that. I think that's really, really cool.

Michael Laine

Okay, with that, we're going to close down here in a minute.

Michael Laine

And for those folks that were here on Monday, I had an emergency root canal and the crown. And so that's why we weren't programing on Monday. So we've got a great year coming up. I have so many terrific guests. I, we, we have so many great guests coming.

Michael Laine

I'm very excited about that. We're going to showcase that in the new website and we'll be hosting our podcasts. We're going to put a whole bunch of podcasts up on the show, on the site in the next couple, I don't know, six or eight days or so. So. All right, Stick with us. Thanks very much, Doug. Dr. Prather, really appreciate having you here.

Michael Laine

Fascinating Stuff I'm really looking forward. I'm really looking forward to what the next six months look like because I think 2023 is going to I think it's going to open some people's eyes. So looking forward to seeing what happens next with you.

Doug Plata

Take care.

Michael Laine

Thanks a lot. Take Care, good night.