



## Episode 82 – Investment, The Importance of Early Failures and The Social Aspect of Space

Guest: Dylan Taylor, CEO and Chairman, Voyager Space Holdings – 24 minutes

**John Gilroy:** Welcome to Constellations the podcast from Kratos. My name is John Gilroy, and I'll be your moderator. Is space investment different than in other industries. What new technology will shake the space industry next and what are space investors currently investing in and why? These are some of the questions we want to ask our guest today Dylan Taylor, space investor. Dylan is the CEO and chairman of Voyager Space Holdings, a privately held global holding company, acquiring and operating businesses in the space exploration industry. Dylan has an extensive background in space investment and is even considered the most active private space investor in the world, with more than 50 emerging ventures. Dylan, you're the CEO of Voyager Space Holdings. Could you first explain to our listeners what the heck a holding company is?

**Dylan Taylor:** Well, thank you. First of all for having me, it's an honor to be on Constellations. I'm a big fan of the show. Yeah a holding company is really just meant to be a description of an operating company, so it's really important distinction that an operating company that has diverse interests within a particular industry or across industries. The idea is you have a parent corporation, that parent corporation is delivering value to subsidiary entities. In our case, these are different emerging, highly innovative, New Space companies that we own. And that's really the function of the holding company is to allocate capital, make sure those companies are growing and doing well. Making sure that those different operating subsidiaries are communicating with each other. Part of the name of the game is one plus one is way more than two. If you can get innovative companies working together, you can compete for larger, and larger, and more complex mission work and capture more of the value chain. That's really the essence of it, the holding company is essentially adding value to subsidiary operating companies that we own.

**John Gilroy:** Good. And what's this relationship to venture capitalism, part and parcel of it contrasted with that?

**Dylan Taylor:** I think it's different. Venture capital typically is only taking minority equity investments in companies. They're not taking control positions. They might for example, own 20% of a company in an investment round, whereas we're only doing control transactions. We're acquiring at least 51% of the equity. In some cases it's 70% or 80% of the equity, so that's one distinction. Second distinction is with a venture capital operator, they're typically raising money from other investors. Those investors expect a return on that investment within a specific time frame, typically a fund life will be five years or 7 years. There's

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automatically a clock ticking the second the venture capitalist accepts money from their investor.

- Dylan Taylor: Whereas with a holding company structure, since it's a long term investment vehicle, that capital might be returned 10 years in the future or 20 years in the future, so it's a much longer time horizon. That would be the other distinction. The other thing is venture capitalists. Typically they add value by opening up their networks, making introductions, sharing best practices on how to operate a business. But other than that, they're really not operating these companies, right. They're sitting on the board, they're providing advice. Whereas under the Voyager model, we are really operators. We're actually operating these companies. We're making decisions about what to bid on, what to pursue, what products to invest in, things like that, so it really is quite a bit different.
- John Gilroy: You're not getting it forced into decisions for short term profitability, you can look at the long picture here, is that right?
- Dylan Taylor: Yeah. And that's really the essence of it. I think the industry is quite healthy, it's doing well. But I think that the biggest challenge that I see the industry has, is short term thinking driven by the capitalization of a lot of these companies. And the second is a lot of these New Space companies as they're known really lacks scale. And so with Voyager we're trying to solve both of those issues, we're trying to expand the time horizon for investment. And we're also trying to build scale amongst highly innovative New Space companies.
- John Gilroy: I looked into your background this morning and you have an extensive background in space investment. I think you were actually one of the early participants in Space Angels. This is another company we had on the podcast before. How is Voyager Space Holdings different from Space Angels?
- Dylan Taylor: Yeah, quite a bit different. I have a lot of affection, especially for the early days of Space Angels. That was founded by some close friends of mine. Guillermo Söhnlein, Joe Landon and Eric Anderson. And so I was one of the early angels within that group investing and a lot of these companies that they had put on the platform. But fundamentally Space Angels, and really all Angel investment is about very early stage capital, relatively small check sizes. For example, a company might be formed. They might be raising, let's say half a million dollars in their first so-called seed round. That's a classic angel fit for an angel group or a group of so-called super angels. That's really where angel capital comes in. Venture capital would be a little bit further downstream, companies starting to get revenue traction and starting to scale.
- Dylan Taylor: And then of course at the very end of that would be Voyager because we're only investing to companies that are not only generating revenue, but are profitable

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and actually generating free cash flow. If you think of capitalization as almost like a life cycle chart, the very beginning of that would be sort of bootstrapping, an entrepreneur is putting business expenses on their credit card. The next step would be the angel capital, a little bit further down the road would be venture capital. And then in later stages you would get things like holding companies, private equity and IPOs.

John Gilroy: Well then the question then is, is how is your holding company Space Holding different from traditional type holding companies?

Dylan Taylor: Yeah, it's a great question. The most famous holding company in the world is probably Berkshire Hathaway.

John Gilroy: Yeah, Warren Buffett.

Dylan Taylor: Warren Buffet, and just a legendary investor. But really what he's focused on is highly cash generating businesses like Coca Cola, Heinz Ketchup, things like that, that are just cash cows. And he's taking that free cash flow and he's investing it back to buy more companies. It's just sort of a classic snowball effect if you will, but he's not focused on industries, right. He doesn't really care what industry it's in, as long as it's a healthy business and generating cash. On the other side of the spectrum is you have companies like Danaher, which is a pretty well known holding company in the manufacturing space. And they're only acquiring specific types of companies. In Danaher's case, it's manufacturing companies, so they come in to a manufacturing operation and because they have so much expertise on turning manufacturers around, they're able to add value that way.

Dylan Taylor: Voyager's really sort of a hybrid between the two we're looking for companies that are obviously good investments, but we're also looking for companies that are specifically adding the capability. Within space as we talked about briefly earlier, it's really important that you assemble capability over time. The reason the largest players Lockheed, Northrop, Boeing and Airbus can compete so substantially within the industry is because they have all the capability to deliver on complex missions in house. And so they sort of dictate what's the so called value chain. Really what Voyager is trying to do is be a hybrid between a sophisticated financial investor in terms of healthy companies we're acquiring, but as we're acquiring them, we're adding capability. And as you add capability, you can compete for larger and larger contracts, larger and larger missions, and ultimately you can create superior value within the industry.

John Gilroy: We did about six interviews at SATELLITE 2020, and you walk around the floor, they're all kinds of innovation. And I mean, from an outsider, it'd be difficult to find out what to look to invest in. What are the clues? What do you look for to invest in the company?

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- Dylan Taylor: It's a bit of a cliché, but it really is the team. And why do I say that, business plans are written to be broken, so to speak? I don't know of any business plan that I'm aware of, that has been implemented exactly the way it was written. What you are really looking for are experienced teams that can operate in complex environments and pivot quickly given changes. Changes in client demand, changes in technological innovation, changes in the capital markets. That's really in my opinion, the most important thing is the quality of the team. Obviously there's sectors within space that are more interesting than others, launch for example is a crowded right now, and you have very successful launchers with, for example, SpaceX and Rocket Lab that are competing very, very effectively and lots of other companies trying to take market share, but haven't yet made it to orbit.
- Dylan Taylor: I would say launch is probably crowded. There's likely going to be a shakeout within the launch sector, but there are other sectors that are emerging that are very interesting. For example, one of the companies we own Altius is the pioneer in, on orbit servicing. And this would have applications to, for example, cleaning up space debris, which is a big issue of course, but also things like extending satellite life, refueling satellites, upgrading satellites, things like that. And potentially even down the road space manufacturing, so those are the kinds of sub-sectors and businesses that we're very interested in. And again, as you assemble capability over time, you can do more and more interesting things in space.
- John Gilroy: From a categorical perspective, space based businesses and space companies are the ones that you see as the most exciting business prospects, is that right?
- Dylan Taylor: Yes. Yes, indeed. And I think there are sub-sectors. The other one I'm very interested in is generally speaking planetary resources and by that I mean going back to the moon in 2024 or thereabouts, long term going to Mars, we need the ability to extract resources from those planetary bodies, be it oxygen, water, rocket fuel, so companies that have the technology to do that, I think are going to be extremely critical going forward.
- John Gilroy: And so if you just took a person interested in making an investment and they could invest in land or real estate or railroads, is just what Warren Buffet does. And so why would someone specialize in investing in space just because they have an emotional attachment to it? Or why would you see it and how do you think they are going to go?
- Dylan Taylor: Yeah, that's a great, great question. I think that's part of it, honestly. I think space is cool. It's trendy. I know when I first got involved in space as an industry, it was for my passion and really my investment is driven by the desire to see the industry opened up, right. I mean, that's really where I start from is how do we enable a healthy industry? How do we enable capitalization of the industry so

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that we can get really interesting things done in space? That's where my drive comes from, but I would say in general, I still think it's a very good investment opportunity. And why do I say that? If you look at railroads, for example just because you brought it up, the railroad system is built out, right? We can talk about rail becoming more efficient.

Dylan Taylor:

We can talk about more products being delivered on rail. We can talk about population growth, but plus or minus the railroad system is not going to get 10 times bigger in the next 20 years. Whereas space, if we fast forward and we just say, okay, well look, we're at the very cusp of some just transformational things, right? Not only potentially going back to the moon to stay, but potentially going to Mars, space tourism, this whole boom in earth observation, which is having all these satellites in space, measuring everything from climate, to traffic patterns, to climate change, all of that. And you think about all the different growth vectors that the industry has. I think it's well documented. Morgan Stanley has said this, Goldman Sachs has said this. Very, very credible financial investors, that space is a multi trillion dollar industry by 2040.

John Gilroy:

Trillions of dollars by 2045. That's an incredible number.

Dylan Taylor:

That's right. And I think a lot of those numbers honestly are a bit conservative? I know that sounds crazy, but I think it's a bit conservative. If you just start with that end state and you say, okay, this is going to be a multi trillion dollar industry. Well then even companies like SpaceX appear to be small in the whole context, right? I think SpaceX, their valuation reportedly is around \$35 billion, that's a huge number. But compare it to Apple, which has a market cap of 1,5 trillion or Amazon at I think 1,2 trillion, these are still relatively small numbers. I think it's not a matter of if space will be instrumental in the global economy, it's just a matter of when. I joke with friends outside the space industry that they're in the space industry already, they just don't know it yet. And really that's meant to clarify that every industry, literally every industry will be disrupted by space technology, ultimately.

John Gilroy:

You know Dylan, thousands of people from all over the world have listened to this podcast. All you have to do is go to Google type in Constellations podcast to get to our show notes page, here you can get transcripts from all 77 interviews. You can also sign up for free email notifications for future podcasts. We talk about these fascinating topics all the time. Dylan, everyone looks back at their batting record or their golf score. And maybe you can look back at some of the projects that you're most proud of. What are the ones that you really want to tell people about?

Dylan Taylor:

Oh, well there's a couple things that I think are really important. I'm very focused on the social aspects of space. I founded that organization back in 2017 called Space For Humanity, which is a global non-profit looking at democratizing

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space. And that's led by just a terrific leader by the name of Rachel Lyons. And I would say that organization has blossomed and this isn't my doing, I founded the organization. It's really Rachel and her team, but I would say that's blossomed into the premier global non-profit for space today, which I'm very proud of. That would be one. We also did a space manufacturing project with the gentlemen and team at Made In Space they're of course, the company that has the 3D printer on the space station. And a couple of years back, we commissioned the first space manufactured item on behalf of a private citizen when we manufactured a gravity meter.

Dylan Taylor:

And I just remember having the so called print ceremony with a bunch of middle school students and sort of explaining to them, I'm going to hit this button on this terminal and ones and zeros are going to be transmitted through the ether. And on the space station, an item is going to be manufactured and just going through that process and a couple hours later having the privilege to see the video of an astronaut twirling, that gravity meter on the international space station. Projects like that, really things that inspire, I call them dinner table conversations. The whole notion would be it's the classic 12 year old girl sitting at the dinner table, with their parents are saying, you know the most amazing thing happened today, or did you know that there have been humans on the space station for the last 18 years or that they recreated a Star Trek device to manufacture items from thin air, things like that. I just think those times of inspirational projects and stories are really how we captivate the imagination and get people involved in space and technology.

John Gilroy:

Dylan, I know you're a busy guy. I can't believe you have time to write articles, but you've written several articles about SpaceX and for the past few years, especially with the 2020 Crew Dragon's launch, SpaceX seems to have monopolized all kinds of attention here, so how do you see SpaceX evolving?

Dylan Taylor:

Well, I think they're going to become more vertically and horizontally integrated. What do I mean by that vertically, meaning controlling more and more of their supply chain, which they already do, but then horizontally integrated by getting into more and more aspects of the space industry. And again, this is part of the vision for Voyager as well. I think part of the reason they're doing Starlink as an example is to get into the hardware business. I think this is also why Blue Origin and Amazon are doing the Kuiper constellation, so I think the trend will be towards more and more internal capability. If you look at a lot of the projects that Elon's working on, and I think this has been said before. I know I've said it before. I'm convinced the Boring Company, which is all about tunnels is really about tunnels on Mars. Tesla's all about solar and electric cars, again as applied to space. If you look at the projects he's working on, they all have applications to his long term vision.

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- Dylan Taylor: I think it's all about assembling more and more capability because obviously if you're going to colonize or settle, colonize is probably not the right word, but settle Mars, you have to have enormous capability, enormous capability, so I think that's really what their future holds is assembling that.
- John Gilroy: Everybody loves success. I asked you about your success here, but part of this game is failure too, I think SpaceX had some failures in the early days. And so you see a company like that or maybe other companies you're looking at. And so how do you analyze, how do you analyze this risk in space?
- Dylan Taylor: Yeah, it's a great question. It's super risky, so obviously back to investor hat, never ever invest more than you can afford to lose. You should always assume high likelihood of loss. That's true of any early stage investment. I do see especially in the age of Robinhood, the free brokerage firm, people seeing investment more like a casino, that people should never look at it that way. But I think failure, it's interesting. It cuts both ways. I mean, I know early stage investors who have the sentiment that they won't invest in an entrepreneur who hasn't failed before, that's a pretty common sentiment. And I understand that because that scar tissue, that resiliency that you build from early failures is really, really important. And I think we all have met a overly confident entrepreneur who only sees the rosy side, right.
- Dylan Taylor: Super optimistic, but doesn't see any potential downside. Those are the people that I think can create undue systemic risks. I think, I look at Elon, of course, he's later in his career now, but I don't think he ever thought that space was easy, that rocketry was easy. And what I admire most about him is his resilience, is the fact that he dusted himself off after several failures and kept going. I mean, a lesser human would not have done that, so I actually admire. I think there's people to find themselves in failure more than success, in my view.
- John Gilroy: I'm sure there are young entrepreneurs listening to this, and that's a good piece of advice is pursue something, even if you fail. What other good characteristics for someone to be successful in this New Space world? What should they do and what should they avoid?
- Dylan Taylor: Well, I think one key characteristic is be coach-able, where I really enjoy the mentorship piece and like to sit down with young entrepreneurs and help them get better. And some entrepreneurs believe they have it all figured out and don't listen, frankly. And others are very coach-able and really are just really interested. It doesn't mean they take all advice, but at least take it all in, and they process it, and they try to understand it. I would say that's one key thing, find a good mentor or two as an entrepreneur, and then listen to them. I think because it's not realistic or reasonable to think that you can have it all figured out. You definitely need help to build a successful company, there's no doubt about that.



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John Gilroy: I'm going to read a quote here and you have to tell me where this originated. The year is 2211, 250 years since Yuri Gagarin became the first human in orbit. Far enough away to be provocative but close enough to be tangible. I'm sure you recognized that quote it's from website called 2211. You founded in our contributor of this space philosophy website. Space philosophy, wow. We never talked about that on this podcast before. What is space philosophy and what's it all about?

Dylan Taylor: Yeah. Great, great question. Back to the social elements of space. One of the concerns I have is as we venture into space, we meaning the human species. Are we giving considerate thought as to what those implications are? Are we re-imagining what we can perhaps do better as we venture into the stars, things like that. And what I believe to be true is that there's no one right answer to that. But it's really, really important to have dialogue about it. And so there are a couple of projects that I launched really to make sure that we're having those kinds of conversations by 2211 is one of them. And the thought is to have people sort of imagine, what are the implications for the future of humanity in space? What are some of the pitfalls? What are some of the opportunities? And have people have dialogue about that on the site.

Dylan Taylor: And the idea would be debate those ideas. There are several versions, for example of sort of a declaration of human rights, as an example. A few people have taken a stab at that. There've been other articles that are really more prose or poetry even, there is some videos on there, so it's really multimedia, but it's really meant to engage people in this conversation. The other project related to this that we launched is called the Ad Astra Dinners. And these are sort of the classic table dinners, where you have 12 to 14 people around the table and the concept with this is these are all influencers, people of notoriety from other industries, because one of the fears I have is space can be a little bit of an echo chamber and space enthusiasts, all sort of drink the Koolaid, so to speak and all have sort of common precepts and beliefs, which I think can be good.

Dylan Taylor: But you also want to I think, influence influencers and make sure that you're engaging with people from other industries, but for a couple of reasons, one is so they understand, Hey, we're on the cusp of this space disruption, and you should know about it and your community should know about it. And then secondly, to have them weigh in and help shape the narrative about what space should be and shouldn't be, and things like that. And it's been fascinating. We've done those dinners all around the world and it really takes the characteristic of the city you hold them in. For example, in DC the conversation was much more regulatory. When we held it in Los Angeles, it was much more about inspiring the imagination, telling the stories that will engage people. I just find that very fascinating, but at their core, they're to foster dialogue. That's the whole concept.





John Gilroy:

Oh, it's a great conversation we've had. Dylan, we really appreciate you taking the time to share some of your insight in the areas of investment in space. I'd like to thank our guest, Dylan Taylor, CEO and chairman of Voyager Space Holdings.