Space Capital Podcast S01E14 - The Missing Link with James Slifierz Transcript

We are still extremely bullish on this market's ability to be larger than the GPS market. But there are a number of barriers that we have to remove in order to make that growth happen. But think we're working on it pretty effectively, and we're making a lot of progress.

Welcome to The Space Angels Podcast, episode fourteen, The Missing Link. I'm your host, Chad Anderson, CEO of Space Angels - the world's leading source of capital for early stage space ventures. You can find us on social media at Space Angels. In this podcast, we explore what is happening at the bleeding edge of entrepreneurial space and speak to the founders behind the companies at the forefront. The Space Angels Podcast is brought to you in part by our friends at Cosma Schema, the new design and branding agency, with a suite of services, like brand positioning, company and product naming, logo design and web design. They're the only design agency exclusively serving new space companies. We recommend all our portfolio companies to Cosma Schema. And you can view their work at Cosma Schema dot com. Today's guest is James Slifierz, CEO of SkyWatch. SkyWatch is on a mission to make satellite data accessible to the world. Its innovative platform, EarthCache, provides a singular destination to discover and access the world's remote sensing data sets. Making it easier to monitor the progress of crops, predict the markets, track ships and airplanes, measure global warming, or create other world changing applications. James, welcome to the podcast. Really happy to have you on with us today.

James:
Thank you, Chad, for me having me.

Chad:
So today, I'd like to start us of at the beginning in the 1960's. So, take us back, Mohammad Ali was world heavyweight champion, Beatlemania had arrived in America, and NASA had launched the first in a series of Earth observing satellites that revolutionized how scientists study Earth's weather systems, environment, and atmosphere. [laughter] Yeah. Yeah, I mean, go back to the '60s and take a look, and there was a lot of really big things that came our way. I mean, the first laser, heart transplant, ARPANET, first industrial robot. Here's a good one. First computer game was Space War.

James:
Mhmm.

Chad:
2001: A Space Odyssey. But the '60s were really important for this- from this perspective. The first Earth observing satellite was launched. And so, a lot has happened since then. Particularly, in the past ten years. And would love to just walk through that with you, and give our listeners some context as to, you know, the market and what's happened.

James:

Yeah. Absolutely. It's funny, you're gonna take me back to a time where I don't even think my parents would remember. But I'll tell you what I've learned from the history books. And a little important side note about my own background is actually, in starting this business, don't actually come from, or don't have an education in the industry, everything I've learned has been self-taught. And kind of as I've got into the industry, I've learned more and more about the history. The history of Earth observation is... it's an interesting one. A lot of people believe that it has its roots in the military and in military technologies, particularly being sort of brought on by the Cold War and the need to spy on adversaries. And part of that is true. But where Earth observation actually really began to take off, for civilian purposes, was after we got our first look at Earthrise and the first shot of the Earth. And that whole movement that really inspired the early '70s environmental movement. It was actually that moment that really sparked a lot of investment into Earth observation technologies. And one of the Apollo 8 astronauts said it best when they said, "We went to the Moon. We thought we were going to discover the Moon, but what actually happened is we discovered Earth."

Chad:
Yeah.

James:
And I think that's actually very, I mean, it's poignant, in that's very true of why we invest in space today, but it's also particularly true for Earth observation. I mean, it's right in the name of what we do. So, in the early '70s, you had the launch, or the beginning, of the Landsat Program, which was a program by NASA to begin putting Earth observation satellites into orbit to begin taking low resolution imagery of the Earth that would be available to civilians. Prior to Landsat, there were military spy satellites. Interesting enough, a different story, the data was not actually communicated via RF signals down to the Earth. There were actually hard tapes that were dropped and put back into... to the Earth's atmosphere in which they had to caught and captured by spy planes.

Chad:
The actual film canisters.

James:
And then- Yes. The actual canisters would be deployed from the space craft. It's actually really interesting technology. But they didn't actually have the capability because the data was still stored in an analog format, it wasn't stored digitally. It was stored on tape canisters. So obviously, the only way you could transmit that data back down to the ground was via actually physically sending the canister. And that's actually a really cool history of the industry. But Landsat was the first program to actually think about how we start making this data available to civilians, and also the first program to really be utilizing the RF communication of data and the digital communication of data back down to the ground. One of the executives here at SkyWatch was a very early user of the original, the early Landsat program back in the '80s. And the first time they every used satellite industry was on punch cards.

Chad:

Wow.

James:
They can remember it to this day.

Chad:
So, Landsat is a really important program. Before that was the Nimbus Program. And I kind of want to just take a step back, just to give a sense for... It's a little difficult for us to remember how little we knew, right? So, Nimbus was a huge program, seven satellites launched over fourteen years in the '60s and early '70s. They operated for thirty years. They carried a ton of instruments and had huge implications on Earth as a whole. I mean, you mentioned Apollo 8, and they certainly had, you know, it arguably kickstarted the environmental movement. But I kind of want to focus on the practical things that the Nimbus Program did. So, its revolutionized weather, right? For the first time, we saw above hurricane clouds. First to measure volcanic eruptions. Solar radiation. It's the tech that first allowed us to like track movements of people, animals, and things on Earth, right?

James:
Mhmm.

Chad:
There's a really cool- I don't know if you've seen that National Geographic show, One Strange Rock, with Will Smith and Chris Hadfield?

James:
I have not. No.

Chad:
So, it's pretty cool. And on one of the first episodes there, they show, and they talk about the- how the African dust, it's the Transatlantic dust migration, and it goes West and it feeds the Amazon rainforest. And it really kind of gives us this perspective that everything is interconnected, and how these different climates from across the planet connect. So, you're right. I mean, it wasn't, even in the beginning, it wasn't all military. There was a lot of Earth science going on as well.

James:
Even the first satellites to counteract or that were in response to the Sputnik Program were even meant to be Earth observing satellites. Not in the way that we typically think of Earth observing satellites being optical imagery, but rather in trying to understand the radiation in the Earth's environment. The metasphere, the ionosphere. The very earliest satellites were- And the way the budgets were actually ramped up, was actually in response or in an effort to support scientific endeavors. Yeah. I think that's important not to lost sight of that.

Chad:
Right. And then so, more recently, we have a seen a lot more access to space, and it's really coming in this... because of availability of low-cost launch through SpaceX and others, and the

miniaturization of technology. It's really led to this innovative new hardware being launched into space, right? I mean, we now- The number of satellites has increased dramatically over the last few years, and we're not generating an unprecedented amount of new data. So, this is an undeniably key milestone in the development of the commercial market, wouldn't you say?

James:
Absolutely. So, you have the barriers to entry, particularly the barriers to actually getting a satellite, and more particularly, a remote sensing satellite into space, dramatically coming down for all the reasons that you mentioned. Smaller satellites are definitely a part of it, given that launch costs are correlated with launch mass. There's also something else that's really interesting happening in the larger economy that is able to support Earth observation and the growth of Earth observation, and to make, or at least, make today the right time that Earth observation begins to develop. And that's obviously the development of both, you know, the information technology sector, as well as the development of the mobile phone sector. I don't think you have Earth observation today as a developing market yet, if you do not have the proliferation of the Internet, cloud computing, and the availability to actually compute vast amounts of data at very low cost. And I think, you know, the rise of those two things at the same time have just... they've intersected now to create this really amazing opportunity. I think these trends... it took trends beyond just the sector itself. Other things had to happen. But yeah, all of these things are leading to a quite interesting time.

Chad:
A lot of things coming together. And I totally agree with that.

James:
Just to give people a sense of the scale. I think a lot of companies have ran these calculations themselves, but even just a decade ago - so 2008, 2009 - what would have cost a hundred million dollars to launch then, in terms of remote sensing capabilities, today we're able to launch for about a million dollars. So- And when I mean that, I mean, if we wanted to have a thirty-centimeter optical imager in space, it would have cost probably quite more than a hundred million dollars, actually, just ten years ago. And today, we are now working with companies that they're manufacturing of that satellite capability is less than a million, and then probably at launch costs, you know, a little more than a million. But you're talking about a hundred X reduction in cost to being able to enter this market.

Chad:
Those are big numbers. So, barrier to entry removed, we've now got a whole new wave of entrepreneurs coming in and launching new satellites, generating a ton of new data. But it's relatively inaccessible still, right? We've got a bandwidth issue. The ground stations, the antennas that we had set up on the ground to receive the signals from space were big and clunky, and designed to maybe track one satellite at a time. Well, when you're moving away from having, you know, a company managing one or, you know, six or seven satellites, to now operating hundreds of satellites, we've got a bandwidth issue, don't we? What's happening there on the ground station front?

James:
You have an order of magnitude of complexity now added to the market and to the ecosystem. And the problem that the industry is facing, and the way it's actually approaching a solution, is realizing that that magnitude increase in complexity cannot be solved with human labor. It needs to be solved with software. Cause software is the only way that it's gonna scale. And it's not only the way it's going to technically scale, but it's the only way that it's gonna economically scale. I think those are two very important variables to keep into consideration, and they need to be tied together. So yeah, what you're seeing now on the ground station front, is you are seeing a proliferation of new ground station providers and new ground station technologies. And I think this kind of extends all the way up back into space and thinking about in space data relay networks. Essentially, you now have an evolving ecosystem around this data problem, solely meant to try to solve the problems that Earth observation is posing. Which is, we're going to create lots of data, but we have a bottleneck in getting that data back down to the the ground. So you have now- You now have more emphasis and more money going into things, like optical relay networks, optical data link, laser data link. Even thinking more- The industry's starting to think more about encryption, quantum key distribution being a very important part of that. All of these technologies are really being developed with an eye on the fact that the Earth observation industry is going to be massive, and it's going to need a supporting ecosystem. And I think this is good for the space industry, overall.

Chad:
And this is not a small problem, right? I mean, just last year, Amazon web services joined forces with Lockheed to create their own ground stations to address this. Can you talk a little bit about that, and the importance of having Amazon involved in this?

James:
Yeah. So, when we look at our own business and, you know, I'm sure we'll get into more of it later, so it provides context for what I'm about to say. But when we look at our own business, and we think about the supply chain. From actually getting data from the sensor in space to any end user on the planet that needs it, still the heaviest cost to date in that supply chain is the down link cost of getting the data down to the ground. And so, when AWS Ground Station entered the arena last year, this was pretty important because it probably caused a lot of people in the industry to really rethink their business model in how they approach these problems strategically. Because what's really disruptive about what they're doing is, strategically, they actually don't care about the profits of the down link itself. So they're willing to pretty much sell their down link rates at cost. Which what we're seeing now can be as cheap as 10 X of other providers in the market. What they care about is making money on the data storage. And so, what they're doing is they're eliminating the barrier in one aspect of the supply chain, which is the down link cost, in order to gain pretty massive market share. And what is probably more valuable in the long-term business opportunity, which is the storage of all of this data that's being created. So, I think it's extremely important, and I think it, again, is emphasizing the fact - and it ties in more with, you know, how we think about the future, which we'll get to later - which is if we're going to make Earth observation a massive market, we have to continue to think about where we can innovate to drive down the cost in that supply chain. Because cost translates the price to the end customer. And it's the price to the end customer that is keeping most of the potential market out from participating as a customer, because prices have traditionally still been too high. So, I think AWS

is solving one aspect of that, which we think is really important. They are a company that we work with pretty closely in our own products. And so, at the end of the day, this just continues to make the downstream ecosystem more efficient and more cost effective, which will ultimately help grow the market.

Chad:
So, I definitely want to get into that next bit, which we're kind of alluding to, and that's the problem of distribution. So, you get the access to space problem solved, people are working on the ground stations and getting access to that data. The distribution now is a really key piece of this that hasn't really been addressed. I kind of want to address the three big like key issues with EO data before we start talking about the market and your company specifically. So, distribution is the next, you know, key barrier that needs to be addressed, and this is something that you're focused on. So, I'm just kind of curious to help listeners understand the pain that people would go through when trying to access a satellite image before SkyWatch.

James:
Yeah. So, exactly. So, the barriers to entry of getting into space have been solved. The barriers to actually getting the market now, getting the customers, have not been solved. And this is still a major problem. Now, there are dozens of LEO constellations, even in just Earth observation that are being proposed. And there's a lot of skepticism about whether even half of those will come to fruition. And the truth is, from our perspective, there is market opportunity for all of those companies to exist and be successful. The reason why there is room for skepticism about whether they will actually succeed is because of those barriers to getting the market, is because it's so difficult and so expensive to get- to actually deliver data to a modern customer. What I think is really helpful to understand is why this is. Why is there still such a very large barrier of getting the market? And it's primarily because of- it's actually a relic of just the tradition of this industry. So, as we alluded to earlier, early satellite companies, particularly in Earth observation, were largely born out of a need to serve the government. And how did the government buy and purchase satellite imagery? Well, they usually bought very large areas, usually the size of a city, the size of State, sometimes an entire country, and they purchased it over the phone. They bought very large areas of land, and this is important because data is sold on a per square kilometer basis. So, they're spending a lot, but they're spending it in very low volumes. They're only purchasing these data requirements on sometimes an annual, monthly basis, depending on the particular use case. And where the industry is moving towards is... as you start to look at the commercial sector and commercial actors that want access to this imagery, they want it in ways that the existing infrastructure and processes don't support. So, they want to be able to programmatically access it. And even more fundamentally, they need very small areas.

Chad:
So, Earth observation has been predicted to become as ubiquitous and essential to business in our everyday lives as GPS, and there's thousands of potential applications. I mean, I've heard you mention many. Agriculture, mining, et cetera. So, why hasn't this happened yet?

James:

Very good question. It's actually sort of related to what we talked about earlier, when we were talking about the decrease of access to space. Sort of removing the- a lot of the barriers have been removed to actually being able to put a remote sensing satellite in space affordably. However, what has not changed and what is still very difficult, is actually the barriers that exist in getting to market. Meaning, okay, you've got your satellite up, now how do we actually build a profitable business utilizing the services that this satellite can perform, and reach our customer base? And that is still a very expensive endeavor for any company. If you talk to the founders of some the early Earth observation companies, they will tell you that when they started their company, they didn't actually appreciate the fact that they were actually- what they came to find is they were actually building two separate companies at the same time. They were building a satellite company, and they were trying to learn on the fly, what it meant to actually build a data infrastructure company. And these barriers to entry made their business more expensive to run. It made it- It took longer to get to market, because there was so much more technology that they had to learn about that wasn't core competency to what they were trying to achieve. And that struggle still exists for every single company that wants to put a satellite into space. There's dozens now. Dozens of constellations that are being proposed to be put into orbit, in order to capture imagery from low Earth orbit. And there's a lot- Within our market, there's a lot of skepticism about whether any of these companies will even survive or will even make it to orbit. And what I'll say from our perspective, is that there is room in the market, meaning that there's enough demand here on the planet to support all of those technologies and all of those sensors. However, where the skepticism is warranted is in the fact that very few of those companies are actually gonna know how to effectively get their data to market. And that is a big problem for the industry at large. So, when we started our company, the one thing that we really wanted to solve, was how can we actually enable this economy to flourish so that it could be as big as GPS, if not bigger? I think as outsiders, when we founded the company, we were actually pretty baffled by the stark contrast in market size between Earth observation and the GPS market. It's about a ten X difference. The GPS market, it's reliant, you know, very simply on geospatial lat and long coordinates. And it was flourishing. The ability to easily access the standardization, the normalization, and the ubiquitous ability to receive and transmit those signals did a lot in the late '90s for allowing those- the applications to grow. And what's very interesting is when you look back on market sentiment in the late '90s, it was actually pretty similar to markets that you might see around Earth observation today. Which is a pretty cool technology for government, but are civilians really gonna benefit from this? I mean, it's funny in retrospect, but that was a real question in the late '90s. Was- Are civilians actually gonna benefit from GPS technology? What possibly could the utilize it for? There's not as much skepticism in Earth observation because there have enough applications that have been developed with some of the open data sets from NASA and other space agencies. But there's definitely enough skepticism around whether it can flourish. And we think, when we founded our business, that we had unique insights into understanding what those barriers were to be growing the market overall, and how it is we could actually go about solving it. So, the short answer to your question is, yes, you know, we are still extremely bullish on this market's ability to be larger than the GPS market. But there are a number of barriers that we have to remove in order to make that growth happen. But we think we're working on it pretty effectively and we're making a lot of progress.

Chad:

Yeah. I mean, when I think about GPS and I look at all the innovation that's happening on location-based services, and all the money that's been made in that arena, they don't really- they take for granted that it's a space signal. And then you've got the people who are developing, you know, the GPS and the satellites and the technology, and these two communities never really meet, nor do they have to. And that's because of, what you call and what you often talk about as an abstraction layer. And that's sort of what you're doing for Earth observation, isn't it?

James:
It, again, I think is... the answer is somewhat related to the history of the industry. As we mentioned earlier, satellites were born- the commercial satellites were born primarily out of a need to serve government. That data was sold in very large areas. So, governments generally require a city, a state, a country, but they were sold in very large - or sorry - very small volumes. So, what you end up having is you have data being sold over the phone from these companies to the people that they have close relationships to and the government agency. And at a very large- at very low volumes. So, you have the ability to actually reasonably high and marginal costs, while still making a decent profit on your sales. As we start to look to actually what the future looks like and, you know, what ubiquitous access to this data looks like, the modern customer is very different from the government. The customer that is in agriculture, that is in insurance, that is in the financial services sector, and they're looking for programmatic access to very small areas, relatively speaking. So, they're looking for an area the size of a parking lot, or of a farm, or of a construction project. They're looking to monitor these areas, and very small areas, but in very high volumes or very high temporal frequencies. So, they need the imagery daily, or they need it weekly. And so, the marginal cost is now inversed. So, you actually have a very low revenue unit that you need to ship out the door, but you need to ship out a massive volume of them. And so, each marginal cost has to be dramatically lower than what your marginal costs were before. Now, there's two things that keep marginal costs pretty high in the distribution of satellite imagery. The first is the fact that primarily the imagery is processed manually. So, traditionally, data comes out down on the ground in a raw format, and there are a series of steps - it can be as many as ten to fifteen steps - that an image will have to- processing an image will have to go through with an image processing specialist using a desktop computer in order to actually make that data available or usable to an end user. So that's one. And then, we may have alluded to it earlier, but the other marginal cost that is significantly high, but is getting solved, is the down link cost. And so, you add those two things together, and you have what is a very high barrier to entry, in terms of price. So, when we started our company, the price of data, just to task the satellite to capture an image for you, you had to be willing to put up no less than two thousand dollars for one image. Okay? So, imagine that you need, you know, daily monitoring of a farm, well that price barrier is an obvious reason why that market cannot participate in Earth observation imagery. And so, the key that, you know, what we focus on is particularly the processing side and once the data hits the ground. We mentioned earlier, you know, AWS and other ground station companies are doing a really good job of helping bring down the cost of down linking, but we have to think about how we remove human labor from the distribution loop. You know, there's nobody in the GPS that is selling GPS signals out to the market.

Chad:
Right.

James:
It would make GPS applications too expensive. The marginal cost that human labor is adding to the distribution of satellite imagery is what's keeping the price too high for most potential application to become economically feasible. So, at our business, we've identified more than a thousand unique applications that are technically feasible. But a lot of them are still economically infeasible because of the barriers to entry around price. So how do you solve that? Well, you think about how you automate the entire system. You think about how you get that data from that sensor in space to any IP address here on the planet using just computation and bandwidth. And if you can achieve that, then you can bring the marginal cost of that image down to just the cost of compute and bandwidth, which in any instance is cents. It's a few cents per image. But that's extremely difficult. It's an extremely difficult challenge because the processing of imagery has traditionally been very difficult to achieve, especially the automated processing. If you're gonna build an aggregator, the ability to actually fuse this data together in a way that's automated, is extremely difficult. So that's largely been a barrier to entry for a lot of these providers.

Chad:
You mentioned a few industries that are interested in this, but you have customers that are tapping into your API and accessing data today. So, who are these people? Who are these customers of yours?

James:
Yeah. So, our customers, interestingly enough, have for the most part wanted to be satellite data consumers for a very long time, but have been priced out of the market. So, you know, a little bit of background on what we've been able to achieve. So, we achieved, what we would call, full automation, which means that we're able to deliver data from a sensor in space to an end user application, fully automated. We achieved that early in 2018. And we began to enable, allow our customers to develop their applications.

Chad:
No humans involved. Just machine to machine?

James:
Correct. And the major benefit of that is not only, you know, as I mentioned, again, earlier, when we started our business there was no such thing as programmatically accessible commercial satellite imagery. So, not only did we make that a possibility now, so that people could technically access this data in a way that they consume other data sets - and I think that's, you know, it's really important to illustrate what kind of customers we're talking about here. When I talk about the modern customer, I am referring to the customer that is in, you know, any Fortune 500 company, regardless of their sector. And they are... they might be an application developer or a product manager and are looking to build a feature into their existing software. And, you know, this is a customer that is currently using the cloud. They are currently using, what we call, APIs, Application Programming Interfaces. And for those of you who don't have strong software, or an understanding of software definitions, an API is simply an interface that allows two pieces of software to talk to each other. And so, you have customers using APIs as they're

also using other open source technologies. They want access to satellite imagery. They want to solve problems for their business that are real, and they've identified them today. So, for example, we have customers in the oil and gas industry. They are currently using helicopters to monitor their remote pipelines. They would be able to easily do this with satellite imagery, except the fact that satellite operators wanted such a heavy price to task an image. And so, when we enabled the programmatic access of satellite imagery to these customers, there was a very amazing benefit that was a consequence of that programmatic access. And because we were able to fully automate the distribution, we were also able to have the lowest marginal costs for distribution in the entire industry. And this meant that we can set the lowest prices possible. And so, we were lowering the price of entry so low that now it made complete sense for these customers to come on and start building their applications. So, we have... we have customers that are monitoring oil pipelines. We have customers that are replacing drones on farms to monitor their crops from space. We have customers that are doing very interesting things that would not have been possible if it were not for programmatic access. I'll give you a really cool example. So, there is a large Fortune 500 company, they are building sensors, street parking sensors, for municipalities in Europe. And what they want to be able to do with satellite imagery, is they want to take a satellite image of these cities that they're operating in at the same time every single day and be able to identify where their parking lots are that these sensors are placed. And they want to be able to calibrate that image against the data they're actually getting from their sensors. So that they can determine if one of their sensors is broken. Well, how would they do that? Well, if they're taking an image at 11 AM every single day, and in that image their computer vision algorithm is able to identify that there is a car in that parking spot, but their sensor data is saying that there is not a car in that parking spot, then they know they have a broken sensor. And what's really interesting about this machine to machine application is nobody in that entire business needs to actually ever look at a satellite image. The end result is a notification saying, "Hey, at this geolocation, there is a parking sensor that is not working." All under the hood. But, of course, if you actually think about the utility of that application, a business is only actually gonna utilize satellite imagery in that instance if the price gets low enough. Otherwise, they're in order to do it daily, it's just extremely expensive. The cost benefit is just not there. And so, this is what SkyWatch is enabling. The ability to programmatically access this data, and also dramatically- focusing on dramatically lowering the cost in the price, so that these new applications- So that becomes a no-brainer to build and utilize satellite imagery into your software applications and into the workflow that your business is currently operating within.

Chad:
And so, obviously, with your plan, supply is incredibly important. I've always been struck with where you sit in the market and how the value of your company really comes from being source agnostic, and bringing in all different types of supply easily accessible through an API and the end user doesn't really need to even know, you know, where it came from, and all they get is a notification. I love all of that. And I want to talk about the supply a little bit. I mean, we know that it's growing, we know that a ton of money is going into this sector. Many new companies launching lots of constellations. The number of commercial imaging satellites is supposed to grow forty to fifty X in the next ten years. How many satellites do you have on your platform, and how do you envision your relationship with suppliers growing?

James:

What's really interesting is it used to be very easy to count the number of satellites in space, because the number didn't change much. And now it changes weekly. Which is actually a great problem to have. But in estimate, there are about six hundred-ish Earth observation satellites that are in orbit. About three hundred and fifty of those are commercial and are currently operating. And of those satellites, we have about seventy percent of those satellites currently programmatically accessible- in access in capturing imagery for our customers. We started our company because we saw an opportunity to actually make it easier for satellite companies to go to market. So just like a quick lesson in software itself, where software has the best chance to flourish is where there is an opportunity to remove friction. Particularly in our business, we call this undifferentiated heavy lifting. So undifferentiated heavy lifting is the sort of things, as a business, that you have to do to go to market, but provides you no competitive advantage. So, they're just the cost of doing business. In software, in particular, a big undifferentiated heavy lifting used to be the development of server farms. You used to have to build up your own server farms in order to actually build the software company that would actually software over the Internet. And then, you have the rise of cloud computing companies like Amazon, web services like Google Cloud and Microsoft Azure, et cetera. And they removed that undifferentiated heavy lifting that these companies were doing to try to go to market. I mentioned earlier, you know, satellite companies still face vast amounts of barriers in getting their data out to market, and the vast majority of that is undifferentiated heavy lifting. So, it's finding customers. It is trying to figure out how you're gonna process your data. It's figuring out, how are you going to enable customers to access your data? How are you gonna store your data? How are you gonna provide security for your data? All of these things are necessary in going to market but spending a lot of money on them provides you no competitive advantage. It's just the cost of doing business. And so, one of the things that we've- One of our really strong value propositions among many to our suppliers is, you know, not only are we helping you find customers, particularly, you know, the ones that are doing high volumes of data transactions. Not only are we helping you find these customers, but we're also helping you alleviate a lot of that cost going to market. You know, we have that very beautiful, easy to use interface that people are integrating with. We have data storage capabilities, data security. So, our value propositions to suppliers is actually really strong, because we're moving a lot of that operating cost from their business, and we're allowing them to actually build a more profitable business. We're also allowing them to grow faster, because we're using our insights and knowledge and understanding these emerging markets. And sort of almost acting as an outsource sales and marketing [?? 00:37:57] for them. We're doing customer acquisition at a cost that they've never seen before. And I guess the customer acquisition cost suppliers is essentially free. I mean, they're not- we're not- We don't charge them for access to our customers, we simply make a tapering on all the data transactions, which has always been the norm in our industry. But we're providing- We're finding customers at such a rapid rate and at no cost to the suppliers, so, you know, I think that sums up the value proposition to them very well.

Chad:
And new customers, importantly. I mean, this is how we grow the addressable market. Is through the acquisition of new customers that otherwise wouldn't have even considered using satellite data, because it was tedious, time-consuming, cost prohibitive.

James:

Very important point. Because one thing that we strictly did when we began to build our platform, was we built it for the beginner. And ninety-five percent of our engineering team has never worked in the industry. Very important point. So, we actually, we built the technology with the beginner who's never used satellite imagery before in mind. And our product goal when we started, which we're very happy to say we've achieved, is that we wanted somebody who's... we wanted to enable somebody who's logged on to our platform for the first time. We wanted to enable them to integrate satellite imagery into their software within fifteen minutes and get their first piece of data inside their software in fifteen minutes. Unheard of. I mean, prior it would took weeks, months potentially. And we were able to get that down to minutes now, which I think is a really important point.

Chad:
So got a couple questions left. And one is, I mentioned there's a lot of private equity and venture capital money that's going into this sector. A lot of the money that's going into the space sector has gone to satellites and Earth observation, specifically. And a number of those are data analytics companies. And so, when people look at SkyWatch versus, maybe, some of these other data analytics companies, can you help us understand the difference there, and what it is that you do that's different?

James:
Yeah, absolutely. So, we often mistakenly get lumped into the group of being a data analytics company, largely because I think, for the most part, we sort of were the first to identify and push for the idea of an aggregation layer in the industry. And so, we're trying to carve out our own segment of the supply chain. A data analytics company is started to serve a particular purpose. They're trying to develop some sort of intelligent output that is derived from satellite imagery and other data sources in order to solve a very specific problem in the market. So, everyone's familiar with card counting, but it might also be things like trying to do crop field analysis. It might be things like monitoring construction projects, et cetera. Those companies, these data analytics companies also have a lot of undifferentiated heavy lifting in their business, because it is extremely expensive today and time consuming for them to develop business arrangements, business agreements with suppliers. To actually build the technology they need to ingest and analyze their data. To be able to actually develop a lot of the... a lot of the integrations required to even make their business work. And so, when a data analytics provider looks at SkyWatch, they see an opportunity for them to remove a lot of the costs in their business. So, we are that- we're that, you know, abstraction layer, that infrastructure layer, that is making both sides of the market do business way more efficiently, way more effectively. And I think that's important. We're a step up from the data analytics provider. We are gonna make- We are enabling many more data analytics providers to exist in the market because of the technology and the ease of access that we are providing. But, you know, I guess very simply put, SkyWatch, we consider ourselves to be a space tech infrastructure company focused specifically on the data layer.

Chad:

Nice. That's very helpful. Okay, so last question. On the show, we like to say that there has never been a better time to get involved in space investing. Can you give us your personal perspective on that, and which areas are the most exciting for you?

James:
The headlines are- Everyone's seeing... anyone who's familiar with commercial space will have seen headlines from some of the big banks, like Morgan Stanley, that are espousing a one trillion-dollar potential market within space. And so, if we look at global space. Global space market, I think, in the last few years, it's hovering somewhere around three hundred and fifty billion, I believe. So, you're looking at a three X growth over the next decade or so, maybe a little more in the industry. And I even think those could potentially be conservative estimates. I've seen estimates as high as four trillion by 2040. So, there is a lot of- there's a lot of capital to be made. There is a lot of our ROI to be earned in the industry. It's still really early. What's fascinating is when we started the company in 2014- Actually, funny anecdote. Today is the companies fifth anniversary.

Chad:
Oh. Congrats.

James:
[laughs] Yeah. I actually forgot that a half decade has gone by until I walked into the office this morning, and there's cake and decorations everywhere. But when we started the business, we actually were worried that we were late to the market back then. And the truth is that we actually had perfect timing. I mean, you're seeing it right now. If you read the Space Angels capital reports, you'll see that the, in terms of capital infusion into the markets, the trends are still moving in the right direction. It is an excellent time to still invest in space. We haven't even touched on the opportunities for data sources still in our industry. But I'll put like... I'll put it this way. In Earth observation alone, we've identified two hundred and eighty unique types of data that would be interesting and usable here on Earth. Okay? In about, I would say, about ten to fifteen of those data opportunities are being well-served today. Ten to fifteen out of a potential two hundred and eighty different types of data.

Chad:
That customers want?

James:
Exactly. I feel like this is... This quotes often probably used too much, but it's definitely very true in Earth observation and I think in space at large, which is we generally overestimate what it is we can achieve in two years, but I think we always tend to underestimate what is possible in the next decade. And I think, you know, that Bill Gates quote is very relevant to space. Which is that, if you're gonna invest in space, the first few years can typically be... that sometimes it's gonna take longer than you might expect and sometimes you hit your stride. But I think that things you're gonna achieve over the course of where you might be expecting to get your return on your investment, which might five to eight years, I think they're gonna be even better than you imagined going into the investment. And so, I think it's an amazing time to invest. And I've

joked with you before, once I have capital of my own, it's actually the first thing I'll wish to do with it, which is to continue to invest in the opportunities that I see in this industry.

Chad:
That was great. Thank you, James. Really appreciate you joining us today.

James:
It's been a pleasure.

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