

LONGstorySHORT

with LESLIE WILCOX



TITLE: Patrick Sullivan: Professional Problem Solver

LSS 1219 (26:46)

FIRST AIR DATE: 8/27/2019

We're working on a project to help with elderly. What's needed is a very inexpensive but effective robotic assistant that can just be there to help them out, and if they fall, if they're in trouble, if they're in pain, if they just need help. Just something as simple as recognizing an object is critical.

This fearless innovator finds solutions to some of the world's most difficult problems by combining science, technology, engineering, and innovative thinking. Nothing new for him; he's been problem-solving since he was a teenager, when he concocted enterprising ways to pay for college. Patrick Sullivan, next, on Long Story Short.

One-on-one engaging conversations with some of Hawai'i's most intriguing people: Long Story Short with Leslie Wilcox.

Aloha mai kākou. I'm Leslie Wilcox. Patrick Kevin Sullivan is president and CEO of Oceanit, an internationally recognized company he founded in Downtown Honolulu in 1985. He calls it a mind-to-market company that turns scientific principles into real world applications for real world problems. His company says he's raised more than \$475 million to develop cutting edge solutions. Oceanit's clients come from around the nation and the world. The company is also entrepreneurial, sending products it developed to the marketplace through spinout companies, partnerships, or direct manufacturing. Patrick Sullivan employs an intensive process, bringing together curious minds with different skillsets and encouraging what he calls intellectual anarchy.

Would you give us some examples of what products have come about as a result of this very dynamic process?

Well, there's a couple. One of our spinouts, Ibis, which is doing energy management in commercial buildings. So, we just had a board call on the way in, and I was on the call. And that started out with a ... it's a healable wireless mesh network, which was a legacy of a technology we built for a military group to look behind walls of concrete and steel, and to communicate in really weird places. And so, we built that technology. Then we thought: Okay, how do we do something that's gonna make a difference? And so, inside the organization, we have people that are really concerned about energy, greenhouse carbon. We thought: What if we could use this as a way to

mitigate and inform people on energy? And commercial buildings turns out to be the market we focused on. We didn't know what the market was in the beginning. So, we kinda pivoted from this thing. We built all these tiny antennas and all this kind of electronics, and all this stuff, and this software, and a wireless mesh network. And it's become a technology that is—like, California's using it in a lot of their schools, universities, commercial buildings—there are some commercial buildings here, where it'll save fifteen, twenty percent of the energy in a commercial building. It starts with the interesting question, and it cascades into these things. And as we gain insights, it opens up these vistas of things that were not thinkable. When you map that process, which I've mapped and call the intellectual anarchy process, it will bring you to some really interesting points, and create lots of opportunity. But they're things that don't exist. So, people have asked me, like in ... we had this meeting with like, thirty, thirty-five of these science advisers to Office of Naval Research, and we kinda walked through how we do this. Because I try to show people what we do; it's not a secret. And they said: Well, how do you do this? Because they always start with a requirement. We start left of requirement. We don't start with a requirement. And I told them, I said: You should try this. I said: If you actually ask yourself what's important and what's interesting, you will find the thing that you should be doing. And I said: We do this fourth quarter of every year. We have these broad conversations in the company, and we ask ourselves: What should we do with our time on the planet that's gonna make a difference? Because we're here to impact humans and society. How do we make the world better? What should we be doing? So, we pick a few things, and every year we do this, and those things cascade and it creates all the stuff. That's what intellectual anarchy is.

Wow. And it seems like all these problems that have resisted answers for time immemorial—common cold too. I mean, there are so many. You'll never stop with thinking big kind of projects, because there are a lot of big things that are unanswered.

Yes. And so then, it comes down to: What should we do? What might be possible? And so, we spend time exploring these things, and then we try to pick a few. And it takes time as these roll out, but what it does over a period of time, it literally creates a pipeline; a pipeline in all these different subjects. So, it's not limited by subject; it's limited by what's important and what's interesting. This process, again, of intellectual anarchy, there's a exploration and discovery phase where you have to be pretty open-minded to where it's gonna lead you. It moves into the product phase, you're building real products. And then, those have economic value, where you can sell, license, you know, do all kinds of things with it.

A project you might have thought was silly at the time, and you've also talked about weird ideas.

Right.

But they have to be respected, right, because they can go somewhere.

Exactly. And the insights from this silly early stuff turned into ... you know. I mean, it's funny; we just had this group here this week from Korea because they want a license for the Country of Korea. We're gonna do, I think, a pipeline in Turkmenistan this quarter. We're actually gonna do heat exchangers in Abu Dhabi. I mean, this stuff is all just kinda cranking. And ... it was all invented here, and developed in the lab, but the market is the rest of the world. And that's how we view it.

So, it's interesting, 'cause it's a fascinating blend of, you know, just sky's the limit, whatever you can do, run with it. And then, there has to be some some balance in it.

Right.

What an art that must be.

It is. And it's funny, because my wife is the COO, Jan is. So, she was an attorney for about fifteen years, and then we started doing some spinouts and I asked her if she could help. And she's really good at it. And there's a whole operating team that manages stuff. But it is an art, because you're dealing with things that are messy. Innovation is messy. Right? But it's trying to understand people.

And people are very invested in what they've done, too.

Right. But she does a really good job of that. And I tell people; it's like businesses are either built to manage, or built to innovate. But if it's built to manage, innovation is love. If it's built to innovate, management is hard. If it's built to innovate, the way you manage is really important.

I can see how it'd be hard to find the right fit at your company, because so many people who are very bright and educated are into control. You know, they want to control their world, and they've developed a lot of tools with which to do so. So, those are the bright, educated people that you don't want.

Well, it depends if they're gonna become agile and flexible. If they're inflexible, that's a real problem. But if they're flexible, they may learn a tool set today, but there may be a better tool set tomorrow. And if they say, Well, I can't do that, that's real problem.

Patrick Sullivan, resident of Kailua, Windward O'ahu, works with partners and clients throughout the global community, including universities, governments, nongovernmental organizations, and businesses. His staff of more than a hundred sixty scientists and engineers hails from around the world. He says that living and working in

isolated Hawai'i, with our Hawaiian culture and multiculturalism, is a plus, inspiring his team to think outside the box.

For manufacturing and certain things, you can build facilities in different places. For the magic, this is the place. See, innovation comes from differences, not sameness. So, getting different people with different perspectives. And we live in this environment here, where all kinds of different people live together. That's our strength. So, our big strength in Hawai'i is the people. Okay?

Because you don't think you'd be able to get this assortment of people in another place feeling comfortable about living here?

It's the culture. So, the business culture is Native Hawaiian. It's real Hawaiian by culture as a business, the way we work together. It's organically built here from scratch. So, it's a unique culture that is collaborative. We respect each other, but there's lots of debates on the science, on the facts, on the details, on those kinda things. But the culture wouldn't work in other places. It works here. The DNA of the culture is Hawaiian. It doesn't exist in Silicon Valley, it doesn't exist in the Beltway. It's just kinda different. I think in the culture of Hawai'i, is innovation. And I think we forget that sometimes. But the Native Hawaiians that came to Hawai'i, they innovated to get here, they innovated when they got here. They were the first in the country with electricity, they did all these innovations. They were not afraid of electronics, or I should say, afraid of technology, afraid of change. They embraced it. And to this day, culturally, they embrace people from everywhere. It's just part of our culture.

I know you do have to bring in a lot of people. I don't know how hard it is for you recruit locally, but I bet you do have some limitations there. What if you did have a whole bunch of PhDs of this mindset you could hire; would that affect your diversity in innovation?

The people that grow up here, who get the good education, have a skillset to work with people from all over, because they grew up here. It's kind of an experiment, but we found it really, really works, and so, it seems kinda crazy. To bring a technology to market, you've got technology risk, execution risk, and market risk. We focus on technology and execution. Execution risk, we've discovered that if we take sort of local kids or people that grew up here with a good education, we can put them anywhere in the world. And like, we did this scale-up in Pennsylvania to put steel casing in the Marcellus Shale, which of course, we've never done. But we did. And we did this in three months. But to build something like this, you need the welder, the forklift guy, the truckers, the roughnecks, the roustabouts, everybody who maybe never went to college; right? Here, we've got all these really educated people that work as part of the company. But I told the guys; I said: Look, bring aloha, get to know these people

like they are your relatives at Christmas or whatever. Don't be afraid, they don't see guys like you 'cause, you know, it's Pennsylvania.

And respect their skills.

Right. But we work with them, they work with us. And if you do that, it'll be successful. They crushed it, because they brought that human element. And so, with the education, which is essential, they were able to bring the cultural piece to work with people that are totally different, and be very successful.

Who are the rock and rollers? How do you find them?

Oh. They can go between cultures. Right? So, the culture of deep science and the culture—

Oh, they're the translators.

Right. Technology Sherpas. So, he's gotta go from dealing with the deep science guys and translate that to how it impacts humans and society as a product or a device.

And they are different languages?

Absolutely. Each industry has its own culture. So, they've got to learn the culture and the language of an industry, and then translate that back. 'Cause usually, the scientists and the engineers working on the problem, they may think they know what it should do. They're almost always wrong. Because when you start talking to real customers, it's like: Oh, that's what you do. And until you get in front of them, until you spend time with them, you just don't understand it. You've gotta have those people that are out talking to humans, and people in the industries, and all that kinda stuff all the time. So, we do. Those are those people. The human element and the culture of Hawaii, I think, enables a lot of that to happen, too.

Running a business that's based on innovation and fearlessness can be daunting. Patrick Sullivan knows that not all brilliant hardworking scientists and engineers who are interested will be a fit for Oceanit.

When your colleagues describe you, I notice things tend to end in less. Fearless, limitless, endless.

And relentless.

Those are nice things to hear. See, especially the older I get, the more I see things are connected; the fields are connected. People are taught for the convenience of

teaching, but in the real world, there's much more things that are connected. And methods and materials change. So, think about like, the Wright Brothers were kinda bicycle guys, and they had canvas and sticks, and they eventually built a thing to fly. And then, people thought: Well, what if we use aluminum. Right? Or what if we use carbon. And over time, what was impossible became possible. And so, what I've learned is that, you know, the fields are really connected, and as methods and materials change, what was once impossible becomes possible. And so, we do a bunch of that kinda stuff now at Oceanit. And it's a lot of fun; sometimes it's a little crazy. But it unlocks the ... you know, what I find is that we hire really bright people, but what drives things is what's in here. So, we try to connect what's in here with what's in here. And so, it's not just the education; it's that connection to doing something that really matters, that makes the magic happen.

How do you teach that?

Well, that's a really, really good question. Because a lot of the time ... we've got this way to work with uh, PhD recent grads, and I will usually have a talk once a year with the new ones. And I say: Look, you know, we're proud of you, and your mom's proud of you, and you did an amazing thing; but now, nobody cares, so what are you gonna do? Because now, it's all about the rest of your life, and it's not limited to that field; it could be anything. So, we purposely put them in a field or a problem where they may not have any expertise. And a lot of the time, they go through like, of course, fear. They're worried because here, they're the smartest guy; now, they know nothing. But we're trying to get them to get comfortable in the fundamentals. So, we kinda drive them through this process, so they go back to the basics, and they can look at any problem and start understanding how to think about the problem. And we do that with a lot of these young PhDs. Usually, it's easier if they're right out of school, then we kinda unscrew a couple things, and then we teach them how to do this. And when they learn to do this, they're a force. And we started with a couple young PhDs in aerospace who really learned to get the moves. Right? But they have to get comfortable in going into something that is way out of their field, or whatever, without being afraid, with the fundamentals and, you know, full grasp of the fundamentals so that they can actually go forward and figure out: Okay, I can think about it this way or that way. We can look up research information on pretty much anything.

So, once somebody gets their PhD, then you send them through boot camp.

Right. And if they like it, they love it; and if they don't, they hate it and they're terrified.

And you usually can tell pretty quickly.

And we try to find out sooner, than later. Because there's no right answer. We're looking for an answer that works for us, and we want the ones that are just excited. It's

kinda like surfing or anything; right? You learn to love it because, yeah, you get hammered sometimes, but when you get the right wave, it's a blast.

And I notice when you talked about your background and having to go through things, you know, I think what you were saying is, you sometimes made a mistake or messed up in business or in some area, but you don't say that. You say: I learned a lot.

Right. Yeah. And the way I look at it, as long as you're learning, you're making progress. Because especially when things are really, really hard, it's not gonna be straightforward. The reason they're hard is because it's just not that easy. So, you're gonna get some hits. Like, when we've done some of these startups and we're interviewing people, I say: Look, I just need to know, when you get hit, are you gonna get up?

Right.

Because that's the question. Was it Rocky Balboa or somebody; it's not how hard you can hit, it's how hard you can get hit, and then get back up. And getting back up is a really big deal. Because when we're in this kind of ... especially the stuff that we do, people are gonna take hits. Nobody wants to, and it's always painful. So, anybody that says, oh, failure, whatever. No; it always smarts. But you gotta get up.

You've been described as an eternal optimist.

Are you?

Yeah; I think so. I think you gotta be, to do this. But I feel blessed in so many ways. Yeah. I think I have a very good sense about our future in Hawai'i, and for Hawai'i, and for the country and other things. You know, there's issues, always gonna be problems. But problems are maybe opportunities in disguise. So, I think in general, things move in the right direction, but to get there, sometimes we take a bunch of turns and tacks in directions which seem kinda crazy. But yeah, I'm an optimist.

Your entire business is devoted to problem-solving. So, other people may come home and say: I have a lot of problems today. Whereas, that's what you went to work expecting as what's on your plate; right? I mean, it's a different way to look at problems.

Yeah; yeah. But we found that ... for example, if we did what everybody does, why would anybody care about what we do in Hawai'i, in the middle of the Pacific. And we do things that nobody thinks are possible. And we have a way to do it, it's a interesting, challenging, and disruptive. So, we break up the world into these three buckets. The disruptive stuff, we're just really, really good at. But that's what draws the

attention from a lot of big companies that we work with, because we're thinking way outside of the box. You know, the groupthink that they're all stuck in, and the functional fixedness that, you know, they can't see it any other way, we're able to kinda get way beyond that and come up with different ways to do things.

Patrick Sullivan was always good in math, which started him on the path to becoming an engineer. Growing up, he took whatever job he could find, often convincing prospective employers that he could build anything they needed. After graduating from the University of Colorado Boulder with a Bachelor of Science degree, he attended the University of Hawai'i at Mānoa, where he earned a doctorate in engineering.

What did you do in your childhood that helped you become who you are today?

In my childhood ...

I mean, did you learn good habits early? Did you develop some specialty that helped you along the way later?

One thing I learned maybe older than growing up, and what I tell young people, that especially as we're doing tech things here is, I tell people they have to be comfortable in their own skin. By that, I don't mean the color of their skin, but who they are. So, from Hawai'i, there's a sense of saying in trying to hide the fact that we're from Hawai'i. People go out, try to raise money, try to do things, and they want to say: Well, you know, we're here in Palo Alto, we're doing all this stuff. And I tell them: Look, own it, and you're gonna find out right away, the people that it doesn't matter to are gonna work with you, and the people that it does aren't gonna help you anyway. So, you might as well be comfortable in your own skin, because when you are, the authenticity of what you're doing will come through, and you're gonna find those people that are gonna work with you. And the irony is in building the business over the years, I've found that there's this kind of Hawaiian network in the world. So, whenever you come from Hawai'i, pretty much no matter where you go, there's people who used to live in Hawai'i, or grew up in Hawai'i, and they'll always try to help. It's the craziest thing. But they always come out to help. And they're everywhere. So, it's a special thing to be from here. And for what we do, it works great.

You do so much with automation and artificial intelligence. What do you think Hawaii's gonna look like in 2025 when it comes to AI?

Well, there's gonna be change. Not all of it, people are gonna like. I think the biggest issue is in jobs. For example, drivers. Autonomous cars are, I think, gonna make it. And so, people that earn a living with driving, that's something we should be thinking about as a community. The things that we do here that are unique and special to Hawaii are still gonna be unique and special here. And the human contributions in creativity,

imagination, are still gonna be really important. But in the future, we see ag tech, for example. Agriculture in Hawai'i could be very successful, but instead of low-cost labor, it's gonna be technology. You know, we have terrific sunshine, water, and soil.

Then, what are the low-cost laborers going to do?

People need to get educated. Education becomes a big deal. So, making education more available, more affordable, is really important.

He was named Hawai'i Business Magazine's 2016 CEO of the year for outstanding contributions to Hawai'i's economy. Mahalo to Patrick Sullivan, president and CEO of Oceanit in Downtown Honolulu, and a resident of Kailua, O'ahu, for sharing your story with us, and giving us a back-of-the-house tour of your offices. For PBS Hawai'i and Long Story Short, I'm Leslie Wilcox. Aloha nui.

How do you relax? Or can you relax?

Well, no, of course, it's really important, and there are so many things to do here. But obviously, one of the big one is surfing. So, surfing is a way to reconnect to the world. And it's a totally different environment. Everybody is the same; right? And we started this when the kids were small, but my mother-in-law would cook dinner, and everybody would show up, and we'd go surfing. And so, the Monday Night Surf Club, we'd call it. And so, we did that for years, and years. And it's a great way for everybody in the family to get together, but to go out and do something and have some fun. But yeah, the ocean is still a great teacher, and I get in the water, gosh, four or five times a week. Right? So, I still enjoy a lot of that.

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