Nick Santhanam: Welcome to the next podcast of *Renaissance Age for the US Industrial Tech Sector*. I'm your host, Nick Santhanam.

As I mentioned in the previous edition, the pandemic has changed the world around us. We have seen and experienced its challenges in both the professional and personal lives. But in the same period, we have also seen encouraging trends in the form of democratization of technology as well as the revitalization of manufacturing in the US. Through in depth discussions with leading executives at the forefront of this revitalization our aim is to understand the drivers behind this transition, as well as what will it take to sustain this transition for the US economy. Today, I am privileged to host one of my really good friends. A towering leader in the tech industry, Lip Bu Tan.

Lip Bu has been a pioneer in the field of semiconductors and venture capital, and genuinely needs no introduction, but I'll do my best. Lip Bu has served as the CEO of Cadence Design Systems since January of 2009 and has been a member of the Cadence board since February 2004. If I got it right, Cadence's stock has been up 50X under his clock. Lip Bu is also being the founder and chairman of Walden International, a leading venture capital firm managing $2.8 billion, and the founding managing partner of WRBI Capital, a venture capital firm focused on investing in poor technology companies.

If that is not enough, he is also the member of the business council and serves on the board of directors of SoftBank, Hewlett Packard, Schneider Electric, and Green Hills Software, as well as on the boards of the Electronic Systems Design Alliance and GSA. He also serves on the board of trustees at the School of Engineering Deans Council of Carnegie Mellon, and the University of California Berkeley's engineering advisory board.

Lip Bu has been named one of the top 10 venture capitalists in China by a 02 IPO and has been listed as one of the top 50 venture capitalist on the Forbes Midas list. Also, he was the recipient of the 2016 GSA Morris Chang exemplary leadership award. With that, welcome Lip Bu.

Lip Bu Tan: Thank you.

Nick Santhanam: So, Lip Bu. I'm going to start out by talking about your journey and learnings. You were born in Malaysia, graduated from Singapore, moved for higher studies to the US, started in VC and now the CEO of Cadence, and WC and on a bunch of boards. Tell us a little bit about your journey.

Lip Bu Tan: Well, the journey from Malaysia to Singapore to Boston and then to California, and this is my home. And so, couple of things: one is I able to do all these things because I have a twin brother. I'm just joking and, look the same as me.

I think that I still remember when I finished my graduate school at MIT the professor gave me a departing advice. Keep your eyes open. Take calculated risks. So, from nuclear engineer to start

up to become venture capitalist, and then become the CEO of Cadence by accident and promised for 3 months—turned out to be 12 years. And I'm still here and I'm still building the platform.

So, I think it is a fun journey. But every time I feel the calling and to be the VC and I feel the calling to be the CEO of Cadence, even though I've never been the CEO before. And sometimes it's a benefit to be not being a CEO before so you are more open minded and then you try different things and it's a fun journey.

Nick Santhanam: Lip Bu, you've been leading Cadence since 2009 and, as is mentioned, you're on multiple boards. How do you manage so many priorities? I mean, other than you having a twin, which could be true, I should explore that. How do you manage your priority? What drives you?

Lip Bu Tan: Yes, I have a very simple routine and, first of all, in the life journey you have to keep yourself healthy. So, I swim and gym every morning, no matter where I am, and do my meditations. And then the other part is, I focus on things that really matter and surround myself with strong leaders, strong partners I can lean on, and I doing what I enjoy doing best.

At Cadence, I really enjoy focus on big customers. So, I change the culture of the company and I'll focus on delighting the customer. And something about the key customer, I still have weekly, daily, monthly meetings, and so I want to be a long-term trusted partner of them.

And also mentoring my team and mentoring some of my company and that I really enjoy. And then, provide my guidance, provide my leadership, provide my advice and to help them to be successful. And it's kind of fun to see people that I associate with and they're successful, and that's a very good sense of satisfaction. And that motivates me.

Nick Santhanam: Very interesting, Lip Bu, very interesting. So, let's talk about the big thing of 2020—COVID. What the COVID impact has been and one of the opportunities for the tech industry. Your being a CEO in Cadence for 10 years, you have navigated through multiple economic crises, both at Cadence and Walden. How do you define COVID's impact on the tech industry and the VC landscape? And what green shoots do you see for the industry in the post-COVID world?

Lip Bu Tan: Yes, I think COVID has a huge impact to the world and political system and also economics. And there's some of this crisis can happen from time to time, but this one is a big one and is impacted globally. I think some of the sectors hurt quite badly, like, for example, travel, hotel, service industry, restaurant. But some of the industry benefit a lot. For example, people are working from home. So, e-Commerce, home delivery, cloud infrastructure—because we all use Zoom or use WebEx—and the scaling of the infrastructure is tremendous.

And even among this whole COVID situation, a five generation trend is happening, and it's very exciting to me. 5G, AI machine learning, digital transformation, the industry 4.0, and the hyper-scale cloud that we just talked about at the scaling. And then of course the autonomous driving hopefully one day will be happening, so that we all don't have to drive up and down the Silicon Valley. And so, I think they notice five trend is driving a lot of design activity and that's why Cadence is very well positioned for that.

And the other part is also a major change is, I call it, the data-centric era. It's all about data. So if you look at the data generated—90% in last 2 years, it's explosive. And 80% of data,

unstructured data. And only less than 2% of data being analyzed and utilized. And so this is a humongous opportunity about the data. How do you label it? How do you organize it? How do you do the data analytics? It's across all the industries, from banking to insurance and to technology, to aerospace and defense. So, I think it is going to be just the beginning. And the workload has changed. The normal GPO CPO have this place. But there's a lot of this new domain-specific processing. And how do you utilize the data? How do you store the data? And how do you analyze the data? That is humongous. And so, I think you know, this is exciting to me. So that impact of the COVID in a positive way. Some of the industry will accelerate and then using the AI machine learning.

And so, I think that also impact the venture capital investment. So, I think the beginning of COVID, like most of the VC guys, we focus on cash flow. Make sure the company has enough runway to survive and then if they don't have enough runway, then they had to borrow money, the government loan, to survive. And then secondly, after they survive, then how do you really focus on things that really matter? And what are the things that can really differentiate and provide a service for people working from home? And so, we talked about the data analytics, about the AI machine learning.

And from Cadence's point of view, we want to make sure that our employees are productive at home. And so right now, it's about 80% of our employees working from home, and we want to make sure that they are productive. And so, we provide stipends for them to by the high speed connectivity, the equipment that make them productive. And then also, I think, how to provide customer service better. So, I think thanks to my team, we're working really hard. We're able to continue the last two quarters bid and race. In the last quarter we grew 15% and one of my board member said, wow Lip Bu, it doesn't feel like COVID impact you at all. So, thank God the team that worked really hard continue to be able to deliver the resolve, the product, the innovation to satisfy our customers. So, I think all in all we survive. We continue to find ways to continue to drive solutions to our customers. And the good news is the major trend, that five generation trend, are helping us. And being a software company and working from home it's not affecting us as much.

Nick Santhanam: So Lip Bu, that brings a very interesting question. As you said, COVID has had a negative impact or adversarial impact in certain sectors, like hospitality and travel, while it really has been a very positive impact on the technology sector, right? And I'm using the word positive in the sense of if you see the acceleration of trends, the revenue growth, the margin expansion, and so on. What do you think? Could there be a negative impact of COVID on technology companies in the long run? Or for that matter, technology companies and VC-funded companies. And if so, what could it be?

Lip Bu Tan: Yes, a couple of things. And, first of all, for all of us is basically safety and health are most important to our employees, to our customer, our partners globally. So, we tried to do whatever we can to best protect the safety and health and that is number one priority for us. And then secondly, I think that challenge for in the long run, we don't know when we can be going back to the office. And the question mark is, how can you continue the innovations while you have that social distancing, without using Zoom and WebEx? And it's not as effective—we want to do our innovation in group innovation. So then, most of the CEOs of the technology companies, they all have that concern. And how do you address that in the longer term?

So, that's one thing that I pay attention to. And then, our executive team is brainstorming ideas of how to continue the innovation and group meetings outdoors with social distancing to continue

the innovation. Because we have like 8 to 10 new product organically developed every year. We don't want to slow down that innovation. Innovation is a key engine for success, so there's something that we pay attention to it.

The other part is, how can we continue supporting our customers with this social distancing, and it's not an easy one. And so initially, we're kind of happy to see that customers are more available for us in terms of Zoom or phone calls and easier to access them. But that's a different, especially the global, international customer. Sometimes face-to-face meetings mean a lot to them, and hand holding. And that's something that we try to help by a decentralized management team, so that we empower the local team to be closer to the customer. And so, the long-distance commuting may not be so easy and the quarantine in different places. And so, I think that's something that we kind of think through what's the best way to handle that.

And then, I think all in all, I think we all try to find different ways. And then one thing, I belonged to some of the CEO circle business councils, and were able to compare notes with some of the CEOs of fortune company to learn the best practice from different ways. How do we drive productivity? How do you drive innovation and the customer relationship building? So, those are the challenges we're facing.

Nick Santhanam: Related to that Lip Bu, what about VC-funded companies, especially in the technology sector? In the long run, do you see any negative effect?

Lip Bu Tan: Yes, so far, I continue the pace of investing and the Zoom call and it's good. And then some social distancing meetings, the backyard gardens of our house, it works out well. But it's not the same. And in the long run, attending board meetings and all these phone calls, social calls is not the same. And then the other part, I think longer term also has an impact is the mental health and not able to communicate to the human being. It's always good to be able to get together, and a phone call or Zoom call is not the same. And so, I think those potentially have some impact. And that's why, for my colleagues and also at Cadence, we try to make sure that we not only focus on the physical safety and health, and also try to encourage the mental health, and notice the spiritual health is very important. That 12 or 15 hours of Zoom call is not helpful for long term.

So, we try to have breaks or social, virtual wine and cheese time, and I think try to get together, so that we're just not talking about business alone. Back-to-back meetings and time for exercise, time for social events. And I think that will help in the long run.

Nick Santhanam: Lip Bu, sort of building on that topic—both because of geopolitical tension and now because of COVID—there is an expected impact on globalization. And I would sort of say, the ongoing pandemic has really created a body blow to globalization. What do you think is the effect both near term and long term on globalization, the global footprint, both in terms of operations and customers of companies? Will it be net positive, or will it be net negative?

Lip Bu Tan: Yes, it's a good question. And I'm a strong believer of globalization. That you can drive more efficient supply chain, as you know. And under the US and China tension and also the pandemic of COVID is clearly making it harder. And then in some way, it is creating a different supply chain. And would that be efficient? Answer is no, but it may be necessary to do that for the survival of the industry's health. And so, I think for all of us, it's a very complex and fraught situation. We're monitoring closely and then we try to do the best and then stay compliant to the US regulations. We need to anticipate maybe two different supply chains and

then be able to support those supply chains to be successful, from the EDA point of view or IP point of view. And in the long run, hopefully the pendulum will swing back to globalization.

Nick Santhanam: Got you, Lip Bu. So sort of moving from where we are to looking forward, what do you think are the barriers to revitalization? While there are indications of some recovery, we're dealing with headwinds like data privacy, talent shortage, changing immigration rules. The list goes on. What do you think are the biggest barriers to revitalization that the semiconductor sector faces today? And do you think this recovery will continue or do you think it will slow down?

Lip Bu Tan: Yes, as I mentioned earlier, this five generation wave and data analytics, it drives a lot of design activity. And we're clearly well-positioned to capture that opportunity. And that's why we're growing very nicely, even with this kind of challenging environment, because there's so much design activities happening. So, I think it's very good for the semiconductor industry, and I think you look at the foundry company like TSMC. You look at some of these big semiconductor companies. They're all doing extremely well. So, I think it's, I call it the resiliency of the silicon industry. So, I'm very excited about some of this new development, new material, AI machine learning, quantum computing, and then the scaling of infrastructure on the network and storage requirement. And so, I think all in all I think those are good driver for the industry.

In terms of some of the talent, it's clearly competitive and some of the universities are also facing a lot of challenges, how to bring the students back to campus. And a lot are doing it virtually. And we're delighted at Cadence, we still continue that internship program in summer. It's the best way for us to recruit the talent and so it's something that we're excited about. Some other companies decided to kill the summer internship, but we decided to do that because this is something that's very valuable and, in fact, they find it very useful. Even though using virtually and in terms of their research or the projects they work on, we share it with our executive team and we participate in that. They really have a good experience and we're very delighted to do that.

And then the other part is the user conference. Initially, I was worried about, like at Cadence, we have our CDN life. And guess what? By doing it virtually, actually, the impact is not bad and, in fact, we have more attendance. And the people don't have to travel to attend, so it turned out to be very successful on that. So, I think in terms of talent recruitment, we continue to do that.

And talking about talent recruitment, we also have a big culture effort in terms of diversity and also the recruitment and retention of the African black. And we take a big effort in terms of some of the universities that we used to be not focused on, and now we're reaching out to them for recruitment. We also try to do the right thing in terms of equal pay and then some of the initiatives. I did a full audit of our employees and I'm very happy that last year we have only a few we need to adjust, and this year even fewer to do the adjustment on equal pay the disparity. And again, this is the right thing to do in terms of cultural diversity. Get the best talent. And so, all in all, I think we do everything we can to do the best in these circumstances.

Nick Santhanam: That's wonderful, Lip Bu. Sort of now coming towards the final question. You're obviously a VC, which means you do a great job in looking into the crystal ball and predicting. So, I'm going to ask you this. If you look into your crystal ball, what would be the one to two predictions for the future that you would make with respect to the semiconductor industry? And related to that, what really excites you about the future and what worries you about the future?

Lip Bu Tan: Yes, I'm very excited about the future. And, in fact, I'm even more active in the investment, even in this COVID pandemic and social distancing. And so, as I mentioned earlier, it/s a humongous opportunity in the data analytics and it's all about data. And then the other part is all the key bottlenecks of the five generation of wave in our life. For example, RF antenna, on the 5G side, and then on the infrastructure in terms of scalable switches. And then the storage, low-latency storage, and then from the cloud to the edge, and then just a whole data flow—the machine learning, deep learning is just the beginning across all the vertical.

One thing I'm particularly excited about is the AI machine learning to the drug discovery. And right now with COVID, there's a lot of attention paid about innovation so that we can prevent the next pandemic. And so, I invest in Berkeley Lights, basically to drive this whole COVID vaccine antibody, and they just went public and it's just the beginning of it. And I invest in the Incentro for the AI machine learning, applying it to the drug discovery and development.

So, I think this is just the beginning. Same thing with healthcare, and I just invest in Lux Health, basically able to provide the AI machine learning because we don't have so many nurses to cover the whole population, especially for some of these chronic diseases. And you can do real-time monitoring and prevention, and we're providing the scalable access and providing the healthcare to the population, and that is tremendous. And so, I think it's just exciting. I wish I had 48 hours a day.

Nick Santhanam: We'll figure a way to make that happen, Lip Bu. With that, thank you so much for your time. We really appreciate your thoughts and candor. To all the listeners, stay tuned for our next episode.