Podcast Transcript - Disruptive Trends Shaping the Next Decade & Beyond

[00:00:07] **Peter:** Hello everyone and welcome to this special 50th edition of The Counterpoint Podcast. I'm your host, Peter Richardson. If you're new to this podcast, it's a great way to learn about some of the latest trends in the technology sector, especially around connected devices, so please do check out our previous editions and subscribe so that you don't miss out on any of the upcoming podcasts.

Today I'm delighted to be joined by two colleagues, partners and friends, Tom Kang and Neil Shah. So, Tom is in Seoul. I think he's actually on his commute home and he's pulled over to join the podcast. How you doing today, Tom?

[00:00:48] **Tom:** Doing great yeah and yeah, thank you for reminding me that I am in my car.

[00:00:55] **Peter:** And we're also joined by Neil. Neil is in Mumbai. How you doing Neil?

[00:01:00] **Neil:** I'm doing perfectly fine in sultry Mumbai and looking forward to Snapdragon tech event in Hawaii.

[00:00:55] **Peter:** Oh yeah, so guys it's been around, let me think, about nine years since we started Counterpoint Research. You know, we started it with the express aim of delivering deep fact-based insights on well. Initially, the smartphone industry, and then we've progressed to a broader array of tech sectors that we're busy kind of working on.

Now a lot has changed in the last nine years, and especially in the last two years, with the COVID situation, which has driven some new use cases, but also interrupted supply chains. So, in this podcast just what we're planning on doing is discussing some of the changes that we've seen, but also taking a stab at predicting what we might see unfold over the next five years. Maybe up to 2025 or even beyond.

So yeah, let's get into this. So, starting with you, Tom. There have been some significant changes in the smartphone sector. We've seen the rise and fall of big players like Huawei and then LG exiting the smartphone space with some newer brands coming in.

So, what are your thoughts on how you've seen the changing dynamics over the last few years?

[00:02:15] **Tom:** Yeah, so the smartphone industry had started to mature and we thought it would plateau and get boring. But again, there's never a boring day in the smartphone industry. As things got mature and technology changes slowed down, now the political changes kicked in. So, Huawei's fall was triggered by a tech Cold War between the US and China and that changed a lot of things. So, Huawei is out. And then we thought Samsung would take over, but instead of Samsung dominating, we're seeing that the three Chinese brands the other Chinese brands are growing rapidly. So, Xiaomi, OPPO, vivo have taken this as an opportunity and so that's causing another big change. So now instead of one giant

Chinese brand growing to become number one, we now see three brands sprinting towards the number one or number two position. What about you, Neil?

[00:03:14] **Neil:** Yeah, I completely agree the market is maturing and actually, you know if it's looking more becoming a like PC market where it's dominated by like four or five players contributing to 80 to 90% share. And I think as we go further with into the fifth-generation era, we'll see more consolidation, right?

Like when 3G started, there were more than thousand brands operating, and now the number of brands exiting the market is increasing even in tier one we are seeing as Peter said, LG and walk the most exiting. So, I see there are two trends happening here, one is the bulk of the players. The top five, six players will become more and more vertically integrated, have designing from chip to software stack and even application store.

And second is these brands are becoming bigger and bigger in scale. Or if we look at OPPO in terms of house of brands or even Transsion Group, having more and more sub brands but with a very common back end scale in terms of supply chain, manufacturing, R&D and so forth and just segmenting the market with different Sub brands like we have seen in automotive industry so it's looking more like automotive and PC industry, a mixture of those.

[00:00:55] **Peter:** And you know, looking at some of the other devices, Neil so you know, we've seen with initially with Huawei, but other brands are also doing this. They have this sort of, you know 1 + 8 + N strategy where the one is the is the smartphone because that's a central pivotal device. But then you have this. Constellation of other devices around that. So how do you see that trend, you know, coming into play?

[00:04:43] **Neil:** Yeah, as Tom said, the market is maturing and what we need to do with smartphone. We are already doing in terms of application store and little bit consuming services. But what is happening is most of these brands as they see the smartphone market is plateauing, as Tom said, they are trying to add more and more devices trying to cross sell, more devices, more software, more service and as a result, the smartphone becomes the center.

As you said 1 + N strategies and the N is the number of devices around it and that is where we are seeing the number of devices per user into that ecosystem for a particular brand is increasing and that is where Apple and Xiaomi are doing really well. And we'll see Samsung, OPPO and others following them.

[00:05:25] **Peter:** Yeah, I mean the companies that are doing well in services you know that that they're relatively few. I mean we, we see Apple, you know, being strong there, you know Xiaomi having a go, but it's not easy for many of the other companies there's. Tom what do you think about the services play, you know, by traditional hardware companies?

[00:05:45] **Tom:** Well, that's been a aspiration from all hardware brands from the beginning. Nokia had that aspiration and tried really hard. Samsung also had a moment there. It's ultimately Apple who's kind of paved the way and showed how it can be done. But ultimately, if you don't control your operating system, it's very limited, so the likes of all the other Android players like Xiaomi, Huawei, OPPO. They will attempt it and they will have

partial success, but they won't have the ultimate success as Apple has enjoyed they will have to look into other areas than smartphones where they can create their own OS or some variation of it and control it so it's ultimately who owns the garden. That's my view.

[00:06:38] **Neil:** Just to add Peter to that, I think that's a great view of building walled gardens, and that is where the vertical integration comes in. As Tom said, and that is where I would say the Dark Horse could be Google. Now building its own chip and has own platform if it decides to be more like Apple and it has money, muscle marketing power to expand to multiple countries, then we could see. Maybe in five years there could be like top two brands would be just Google and Apple, right?

So, they have services. They have software, they have now chipsets. They acquired HTC's assets, Motorola assets. So, there is a thought over there.

[00:07:16] **Peter:** Alright, and Neil you've been tracking? You know, the IoT space quite a bit. You know, we've seen the rise of wearable devices. You know, initially with why not initially, but you know the Apple Watch probably being the most successful. You know, many of the brands are trying to really trying to sort of work the wearable sector, but it's not really getting as much traction as perhaps the smartphone market has? How do you think this is going to shape out?

[00:07:38] **Neil:** That's an interesting question, so if you look at wearable right, so it's more about smart body. And when you talk about smart body, there are two ways you can monetize.

It is either it's in terms of health, fitness, body monitoring or it could be some form of content consumption or mostly not content creation. So if it's eyewear then it's more of content consumption and unless you have a AR glass it content creation to some extent or interaction.

But, in terms of smart watches and hearables, which are also going to get more of health and AI type fitness features. In coming years I would say those who have a strong IP in health will dominate the wearable space at one point and second is in terms of XR, which I would also ask you to share some comments about on. Since you have been tracking that space. Very closely so in terms of a variable category which is on the eyewear. What are your thoughts?

[00:08:34] **Peter:** Yeah, so you know we we've been looking at the extended reality if I can call it that sort of combination of virtual reality and augmented reality, you know the interesting thing and this is one of my kind of overarching theses that I'll roll out whenever I get a chance, which is that you know if you look at the way that technology has developed over the last 2000 years initially. It was, military that drove the development of new technology, you know, weapons essentially you know, more recently in the you know, let's say in the last 50 years it became, you know, enterprise needs that drove the development of technology to think about sort of mainframe computing, and you know into the personal computing era. And that brought in the consumer. But in the last 20 years it's really been

the consumer that's driven the development of Technology, so we think about smartphone that's very much being driven by the consumer.

When we look at augmented reality, what we're seeing is that it's actually swinging back more towards military and enterprise that's really kind of driving the development there. A virtual reality is a bit different. You know it's been this sort of Cinderella technology that's been around as a concept for a long time and there have been attempts to make it work, but we're only just now beginning to sort of get devices that are cheap enough and good enough to really begin to attract the consumers attention. But at the moment, virtual reality is a sort of a subset of gaming, you know, so it's kind of an interesting niche, but it hasn't really broken out, and there's obviously there's a lot of talk around you know Facebook changing its name to meta because it sees the metaverse as the next big thing.

But even Zuckerberg you know says that it's going to take a long time. And I think that's the reality of the metaverse Right now. There's a lot of interest in a lot of hype but you can't go out and buy the metaverse right now, so I think the metaverse is It's a bit like.

The Internet was in the early 1990s. You know, we didn't really know what it would become. We had no concept of applications, or you know what we've seen developed so far. So, I think you know the Metaverse is still a ways off, but we will see a lot of efforts and investment. Going into it, augmented reality. So overlaying digital artifacts on the real world is extraordinarily difficult to do, mainly from an optics point of view, you know, so I think that's going to take a little bit longer. But as I say, I think it will be initially enterprise applications or even military applications that can drive the development there.

So, we've kicked this one around a little bit talking about, you know what we've seen develop just in the second part of the podcast, what we'll do is try and carry on, but take a much more kind of future oriented view. So, we've mentioned a few trends so far, but what I'm going to ask each of you to do is sort of introduce some thoughts about how you see trend shaping up in the next as I say 5 to 10 years or. So, Tom coming back to you, what would you like to introduce as your first trend?

[00:11:37] **Tom:** So, I think we should look forward to 6G, so I have a theory that the odd numbers are a bit slow to take off, but the even numbers are a bit more innovative. So 1G and 3G was a bit slow and didn't really proliferate that fast, but 2G and 4G ramped up very fast so 5G I think it's a bit slow, but 6G things can change a lot. Of course, we'll have to see and during 6G of my thoughts is that smart glasses will be a must have item for everyone.

So Foldables will be everywhere, so all phones will be foldables, either one way or the other, or rollables and you will have a SmartGlass companion with you. So, AR or even VR can be used with those smart glasses. So, It will be a combination everyone in the future will be wearing glasses during the 6G era. That's one of my predictions, if I can share.

[00:12:48] **Peter:** Yeah, that's really interesting, So Uhm, yeah, we're just at the beginning of the of the 5G rollout in many markets in. In fact, in some markets where Neil is, for example, they haven't even auction the spectrum yet, but I do take your point that you know when you look at the way in which 6G being talked about a lot of the same language is being used

that was used for 5G. You know six or seven years ago. So, do you think that maybe I can address this to you Neil? I mean, do you think that 5G is sort of failing to live up to its original? I don't know if it's a hype, whether it's you know what the real intentions were for 5G. So, we're gonna have to wait for 6G to begin to live that hype.

[00:13:36] **Neil:** Yeah, no I know interesting thought by Tom and I think that's a good follow-up question. So, what I would say is 5G still in nascent stages and 5G is going to go through at least three iterations from at least 15, 16, 17. And what is happening is 5G is more of a what you say architecture and spectrum game is the first time. We are introducing higher level RF technologies and also spectrum right with mmWave.

So, until mmWave is ubiquitous across, you won't go get that low latency or a higher bandwidth, and the massive capacity which everyone was talking about, right? So, the current flavor of 5G, which is 5G NSA is still about slight upgrade from 4G to 5G and having it co-working with 4G. But the real deal would be when millimeter wave is ubiquitous. There are techniques like network slicing, multiuser, massive MIMO, deployed at scale. That is where we'll see the real benefit of 5G, and especially I would say consumers will not feel that much because they'll maybe go from 100Mbps to 300Mbps, maybe 1 GB in some areas in some scenarios, but mostly it will be for opportunities for private networks and enterprises where even for those who have never been connected with 5G of FWA.

I think 5G will be more about that, but 6G will be as Tom said it could be more about more future looking technology which we are promising in 5G which won't happen until higher order spectrum kicks in and 6G we are talking about terahertz spectrum, right? So that is where we'll see more holographic and telly-commuting type application and where AR glasses would be the medium to do that.

[00:15:16] **Peter:** Yeah, So what? What do you think Tom would be the driver of this from a consumer point of view or from a from an industry point of view? And do you think the pandemic with the you know work and learn from home impetus has that you know, given a kick to pushing along this path?

[00:15:33] **Tom:** So, in the past, if we look at how communications technologies have evolved, there's a vision, and then there's a technology to realize that vision. But sometimes it's not enough. There were other situations that need to be considered. So for example 3G was going to be about data. But the cost of data was so expensive and it wasn't a metered properly. And then there are not many applications that could use that data, but 4G was launched in a much more mature environment where you had the iPhone ready, app Store ready and safari browsers. So that gave a better platform for data consumption to take off

And 5G think it's the same thing there. Were many bold. Attempts, and there's a grand vision, but in realizing that vision, it really takes much more. It's not just about the communications technology. It's not just about more bandwidth, the displays aren't ready, the processors aren't ready, the batteries aren't ready, so there are many other things that we need to consider to realize that vision and so the whole industry. Is playing catch up for that vision. And so, I think 6G will be the lucky one where most of that technology is now aligned and people are more accustomed to and ready to consume that grand vision.

[00:17:08] **Peter:** OK, so when do you see this, you know if you can, you give me a year. When do you see this starting appear and gain some traction?

[00:17:17] **Tom:** So, the next five years will be mostly rollout of 5G and maturing 5G so it will take five years for the operators to really gain profit from the 5G investment that they've made.

So, after that, we'll see glimpses of this happening, so it's already we see much more smartwatch is being used. We see Foldables coming out. The display sizes are growing, so we see a need from consumers to have more display size and they're used to faster speeds now, so the industry is slowly ramping up towards that that future, but it's something we're talking about five years from now to see happen.

[00:18:03] **Peter:** Alright, so somewhat kind of late in the decade where we begin to see the yeah emerging from the from the industry and then sort of developing from there.

[00:18:13] **Tom:** Correct, that's what I see.

[00:18:17] **Peter:** Thanks Tom. So, OK. We've got 6G somewhat far out, so Neil coming to you, what's your first predict?

[00:18:22] **Neil:** So, my hypothesis is that as we move from 5G to 6G, the entire network becomes more software driven, cloud driven. I would say the current form of operators, what we Telcos will be completely looking different in a decade. So end of decade you would see some. Completely new form of Telcos right?

It could be hyperscalers. It could be Facebook. It could be Microsoft, it could be even apple becoming more vertically integrated and since everything beyond the tower is cloud, so and all these players have huge investments in cloud and data centers so and they are already making steps to acquire those and if you look at Google Facebook, they have huge telco related arm which they have been developing not only from software side, but chipsets side as well.

So my hypothesis is we might see complete different form of players in a decade who will be controlling our pipes and also that will shape lot of different business models, devices, form factors and services and software.

[00:19:30] **Peter:** Well, that's a pretty bold prediction, so I'm sure that you know there. There are some big companies out there that you know that call themselves mobile network operators. Will they not fight tooth and nail against this?

[00:19:45] **Neil:** No, they will coexist. I'm saying, but these players will have bigger scale they have bigger valuation. They're bigger market caps, they have lot of investment so they can. Whereas if you look at most of these operators except for a few are very regional, right? For example, AT&T, Verizon. They're just in US. Vodafone is one which is global little bit of Telefonica. Some European operators but Docomo. And if you say very regional. So obviously there will be some geopolitics involved at that point.

Which will, I would say, putting brakes to the rise of these different new players. But still, I would say they will have much more skin in the game to completely overhaul in next 6 to 7 years post end of this decade.

[00:20:31] **Peter:** OK, I like this. It's a it's a good one. Maybe I can introduce one of my own so. You know we talked a little bit earlier and you mentioned wearables.

For, you know, health and wellbeing Neil. I have a view that wearables will be increasingly used for health care and the thought process here is that. There are many. You know. We've obviously come through the pandemic, which has, you know, has some very specific symptoms that can be identified using wearable devices.

But most of the diseases that kill people are chronic diseases like heart disease, type two diabetes, hypertension. And and the healthcare industry, if I can call it that industry in some places other places it's publicly funded is actually pretty poor at looking after people with chronic diseases.

They're very good at looking after acute diseases, of which Covid is 1 but very poor at looking after chronic diseases and what you find when you start to kind of dig into this, is that chronic diseases are diseases that are essentially a choice people can manage the symptoms by changing their lifestyles and how do they change their lifestyles?

Well, they need some impetus to do that. Usually, it occurs when they have some frightening diagnosis, but you know they can get ahead of the game and I think that wearables can become a driver for this.

And, uh, support for this. So, I expect to see that. You know wearable devices will increasingly take on this role of, you know, essentially kind of helping people to manage their lifestyles, and a much more healthy way. Yeah, we're already seeing, you know, quite a few devices that are able to do this in to a greater or lesser extent.

You know, we've seen with you know with Apple Watch, it was able to identify atrial fibrillation, which is a specific kind of heart murmur.

If I can put it like that. But what I think we'll see is is more types of devices that are able to support people to make good lifestyle choices.

[00:22:40] **Neil:** I think that's a great one, and Peter I agree with that. And if you look at your point on XR and we talked about health is going to be very important since it's about smart body. So, as you said, like players like Mojo Lens for example right there, having smart lens AR lens which goes into your eye and can monitor glucose body glucose. And even Google was working on the same right.

And then you have players like Amazon which are building entire verticals in pharmaceuticals. Selling and obviously they would like to have. Most of them is on prime users wearing their bands so they can even eventually sell insurance as well as Warren Buffet said Insurance the best business and also link it to their pharmaceutical sales through their platform.

[00:23:26] **Peter:** Yeah, and I think you know the healthcare industry in markets like the USA. Is and I'm using it in the broader sense so you know insurance pharmaceuticals you know they're very, very tightly interconnected, and you know and, and they've developed this in this way to sort of perpetuate the current status queue.

But that makes them very ripe for disruption. You know if a player can come in with scale, so with investment capability as well as the technology to help people to help themselves.

I think this is a market which is potentially disreputable. So, we're getting a bit long on time now, so Tom, maybe another quick one from you.

[00:24:06] **Tom:** Uh, so. Since I've given a prediction that goes beyond five years and maybe up to 10 years from now, let me do a prediction that's a bit more near term, so I think the Tech Cold War will become more intense and it will affect the technology industry next year and a couple of years after that, I think that's another factor that we need to think about and it will slow down some areas, but it will also accelerate some areas. So, I think Google's entrance into hardware or Google's participation in hardware will grow, and I think this is also related to geopolitical situations where Google is going to be considered as a US company whether they like it or not and they will have to pick sides.

So, I think technology companies depending on their nationality will have to make decisions influenced by political powers, so the development of hardware will be affected. And the ecosystems will kind of change towards this new tech Cold War. And like Neil has said before, the vertical integration will accelerate further.

[00:25:30] **Peter:** Yeah, I think that's a it's a really good one Tom and you know, it's certainly something that we've seen, and in fact, just in the last few days you know, we've seen the US adding new companies to its entity list and those companies were involved in quantum computing, which actually was going to be one of my trends I wanted to talk about was the rise of quantum computing.

You know, we're still very, very much at the kind of the early stages and US tech companies are pursuing one approach to quantum computing, Chinese companies are using a different approach, much more around optical computing. But the adding of you know, I think it's 20 plus companies to the to the entity list is likely to try and slow down.

You know China development of quantum computing and so quantum computing can crack complex cryptography. You know very rapidly, so you know there is. There is reasons for governments to want to manage the development of their rivals on a on a geopolitical stage. So yeah, very, very interesting one. Neil, do you have a quick one to add?

[00:26:36] **Neil:** Yeah, I would say for the near term the battle is all about share of wallet and share of digital lives so that would continue and most of these players maybe it is like operators or OEM's or software players. Everyone is looking to get more and more data of the users and that is where we are seeing this 1 + N strategies and software and services and connecting all the dots and trying to sell more and more to the consumer and take that share of wallet and lock them in the ecosystem.

So, I think that will continue fiercely and you'll see most of these players building vertically integrated expertise, but also at the same time a lot of horizontal services and software to enable that.

[00:27:17] **Peter:** OK, good and I I will add one. One final one if I may. And this is one which I know you it's close to your heart Neil and that's in the field of agriculture you know, precision agriculture. You know one of the things that we've seen around. You, know environmental movements, and at COP 26 recently that agriculture is a massive contributor to greenhouse gas release and warming, but also from a from a business point of view, the broadcasting of fertilizers and pesticides is very expensive, so you know we're already seeing the emergence of robots that can take on the task of managing fields of crops on almost on an individual plant-plant basis.

And I think we'll see more of that over the next five years, and this is, I think one of you know a very exciting area of development and it combines a lot of the things that we've been looking at in terms of artificial intelligence, machine learning, you know, big data analysis, which is obviously a part of that. But also robotics using things like machine vision and then taking action based on that so you know the automation of a lot of tasks that have been undertaken on a. You know, big scale is something which I think we will see, you know start small, but it's going to. It's going to get big quickly because there's a lot. Of you know there's big trends, big drivers?

They're going to make this happen. So, precision agriculture is my is my last one.

[00:28:48] **Neil:** Great Peter agriculture is ripe for disruption and pun intended.

[00:28:49] **Peter:** All right, we're a bit over time, so we're going to have to wrap it up here. So Neil Tom, any last words from you guys?

[00:29:05] **Tom:**

Well, I think this was very interesting and it's always, you know, fun to talk about the future. But let's see how much. How many of these predictions really come true. So, I look forward to seeing things unravel next year.

[00:29:22] **Neil:** Yep, we will have to wait for our 500th episode to get to that.

[00:28:49] **Peter:** Very good, so thanks Tom, Neil. It's been fun. Yeah, I've been Peter Richardson. Please do as I said at the top of the show. Please do check previous additions and subscribe to make sure you don't miss any future editions of The Counterpoint Podcast, so thanks for joining us today. Have a great day.

[00:29:50] **Tom:** Thank you, Peter.

[00:29:51] **Neil:** Thank you, Peter.

[00:29:53] **Peter:** Alright guys, bye now.