Capgemini invent

# FUTURE SIGHT PODCAST

Ep.23: The Architecture of the Metaverse

# Future Sight Podcast by Capgemini Invent

As business and technology move forward at a rapid rate, it has become increasingly important to explore new ways to adapt and grow for the future. This podcast is your guide to that future journey.

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# Episode Transcript

**Ollie Judge:** This is Future Sight, a show from Capgemini Invent. I'm Ollie Judge. On this show, we explore new ways for you to adapt and grow for the future in business. This week, we're talking about the metaverse or rather metaverses.

The term has been at the tip of everyone's tongues. As we look forward to a whole new paradigm of how the physical world interacts with the digital world, the word metaverse means many different things to many different people. On this episode, we'll be looking into how ownership works, how we navigate the galaxy of metaverses and how you can start to strategize about how to build within one.

**Kary Bheemaiah:** Yeah. I think for me, the metaverse is definitely an umbrella term. And it's an umbrella term which is bringing together a lot of different amalgamations.

My name is Kary Bheemaiah, and I am CTIO of Capgemini Invent. And these amalgamations on one side are technological. So, in that context, I look at the metaverse as being this perfect playground, almost, where a lot of advances in hardware – whether it's in terms of TinyML and really, advanced sensor technology on device intelligence of VR and VR headsets, or even the consoles. They are now kind of like pushing the frontier in terms of what exactly can be captured from an external environment.

And once you've got this external environment information that comes in, how do you actually create almost a one-to-one or even in some cases go beyond the one-to-one representation in a virtual context, which means that has impacts on technologies related to computation, networking, a lot of the platforms that you require for, all those places to come and meet somewhere.

And once they've met together, then you have to start thinking in terms of interoperability, because you're not just thinking in terms of "a metaverse". Metaverse is an umbrella term, but they can be multiple different types of metaverses. Which means that you need to also think in terms of interoperability, in terms of tools, in terms of standards.

And then once you've got all these technical components working in some kind of synchronicity, how do you actually valorize it? How do you in involve incentive structures that allow creators and participants to make content, to have value added services and even assets. All of which can be exchanged in some kind of economic benefit.

So, for me, that's what kind of the metaverse actually looks at in terms of just a technological and a business kind of a perspective. But you can also extend the definition of a metaverse to a more social paradigm. In widgets, it's no longer just the fact of… Before we had the internet and after the internet, we had mobile.

And what the mobile actually did was bring the internet to our hands. You could say that the metaverse is extending this. But it's extending it in such a way that first of all, everything is synchronous. Everything is live all the time. Anyone who wants to participate in the metaverse has got this sense of presence, in which they can participate in a specific event or an activity.

And what that allows you to do is really turbocharge individual agency, create tribes, and clicks and all these different kinds of economies you could almost say to a certain extent. But it's an experience that pushes the boundaries of what is physical and digital, of what is public and what is private, and what is open and what is closed.

And I think that's something that's really interesting because every time you've got a lot of this meshing, which happens through interoperability, it leads to the creation of a lot of kind of unforeseen innovations. And I'm still quite happy about the fact that it's happening in the video game space.

Because if you look at a lot of the technological evolutions in digital today, they come from that area: payments structures and just being able to do a lot of the graphic design stuff that comes from that sector you could say. And so, the fact that it's creating this new kind of paradigm is not something that's really very surprising to me.

I think it's always the place where technology and creativity meet, probably leads to this explosion of ideas. And the way that it's being manifested today is in this umbrella term. Facebook can go ahead and create their metaverse, to each his own; if they want to rebrand that's up to them. But I don't think that they're going to be the "be all and end all".

And that's why I think the application of decentralized technologies like Blockchain is going to be super important moving forward, because it allows us to have diversity in the definition of metaverses.

**Ollie Judge:** Sure. So, I'm going to come back to something that you were talking about earlier in the tribes and the economies that are beginning to get pulled out of all of this.

So, I'm going to divide the metaverse off into three different things: property, so ownership of things and the creation of assets, whether it's something creative or a business unit or a currency transit. So how do we move those things around? And why do we need to move those things around? And how efficient that process is? An extension, so, talking about compute and what we can do with the property and how we move it around and what we can add to the properties to make them more valuable or more useful in different contexts?

So, starting off with a property, any new world or in this context, a universe, or a metaverse, people need to own things. They need to own the land to build things on or build their towns from. But keeping track of that kind of property is really tricky. How do you, in a digital world where you can't point it to brick that you put on the floor and go that's mine? What do you do? And I think the most obvious example of this is Blockchain tech.

So, I think our listeners have a pretty good rudimentary knowledge of what Blockchain is, as a mark in the sand, a digital record that is decentralized. But in this context where you're going to have multiple services coming in and using this data, why is it better to put things on a blockchain rather than say Facebook running their own centralized version that they potentially have more control of?

**Kary Bheemaiah:** You can use a centralized architecture, where it makes sense. So, if you've got an inherently de-centralized architecture like Facebook, for example. If you've got people from all around the world coming, connecting to your place, maybe you want to have something which is a bit more de-centralized because it resembles the complexity of the environment you're dealing with.

With a centralized kind of ledger only makes sense if you have trust on every participant that's coming inside over there. And you can't say that when you're working with something, which is like Facebook, which is totally decentralized.

The main attribute that makes Blockchain so popular today and the reason that it was actually created was the ability to outsource the trust to the code. It's the reason that, people go into it and yes, you still have KYC and ALM kind of procedures if you want to join certain kinds of wallets and platforms. Because they're now regulated. But at the same time, the fact that you've got something which is decentralized helps you sidestep that, and you can trust the person or at least trust the code to do its job.

So, I just feel that kind of situation is a lot more tangible and sensible if you're trying to go and create a decentralized marketplace, which is what they're trying to do. You're not just creating the metaverses so people can come over there and put their NFTs. But there needs to be some kind of value exchange going on.

So, this is how you do it. You outsource the problem to someone else let's say, and in this case, it's the code. I think this is something which is, again, it needs to be looked at in either a social context and also a business context.

So, on one side, if you look at the business context, the tokenization of assets is already happening. For example, if people are used to using FTX, which is a trading platform for selling a lot of your crypto assets. Today, you can go over there, and you can find tokenized stock, tokenized stock of Tesla, of Google, of Home Depot.
There's a whole bunch of them out there. So, the fact that you can already tokenize an existing electronic asset is something that's happening. But more importantly, the ability to have a space where you're able to tokenize a certain kind of an asset is also the learning curve that you need in order to make it more and more tangible into the real world.

So, the same thing that's happening in terms of tokenizing stock is now going on for tokenizing bonds. And what people are also doing is trying to tokenize real estate. Why would you tokenize real estate? Well, because it turns out that every time you need to sell, let's say a piece of property. The reason that you pay a notary to come and do the evaluation, you pay them quite a hefty sum is because they need to look at "okay, what's the actual foot traffic around this piece of property? What's the noise level? How is the situation of the building? Is it in good shape?" Et cetera, et cetera.

These kinds of things are repetitive functions, which can be encoded. You can use IoT to get the right information. And essentially if you tokenize a physical building and see how its performance is evolving in five years, at the end of the five-year period, you can use the necessary data to come up with the perceived value on the market. Why is that good?

Because you don't have to pay a notary to come and do this. I'm sure they'll still be a function for them. There's a lot of non-data related things, which notary has a role in. But this is something which I think is interesting because what started off as just being able to create a virtual property and house virtual assets on it, is now moving into the physical world.

And this doesn't happen in a very seamless way. It happens in spurts and in specific areas. But what the metaverse is helping us do is get an understanding of how you can make something very illiquid and transferable. And the Blockchain is perfectly suited to do that.

Last point I'd say is: value is connected to velocity. And what I mean by that is, let's say that you've got a certain amount of capital that you want to use in order to invest or do something. The speed at which you can move the money around and the way that you can make something, which is illiquid liquid, has a big effect on the efficiency of an economy.

And today, for example, that's where we have a lot of bottlenecks. You want to do a transfer? You've got to wait for T plus two. You want to be able to make an illiquid asset or liquid asset: it takes a lot of time. But when you look at the metaverse, what it's allowing you is to see a new template in which if you've got an asset, which belongs to a certain person, it could be a skin, or it could be an NFT, the speed at which I can transfer that ownership to someone else, via a smart contract and putting it into light kind of collateral payments, et cetera. That offers a kind of efficiency, which the consumer gets addicted to.

Think about it. Now, when, if you order an Uber, you get irritated if the Uber is two minutes late. Whereas 10 years back before Uber was being used by everyone, you just accept the fact that, “okay, I need to go and find a cab and call up a cab and do this and do that”. And it was normal to wait for 30 minutes. Today, you get irritated if it's two minutes late.

So, we have this tendency as a species at the moment we get exposed to a new efficiency, we don't want to go back to how things were. And I think with NFT is what it's doing is it's creating that cultural change, which leads to a consumer mindset, which then needs to be translated into a business demand.

And then you find the companies which start providing it first, they get the first mover advantage. So that's the way that I see this interplay between virtual properties, the velocity of efficiency and how that translates into an actual, tangible business outcome down the line.

**Ollie Judge:** So, if we look at NFTs, there are a lot of what we see are JPEGs, PNGs, or little bits of art. Whereas, what you're saying is that the more interesting thing is going to come down the line where an NFT, a non-fungible token doesn't have to be a piece of art. It could be anything that you encapsulate as an object essentially.
And for our listeners who maybe seeing of NFTs a weird, reverse gold rush that people were creating the gold to sell rather than finding it unlike the initial sort of crypto gold rush. But so, when people were looking at NFTs and everything that's going on now, I think it's rather tempting for anyone to spin up an NFT of their own and try and sell it.

But how should companies that could potentially add more to this, like you were talking about land registries or potentially we can think about real contracts encapsulated within smart contracts or stock or that kind of stuff. How do people get started in this space? What do they, how do they need to think?

**Kary Bheemaiah:** In terms of making an NFT or investing in it? Because those are two different things.

**Ollie Judge:** I think let's start with making an NFT. So, should people be creating NFTs right now, or should we be waiting for the technology to mature a little bit so that people can add more? Or is it in the right space to start to build your own business units within NFTs that you could create networks on top of?

**Kary Bheemaiah:** Yeah. So, in terms of making your own NFTs, I don't think you can sit back on the sidelines and wait for the technology to reach a certain kind of a level. Because you can do that if you are a little bit risk averse and you're just a bit skeptical about this, I am not really sure how this was going to work out. But the problem that you have when you do that is there's other people out there who don't share the same sense of urgency as you do. And they jump into it with both feet sometimes, and they start creating tremendous amounts of value, even when the tech is a big clunky, and it's not all the way out there.

And I'll give you a good example of this, right? So, one of the most interesting spaces, which merges the metaverse along with Blockchain is this new video game that's out there. That's called Star Atlas. And in Star Atlas each and every component, whether it's the spaceship, or if it's a character's outfit or the skins on the weapons, everything is an NFT.

So, if you're a creator or you're an artist, you can go and participate over there in which you create an NFT, which is specific to that game. So, you see the game and the worlds that they have created. And it's a very intricate game. It's not just something that's very basic.

It's multiple levels, multiple evolutions. So, there's a lot of room for you as a creative person to jump inside over there and create these artworks, which can be used or be bought. Now, you come in as a participant and you can actually acquire these, but they're NFTs. So, you have ownership.

And as the game kind of gains more and more popularity, evidently you know, if you've got a really cool skin or a very powerful spaceship, then there's other people who want to bid on it and they want to buy it. So as these people go ahead and buy this, you create a marketplace where you can exchange these things, there'll be special edition things that come out. And it's a whole kind of video game world, except that right now, every component in it is now an economic inch. And I think this is something that's really interesting because they built this on the Solana blockchain.

So, the project is maybe around a year and a half old. It was released I think around August or September of this year. So, it's pretty new. It's gathering a lot of interest. You can just go on Twitter and you can see, everyone kind of commenting on it. It's really becoming popular. But at the same time Solana, which was the blockchain that they used because they needed a high velocity blockchain, they needed something that could deal with a lot of throughput.

They selected the Solana blockchain to use. So, Solana on the other hand got attacked. It had a DDOS attack pretty recently, I think, a month and a half back or something like that. And even though it is a third generation blockchain and sidesteps a lot of the issues that you probably got today with blockchains like Ethereum, you're seeing the actual buildup of sophisticated businesses.

Everything in Star Atlas has been produced using the Unreal Engine 5. So, it's a sophisticated game by itself on a technology, which yes, by the way, it's going to have a couple of issues.

Now if you a video game publisher, like Epic games, or Blizzard, maybe you're saying to yourself "yes I want to go down the Blockchain route and kind of merge my game and this metaverse thing with the blockchain". But does that mean you're going to wait till Solana proves its point and then you've had most of these kinds of stress tests that happen? It's a company level decision.

Or do you want is to get some of the first mover advantage, build up on the existing audience you've got, if you're Fortnite or something like that, and say that "no I'm going to try this out". Maybe in a Testnet, maybe on a smaller scale, maybe I won't expose the whole user base to it, it's really a decision up to you, but the fact that this is going to happen one way or the other is going on right now.

So, there's no kind of cut and dry answer that you can give to this. It's whether you want to do it, you can do it. People are going to do it with what they have and yes, it'll lead to certain level of sophistication and security as the time goes on.

**Ollie Judge:** I want to go back to talking about game engines and the video game layer that is on top of it.
And talk about the people that are building the tools that help you traverse a metaverse. Metaverses obviously go a lot beyond just the flat screen. You can move within them. You can display things within them. Star Atlas, we're talking about spaceships and all that kind of… there's a huge range of what we can do.

However, there's one giant big limitation, which is computation power. And this is a problem that video game companies have been trying to solve for a long time. That as much as they trick you to, into feeling you're in a world with thousands of people, usually you're not. So, if we take the example of World of Warcraft, for example, it's split into a million little servers underneath the big thing to make you feel you are part of a bigger community. I personally think that this is going to be a huge holdup on the whole metaverse system. We're not going to see a big, giant singular metaverse for a long time. But what we might see is a, as you said earlier, a pool of little different metaverses. How do you think those metaverses are going to talk to each other?

I think this is one of the biggest opportunities that lies within the metaverses, that we've got assets that might be able to move across different metaverses. So, for example, a skin that is obtained in one metaverse might be transferable to a different metaverse but have a different property.

So, for example, it could be the livery of a plane or a piece of fashion in a different game, or a metaverse still utilizing the same pattern that you obtained. Where are we going to see the value transferred between metaverses are people going to play nice with each other and is transit and traversal going to be a problem going into the future?

**Kary Bheemaiah:** This is exactly the same issue that you got with Blockchain today, right? So, you've got all of these new blockchains that have popped up: Cardano and Solana, and Algorand. And there's a whole bunch of them out there right now.

But if you talk to anyone who works in these blockchains, they will tell you that their blockchains today are dumb, deaf, and blind. That they can't really communicate with any other blockchain. So, within these blockchains you can do a lot of stuff. You can build your Taps, and you can build your DEXes. You can do a lot of stuff inside of it. But the moment that it starts having to have some kind of interoperability, then you run into problems. And you run into problems because what you have on this blockchain can't communicate with another blockchain.

So, there's different ways to… On one side, there are things like sidechains and just interoperability that's happening right now. So, with Cardano, they're doing a lot of work right now in terms of being able to build bridges between the Cardano blockchain and the Nexus blockchain.

And they're also trying to do the same thing with Ethereum, because Ethereum has got the largest user base right now. So, they need to be able to have some way that people can transfer their assets between these two blockchains and the smart contract needs to be able to understand that "okay, this is going from here, so I know this is what I need to refer, and this is what I need to do as the output operation."

On the other hand, you've also got these kinds of other solutions, which are coming out which is more in terms of oracles, for example, in which you connect the off-chain to the on-chain. So, we don't have total interoperability yet in which I can just have an asset on this blockchain and send it to any other blockchain on top of which you have a metadata sets built. But we're not there yet, but we're definitely moving towards that.

In the meantime, we will have different kinds of solutions like the bridging, like the sidechains which are in process of development. Like the oracles, which allow you to have some commonality because everyone's using the same off-chain information so that you can verify, or the easiest one is just in marketplaces.

So, if you have an asset, let's say in X video game, which is working on Y blockchain, you can go to a marketplace, like a Uniswap or FTX or wherever it is. And I'd just be "hey, I've got this asset. I want someone else to take it. I think the value is going to be so and so much." And people say, "okay, I agree" and they take it from you and then they use it for whatever they want to on blockchain Z, which they're working on.

So, I think that's kind of what we're seeing is the beginning of it. The fact that interoperability and the demand to be able to swap your assets across different blockchains, or in this case different metaverses, will increase. We had already seen the signs of it right now. Why would they go ahead and make these kinds of interoperability between blockchains when the entire concept about being able to generate value to your network is to make sure your users stay on your network, right? That's Metcalfe's law, how do you value your network, you square the number of users on the network. That's kind of how you do it. Well, you do it because of the fact that's what your users are asking for. They want that. And if you don't do it, someone else is going to do it. And then everyone is going to run on that network.

So, I think this is inevitable because I said, we have reached a point in which we want fluidity. We want efficiency. We cannot think about going back to a bank and taking three days to open a bank account. That's just unfeasible today. People won't accept it. And if this is the way that the market wants to move for whatever reason, then there will be suppliers who provide that service.

**Ollie Judge:** You just hit the nail on the head of the next bit that I wanted to talk about. So, I think when everyone's talking about NFTs, metaverses, all this kind of stuff, people were thinking about objects. But the next big thing that's happening and everyone's referring to it at the moment as Web 3.0 is the service layer on top of all of this.

And I think this is more, the more interesting part of the whole conversation, especially for businesses that already offer services in a pre-Web 3.0 world. So, what kinds of stuff you were talking a little bit about facilitation services, then that sort of almost the currency conversion of the metaverse world.

What other services can people maybe begin to state their claim over and start building? Are there any sort of easy pickings or companies that are already doing something that would transpose well into these systems?

**Kary Bheemaiah:** Yes, for sure. I think the way that people need to look at it today is the fact that what you're essentially seeing today is almost a new internet stack being created.

Previously you had, if you go down the stack, then you've got stuff like who's giving you a lot of your infrastructure services, your scalability, and your protocols. And it turns out that you have certain web protocols. And if you look at your scalability, then it depends on the servers or the providers of the servers.

You've got an AWS or Microsoft Azure, stuff like that. And then came the upper layer on top of that, which was in terms of functionality, a GitHub, a Docker. And then you had the apps and that's your Facebook and your Google Play, and all those different things. And then finally the UX, which is your browsers, which is your Chrome and everything else.

The funny thing about blockchain is it's not just the fact that you can now transfer value from point A to point B. They've had to build a separate stack over there. So previously, while you had your web protocols, now you've got Ethereum and Cardano and stuff like that, right? If you want to think about servers, then you've got those solutions which are coming out like storage, which allows you to store your information in a decentralized way and use a token in order to do this exchange between people.

If you want to be able to do your Github and your Docker, you've got the equivalence of it in Maker and in the Kyber network. Same with the applications, now all you have decentralized application marketplaces where you can go and actually find stuff like DappRadar and stuff like that.

And even up to the level of the browsers. So, if you're not happy with using Chrome, you can use Brave or you can use MEW. So, I think that's something that's super interesting because we are seeing a competitive technology stack, one which is based on communicating protocols and the other one that's based on value exchange protocols.

But they're very similar because you're not reinventing the wheel. You're doing the same thing, but with a different kind of framework. And the moment you start thinking about the Web 3.0 landscape, then if you've got a different stack that's getting created then guess what? It allows you to create a new kind of landscape, of Web 3.0 landscape, which, NFT is just one part of it.

But there's so many different ways that landscape can evolve, whether it's in terms of stable coins, whether it's in terms of payment solutions, whether it's in terms of just collecting all the data that you can then have analytical solutions that are built on top of it. Chain API, there's so many ways that the Web 3.0 kind of landscape is continuously evolving.

And yes, it's pretty hard to keep track of all of this stuff. So, we try to make sure that we have an overview of all of these things. Because it's very connected to what Capgemini business is we worked with, doing API management and stuff that. And then tomorrow, those APIs are going to be decentralized applications and also your decentralized apps.

Then yeah, you need to be able to understand: okay, fine, what are the differences between a traditional API and a blockchain based API or a blockchain focused API? How do the manage applications today at an enterprise level for our class? And how do they do the same thing with decentralized applications for our future clients or existing clients who want to move to the blockchain space?

So, it's wildly interesting. And it's something that's moving at a very fast pace.

**Ollie Judge:** So, let's take that forward. And I think about those APIs and the payment rails and all that kind of stuff. Traditionally, we rely on credit card network, credit card networks, core banking, all the lovely FinTech words to really power, what we what we use today. And there's an inherent level of trust in that stuff.

We know, we can point a finger if something goes wrong, we know that it's MasterCard's fault or a bank that we can call it to sort something out. When we move to a decentralized system, suddenly the trust changes we are instead of trusting an institution or a way of doing things, we are now trusting code and we're trusting that the computers can do their job and get it right.

And if it fails, there's not many other places to go. How are we going to deal with this trust problem? And I don't know whether this has been breached by Capgemini in any way. But as we move to decentralized systems that the trust and responsibility gets dragged away from the service provider, because it's being built on a system that they don't necessarily always control.

So how do you rationalize that in a business context over, some of the more sort of recreational things that might be happening with video games.

**Kary Bheemaiah:** Yes. So, there's definitely a need for kind of standardization, right? Standardization always gets a bad reputation almost because it looks like you're trying to slow down things or something. But in reality, standards are very important.

If you don't have the right kind of standards, how does your, how does the email that you use know that, okay, fine, this file needs to be opened with the JPEG and this file needs to be opened with an Excel? All of those things are based on standards. And so, I think what's happening today is standards are taken very seriously in the Blockchain world as well.

Every time you've got all these different kinds of interoperability questions that happen, if you go to any of these symposiums or seminars, the standardization thing is over there. And they're trying to find out that, okay, fine, what's the lowest common denominator way that we can go ahead in order to make sure that everyone's respecting a certain kind of a standard?

By the way, this is how the internet was created too. Before the internet became what it was, there had to be this grassroots kind of level approach that allowed us to establish these standards. And you had it coming from private people and public people. Everyone came together to get that going on.

So, I think the standards conversation is getting more and more mature. And the reason that, it's getting more and more mature is because you have a lot more interest on regulation today. So, regulation does have a very important role, which often gets beaten upon. But it's super important for what you're trying to do.
And a good case where this is happening is for the past six months, one of the companies that I follow is FTX. I follow them because I use them pretty often as well. And they want to do something which is known as being able to launch derivatives. So, if you're getting into the derivative space, how do you actually make a derivative for any cryptocurrency that you've got out over there?

The regulators are not turning around and telling FTX, “don't do it.” What they're doing instead is having two-hour calls, almost on a daily basis, with the people who are trying to put this out there, to ensure that they can be able to do it in the right way. And so, I think that the standardization thing is going to happen as time goes along. The second part, which is again, a shortcut kind of a way to do it is if you're going to be outsourcing a lot of your trust to the code, then maybe you should have some kind of certification process. And that's something that you find today.

So, if you go on AAVE, which is the liquidity provider protocol, and you actually look at the documentation that's related to it, you have multiple tests which are done on the smart contract. And these are done by companies that you can hire and pay them. Or sometimes they come and do it by themselves to make sure that the smart contract does what it does. We want to be able to do that properly. And the reason that we have these kinds of official bodies today, or at least these entities that do the certification processes, because we burnt our fingers with the ICO craze in 2017. The ICO craze in 2017, people were making wild claims and sometimes a smart contract didn’t even function.

So that's a second layer of trust. It's not the same as having a standard, but it's certainly something which is helping get more and more validity in the code. And then finally, one of the areas where you've got a lot of growth today, is in smart contract insurance. There are companies today which offer insurance on the smart contract to make sure that whoever's using it, there is some kind of liability, that they have ownership, that they have to pay for in case something happens.

And what this also shows you, which is pretty prolific in crypto, and it will be the same in the metaverse space, which is every time there's a problem that emerges, there will be a bunch of people who start to create a business model around it and solve that issue.

So, I think this is the way that we, again, we're still in the early stages of this metaverse kind of journey. The blockchain, I think will have a great role in it. But we're going to see this kind of stopgap kind of solutions in the very beginning before we get to a much more formal architecture.

**Ollie Judge:** Cool. And then building from there and thinking about all these different paradigms that that are going to change the way that we interact with both technology and the world around us. I know that sounds quite cliche, but let's think about the skills that are needed to actually build metaverses and the products and services within them.

They're very different from what we've seen today. For example, marketers, creators, or all the kind of people that may use Photoshop on a daily basis might need to start thinking about how they build things within Unreal Engine and extending out that way. So, they're moving from 2D to 3D.

That's a completely different paradigm that you've got to think about. People that work with current banking systems are used to Kobo infrastructures and slow working core banking systems and building fast APIs on top, but now they're going to have fast APIs all the way up. So that, and DevOps is a completely different way is completely different in this context, moving away from the centralized cloud computing systems to a distributed systems.

How do people need to think about skills and the people that they're building their teams with? Do you need people that are pretend potentially you move away from 2D strategists towards 3D strategists?
Or do you try and train the people that you already have that have the domain experience to build towards a goal? What do you reckon it's going to be fresh talent or it's going to be training or it's going to be a bit of both and what's going to be more valuable do you reckon at this point?

**Kary Bheemaiah:** I think it's really context relevant, right? So, it really depends on what you're trying to do with it. Let's say that you're an automobile designer. And you're trying to get into the metaverse space for whatever reason, you've decided to move into that. So, the skills that you have over there, that they're much more easily translatable because you're already working in 3D. But let's say you're someone who's just a basic classic graphic designer today, and you're a bit precocious and you see this is actually where everything's moving to today.

Maybe I should figure out how do I participate in that? And you start doing an up-skilling thing by yourself. It's asking me how people who are working in IT in the early 2000s, how did they up-skill to what they're doing today? They learnt it. Maybe they went from a curriculum and their company helped them do it, or they just did it by themselves.

So, I think wherever there is more and more opportunity, and there's the ability for you to express your creativity, authenticity, and individuality, people will naturally pick up the skills.

Having said that if you're in a large company, of course you do need to ensure that, listen, we want to be able to move over here. So, here's our strategic direction that we want to go towards. These are your personal and professional goals, which you need to be able to adapt to that, and here are the tools that we're putting into place in order to do that.

So, I think there's a role for leadership to clearly define and understand that if you're going towards the metaverse space, whether in the context of digital twins, or in the context of making direct- to-consumer kind of platforms, what is it that we're trying to achieve?

Why does it make sense for our company to be able to do such a thing and what's required in order to get there from where we are today? So, you retrofit it and you build a curriculum into that. Then you have, obviously the people in your company who will have different levels of qualifications. So, there's probably some small group which will be the early learners who jump inside and say, “okay, fine, this is how you adapt.”

And then they train and mentor the other people who come inside till the point comes in, which you really start wanting to expand them. Then it's probably when you'd be saying, “okay, we're going to hire these kinds of people or we buy this company, or we work with this ecosystem so that we can get the complementary skillset.”

I think where the metaverse does have a very unique kind of a thing is because of the fact that there's so much going on inside over there. There's the creative side, there's the hardware side, there's the economic incentive side. I think it's going to push companies and even communities to start thinking in terms of diversity in a very different way.

And in this case, I'd say it would be more focused on cognitive diversity. So cognitive diversity is the fact that you and I, for example, we are around the same age, but we've got very different backgrounds and very different educational backgrounds as well. When we look at a certain situation, even though we're getting the same information coming to our brains, the way that people perceive the solution very differently, because it's based on the way that we have experienced life and the way that our brains are essentially connected.

In evolutionary psychology, they call this the lexical graphic room. And it turns out that if you've got people with different kinds of lexical graphic room mechanisms, that they increase the diversity of the solution space to the same problem. And the greater, the cognitive diversity that you have, the better you're able to deal with complex problem solving and the ability to deal with predictions.

Which is pretty much, most of what current businesses are all about, working in the knowledge economies, as they say. And that's where you find majority of the issues and the places where you can get the biggest amount of business impact.

So, I think that because of the fact that you're now seeing this there's the paradigm, where there's a good amalgamation of all these different things, the hardware, the software, and the creative design aspects and the fact that it needs to be rendered in multiple dimensions. It's going to force firms to start thinking about cognitive diversity in a scientific way, in a much more structured way, in a much more "how do we make a business profit out of it" kind of a way rather than just doing what we do today?

**Ollie Judge:** I think that's a really nice way to wrap up how we think about metaverses as a whole, because at the end of the day, it's not going to be the technology that drives them forward much the internet and everything else that we do. It's how we think about it and how we treat behavior and people within it.

I'm going to end with my absolute favorite question to ask everyone. We hear a lot about metaverses, NFTs, blockchains, all this stuff. And a lot of it's built on a, for lack of a better term, the hype train. Sometimes it's very difficult for businesses to actually figure out what to focus on and where to put the pressure as they grow and try and predict the future.

I'm not going to ask you where I think people should be focusing. I'm going to ask you where you think that they shouldn't be focusing and the worst bit of advice that you tend to hear surrounding these things.

I work with a lot of clients that want us to create graffiti-like NFTs, and they've wanted us to essentially help them become the next Banksy because they think that's what needs to happen next.

And it stopped short of the real value of what NFTs can be. And it's focused too much on the moment of, I want to send a solid JPEG and that's where I see the stumbling blocks for a lot of companies that they see what everyone's talking about and get too wrapped up in that. But I'd to hear your perspective here and where you think some of these stumbling blocks are and where you see people getting stuck or getting a bit misdirected for what they really should be working on.

**Kary Bheemaiah:** Yes. That's such that, answering that question can go in so many different directions. But for the sake of brevity, I think I'll give the same answer that I give people who talk about investment. And when you, if you're doing investment, whether it's crypto investment or just managing your portfolio or whatever you want to do, if you can't make a small portfolio grow, you can't make a big portfolio grow.

I think when it comes to anything metaverse or NFTs or any of these kinds of new things, that's coming out, start small. Great. You've got this great idea. You want to become the next Banksy? That's an objective. That's not a top. That's not something that you are actually going to start doing from day one.

So, start small figure out that. Okay, fine. Does this idea actually make sense? Are the people out there who actually want to buy this? I have an artist friend, for example, and she is someone who is really good with physical art. And now she wants to translate that into the NFT space. And I asked her motivations about it and she gave me a good answer.

And then I said, okay, fine. Start small. Just make a little bit, put it out there, see what the market thinks. Just because you think it's the best idea since baked bread doesn't mean that other people are going to share that same opinion. And if they don't share that opinion, why? How open are you to changing your own opinion?
How do you actually change your own mental model? Because you can't go around saying that everyone's an idiot because they don't accept my idea.

So, start small, figure it out. You'll have to pivot; you'll have to change. And then finally, when you do this kind of iterative process a couple of times, you'll probably come across something which makes sense or contribute to a bigger picture, but a movement has been created. So that's the way I'd go about it. I'd stick to the kiss rule in this.

**Ollie Judge:** There's no doubt that the concept of a metaverse is going to be critical to how we work, play, and interact with each other in the future. What's more important to keep in mind though, is not getting wrapped up in the hype and choosing the right term to interact with the new paradigm.

For many of us, that moment is probably now. If you enjoyed this episode, please make sure you follow us on Apple Podcasts, Spotify, or wherever you find your podcasts. This podcast was brought to you by Capgemini Invent. We'll see you soon.

  

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