

FUTURE SIGHT PODCAST

Ep. 29: Immersive Experiences





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.

On this week's episode, we will be exploring immersive experiences and how this new approach to digital interaction will change how consumers engage with brands, businesses engage with employees, and how maybe we might interact with each other.

Joining me from Capgemini Invent's Frog Design are...

Charles Yust: Yes. I'm [Charles Yust](#). I'm Executive Tech Director in our frog San Francisco studio, frog as part of Capgemini Invent. I'm also a Practice Lead for AR/VR and Immersive Technology.

Ollie Judge: and...

Anthony Panno: Hi, I'm [Anthony Panno](#). I'm the Chief Design Officer for frog in North America, which is also part of Capgemini Invent.

Ollie Judge: And from Campfire 3D Studio...

Jay Wright: Ollie, I'm [Jay Wright](#), CEO of Campfire.

Ollie Judge: First real question, we're going to be talking about immersive customer experiences today, but we need to ground ourselves. We need to figure out what an immersive customer experience is.

And I want to explain it for people that aren't aware of any of what we're about to talk about. Let's give them a good foundation. I'm going to point this either towards Charles or Anthony, depending on who feels that they might have the strongest answer yet.

Anthony Panno: Immersive experiences are contextually relevant, deeply personal, personalized and multisensory experiences that are enabled by technologies, such as AR/VR sensors that enable people to either escape their current reality and enter a new one or extend their current reality by giving them the super powers to do things that they would probably really want to do but might not otherwise be able to do.

Charles Yust: Yeah, I think it's a perfect answer, but I would also add that it allows customers to go beyond current paradigms, break through the screens, and connect to content experiences and brands in new ways.

Ollie Judge: Cool. So building off that note, on the show, we've spoken about [the metaverse](#). It's the hot word for the moment. However, a lot of how people will perceive the metaverse is usually when you say that word, you either think of Facebook's rebranding, or VR headsets.

I wanted to dig into, and Anthony mentioned this a little bit that is not just screens, it's the super powers that are added on to experience. What kind of examples are we talking about here? Like for instance should we be looking to the retail world for this? Are these more like physical build top experiences rather than something that you can do in your own home? What does this look like at this point in time?

Jay Wright: I think if we draw a line around AR and VR for immersive experiences, the bulk of what's happening on VR is with a new generation of lower cost headsets. Things like the Meta Quest, and I think that's where you're going to find the biggest number of devices that people are using most regularly, largely for gaming.

So I think on VR, that's an important spot to understand and focus on. I think when it comes to AR, the thing to focus on is what people are doing with photo and video sharing on platforms that began as Meta or Facebook offers and folks like Snap. And that's really the ability to take pictures and take videos and overlay some kind of graphics or effects on them using AR.

Ollie Judge: So at the end of the day, we've got to use hardware and software to bring this stuff to life. It doesn't exist in the real world. So how much do we already have in our hands to enable some of this stuff? Are all phones enough or do we need to go one step further to start building out real in those experiences? I'm going to point that towards Charles.

Charles Yust: Yeah, I think we have enough technology for everyone to have kind of a baseline understanding of what these technologies are, what they could be potentially used for and can find some utility in everyday life. I



think that there's a lot of potential as the hardware and software become more performance, smaller form factor, et cetera, that you'll see some of these use cases expand and some of the possibilities start to unfold.

But it is interesting. I think people are like with [the Ikea AR app](#) or something, being able to solve problems and be able to find utility in everyday life in order to increase or like optimize customer experiences. And then going back to the question that you were talking about with the metaverse too, and just that some of this is already occurring, right?

You've got like in the past second life, a lot of the kids nowadays are already exposed into things like Roblox and Minecraft. And some of these persistent worlds are already an expectation. And I think our representations of the metaverse that exist today, I think it's going to be interesting to see how these worlds are united in the future.

Ollie Judge: You're good. That's what editing is for. So I'd like to ground this conversation in, let's talk about it as the business applications. And I'm not talking about the VR demos of, there's a guy in a factory looking at a pipe, and it's suddenly showing you alerted data as a Microsoft thing to trust out every opportunity that they get.

Anthony, can you tell us a little bit about the experiences that potentially frog have been working on and how you see a massive experience, in general, really picking up steam?

Anthony Pannozzo: Yeah, I'd be happy to. And I think this is one of the exciting things about immersive experiences and also one of the exciting reasons why we have made the distinction between being able to escape our reality and being able to be given a super power. And so, I want to talk maybe a bit about the superpowers and as they relate to a particular industry.

So I think we've all been furniture shopping before. And when you talk to people about the furniture buying experience as, and we've done a lot of work with IKEA in particular but other brands, what you find is that one of the biggest challenges that people have is they'll see, say a sofa in the showroom, or they'll see a sofa online.

And the first question that they'll have is: what is it going to look like in my space? Many people don't have spatial capabilities to think, and they can't quite see how the color work, how the pattern work, how the size work... And so this ability to want and think about this as a superpower which is: I want to be able to see what this looks like in my home before I make the purchase decision.

And this has, if we can enable that, then this has two huge benefits: one for the customer, but also one for a company like IKEA. So for the customer, they can make that purchase decision with confidence. If we see a shirt that we like in a store, we try it on and we know it fits and we feel confident and we go home with that confidence. When you have a confident purchase, you not only get someone who is more satisfied with that experience because the stress of shopping has been reduced, which means there'll be more likely to be attracted to, to come back to you for more furniture in the future.

But also for the manufacturer, they know that this piece of furniture isn't coming back as a return. It isn't going to be costly to take it back. It isn't going to be difficult with restocking. All of the frustrations that come with returns, when things don't fit, they don't look just right becomes minimized.

So with AR, we can project what that sofa might look like in your living room. You can upload a photo to a site, and you can actually see what that move furniture change colors into a site like a web tool, for example.

And so what this augmented reality allows you to do is it allows you to see what it looks like in your home before you make the purchase. It's great for our customer, because it reduces the pain and anxiety that comes with making a furniture decision. And it's a fantastic way to reduce returns and have a more efficient operation from a business perspective in this case, IKEA.

So, I think that's a really good example of why or how AR is producing some kind of super power that enables people to do what they otherwise wouldn't be able to do.

Charles Yust: Yeah, the superpower is enabling these customers or these future customers or these potential customers to see into the future. And see multiple futures and many of those futures against one another. Which is something that would be really hard to do without this technology.

Anthony Pannozzo: And I think the other thing that's really interesting and just to build on Charles's point is, Charles and I represent two different parts of the frog/Invent world. So I come from design. Charles comes from



technology. I love design, which is why I'm a designer and Charles loves technology, which is why he's a technologist.

But I also have always looked at technology with a skeptic's eye. I am little concerned when I see a hype curve and like this, we've got this amazing new technology. And so the first question that I think we ask it at frog and Invent is: how does this technology going to serve people? What problem can it solve?

And I think what's exciting about immersive technologies is there are so many problems that people have where they need that super power. They need to be able to do something. And when, once we've identified what the right challenge is, the right problem will be solved from a human perspective. Then we can look at these technologies and say, okay, how do they solve that problem?

And I think when you put the customer need first, and that use case is super clear before you start getting too excited about the technology, you're in a great place to create great innovations.

Charles Yust: I'll just add to that that technologists at frog are also designers. And so, that's what separates us from technologists at other companies. I just wanted to throw that in there, but what Anthony said is true.

Jay Wright: Ollie, you mentioned that you mentioned HoloLens and Microsoft there. And I think it's important when we start talking about [immersive technology and its use by companies](#). There's a lot of consumer and customer facing experiences we can do, but there's also experiences that are possible for internal applications, for core business processes internal design process, sales and marketing and training and so on.

And the use cases, there are a little bit different. And the market there is a little bit different too, because to both, to Charles and Anthony's point when it comes to the enterprise and businesses, you're really about solving a problem. And when you can solve a problem and demonstrate an ROI, people pay for that.

And so the benefit is when you're going to go do these internal applications and input at companies, they're going to be able to have some of the devices that, that consumers don't. And I think probably the most important superpower for the most common internal application will be training.

And then, the super power there is I can actually feel like I'm somewhere else doing something else, which allows companies to use VR as this really effective training tool, because I can put you in any situation, in any location with any person.

Ollie Judge: So Jay, Campfire does a lot of this stuff every day. It builds hardware to support all of it. Can you tell us a little bit about what Campfire does and how you see immersive experience on a day-to-day basis?

Jay Wright: Yeah, I think the other superpower that we're focused on is using this technology to help people collaborate and get work done. Especially when they're distributed in different environments. And usually when I say that, people think of this scenario where we're trying to replace Zoom with a VR headset, and we're all going to become avatars floating around a virtual conference room or a virtual meeting room.

I don't know, as you guys, I'm not wild about that scenario. What we're doing with Campfire is actually a little different. What we're doing with Campfire is what we call "[holographic collaboration](#)." And what that means all is we can take people all in one room or in different rooms and locations all around the planet and allow them to collaborate using 3D holograms, shared holograms in the middle of the table as if they're all sitting around the table.

So you've seen a lot of these kinds of scenarios in the movies. You've seen a lot of these scenarios in marketing materials, even with HoloLens that you've seen, but they've been very challenging to develop and make work with today's products. And so, what we've done with Campfire is really focus on this holographic collaboration capability and build a whole new system, both hardware and applications that work together to deliver.

Ollie Judge: Perfect. So you guys have all collectively had a lot of experience in what works and what doesn't in this world. And I think over the years, we've all been to the conferences where some brand trucks out some immersive experience that they've got at store.

What I'd like to focus in on to give us a bit of a baseline for the rest of our conversation is where massive experiences don't excel, where maybe we're thinking about things in the wrong way. What do you see as the most common mistakes?

Charles Yust: Yeah, I think one major one is trying to start with the technology and not the people, right? So at frog, we're user centered design firm, we go out and we take a brief or a problem that a company is trying to



solve. And this could be on behalf of their customers or within the company itself or a new experience or products or service that they're trying to develop and bring to light.

And we start with people and dive deeply into the everyday situations that they find themselves in. And this could be customers, it could be employees, et cetera. And really trying to understand that the core and drive insights around what they're going through in the problems that they're trying to solve in their everyday life, in order to develop and achieve and create an optimized experience that meets those needs and that user desire and aspiration.

So I think this applies to this new technology and to immersive experiences in, in every way. And when people start... You'll go through and you'll read articles or whatever about AR/VR, people talking about it, they start with features, it starts with field of view. They start with, power consumption and all of this stuff. And that's not what most people care about. And that's not, what's going to drive widespread user adoption. It's going to be solving problems in everyday life and meeting those expectations and aspirations that I spoke of. So I think that's one major thing is starting with the technology.

Ollie Judge: Anthony, do you have any big mistakes that you see here crop up when talking about this stuff?

Anthony Panno: Certainly a big plus one to Charles and starting with the technology. However, there's often a hype curve around any new and emerging technology and it's very difficult for people to necessarily not dive in on the technology because I think there is... it's like a real estate boom, a bubble where everybody feels like if I don't buy, then I'm going get priced out of the market.

So there is this, I think urgency sometimes, but I think as long as you pause and do exactly as Charles said, which is, let's make sure we understand what our customer's biggest pain points are where are those superpower opportunities. And if you have clarity there, then you're unstoppable because every new technology simply becomes a new way for you to achieve those objectives that your customers have.

Even if a new technology emerges and you get excited about it, just if you haven't figured out what those key pain points are, what those key superpower opportunities are. Just start there and get that sorted out first and then see how that technology can help create value.

Ollie Judge: Jay, any big mistakes that you see crop up in your line of work?

Jay Wright: I love Charles' answer. And this might be over simplifying, but there's a lot of people that have used AR for stupid. Or VR for stupid. And by that, they're just using technology for technology's sake because they can. And at the end of the day I completely agree at the hype curve. When there's a hype curve, people just use it.

They just want to do something, and they're focused more on the technology than solving the problem, use it to solve the problem and use it for the benefit that new technology brings. You got to find things that can uniquely be solved with this tech, for it to be compelling.

And obviously not everything is. We shouldn't necessarily try and put friggig Microsoft word in a VR headset right now that doesn't make a lot of sense. We could, we certainly could, but it doesn't make sense. And I think the one thing that these technologies do really well and others doll and needs to be manifested in, whatever you do is you've got to find something where it's important to place information in real space, in 3d space, right? That's fundamentally what this immersive tech does, or at least as, as we've defined it in this discussion.

Ollie Judge: So I want to come back to this concept of superpowers and how people can stop to think about everything in the right way. If we're shelving technology, obviously technology is a limitation of what your super powers can be. But how do you start thinking about those superpowers early on in the design process?

What kind of feelings are you trying to drive? Is it an adjective experience on to the original experience that you've got perhaps through purchasing or training? Or is it a whole new paradigm that maybe you haven't encountered before? And how do you even start planning for that kind of stuff?

I'm going to go towards Anthony on this one.

Anthony Panno: So that's a great question. And so we have a term that we call "experience strategy." And the fundamental idea behind it is if you believe as we do, and a lot of our clients increasingly do that, your value proposition in the market is your business. So what is your business and how do your customers experience your business?



And so every organization has a business as it has a business plan and a business strategy. So if how people experience that business is essential to its success, then you need to have a similar strategy and plan for how the customer will experience your offering. So that starts with understanding the desired customer that you were looking for.

So every industry has customers and amongst those customers, there are good customers. And then there are maybe consumption customers, transactional customers. Obviously, we want as many customers as possible, but when we make decisions about the experience and we have to make trade-offs about what we're going to prioritize, we need to have criteria with which we use.

And that is who are our target customers? Who are the customers we're going after? And, once you've defined that, then you need to start to understand what they care about. And there are a lot of methods that can be used in terms of doing research. We like to start at a foundational level with design research, which is a methodology that's inspired by ethnography.

And that's a methodology that is about going very deep, having meaningful conversations with your customers, letting them lead the discussion. It's not about going and saying, "what do you think of this idea?" Or "would you like this? Yes or no." But it's more about taking a step back. So for example, let's look at IKEA and that example I gave earlier. The question, it wasn't how can AR help you as a customer of Ikea.

The question was: tell us about the room you just renovated. I see you; you've renovated. You just redid your kitchen, or you just redid your nursery. And then you listen, they tell the story about you know why they did it, "this is our first house and our in-laws were coming for Thanksgiving and we really wanted to make sure the place look nice."

And so we didn't, and they start talking about you understand what they're motivated by, and then you understand the emotions involved in it. Then they describe how they did their shopping. They started online and then they went into the store and then they went back online and then they saw something, but they weren't sure if it was going to fit in their house and you start to see insights, which, are like, wow, like so many of these purchase decisions are stalled because people are afraid that they're going to make the wrong decision.

That sofa will be too big. Or the pattern will not go with the beautiful rug that they inherited from their grandparents. And they want to make sure the color is just right. So, it's by having these conversations and understanding how people buy furniture, why they buy furniture, you start to map out that journey and you start to identify where they are emotionally excited.

Like they're excited they're hosting their in-laws in their new house. Then the trough of despair, where they realized that the place doesn't look good, and they need to fix it fast. And then finding out that the sofa that they liked didn't actually fit when it finally showed up and it had to go back, and they didn't have a sofa for when their in-laws arrived.

So you map all of this journey out. And then once you've identified really where all those low points are, those become opportunity areas for you to create solutions. And then you innovate, you ideate around those solutions. And then that kind of gives you that sense of this is the superpower they want to have, or this is the pain that we want to take away.

And then that leads into really the solutioning for anything and whatever that solution may be, whether it's AR VR, it could be something completely different that you hadn't considered. The point is that you start with really that deep dive to understand who your target customers are and what what's going to make them want to do more business with you.

Ollie Judge: And off the back of that. So, you've defined your emotion that you want to bring to people through your immersive experience, but there are different kinds of immersive experiences. You've got, obviously AR, you've got VR, you've even got spatially aware sound and video installations that can do all kinds of different things.

Obviously in that IKEA setting you've got, "oh I can place a sofa in my room that's unique." And you don't need a full VR setup to do that. You can look through your window of your phone or your iPad. But what's that process look like to choose which route you're going to go down?

Jay Wright: I think there's some constraints which basically amount to who has what devices that help make this decision. For example, if it's a consumer facing experience, my audience better be people that have VR headsets.



And if your audience is people that have VR headsets, now you can really start thinking about VR but if it's not, duh, just rule that one, just roll that one out.

And so it tends to be an early adopter group and the demographics, I think there are well known. And if that's who you're going after, and you've got an experience where you want to help someone escape, as Anthony said, cause that's what it really does well, is help escape.

You're golden. That's a good place to be. And I think the other one on the AR side, that's largely about what can be done with photo and sort of video effects. That's where it happens at scale on people's phones. I think that's the other consideration and the types of experiences that are possible there.

I think a lot of people understand today and there's definitely a lot of innovation in what's happening. It's gone further than, unicorns throwing up rainbows or whatever. There's actually these kinds of shopping experiences. I call them "see before you buy" which Anthony explained really well, that, that are possible there.

And get inside these apps and you can see what's there and what people are doing. And I think that's a great starting point for what's possible and when to move forward.

Ollie Judge: Perfect side. I want to take that level that you had all on what devices people have and who you're building for in that regard, not really analyzing your audience and understanding? You know what they'd be open to? So, a big thing for me is what the limitations of the technology here. The minute that you say metaverse or immersive experience, people's mind jumped to the matrix, ready player one, the I'm going to put something on and be somewhere completely different.

However, we're not there yet. I'd love to hear about how you would take some of those superpowers those design things, and then work with the limitations of the devices of today to put them into an actual feasible experience that people do feel like they've got superpowers.

Charles Yust: Yeah. So there's the desires and aspirations that customers articulate in and that we listen to and try to meet the expectations of. And then we're faced with, okay, how do we meet those expectations now, or in the near future? How can we build something today, get to market that will meet some of what we've heard? And like when we go through our qualitative and quantitative design research process?

And it's true that there's limitations with anything that's doable now, right? And we could even start to think of these as attributes. And I think Jay started to hit at it with VR is going to separate you from the immediate environment you're in.

That's going to be maybe a negative for a lot of people that are trying to connect with their family members or the people around them. But could be a positive for someone who is undergoing a burn wound treatment, which we developed an in-house solution called VR care for people who had experienced burns and were going through burn wound care.

These treatments can be just as painful as the initial event, and if you're able to separate them from the environment that they're in or that care environment and you can distract them. This is called pain distraction and it is something that's been well-researched over the years and can actually reduce the amount of anesthesia and other things that are needed in order to reduce that pain.

So, this is a space that has been used for VR in the past. And we worked with a reconstructive surgeon from Stanford to develop a really low-cost solution. And this is right in line with trying to solve a problem on behalf of this patient or this particular situation and leveraging the attributes that are inherent in VR, which is, separating people from that media environment in a way that's really positive and enables new outcomes to occur.

And then, same thing with today's AR, right? So there's the limitation that for most people, what that means is holding up your phone jumping through some hoops in order to experience whatever it is that's being overlaid on the ground. Because there is a widespread adoption of like eyeglasses and things like that now.

So knowing that, can you create an experience that is seamless and just only requires people's emotion and presence? This kind of ties back to your question too, about are we creating new realities or are we trying to replicate existing paradigms virtually in these new environments, are we trying to take a boardroom and stick it to VR? Why are we doing that? And, what problem is that solving versus how can we use this technology to enable new types of realities? And so, we worked [on a project for SF MoMA](#), and it was for them, a great exhibit that they had in 2018.



And they were looking at ways to engage audiences differently. How can we change the formality of the art museum space? And what would it mean to leverage some of this technology or think about the way that it might be used? If somebody like Magritte who worked in the middle of the 20th century had access to it, and we created this interpretive gallery that allow people to just kind of like immerse in the motifs of Magritte, he put these visual puzzles and paradigms into his paintings and allow people to become a visitor participant as opposed to visitors and try to solve some of these problems in this immersive space.

So we designed an entire room, and it had these augmented reality windows that got increasingly complex as you moved into the space and cause people to interact with one another and there would be laughter in this room, as opposed to, as the more somber mood that one would experience in moving to these other painting galleries.

And I think Jay is also doing this as well with the work that he's doing at Campfire, there was an existing paradigm where you try to preview holograms or product design or really complex 3D models on 2D screens. But how can we share an experience and really start to understand this thing that we're trying to build the design, these complex new products together and create a new reality with one another and share that.

Ollie Judge: I think what's quite interesting about what's coming next with immersive experience is what Jay was alluding to earlier with the just throwing Microsoft word into an immersive experience isn't a compelling way of using that technology it and just having what would essentially be a normal flat screen-based experience transformed into a little floaty window inside of a 3D space when your monitor or phone or whatever is way high resolution, probably easier on your eyes and could be done better that way.

So, I think that there's two things that I want to unpack here. And I think I've got one question for Anthony and one for Jay.

So Anthony, you worked with a bunch of different companies and I'm sure for the last 10 years, the big thing that they've all been wanting to do is build an app or build something for mobile devices and all that kind of stuff. How do you begin to snap companies out of thinking in a flat screen environment or paradigm and help them start to think that this is going to sound horrible: how'd you get them to think outside of the box?

Anthony Pannozzo: It's a really good question. It's been a big part of the conversation with a lot of clients. If you simplify the history of customer experience in the last, say 10, 12 years. You had this, "we need an app" kind of phase where similar to that hype curve example, we talked about, everyone was rushing to fill the App store with the version of their app.

And often, those examples where no one had really understood what it was like to live with apps in the early days. And today's you know, behavioral patterns are pretty well-established, but it was all new. And so, thinking outside the box in say the advent of the iPhone was building an app.

And then there was this awakening to a broader understanding of what customer experience is and that it isn't just the app. It's the entire customer journey. And sometimes that journey involves the brand directly or indirectly. Sometimes it could happen in a retail store. It could happen with a contact center, the pit between people. And so a bigger wave of customer experience transformation happened. And then what began to happen is the more and more, a lot of organizations like financial services or life sciences companies began to identify the problems.

They started to become this parody that was starting to reemerge, that everyone was identifying the same problems to solve and solving the same problems in similar ways. Or somebody got ahead of the curve. Like a Citibank might remember where they introduced the feature, where you can take a photograph of your check and deposit it on your phone. 3 and a half months later, everybody had that feature.

So that, that window of opportunity closed pretty quickly. So now what's happening is they're starting to be a sea of sameness emerging around a customer experience. And the question then is really what are we trying to do? What we're trying to do is we're trying to build a loyalty. We're trying to acquire and retain folks in ways that they're going to stay with us.

Even as switching costs become easy and are low. And so this is where we're getting to your question about thinking outside of the box?



Which is we believe that people are motivated at their foundation to do, they're motivated by two things: they're motivated to seek pleasure. So we, we are motivated to do things that we know will make us happy. And we are motivated to avoid pain. So we're, we avoid things that make us unhappy.

And what's driving that is emotional response. Like we want positive, emotional responses and we want to avoid negative emotional responses. So, if you think about your business and your customer experience as well, how do we manufacture as many positive emotional responses as possible and eliminate as many negative emotional responses, then that becomes the foundation of a strong customer experience strategy. And when you look at immersive technologies, what's tempting there, is that there's a lot of ways that we can really enhance those emotional responses. So that's super power that we talked about with IKEA. That's enhancing an avoidance, I'm avoiding the pain of making the wrong decision and having the sofa show up, and then I have to send it back.

So when we know what those key pain avoidances are, and those key pleasure motivators are, then that's where the technology, the immersive technology allows us to create heightened positives and eliminate more consistently those negatives. And that I think is where you have that opportunity right now, where organizations of all kinds now need to figure out how to avoid being commoditized and looking just like their competitor and starting to really focus on how do I strengthen the emotional bonds that I have with my customers.

Ollie Judge: And so, to build deeper emotional bonds and to build these experiences, obviously there's going to be tools and ways of building these things that obviously go beyond the bounds of the tools that we've had today. We know that particularly in this space a lot of the things that we learned from making video games have come into this world and a lot of the tools that are used to make video games and now use to make these immersive experiences.

So there's going to be a bit of a skill gap in between, what came before and what we're going to need. However, we're not going to completely eradicate technical teams or design team. The idea is to skill people up and teach them new ways to collaborate and train and do and create new or better things.

So what I'd quite like to ask Jay is how do you slowly get your teams like ready for this kind of stuff? Where can they start to play with creation and where do they need to be to really build solid experiences that maybe like commercially ready?

Jay Wright: I think when it comes to getting people up to speed on the technology, there's probably different paths you might take for VR. And as you mentioned, you got VR. VR is largely taking tech that we have today and in 3D games. And instead of putting it on flat screen we're putting it on your head.

And it turns out, there's a couple of companies that make, what we call the 3D engines for real time 3D. They just have some really wonderful tools and getting started paths. One of them, for example is unity. A great starting point for technical people who want to start getting into 3D and understand all the 3D concepts, the pipeline and so on.

And I think for AR, but [AR means a lot of things to a lot of people, the technology stack is complicated](#). But I think when it comes to consumer-facing experiences, like the place to start are these tools that are provided by Meta and Snap and so on for our building, their lenses or filters and they have different names for them, but they provide tons of different examples for people. And again, really good learning content for people to start.

Charles Yust: I would just add to that too, that there are a lot of like designers, industrial designers out there with really sophisticated, 3D experiences. But it comes from a place of, getting the highest fidelity kind of manufacturing ready forms modeled as possible. And I think the added complexity with both AR and VR is that the stuff has to look really good, but also be optimized to run at really high refresh rates.

Because if it's too complex, it will lower the performance and induce sickness and a suboptimal experience. So, it's just another kind of subtle aspect and layer of complexity to some of these experiences that that needs to be understood, especially when dealing with 3D assets.

Ollie Judge: So spilling off the back of that, Charles, we may not know, but there are lots of rumblings of people building AR glasses of beyond what we've seen today with Google glass and some of the stuff that Snap has done. And I assume like any technology, the whole purpose here is to try and make things as invisible as possible.

People are just used to using these things. How far off are we from that being a reality? How accepting do you think people are going be? And is the level of compute that we actually need a way off or is it within our grasp?



Charles Yust: Yeah, I think within the near term, you're going to see a lot of different form factors come out. But I think they're still going to be limited by some things like compute and also just physics and optical aspects of being able to produce these images in front of people. And so for the foreseeable future, there are going to have to be some acceptance of the type of use cases for certain types of glasses, right?

It's going to be a long time before you get all of this 3D immersion. And some of the renderings that we see coming out of HoloLens are really tiny form factor. And the implication of that is that not everybody is going to want to wear it around, something that enables that types of truly 3D, immersive recognition of the world, and also the 3D layers and graphics and things that would be implemented on top of that.

Now there's a whole range of less sophisticated graphics that can be produced on smaller form factor glasses and things and the limitations and the types of use cases. And they may not be necessarily limitations. It's just, how do you appropriately match what's possible in the small form factors to what's going to be possible in from that type of technology to the use case that the customer is in.

And the implication there is that a glass is something that you can wear around in the public. Quest is not, HoloLens is not, nobody's going to be walking down the street in that stuff. Nobody's also going to be walking down the street, holding up their phone for very long. And so it's just got to think critically about the situation that a person is in and be able to match this technology.

Obviously, there are companies working on really interesting things that we have heard rumors about and are going to cause new waves of kind of hype and experiences and integrate things like that. But yeah, it's very hard technology, especially when it comes to AR and optics, which I'm sure Jay could speak to quite a bit as well.

Ollie Judge: So I'm going to talk a little bit about accessibility. Because obviously, not everyone has a VR headset yet. There are things like motion sickness. There are also things surrounding potentially the older generations, not being able to hold a phone steady to place their furniture in their rooms. So, is there any work being done at the moment to really bring these experiences to a more accessible audience, maybe to scale down some of these extra experiences to work at a simpler level?

Anthony Pannozzo: It's a good question. One thing that about the question that I think is really profound is that it shows how our bias accessibility tends to and has been unfortunately, a bit of a lagging criteria, right? It's like thing sort of take shape, the web, mobile, iPhone, et cetera. And then it's oh, wait a minute. We need to think about how accessible this technology is. And we need to start to be designing for designing for all, not designing for a few.

And I think with any technology, I think that question really does need to be built into the early days of thinking about the use cases and the paradigm and recognizing that what we used to call edge cases that may walk away from and say we can't solve for everything.

We actually have to have a moral and ethical obligation. But also, I do think that when you solve for edge cases, you actually make it better for everybody. I think we all benefit from a design that is more universal. And as it relates to immersive, I think that there are financial barriers that we've been talking about. So the actual headset, for example presents a financial barrier, the admission to a museum like San Francisco MoMA for that experience can present a financial barrier.

So I think that we have to be thinking about how we can create experiences that don't present financial barriers or are recognize the socioeconomic diversity of the communities that we're serving.

And then I think when it comes to the actual design and experience of immersive, I think the evolving rules of accessible design of both apply and need to consider the new paradigm. In one way, I think one of the superpowers could very well be super powers that are helping to counter the effects of say cognitive decline.

So somebody, imagine, and I think this concept exists in the real world. So Charles correct me if I think you may have mentioned it to me, glasses that are able to recognize somebody.

And if you have early-stage Alzheimer's disease. Somebody might come up to you and say, hello, and you might not know who they are, but if the glasses can facially recognize that person and whisper in your ear "this is Susan used to work with them." And then you can say, "oh, Susan, nice to meet you! Nice to see you again." Those kinds of superpowers around that are needed as a result of the way that our minds and bodies are changing. As we get older, it could be a huge opportunity for immersive experience.



And just the way that the, Charles was mentioning the VR burn experience. I think that these are areas where immersive technology could be really powerful.

Charles Yust: Yeah, I think just generally, the promise or the potential of the technology to not only enable new types of senses or realities for everyone can also replace augment or enhance people who don't have access to those senses. In all of these other cases, too, the ability to see on behalf of the people who need extra ways to see like Anthony's example of the faces or just object recognition to move through the street, if you're low vision.

And also, I think it also brings in another aspect of this that isn't talked about as much because these mediums are so visual and that is the hearing and audio aspect of it as well. So we've seen some attempts at this from a product standpoint with the bows AR glasses, which were audio. But this is another kind of deep element that combined with this type of technology and new paradigms and thinking about space around an individual can be really powerful in combination with these other technologies.

Another one is touch, right? So there's new technologies that are going to enable touch in VR experiences that are coming online. We're seeing, a lot of progress in certain things, like the work that Ultrahaptics is doing, and other companies are building sensory experiences into technologies that people can use in virtual reality. But I think that, as long as we're digitizing all these senses this is another kind of layer and paradigm that can be brought to bear for people who need it in other ways. So tons of promise there, and it's super exciting.

Ollie Judge: So, I want to wrap up with a couple of questions mainly around how people should be thinking about immersive experience today. And who should be doing it, who maybe should wait and what are the limitations we have on things are and where they might be going in the future. So, the first thing that I'd like to ask Jay about is that if you've obviously seen a lot of success in training and collaboration: is this the best on-ramp for companies to start thinking about immersive experiences before they start offering a consumer level thing to their customers? Would you encourage people to think about how they could use it internally before sharing it externally?

Jay Wright: No. Depending on the industry and what you're trying to do, I think, certainly, if you're involved in building and manufacturing products and you do design, you're going to be interested in using this. The folks that are worried about that are very different than marketers that are using it to engage customers.

I think the best guidance that I could offer is really in light of the fact that the hype for this metaverse thing is as big as any hype I've seen in my 30 years. The hype and the expectations that are being set are like science fiction compared to products today.

And actually it's quite overwhelming to me. I made the joke recently that the marketing is so ahead of the technology. Imagine that the auto industry took this approach. We'd been watching car commercials where the cars like do vertical takeoff from the driveway. That's how far ahead I think some of the marketing is. So, I think the most important thing for anybody that's looking at this technology is really to do a little bit of homework and understand what's possible.

And working with somebody like frog, best possible path I go in! And so here's what we're thinking. And they've got an amazing process that walks you through. They'll do the look at the landscape and show you examples of these things. And if you're not ready to engage with the professionals to do this, then, get your phone out experience with what's possible with lenses and things on your phone, get yourself a VR headset, and experiment, but it's not an experiment, just try some of the applications, but it's just really important for people to understand what is actually possible and feasible.

Ollie Judge: I want to go further on that limitations and where we're going. I think one of my favorite anecdotes is that like for example game consoles can barely put a hundred players on one server at one time. So thinking that we could have a giant, an interconnected world is way beyond feasibility right now. I suppose let's talk a bit more about the hardware and the software in context to this though.

Where are we now and where could we go in the near future?

Charles Yust: Yeah, I think we're still at a place generally where there are some hoops to jump through in order to engage in some of this technology. We mentioned, holding phones up or putting hardware on your face or things like that. And I think that the promises that is hardware gets smaller, software gets more sophisticated, edge computing and other types of tertiary means of being able to produce the experiences that we're after coming to bear, that things will become a little bit more seamless and we'll open things up, it'll become more



natural. And I think that will unlock a lot of potential applications as it relates to the metaverse, I mentioned a couple of examples before, just like people are engaging in metaverse like experiences with Fortnite and Roblox and Minecraft and creating that expectation that this persistent world exists, and you'll be able to return to it.

And it's also connected to many different people. It's not necessarily AR/VR yet, but again, like the progression of the technology will enable people to experience it at that level if they choose to do so. I think one thing that's important to remember about it is that metaverse, you're seeing a lot of people get hyped up on it and it's mirroring some of what came out of those Sci-Fi narratives, right?

It's "Hey, there's this world and we're all going to be in it. It's going to be great or whatever." But one thing to remember is that those weren't characterized as kind of dystopian narrative. And we need to keep some things in mind as we progressed towards this, right? Because it was such a cool idea. It doesn't necessarily mean that we should pursue it in the form in which it was like narrated or characterized.

And I think if we could go back to some core principles that we've come up in this discussion, like understanding your customers, right? Some customers are going to be first adopters. They're going to hint at, and we'll hint at wider adoption in the future. Others are just really naturally going to engage in this type of stuff, right?

Like my kid loves Roblox and Minecraft, he's going to continue to do, not my cup of tea. Like I would love to build experiences, have people engage in it, but it's not something I'm going to go into every day. So there's subtle differences between customers. And you can only understand that by really diving into quantitative and qualitative research and understanding what their needs and motivations and aspirations are.

Number two: reward customers with value because there's a bit of a hurdle in trying to engage with some of this technology and will be for the foreseeable future, you really have to reward people with extra value. So Anthony's talked about the IKEA example. You're rewarding them with not having to return their furniture.

And there has to be a delivery and ROI for people to really take that extra hurdle, to make that extra click, see that AR hologram as a click-through from a New York times article, whatever it's going to require extra time. And so they've got to deliver some value for them and understanding. And then also making sure that you've got the right tool for the job, right?

So we talked about how VR is great at segmenting people from an environment. And it's great for all sorts of applications in gaming, beyond the VR care and burn example, we brought up, but taking the attributes that this technology has and really applying it to the appropriate response or use case in order to meet the needs of these consumers is going to be really key.

Ollie Judge: So going off the back of the needs of the consumers. There's been a lot of talk around a massive experience and the metaverse and all of the stuff around why should people show up? And especially when we're talking about this in a business context, that's an even bigger ask than just a video game or an entertainment experience.

So Anthony, how do you make sure that you're not overstepping the line of just being a little bit too self-serving as a company and going too much into that marketing material world rather than being tangible useful in the way that like IKEA is? Where is that line and how'd you stop yourself from going?

Anthony Pannozzo: It's a very challenging align because I think they're two realities that I think we have to marry.

Which is one reality is that people have problems that they're all that they're looking for solutions. People are everyday making decisions about what's going to make them happy and what kind of pain they could avoid. And so, a design-led approach to technology is always looking at that and asking, how can we solve this problem? How can we add value? How can we make basically improve that person's experience?

And then the other reality is we have never had more competition for our attention span than we do today. And it's only going to increase, and businesses are more and more facing almost a sense of existential reality that if I don't capture your attention, if you forget I exist, then I will go out of business.

And so, there is more and more pressure to fight for that attention. And so, where we like to live where we think that the balance is how can we provide, how do we make sure that when we are grabbing you for trying to get your attention, so you are aware of who we are, and you are going to consider us when whatever product or service we sell is something that you want to consider?



How do we do it in a way where it is a win-win meaning we are getting your attention and we are giving you something valuable. And to Charles's point earlier, that value starts by always knowing what people care about and what they need. For example, if I'm getting my prescription filled at Walgreens or CVS. And Walgreens and or CVS, no based on my prescription and my, my history with them that I'm probably a runner and they know how old I am, and they probably know that my joints aren't what they used to be.

So when that prescription announcement comes, the text says, "Hey, your prescription for XYZ is ready." And by the way, there's a 10% coupon off for pomegranate juice, which is high in antioxidant and good for swollen joints, that's a meaningful way to not only market and sell me but also, it's one that I'm going to value and again, that's just using a tech stream. So, that's not an example of immersive, but it's an example of how we can and you can deliver value and market to people with it being a win-win for both the customer and the business.

Ollie Judge: Immersive Experiences are promising to create exciting opportunities for brands to engage with consumers. They also give us new ways to engage with each other as people. As the underlying technology develops, Immersive Experiences will go beyond the filters and overlays we currently know and allow us to interact in ways we simply cannot today.

A big thank you to today's guests, Anthony, Charles, and Jay.

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