



The Perspectives Podcast
Good Tech, Bad Tech
Episode One

with

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Café X customer 1: I thought it was a cool idea and also the convenience was something that attracted me. So I'm gonna type in my number, enter my code, and the robot's gonna grab my green tea latte.

Candace Browning BofA: That's a customer at Café X in San Francisco. It's billed as the very first robot-powered café in the country. The technology isn't revolutionary, but it's fast preparing over a hundred specialty drinks in an hour.

Candace: So to get a cup of coffee, customers place an order at a touch screen kiosk, or by using the Café X app. They can select locally roasted beans and specify the kind of milk or flavors that they want, and the robot will get to work. But, is the coffee actually any good?

Café X customer 2: Something about it is slightly robotic. I'm just kidding. I'm just kidding. It tastes totally great.

Candace: Coming up, we're going to consider the effects that automation and other transformative technologies are having on our lives, both the good and the bad. You're listening to the Perspectives podcast. I'm Candace Browning, head of BofA Merrill Lynch Global Research. And with me, is Michael Hartnett, Chief Investment Strategist for BofA Merrill Lynch Global Research.

Michael Hartnett: Hi, Candace.

Candace: And Chris Hyzy, Chief Investment Officer of Merrill Lynch and U.S. Trust.

Chris Hyzy: Hi, Candace.

Candace: On these programs, we aim to take you beyond the headlines and the numbers so you can better understand our changing world and what it means to you and your financial future.

Candace: Today, we're discussing the promise of high-tech innovation and the trade offs we're willing to make for speed, efficiency, convenience, and economic wellbeing. So we're going to return to Café X to get at some of those issues.

Candace: Michael, can you get us up to speed?

Michael: Sure. Café X is the brainchild of inventor Henry Hu, who's 24. And he conceived the idea after being stuck in a coffee line for too long at an airport. Well, we've all been there. And he thought the baristas looked like factory workers, moving cups around and pushing buttons, so he decided to build a robot to do the same tasks more efficiently.

Cynthia Yeung: The robot never gets it wrong. It always does the exact number of grams, the exact milliliters of milk. It doesn't get hungover. It doesn't have a bad day. It doesn't get sick.

- Michael:** That's Cynthia Yeung, the COO of Café X. Yeung is not only focused on making her company and its robot successful, she also has some very interesting ideas on the ways that human beings can continue working in workplaces with increasing automation.
- Cynthia Yeung:** We believe we can sort of set a new standard, and what it means for humans and robots to work together. So even for our entry level jobs, we pay full health benefits, great wages. We do a lot of training on the job, so not just your typical coffee education aspect, but also how do you actually work with the machine? How can you fix it? And sort of help people bring up their technical knowledge, as well.
- Candace:** So, customers are seeing a benefit from Café X. Cheaper coffee, faster service, and the bots aren't taking all the jobs, but they definitely are taking some of them.
- Candace:** So let's talk about the broader impact of automation across the economy. And Michael, I'm going to open it up to you. I know you've done a lot of work on this and put a lot of thought into technology and its implications for labor and jobs, in particular. So what are your thoughts on that?
- Michael:** Well, it's one of the big issues of our era, really. There's no doubt that visibly, you see the impacts of automation, robotics, AI, sort of every day of your life. You're surrounded by it whether you're looking at your children, whether you're going to a store, whether you're in transport. I was in Tokyo recently, in the lobby of one of the banks that we were visiting there, and we see those incredibly smartly dressed security guards that guard the building. Well now they have a robot, that's a security robot, that looks like a Dalk, it's sort of moving up and down the lobby, and of course, it being Japan, you can go and play video games on it, and it's looking out for earthquakes or intruders or terrorism. You know, it does all of that stuff. But the sheer torture of being the man, the security guard who has to look at this robot all day and what that means in terms of his expectations of income, of being able to afford a mortgage and go on holiday and that sort of stuff.
- Michael:** So I think there's this existential impact that technology is having, and I think it really does impact now, how people sort of spend and save and their expectations going forward. I think in 2010, there were one million industrial robots. 2020, there's gonna be three million. And you look in the US at manufacturing, the jobs in manufacturing in the beginning of this century were 17 million. They're now 13 million. So there's no doubt that there is a replacement effect going on. The question is basically, can those four million that've lost their jobs find something else to do?
- Candace:** Chris, what are your thoughts?

Chris: And what's interesting about the Café X example, Candace, is, that's a service industry. And you can expect automation and bots to invade the manufacturing process, but now we're talking about service industries and speed, efficiency. That has enormous implications for future job growth. Not just the displacement of current jobs, but future job growth. And the good in all this is, someone has to service the bot. Someone actually has to understand the algorithms and the technology behind how the bot works, or bots work. And ultimately, repair jobs and everything else that goes into the infiltration of robotics across many industries.

Michael: They've got some fabulous names for that. Trainers.

Chris: Yeah.

Michael: Explainers, and sustainers. These are the new AI jobs that will be created.

Candace: In reality, I get that manufacturing jobs are down and that technology is replacing certain, more automated tasks, even in the service sector, but it also creates job. We're gonna be able to do operations that we were never able to perform on people because of these new tools. Nobody worked at Facebook or Google 20 years ago. So jobs are also being created.

Michael: The question is really, can those humans find new forms of occupation, and throughout history, there's no doubt that the answer is yes. We always do. It's always very difficult to predict exactly what those industries will be, or indeed where those industries will be. They could be in America, they could be in the rest of the world. They could be on Mars. We just don't know. But we've always found a way to create employment and keep people employed. But I think the cyclical story is an interesting one, because the polarization that we see in both Wall Street and on Main Street, the haves and the have nots, there's no doubt that that is exacerbated by technology. And at some point, you wonder if there's not gonna be some sort of policy response to that.

Candace: So what are some of the potentials? I mean, are we gonna have a robot tax? What should the policy responses be?

Michael: I think you will have a robot tax. I think that that's unquestionably going to be the case. A lot will depend, obviously, on how the economy progresses in the next couple of years. We've seen a tremendous amount of technological change in the past ten years. There's no doubt that technology is transformative, it's very disruptive. It's very deflationary. And yet at the same time, US unemployment ten years ago was 15 million people. It's now 6 million people. So it clearly, despite massive technological change, some jobs have been created. And I think as long as the economy's doing well, the policy response is going to be moderate. But when there's a recession, and when people

start losing their jobs, who are they gonna blame? And a lot of the blame will be on automation. On AI, on robots.

Michael:

And that's when policymakers and politicians will step in, and they'll look for prescriptive measures. It could be more regulation of technology companies. They're incredibly lightly regulated. And we work at a financial company, we have, in the U.S., 130,000 regulations that we have to abide by. The average tech company's only 30,000. So they're a very lightly regulated sector. And of course, they're a sector that has done incredibly well. So it would make sense for a politician to make them the center of either taxation or regulatory policies that allow the people that have been displaced by robotics to get an income. People talk about universal basic income. It could be retraining. There could be lots of things that happen with that money and much greater minds than me, including Bill Gates, have suggested this. So I don't think it would be a big surprise if it happened.

Chris:

I'm gonna twist that point a little bit. This thought of robotic tax and extra regulation. Taxes aren't always bad. They do fund things. But to your point, Michael, you don't have to pay social security to a robot. What if you index that amount that you would pay to them in social security, and then, like you said, reinvest in training. Or, perhaps subsidize part of the wage displacement that occurred in those jobs that have remained. And that is potentially a way to take a bad and make it a good.

Candace:

Fascinating. So let's talk a little bit about what all of this means to investing over the next two, three, four, five years. Or maybe even ten years, to take advantage of these seismic shifts.

Chris:

The way I think investors should look at it is, how is technology and innovation advancing the greater good? And that is what creates community development. That's what creates long-term wealth. That's what creates this convergence between education and talent pools and everything else that drives growth in an economy and makes us all feel like the future's gonna be better than the present.

Chris:

So it's really looking across all industries and how they're affected in a good way by technology, and invest in those trends that are driving growth in the economy worldwide.

Candace:

And I think one of the interesting points about that, is that we tend to think of technology in new companies. Right? Whereas in reality, there are a lot of old companies that are successfully deploying technology to adapt to the new world. It doesn't have to all be in new companies.

Chris:

Right.

Candace: There's lots of old companies that are deploying technology very well.

Michael: Yeah. No, I think it's a great point. I think a couple of things I'd add. Number one is, if the stock market is gonna continue to go up, and technology's gonna be a part of that, there's one thing that technology has to prove it can do, which is increase productivity.

Chris: Mm-hmm (affirmative).

Michael: And it hasn't done that yet. And that's very important.

Candace: It hasn't done that yet?

Michael: I mean, either we can't measure the improvement. Either it's too early, or the productivity gains are going to the minority rather than the majority. I mean, there's no doubt that the biggest head scratcher for economists, and they do scratch their head about lots of things, is why hasn't productivity in America sort of picked up much more quickly over the last sort of five years, at a time of great technological gain.

Michael: And the second point is your one about the larger companies. What the market has basically said, "I wanna belong the disruptors and short the disrupted." That's effectively been the trade for the last three or four years. And I think that the ones ... The people that're being disrupted that can fight back with technology, I think are gonna do extremely well. Some of the financial companies, some of the industrial companies. Even some of the retail companies.

Michael: And then the last thing I'd say is, the greatest technological disruption going forward is us. Human beings. And extension of life and so that whole sort of biotechnology thing, I still think is massively underappreciated.

Candace: So the immortality.

Michael: Yeah, absolutely.

Chris: Yeah.

Michael: Immortality investing I think is gonna be huge going forward.

Chris: If you had a way to measure productivity that included a return on investment of one dollar in research in development, I think that productivity number would be substantially higher. We met the whole healthcare industry. How could you measure productivity in healthcare? I'm not gonna say it's immeasurable, but it's really not picked up. So to your point, Michael, if you have wages stagnant and you ultimately have productivity picking up, think of the corporate profitability that can happen, at a time when margins, particularly now, are pretty wide. So that's the good. Then the bad part, almost always says, "Well, do we have the workers there that have the knowhow and the skills to manage the outgrowth of new industries?" And that's the skill gap we have in, I would argue, in the world, but really in the United States.

Candace: We've been talking about the change that technology has wrought across the entire economy. We haven't really talked much about how it might change some of our sort of familiar human organizational norms. Whether it's villages, cities, main streets. What are we gonna do with all those parking spaces when we have automated vehicles, and how is that gonna change the way that people interact and live in communities?

Michael: The bad side of it is the isolation of society. And you get on the subway in New York and just everyone has their head down in a phone.

Chris: Headphones on.

Michael: And you were talking about self-driving cars and the potential positive impact on public finances, a lot of states and municipalities in the US have struggled enormously with finances over the past ten years or so. But if you're able to track the cars and where they park and how long they park for, and various other things like that, you're gonna be able to ... And through an electronics payments system, you immediately deduct from people's bank accounts into the state coffers, I think if you can use technology in an incredibly interesting and innovative way in the least innovative parts of the economy, which tend to be the public sector. And, as a Brit, the national health system being the perfect example, which is, I think only second to the Red Army in terms of the amount of people that it employs. But that's a massively positive use of the technology.

Chris: Michael, you are dead on about how do you take something that is a disruptor and bring it into the least efficient parts of society and the public sector. Think of the technology that's going on right now across natural resources. How do you manage natural resources better, across the globe, here in the United States and Europe. Wherever. Particularly water. And you're talking about filtration systems, farms. They're much more efficient with the use of water. Not to mention the yields that you get in cropland, now. But also the dams. Think of the leakages and the erosion that occurs. And if you don't have technology to help you understand when that's occurring and to stop it immediately, it would be a much worse situation. Same thing with other natural resources, whether it's food, forest, or fuel. All of this plays into the ability to manage something more efficiently and use it and let it go further than what it goes today.

Candace: So we started out talking about Café X and robots making coffee. And now we're talking about the efficient use of water and dams and it's obviously really grown as a conversation because technology has such huge impact across the globe and the economy. But if you each had one or two final takeaways on good tech, bad tech, what would those be?

Michael: I think good tech, I think again, it's the immortality investing the impact of CRISPR, this technology, which is about genetic engineering, I think is just gonna be huge going forward. I think I may be too old for it, but I do think my kids could live to 100, 120. What's the important thing is, whether the quality of life when you get up there can be improved as well. Because I think it's easy to keep people alive, but whether the quality of life is as good is a different thing. So I think that I would look at the winners in the immortality investing space. I think biotech looks way more interesting to me than old fashion technology going forward. But I think the other thing you'd want is a basket of companies that are being disrupted by technology, but are up to the challenge, that actually have a strong enough balance sheet, smart enough technology, good brands that can actually cope with that.

Chris: Yeah, I think at its roots, technology is the study of advancement. And if you could harness advancement for the better, whether it's in the public sector or the private sector, it's a very, very good thing. I think we get way too caught up in looking at the bad in what happens coming out of technology, when in fact it's really been since the start of time. Sundial, and you go from there. Steam engine and more. And we're really into the fourth or fifth revolution, I think, at this point, in terms of technology. And now, it's really gonna hit a head when we think about the heat and the energy that's gonna get created trying to store all this data. And I think that's the next thing that we have to figure out is, what is the storage aspect, and what is the power aspect of that data being held somewhere?

Chris: Last but not least, from an investment perspective, and it really is looking at technology across all industries. So diversified portfolio, constantly think about what are the growth trends, and invest over time around that.

Michael: And it will be very interesting to see the reaction in terms of investors and the market to the first company that says, "We're going 100% automation." The first service company that just says, "We're all gonna do it with robots." And if a company comes out and says that, and their share price goes up 10% that day, everyone's gonna do it. And then, that's when you'll get, thereafter, the sort of policy reaction. There will need to be a policy reaction thereafter. So it's gonna be fast moving, a lot of fun to watch.

Candace: Well, great. Well let me leave it there. All the way from coffee to full automation.

Candace: You've been listening to the Perspectives podcast. My cohosts are Michael Hartnett and Chris Hyzy. I'm Candace Browning. For further insights, listen to other episodes in the Perspectives Podcast series. Thanks for listening.

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