

Life 2.0: Jonathan Brill on Radical Change

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SPEAKERS

Jonathan Brill, Yan Chow (Host)

[00:00:09.80] – Yan Chow

Welcome to Life 2.0, a podcast about the personal impact of future technologies. I'm your host, Dr. Yan Chow, a physician, a technologist, and an entrepreneur. This podcast explores upcoming innovations and how they will transform daily life for you, your kids, and their kids. Life 2.0 will interview thought leaders who can help us understand what it really means to be human in the 21st century. My guest today prepares organizations to profit from radical change. As a business futurist, he is an expert on resilient growth, innovation, and decision-making during uncertainty. In fact, he recently wrote a book entitled **Rogue Waves: Future Proof Your Business to Survive and Profit from Radical Change**. He was a senior leader and the global futurist at Hewlett-Packard, where he directed long-term strategy programs, he was a creative director at Frog Design, And the managing partner of innovation firms that created over 350 products, causing *Inc. Magazine* to call him a Silicon Valley legend. He is the managing director at Resilient Growth Partners and a board member at Frost & Sullivan, a major market intelligence firm. My guest has developed products for both fictional heroes and real people as the futurist in residence at Territory Studio, the creative visionaries behind the sci fi movies **Ready Player One** from Steven Spielberg, **Ghost in the Shell**, and **Blade Runner 2049**. He advises globally on product innovation and resilient growth strategy with many clients including Samsung, Microsoft, Verizon, PepsiCo, the US government, and the MIT Media Lab. And he is actually an in-demand thought leader, speaker, and contributor to TED, Singularity University, Korn Ferry, JPMorgan, Forbes, and *Harvard Business Review*. My guest holds a degree in industrial design from Pratt Institute and has done extensive management training at Stanford. Who is my guest? He is **Jonathan Brill**. Welcome to Life 2.0, Jonathan!

[00:02:18.09] - Jonathan Brill

Hi, Yan. Thanks for having me, I'm excited to be here!

[00:02:21.30] - Yan Chow

How can listeners contact you if they want to follow-up?

[00:02:24.90] - Jonathan Brill

I have a LinkedIn page, Jonathan Brill, obviously, is a great place. And there's an email link on my website, which is easy to find at jonathanbrill.com.

[00:02:39.09] - Yan Chow

Fantastic. Please share your background, your interesting career path to becoming a futurist, and the interests that you have developed along the way. In fact, what *is* a futurist?

[00:02:48.40] - Jonathan Brill

Yeah. That's a great place to start. I think there's a lot of confusion about what futurists do. People think that I predict the future, which isn't the case. Most of what I do is I look at the past to understand the range of what's historically been possible. And then look at emerging trends and say within that context, you know, what could be next, and are we prepared as organizations to take advantage of those changes? So, when you think about the world today, you know, if I told you five years ago, we'd be dealing with a pandemic, a global fiscal crisis, a demographic inversion that's gonna shift consumer behavior, the largest land war in Europe since World War 2, you might have told me I was crazy. And yet these are all things that happened in the 20th century. And so, there's no reason to believe that they wouldn't happen today. So, a lot of what I do with organizations is help them think about innovation in that context, in the world that could exist, that is likely to exist, it's plausible to exist when that process or that product innovation comes online. Will that innovation create the desired opportunity, the desired change, the desired agility, to grow? And it turns out that companies that look at this bigger picture and then plan for both resilience and growth, they tend to have about 81% higher economic profits over the 13-year period between 2001 and 2014, according to a recent study by McKinsey. And they come out of disruptions, economic dips, faster than their competition. About 40% faster, 39% faster. And they tend to maintain the growth that they capture, sure, in those disruptions after the fact.

And so, what I'm suggesting is that maybe we don't really wanna look at business continuity and resilience and innovation as separate things. Maybe if we want growth, they're the same thing, that we need a resilient growth strategy moving forward, that the companies that do this, the investors that do this, they tend to have the best outcomes. Example: In 2020, the US economy, which is measured by GDP, gross domestic product, dropped about 3.5%, But the number of billionaires increased about 13%. How could that be possible? It's when that moment of disruption happened, when other people weren't able to put money into the market, they took leverage. They took leverage at the highest point that they possibly could,

and so they had these massively outsized outcomes. And so, in a more disruptive world where what's called structural economic growth is going to become more challenging in many countries of the world, likely including the United States, learning how to lean into disruption is a key strategy for growth. And innovating around this idea of how do you lean in when it's hardest? How do you lean into risks that other organizations, people, investors are unable to take when they're unable to take them? That's how you create the greatest value. That's how you charge excess rents, right? When you can do something no one else can do, and you can do it safely, I mean, that's the winner. And that's what innovation, to me, is all about. I used to think it was about cooler products and prettier buttons and all of that stuff. And that's all important, but really only in service of creating new value, being able to do things that we weren't able to do before, to safely do things that were too risky before. And that's a lot of what I think about today and that's what I help companies with – is that link between resilience and growth, how do we create innovation that sticks?

[00:07:01.19] - Yan Chow

Have you always wanted to be a futurist? Does it take a certain mindset to do that? And when you counsel companies, is that mindset in short supply at a company that you have to actually do what you do to bring that out.

[00:07:16.80] - Jonathan Brill

I would think of it slightly differently. Many organizations are incentivized for quarterly results. And therefore leaders, right, you don't get to be a leader of a large organization without being somehow coin operated, are incentivized to make short-term decisions over long-term decisions. In that world, it's really hard to come in and say, here's the future in seven years, when the CEO says my average lifespan's about three years. And everybody below that, they certainly don't have board support to do things that the CEO doesn't. And so, you end up with this challenge. And so, not just a mindset shift. It's about how do you manage these incentive structures and how do you manage the command-and-control mechanisms that they cause. And you can do that. All I'm suggesting is that when we make short-term decisions, we always ask, does this increase my optionality and my potential as much as possible over time? And often with very, very small tweaks, we get much better decisions when we recognize that the future is likely different than the past. It's likely different than our professional experience. When we start with that perspective, we end up with very, very different outcomes, often very, very different decisions, and often small hedges that create massive value.

An example. Toyota is really the inventor of lean manufacturing. The idea of, like, just-in-time manufacturing, they're, if not the best in the world, one of the best in the world at this. No spare parts, nothing unplanned, no waste – that they were the best at this. And during the Fukushima nuclear disaster in Japan, they had a problem, which is that they had a couple of producers who were local that made critical parts, and that janked up their entire supply chain, it janked up their ability to produce. Whereas General Motors or Ford or whoever, they went on just fine. And so Toyota stepped back and they said, this is fascinating. How do we make sure that doesn't happen again? And they identified 250 components that they wanted

to have a stockpile of, an excess supply of, just in case something like that happened. And to be clear, they didn't actually own that six-month supply. They found organizations that financed holding that, holding back that six-month supply in case something happened. So, they didn't actually have to pay the money upfront. It was, you know, percentage points or half percentage points on these critical parts. When there was a natural disaster in Taiwan and the semiconductor industry shuttered to a stop in, I think 2016, Toyota went through smoothly. In 2020, in the face of COVID, when the same sorts of things happened across supply chains, Toyota, unlike its other large competitors, went through the first year of COVID smoothly. And while that was a terrible year for automobile manufacturers, it was like when everyone stopped driving for a year, it was a terrible year for automobile manufacturers, but Toyota actually became the largest automobile manufacturer in the world. And they're likely to continue to maintain that growth because they follow the patterns that I was talking about.

And so, when we think about organizations, you don't need to be a large organization. You don't need to spend lots of money to innovate in ways that significantly improve your performance when what I call a rogue wave hits. And a rogue wave in the deep ocean is sometimes a 120-foot-tall wall of water that pops up literally out of nowhere when 12-20 individually manageable waves combine, just for a moment, and these things can pop up in seconds or in minutes. And they sink even the largest ships. And I think the same thing happens, at least the way that we model these things, is very similar in financial markets and business and in life. And so, if you start looking at the combination of events that are likely to happen next and what that combination, how it would impact you, how it would impact your business, you end up identifying waves, places that are of the greatest value to innovate. You find those no-regrets opportunities where if you get this right, man, the downsides are awful small and the upsides are awful huge. And I think in our, like I said, in our increasingly disruptive world, our increasingly connected world, I think this is a key strategy for growth. And I think if we look at the world in this way, we stop just reacting to whatever crazy thing happens next. And we start, maybe we don't know what happens next, but we start being ready for it. We start being able to lean into it, put our shoulder into that moment and take advantage of it like billionaires did in the face of 2020.

[00:12:26.79] - Yan Chow

I like the idea of being able to argue from a risk and adaptability viewpoint. It's a little bit like what Southwest Airlines was famous for doing, which is to hedge its bets on airline fuel costs by buying futures. Very, very, farsighted, and very useful. I know you've done a lot of innovation, a lot of projects. I'd be curious across the industries, you know, what kinds of things you remember about interesting projects.

[00:12:56.50] - Jonathan Brill

Yeah. So, I am under nondisclosure agreements for a lot of stuff. And so, I'm gonna be a little vague in some places and very specific in the places I can be. So, an example of what we did at HP where I was the global futurist in 2019, 2018, we made a decision to re-architect the firm. Unfortunately, we had to let about 16% of the workforce go. We shifted our

global location strategy because of the cost of rent. We developed work-from-home strategies. And in the process of this, we also looked at where are, we didn't just look at how do we save money, we looked at where are the available skills, you know, 5-10 years in the future? What do we know about the cost of labor in those places 5-10 years in the future, right? And how do we make sure that if one location goes down, we have the ability to operate remotely in that location or to pick up that disruption through other labor around the world?

Now going into 2020, something really interesting happened. And this goes back to the short term versus the long term. We hadn't hit our quarterly targets. And, early in 2019, Carl Icahn, an activist investor, perhaps the most successful investor on Wall Street, more successful actually over time than Warren Buffett. So, this guy's no clown. He knows what he's doing. He came in and he said, okay, I want to lock you up with Xerox, the printer company, because HP, most of its margin actually comes from printers, not computers. I want to lock you guys up. And HP fought this. And I think it's a really good compare about short-term optimization versus long-term optimization. When COVID hit, HP stock went to an all-time high. Their sales went to an all-time high. Yeah, it was a rough year, not saying it wasn't, but Xerox's earnings per share dropped 69%.

And so, when you start saying, okay, well, we've got to optimize our organization, we've got to cut costs, and so on and so forth, you can do it in a way that just tears the company apart when disruption happens, Or you can do it in a way that gives you massive opportunity because everyone else is being torn apart, right? Like there's this in innovation, there's this concept called blue ocean strategy. And the idea is how can we take what we do or what we're capable of and use it in a new market. And that's, you know, a lot. Lots of organizations do that. And so, it's a pretty good strategy, in calm times. But in disruptive times, what you want is to right your ship or surf the wave faster than your competition. Because when everyone else is capsized, that's blue ocean for you.

So, there's one example. I worked with a large food and beverage company. What you see in that space in grocery stores, there's what's called the center of the store. There's what's called the edge of the store. The center of the store is all the stuff with grains and wheat, cookies, Nacho chips, soda pop, you know, those sorts of things. On the edge of the store, you see green things, you see refrigerated fresh items. This organization was very concerned that their portfolio was at the center of the store instead of the edge of the store. And so, we looked at all of their brands. They owned many of them. This is not a small organization. And we shifted their portfolio. We said, okay, well, as the world changes, if there are regulatory shifts, if there are changes in consumer preference, because, you know, young mothers aren't feeding their kids corn chips and doctors are telling our grandparents that they can't drink soda pop. What we did was we said, okay, well, what are the things we could quickly move into our portfolio to make these shifts? So, we developed many products for this organization to prove that these shifts could happen, and they implemented a lot of the work that we did.

My point is that that wasn't – on the scale of this organization – was not a hugely expensive project, but it radically increased their options and their potential no matter what happened. It shifted them away from specific types of seed product, right, inputs and gave them a more distributed set of inputs. It shifted them so that they could touch a different set of consumers that they weren't touching effectively, and gave them the ability to grow, to be resilient at the

same time, at no significant cost to them. And I think that's really effective innovation, right? It's not just, how do we come up with the new iPhone? That's great, but how many Apples are there, right? It's about how do we look at our consumers' changing needs over time. How do we look at our operational processes over time? How do we make sure that you have both the agility, which you were talking about, Yan, and the ability to accelerate, right? The ability to put some lead on the pedal when that opportunity hits. So, it's not just about maximizing your optionality. It's also about maximizing your potential. And I think that's what effective innovation is.

[00:18:32.29] - Yan Chow

So, when we talked last, you mentioned a really interesting difference between the US and China in terms of innovation. Maybe can you elaborate on that?

[00:18:42.00] - Jonathan Brill

Yeah. In the US, I think we see a lot of innovation that, as a country, the US and China have very different economic and innovation strategies. Since the height of the Cold War and as we moved into peacetime in the early 1980s, we saw a decrease in government research and development spending, I believe in real dollar terms, but certainly as a percentage of GDP, as a percentage of the total economy. And we shifted that innovation responsibility onto companies. At the same time, we did something interesting in the late 1970s, which is we developed this idea of the manager-owner. And so, we started giving senior managers huge amounts of stock options instead of cash, to try and align their interests with the interests of shareholders. Well, as shareholders are looking for shorter- and shorter-term results, you end up with companies that are looking for shorter- and shorter-term results. If you realize that a new product, a new business typically takes five or seven years to get to scale, and you look at the quality of investment that you can make over seven years, that the type of scale it needs to hit, to meet investor demand, it becomes very hard to innovate. And yet at the same time, that means it's very hard for companies to survive over time. And that's exactly what we've seen since the 1980s, is a rapid shrinking in the lifespan of large organizations. They get consolidated, they get bought up, they get split up. You see a lot more activist investment and it's all tied to this question of who should be doing the innovation in this country.

Now, as you know, Yan, there are multiple types of innovation, right? There's product innovation. What new feature are we going to put on this product? There's platform innovation, right? What's the next Internet? What's the next deep thing that we make? So, HP, right? Their platform is really around microfluidics. How do you move very small amounts of liquid so that you can do printing. And that's their platform. The products, they might sell a thousand different printers, but their platform is that core thing. And so, that platform innovation typically takes a lot longer. Often it takes longer than that, sort of, three to five years that most general managers have permission, at the outside, to innovate against.

That's a problem when the government doesn't invest in innovation. We're trying to change that. There's a number of proposals, that they have been successfully passed, in both the Senate and in Congress. They're going through negotiation processes. We'll see how and where that ends up. Hopefully, this year, before we get into the presidential election cycle, that'll end up on the president's desk. Who knows? But what that's going to do is it's going to focus the innovation priorities of the country. So, we saw the CHIPS Act that was recently passed where we're trying to create a semiconductor strategy in this country. We're going to try and create a more effective manufacturing strategy in this country. We'll see if that works. We're gonna have to find a more effective biotech. That's gonna be the next economic boom, we think, in this country. The Biden administration's been talking about how to do that. When you take a look at China, they do what they call five-year plans. And in, maybe 2017, they published something called Made in China 2025, which the Trump administration went bonkers about because what they were looking for is total manufacturing independence, process independence from the United States, you know, in a seven-year period. That's an aspirational plan. They're not gonna get there. But it laid out where they're going to go, where they're going to compete. So, in quantum technologies, in semiconductor technologies, in robotics, in autonomous vehicles. Those places, while they've stepped away from the name, are where the Chinese government is spending and where they're selectively driving competition or picking winners in their economy. It's very much of a wartime approach to innovation. You know, Lockheed's gonna do whatever it's gonna do, and Boeing's gonna do whatever it's gonna do, and, you know, so on and so forth.

And so, we, if we want to compete against that approach, I think in this country, we need to have a more centralized innovation strategy than we do today. We're moving toward it. But the question that I have foundationally right now is how quickly can we move toward it? And can we backfill the lack of innovation funding and the lack of innovation process in the gutting of the corporate research labs over the last thirty years, whether it's, you know, ADL, Arthur D. Little in Boston. Bechtel has had trouble with growth, SRI has had trouble with growth. Those are the kind of corporate innovation firms that do government stuff too. At the same time, places like HP Labs have been gutted. We're seeing pressure right now on X, which is Google's advanced research lab. IBM has gutted a lot of its research labs over the last thirty years, you know, starting in the 1990s.

And so, we've got to figure out, you know, can we rebuild these things fast enough? Because startups, well, it's a way to create a broad range of innovation approaches. They often don't have the time flexibility to get foundational innovation from idea to market. And they often don't have the maturity of management to manage these long-term processes. You know, occasionally you get kind of the SpaceX model where, hey, you know, we're gonna take the Russian project management approach. We're going to apply it with 21st century technologies. And we're going to go into an environment where Boeing and the prime contractors – this is what they're called – who just kind of wait for the government to tell them what to do, aren't going to compete. And we're gonna innovate the entire process. Like, occasionally you get that, but you've gotta have a guy like Elon Musk who's willing to put his own, you know, 50 million dollars behind it. And when he runs out of money, NASA's gonna go and back him, you know, just to create price competition in the market. That's a pretty rare situation to have an individual who's gonna say, hey, I'm willing to wait, you know, 15 years. Yeah, 13 years for a return on my investment. Admittedly, it's been a really great bet. But it's pretty rare for someone to say, okay, I'm gonna put my money in a couple of

things, you know, in Tesla in which we'll see if it's a great bet. I think there's still some challenges in SpaceX, and in Solar City, which turned out to not be such a good bet. You know, but he made some big plays, you know, and artificial intelligence, as well, you know, and OpenAI and that sort of stuff. We'll see how that plays out, if that's a monetizable bet or not.

[00:26:33.50] - Yan Chow

Yeah, it's a really interesting perspective on innovation as a wartime activity, the role of the government is also very interesting because they are being very, in China, I see it as being very strategic, just like you said, in trying to dominate certain entire areas, not just the sort of one by one startups that come out of Silicon Valley, but actually dominate the foundation of certain areas like AI, let's say, or now they're trying to dominate battery technology and things like that. How do you see that? What is the role of the government? Is there more potential in doing that than, let's say, letting individuals like Elon, you know, invest where they will.

[00:27:24.09] - Jonathan Brill

Well, if you want to go to Mars, you know, the 'invest in Elon' strategy is a great one. If you believe that, you know, there are foundational things that need to happen here and that's a little snarky by the way, because to survive on Mars as a species, we need to first invent all of the things we need to survive on earth as a species. So, like it's a McGuffin, right? It's, in the Alfred Hitchcock movies, there's always that thing that gets the story going, you know, the bomb under the table. Yeah, the bomb in the suitcase under the table. Maybe going to Mars as a McGuffin that solves all of these other problems is a very interesting one if it is. What's interesting to me about the Chinese approach, and I get nailed as a Sinophile a lot, by the way, and it's not that I am in love with China. I have tremendous respect for the most incredible economic feat in the history of our planet over the last forty years and what they've learned, which is, you know, in the West we have kind of the European approach of this very centralized approach to innovation, and in the digital world, it really hasn't worked out, right? You don't see a lot of European Googles, right, or Facebooks, or you name it. So, there's something to be said for the American approach, right? It works.

The question that China's been asking and to the extent that they've avoided corruption, it's been very effective, is how do you blend these two things? And so, I think there's something there in terms of how do you blend massive competition, what they call letting a thousand flowers bloom, saying we're going to go into LED manufacturing and just we're going to fund every Christmas tree light manufacturer and computer screen backlight manufacturer and precision whatever, you know, whatever else you use LEDs for. And we're gonna let a thousand flowers bloom and then we're gonna suddenly cut off the funding and see who survives. You know, that's real powerful. And then the third approach that they've used in core technologies, whether it's software for self-driving cars or voice-to-text or machine vision of face and body, they've taken leading companies, whether it's companies like ByteDance, whether it's companies like Tencent, Alibaba, and said, okay, you're gonna really focus here. You're going to lead in this space, because there's no point in everybody

competing for, you know, for this piece of the puzzle. We want, we, we don't have enough brains. We're gonna get our brains distributed on all the stuff that matters. The result of this approach is that they've been radically ramping PhD production, new researchers and on a relatively straight-line basis since about 2000 increasing the number of high-quality, what are called triadic, patents, in the Chinese ecosystem. So, these aren't like garbage patents that are only for China or whatever. These are patents that are protectable anywhere in the world. It's the good stuff. If you take a look out, and COVID may have shifted the time scale out, you know, a few years, but let's call it 2027, 2030. China will be producing as many high-quality patents as the United States. That's pretty significant when you think about it.

[00:30:47.79] - Yan Chow

The advantage of a government-led innovation strategy is that you can actually synergize across industries where you think there might be a strategic advantage as opposed to letting it happen organically as it would in the US. And you could gain some time advantage and market advantage in terms of getting to where you think you should be. Of course, it requires the strategic vision on the part of the government. It requires a little bit of a risk for them as well. Just to shift the discussion a little bit, what do you think the role of, let's say, countries that are still in the third world, what is their adaptable strategy, do you think, for innovation?

[00:31:27.20] - Jonathan Brill

I'd like to just go back one step to this idea, that of kind of innovation strategy, especially in the United States. We have this story in this country that, you know, Silicon Valley kind of invented itself. Well, that's foundationally not true. What happened is that I believe his name was Bill Draper, who was the son of one of the generals who was leading the Marshall plan in Europe, got a bucket of money, you know, on his dad's recommendation, and got sent out to Stanford and Berkeley and found all these engineers, said, hey, you know, you're doing your weird engineering stuff. Would you like some money to start a business? Yeah, that was government-backed innovation, this core, this research core that you and I live in is based on government backed innovation, right? Kaiser, right? You are in the healthcare space, Kaiser, you know, well, who was he? He's a huge ship builder up here, all down the coast. But where I live in Sausalito, you know, we were building Liberty Ships. This was all military-industrial complex. You know, up until the 1990s, you know, San Francisco was a Navy town. Yeah, that's where the war in the Pacific was commanded. It's where we trained our Naval officers. And so, when you take a look at the Silicon Valley story that this is all stuff that happens because you have innovators and money. It's like, no, it's stuff happens because you have a military-industrial complex. So, we need to really think about what that wants to look like for the next stage of innovation, the next types of innovation we need to do as a country.

Going to your question of what do you do in emerging economies, it's really hard for governments to get ahead of innovation right now. So, we have, we've had this very loose money policy in the United States. I'm just setting a background for why this is gonna be so hard to innovate. We've had this loose money policy in the United States since, you know, 2008, before that, but especially since 2008 where money's been cheap, right? Interest, it's

have been low, you know, during COVID interest rates were below inflation. I mean, it was insane. Like they were just trying to get us to put money into anything, to the point where, you know, in 2020, the government was basically guaranteeing our bets. As inflation's ticked up, and it's going to take a while, a number of years probably to pull it all the way back down, interest rates are ticking up. The cost of the dollar is ticking up. And if you're any small to medium sized country, right? Call yourself Cambodia. Is anybody going to lend you money on the Cambodian riel? No, they aren't. They're going to lend you money on the dollar. So, all of a sudden, the cost of infrastructure, the cost of innovation, the cost of doing anything that's not a local service business, has gone through the roof. And so, you're gonna end up with this challenge as governments where you're just trying to figure out how to provide basic services. And innovation is a secondary issue. The challenge of course is the same thing we were talking about with companies, right? When you start dealing with the short term when you start aligning management with shareholders, you know, what you end up with are decisions for the short term. And as the world evolves, it gets harder and harder and harder to move up the income stack to charge excess rents if you aren't innovating with the best in class. And so, I think this is going to be a huge issue across South America. When you take a look at the concerns about immigration on the border, yes, a lot of that's political, you know, whistleblowing.

On the flip side, you take a look at all of these countries that don't have strong innovation economies, that are based on resource exports or commodity exports, they're all gonna get hammered, especially as the entire population of South America is older than the United States, which means that the cost of healthcare goes up per capita and the amount of consumption on other things, you know, buying cars, houses, education, jeans, you know, it goes down. And so, it becomes really, really hard to grow your economy, when you have consumers who are adding to the social safety net, but not earning and not spending. Like how the heck do you tax that? So, it's gonna be a really hard spiral in places like South America where you have that kind of situation.

We're seeing that aging population to different extents in all of the twenty, I believe now all of the twenty largest economies and the United States, we believe last year or this year, that that's happened in the United States. Historically in this country, we have a really good immigration policy. People want to come here. Well, if you start yelling at immigrants and saying that they're so bad and in places like China, there's more and more opportunity to, which is the largest producer of PhDs – and by the way, we train a lot of Chinese PhDs here – we start saying the kinds of things that you hear in politics here. And it starts to be less and less appealing to be an immigrant in the US, a high-end immigrant, the type that in the first generation drives the tax base. Now what you see typically is historically we've brought in relatively low-skilled immigrants and then their second or third generation, they start driving the tax base in a meaningful way. But now, in our world as it is, we need those first-generation immigrants to do it, and I don't think we're teasing ourselves up well to bring them in.

[00:37:06.40] - Yan Chow

I think it's interesting. I had a discussion with a previous guest about frugal innovation, specifically in India. And that's very interesting, you know, as you say, that's it's hard for

countries that are not well resourced to keep up with the state of the art, but maybe they have a different market. Maybe the frugal innovation market is actually other third world countries. And so, that actually increases the digital divide between countries. Is that a feasible way to go, you know, for countries that are not well resourced?

[00:37:38.40] - Jonathan Brill

India's a relatively unique situation for two reasons. One, there's a lot of room for people to come off of the land and move into cities still. The second is that they are the one large country that will have an excess population of people with the equivalent to four-year degrees by 2030. And so, there's a lot of room to run in India. They still have a youthful population, more so than China, and so they're gonna have room to run. Nigeria, if it's successful, will be the next major growth player after India. For so much of the world, sure, frugal innovation and export to peer countries may be a path forward, but only in situations where, you know, the knowledge set of service workers isn't there in the downstream countries and where automation isn't a better path forward. And there are many situations where that's the case, right?

There's lots of short-run manufacturing where exporting that, which China's actively trying to do with its Belt and Road initiative, because of these demographic issues I was talking about and the increasing wealth of their population, there are lots of places where they're gonna try and do that. But the question is, you know, if you, as you go to 2050, 2070, will those opportunities still be there or will there be a large opportunity, a large population that isn't able to move up the industrial ladder because automation will be a blocker to it? It could be a major issue.

A lot of the people who look at this stuff, they just kind of look at the straight-line metrics of, like, oh, automation is growing at this rate and robotics are improving at this rate without realizing that there are core cost issues, right? Like, no matter how cheap computers get, you're still gonna have to build the computers, and those resources are gonna, you're gonna need resources no matter how good AI gets, right, you're still gonna need the energy for that artificial intelligence. No matter how efficient robots get, you're still gonna have to program them and you're still gonna have to buy the motors, which are really expensive. If those things don't cost reduce dramatically, you have basic things where there's a price-technology curve and, versus labor. right? And the labor is always gonna be cheaper, but the thing is that price-technology curve is gonna push down and push down, leaving less and less room for that labor to get more expensive and move into the US-level middle class.

[00:40:21.30] - Yan Chow

What are you focusing on these days? And is there another book? Is there another speaking tour?

[00:40:26.59] - Jonathan Brill

I've been talking about the hard things that we're facing, and I think that there is a mindset shift we need to make as a species, and we've been doing it. When you take a look at, for lack of a better word, what I call luck, luck has been improving dramatically as a species, right? We've seen massive increases, over the last 150 years, of lifespan, you know, from less than 30 years to 75 worldwide today. That's pretty wild. You know, 8X'd the carrying capacity of the world, in the last 150 years, the infant mortality and childhood mortality has dropped dramatically. So, we've been getting a lot more what I call lucky over the last 150 years, and that's driving this push toward the explosion of the middle class. By 2035, in pre-COVID numbers, if you do a straight-line analysis by, what's called purchasing power parity, which is the local income, the local equivalent income, so if you're in yuan, it's not like one to one with the dollar, it's what can you buy for that yuan in China. By 2035, we're going to see about a billion more people between 2017 and 2035 coming into the US-level middle class, which is stunning. And when you take someone out of rural poverty in Africa and you put them in Houston, their resource consumption goes up about 32 times.

So, we have a foundational issue, right, which is when you put these billion people and you take them out of rural poverty, and they're in the process of that, right? And, but a new group will come in and fill their slots, right? And you put them into Houston, the Houston-level middle class. You have an order-of-magnitude increase in resource consumption. If we don't figure out how to share more effectively as a species, we're gonna have, I think, a civilizational issue. So, what I'm really interested in now is how do we increase? How do we dramatically increase? How do we exponentially increase the efficiency of luck on the planet? Because what that really is when you think about it, is a massive increase in the efficiency of resource consumption. If we had eight billion people on the planet and all of them had horses right now? Like, you think about the problems of gasoline, like a lot of problems with gasoline, but eight billion horses would be a bigger problem, right? 27 million people in Beijing, 27 million horses. That's gonna be a huge amount of manure to scoop.

So, we've gotten way more efficient is my point. When you take a look at carbon emissions in the United States, lots of problems. But what you might not know is that we're back to 1913 levels per capita in the United States.

We're getting way more efficient, but we're not getting efficient fast enough. Just because there isn't a really good word for this, I think it's luck. How do we increase the quality of luck? How do we increase the amount of serendipity in the world, so that instead of having to hoard resources, we're comfortable that we can share them, that we can put them into flow. And it turns out that there are four major mechanisms for thinking about luck, for improving the what I call structural serendipity in almost any situation, right?

You've got to be able to leverage help more effectively. How do you increase unexpected connections? The explosion of the university system in the United States, the internet, right? These are all things that radically increase the number of unexpected connections on the planet.

The third piece is, is how do you co-evolve, right? How do we, we were talking earlier about how do you increase optionality and potential no matter what happens next, right? If you take a look at the history of evolution, the history of species, right? The ones that survive when the world changes, the companies that survive when the world changes, right, are the ones that are able to pivot, right? They've put those options and that potential into their

architecture, right? And some of that is in the DNA, but a lot of it is having pieces in place so that you can adapt, just like Toyota did, when the world changes.

And then the last piece, and this is the hardest piece for managers because of kind of how, because of how we're educated. We teach project managers to use deductive thinking, right? To say, okay, given the facts that are here, what must be true? Well, that's really useful, I guess, if the world is what you expect, and the world doesn't change. But in a world where we know that the future is not what we expect and in a world that we know is going to change, the question that we really need to ask, or the thing we really need to do, is know what's missing. What fact that I knew to be true, if it turned out not to, would change my opinion, and what fact, if it came to light, would change my opinion, right? And how do I act? How do I create? How do we co-evolve against those questions, against those issues?

When you start to do these four things – leverage, help, create unexpected connections, co-evolve and know what's missing – conveniently an acronym LOCK, you create a much better life for yourself, you create a much better life for your family, for your business, for your community, and for your world. And this is at the core of innovation, the types of network innovations we need to thrive as a species moving forward and as a business. These are the things that I hope that you are participating in, investing in, creating, because if you aren't foundationally creating a better world, why are you in business? The way you make money, the way you make massive amounts of money, is by doing those things for customers, right? Helping them get more help, more resources, more access, creating unexpected connections and improving deal flow, improving access to alliances, co-evolving, allowing them to pivot, to be agile, to not be bogged down by excess resources and helping them know what's missing, finding market intelligence, doing business continuity planning, so on and so forth. If you do those things, you create massive value for your customers. So, these are all interlinked ideas, right? But if we look at how do we hit the quarter instead of how do we hit more quarters, we limit ourselves, we limit our businesses, we limit the potential of our species.

[00:47:06.09] - Yan Chow

It's really interesting. It was a fascinating conversation, Jonathan. I wonder if you could share again how people can get ahold of you.

[00:47:13.80] - Jonathan Brill

Sure. There's a link on my website, jonathanbrill.com. And please follow me on LinkedIn.

[00:47:20.80] - Yan Chow

Great. Well, it was a real pleasure, Jonathan. The hour has gone by very fast. It's great talking with you. Let's keep in touch. And I really want to thank you for being a guest on Life 2.0.

[00:47:30.69] - Jonathan Brill

Thank you, Yan, it's a pleasure to be here.

Transcript Highlights