



# WHY BUSINESS LEADERS MUST BECOME TECH LEADERS

## AUDIO TRANSCRIPT

### Built for Change: Episode 02

00:00

**Mona Flores:** Yes, you need to wear a mask. no you don't. You know, you can use this test. You can use this other test. This is better. This is what, you know, what's going to tell you that you have the disease. So it was all over the place.

MUSIC

**Josh:** This is Dr. Mona Flores. She's the Global Head of Medical AI at Nvidia.

**Mona Flores:** People were just postulating all kinds of things...Social media, from the news, from, you know, people we talked to, everyone had a different opinion.

**Elise:** Dr. Flores is talking about the frightening period of time when the COVID-19 virus was spreading rapidly throughout the world, but we still knew very little about it.

**Mona Flores:** And we had no idea what was going on. But one thing that was evident is there was a need for something to happen, anything that we could help in.

**Josh:** In the Spring of 2020, hospitals reported a shortage of ICU beds and ventilators.

Oxygen supplies were precious. And as resources were stretched thinner and thinner, triage was of the utmost importance.

MUSIC

**Mona Flores:** Do I really need to worry about this patient or can I just send them home?

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Or can I put them in an, you know, across the hall in the stadium that we had set up for patients for observation? Or do I need to actually rush them to the, to the ICU? Do I need to make sure there's a bed available for them? Because in 24 hours they're going to need the ventilator.

**Elise:** It was as if doctors needed a crystal ball: which patients would fare well, and which patients would become critical?

**Mona Flores:** Anything that can actually give us more information to help the physician as they're trying to make these triage decisions would be helpful.

**Josh:** So, all over the world, scientists are working around the clock on this problem.



**Elise:** One team from Massachusetts, led by Dr. Quanzheng Li at Mass General Brigham, found a way to use AI to predict if a patient would need oxygen within the next 24 to 48 hours – using the patient’s medical records and chest X-rays.

**Mona Flores:** That model completely fit the bill. I can be a little bit more sure about my decision of where to put the patient.

**Josh:** But here’s the issue with using Artificial Intelligence in a healthcare setting. AI gets “smarter” the more data it’s fed. And

02:00

not a little bit of data... lots and lots of data.

**Mona Flores:** Because, you know, if you don’t have data, you can’t train a model. It, it, it’s very simple.

**Josh:** And in healthcare, data is very private. Elise: Healthcare AI is usually limited to training on patient data from one hospital because of strict patient privacy laws. But one hospital’s data isn’t enough. Here’s where Nvidia comes in.

**Mona Flores:** Okay, well you have a good model, it has decent predictions, but can we make that model better? What we needed to make it better was more data. And how do we get more data? We get more data using federated learning.

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**Elise:** Federated learning is a new way of training AI models. It allows AI to be trained from a large amount of data, without actually sharing or having access to the data itself. It stays private, under lock and key, on each hospital’s server or cloud.

**Josh:** Here’s how it works: Nvidia used what you call a “hub and spoke” model.

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There’s one central computer, the hub, and twenty different hospitals

with private data sets, the spokes.

<SFX>

**Josh:** The centralized computer sends the working AI model developed by Dr. Li and his team to all the spokes.

**Elise:** Then, each spoke trains this model on their own data sets to make a smarter AI model. And then, each spoke sends their smarter models back to the hub.

**Josh:** The hub aggregates these into a singular, even smarter model, and again, sends this version back to the spokes.

**Elise:** The spokes train it, and again, back to the hub.

**Mona Flores:** And this would continue back and forth until in the end you have a model that had actually trained on all of this data, learned everything that it could learn from the data at each of these places, and is now a model that is better than what I could have trained by myself or you could have trained by yourself.

MUSIC

**Josh:** In the end, Nvidia and Mass General Brigham’s AI model could reliably predict if a patient would need oxygen within 24 hours of arriving at an Emergency Department. It was an incredible tool

04:00

for doctors’ fight against COVID. And they trained this model in a mere two weeks.

**Mona Flores:** This is the beauty of federated learning.

INTRO

**Josh:** I’m Josh Klein.



**Elise:** And I'm Elise Hu.

**Josh:** This is Built For Change, a podcast from Accenture.

THEME MUSIC PLAYS

**Elise:** So we're finally now looking at possibly an end to this pandemic, or at least a light at the end of the tunnel.

**Josh:** Now, obviously we didn't manage every aspect of the last year perfectly. But, on the other hand, we did see some technology leaders step up and really make some incredible advances to fill that gap.

**Elise:** Yeah, the vaccine is obviously the prime example.

**Josh:** True. But the, the flip side of that is, is that all the business leaders that I've been talking to over the course of this last year have been telling me that they knew in advance that they should have invested a little more in their technology infrastructure, they should have put a little more emphasis on their innovation work...

**Elise:** Yeah.

**Josh:** And this year was a big wake up call.

**Elise:** Right.

**Josh:** But, there are incidents like this Nvidia federated learning story

05:00

that really make you realize, wow. Look at what we're capable of pulling off technologically if we just put our minds to it.

**Elise:** Yeah, 'cause patient privacy has always been the restriction on healthcare data, right? Like, that you could never share it. And, of course, we don't want our healthcare data shared.

**Josh:** Right.

**Elise:** But this is such an elegant solution.

**Josh:** Yeah. It worked really well.

**Elise:** So why wasn't this already a widespread practice in healthcare?

MUSIC

**Josh:** Ah. That's exactly what we're going to be talking about this time around. So, in this episode, we're gonna be talking about technology. We're gonna talk about our new reality, the technology trends that are surfacing from it. And, now that we're moving toward a post-COVID world, we're gonna ask how can businesses catch their technology up and chart the path ahead?

ACT I

**Paul Daugherty:** I think everybody felt like they had their digital plan in place and maybe there was a little bit of complacency in there with people feeling they were making progress on digital. I think COVID was the wake-up call as that tide went out to sea. You know, "Oh boy. We weren't quite in the shape we thought we were.

06:00

We got some gaps. We got a lot of work to do."

**Josh:** This is Paul Daugherty. He's the Group Chief Executive of Technology and CTO at Accenture. His team put together Accenture's Tech Vision 2021 report. It's their 21st annual report that predicts the key tech trends that will be redefining business over the next few years. Paul says that even before the pandemic, there was a digital achievement gap in business. There were the technological leaders, sure, but there were also laggards, but the pandemic put every business into a pressure cooker.

MUSIC

Paul Daugherty: Never before in the history of civilization have billions of people,



almost the entire population, had to change their behavior instantaneously. The largest ever instantaneous behavioral shift.

**Josh:** Practically overnight, businesses in all industries had to make big changes, fast. Some companies, those tech leaders, were well-positioned to deal with the crisis. So, they stepped up and performed what seemed to be technology miracles.

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**Paul Daugherty:** I think there's so many stories of amazing things companies did, you know, so quickly. In a lot of ways the IT department were heroes in the COVID environment, keeping businesses running, keeping services online, critical services, frontline services, et cetera.

**Josh:** Meanwhile, the laggards who were already behind in technology, were unable to adapt quickly. And so the existing digital achievement gap widened.

**Paul Daugherty:** And what's happened is that COVID has really hit a giant fast-forward button to the future and accelerated, you know, all of our progression into the future in ways that I think we're still, one year later, struggling to understand a little bit.

MUSIC

**Josh:** Paul says, we've emerged into a "new reality." Even as we recover from the global pandemic, many things just won't go back to the way that they used to be. Going forward, a company's technology plan is gonna have to contend with consumers' huge behavioral shifts, with hybrid work setups, and with a greater focus on sustainability.

**Paul Daugherty:** In my view, you know, we're at this moment of truth. And it's the time where if you don't

08:00

embed the new realities of human experience into the systems, the new realities of sustainability et cetera, you're going to miss the opportunity and you will have created a business that's not fit for the future.

**Josh:** So where should companies begin? Well, over the rest of this episode, we're going to dive deep on two tech trends born out of these new realities. And they're gonna be essential for every business to consider as they plan for the future.

MUSIC

**Josh:** First up, Stacking Strategically.

**Paul Daugherty:** It starts with something we call stacking strategically, which is, which is how you use technology to architect a better future and the right future for your company. If there isn't a difference between business strategy and technology strategy, it really needs to be intertwined.

**Josh:** How a company builds their technology stack – their hardware, the cloud, their data gathering, analytics, their digital interfaces – this will determine their competitive edge. Take Nvidia, for example.

09:00

We started off this episode talking about Nvidia's work developing AI solutions during the COVID-19 crisis. But, if you're anything like me, you may have very different associations with the Nvidia name. Because back in the day, their bread and butter was video game graphics. Here's Mona Flores again.

**Mona Flores:** In 1999, we invented the GPUs and it was exactly for that. It was a GeForce, it was for gaming, it was for graphics.

**Josh:** GPU stands for graphics processing units. They're powerful computer chips that can process a lot of complex information at the same time. As Mona said, they were initially used to generate images for video games. But even back then, Nvidia knew that GPUs had the potential to do much more.



**Mona Flores:** Healthcare was one of these places where, you know, we, we actually have something, uh, tremendous to, to, give to healthcare. We, we have these capabilities that would enable it, and, and we are very well poised to do that.

**Josh:** There was an obvious fit within medical imaging. With Nvidia's GPUs embedded in medical equipment,

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doctors could get a better look at patients' organs, or even generate those cute 3D sonograms of babies in-utero. Meanwhile, the same features that Nvidia was working on with their hardware to make your video games look super, super cool was exactly what was needed to power AI and deep learning.

**Mona Flores:** That was almost serendipitous. Because now we have this, this GPU that is capable of doing parallel computing, and you have this new renaissance of, of deep learning that is completely dependent on linear algebra and, and matrices. And, and we had this perfect machine for it. It had to happen, right?

**Josh:** Nvidia's tech stack strategy ultimately created an entirely new market for their business. So again, they doubled down. They added to their technology stack by investing in healthcare software and AI. And the result is an Nvidia initiative called Clara.

MUSIC

**Mona Flores:** It's a collection of tools, of software development tools to help people, uh,

11:00

easily create AI applications for, for healthcare.

**Josh:** Clara's AI applications are almost too many to list. There's Clara for drug discovery. There's Clara for natural language processing. There's even Clara Guardian, a new "smart hospital" initiative.

**Mona Flores:** You can monitor the patients from far away using AI.

So it's not that you have a nurse or someone that is sitting there watching the camera all the time. The AI is watching the camera feed, and is able to alert someone if a patient like, getting out of bed when they shouldn't be, someone is alerted. Or someone is falling.

**Josh:** Imagine a doctor is talking to their patient, but instead of jotting down notes in the patient's chart, an ambient AI is listening in the background. And when the doctor says, "I'd like to prescribe you this or that medication," the AI just automatically writes it up and sends it to the patient's pharmacy. AI can also help surgeons plan for surgery by showing the patient's anatomy in virtual reality. So, they can practice and create a plan

12:00

and go into the operating room better informed to do the surgery. The idea here is to use the artificial intelligence to do things that humans can't do, and ultimately free up the human intelligence to focus on what matters: treating the patients.

**Mona Flores:** I see AI as this enhancer of the physician. You know, it, it, it can do the things that they don't necessarily need to be done by a physician.

**Josh:** And again, all of this from a company that only twenty years ago was focused on video game graphics. Ultimately, they were able to create new business opportunities and really define their stake in a completely new market because of the power and flexibility of their technology stack.

**Mona Flores:** I think the world has learned that they need to be prepared, that you cannot wait for a crisis to happen before you start acting. If you want to be able to use AI to help you, you have to have the infrastructure from beforehand,

13:00



and, and you have to have thought about it and, and put things in place to be able to use it.

MUSIC

**Elise:** OK. So stacking strategically lets companies really define their markets, but Nvidia, just to point out, always has been, and is, a tech company. So it makes sense that they're a leader. What about businesses that aren't historically aren't? Like, if you sell toys, or if you're a restaurant?

**Josh:** Yep. But that's the thing. Those companies are tech companies. If you sell toys, you're selling them online. You're managing a supply chain. You're managing staff, some of whom are gonna be remote. If you're a restaurant, you're definitely a tech company now in a way that you never were before.

**Elise:** Yeah. OK. So, it sounds like no industry is exempt.

**Josh:** No. Everyone's, everyone now is a tech company.

**Elise:** OK. Even if you were selling... meat?

**Josh:** OK. So, here's a, here's a personal one. When I was in New York, my, the butcher at the farmer's market started sending me updates and then I started getting embedded video links, and then we started...

**Elise:** See? OK.

**Josh:** Trading video links about how we cooked our steak

14:00

using the reverse sear method, so.

**Elise:** You, when I think, "farmer's market," I think as analog as possible. But you're saying that the butcher at your farmer's market has embraced this notion.

**Josh:** He didn't just embrace it. He, like, invented a new category for steak salesmanship. It was, it was pretty phenomenal.

**Elise:** Yeah, so, even though we think of, say, the farmers market as the most analog kind of business, and Nvidia, which has always been a technology company, and it makes sense to us that it would improve its tech, these are all sort of playing on the same theme though, right? That every company is a tech company. No industry is exempt.

**Josh:** So, that's exactly what we're going to dig into now as we explore the next technology trend, which we're calling, "Mirrored World."

MUSIC

ACT II

**Archival:** Okay Houston, we've had a problem here. This is Houston, say again please.

**Josh:** In 1970, Commander Jim Lovell uttered 5 famous words.

**Archival:** Uh Houston, we've had a problem. [chatter]

**Josh:** "Houston, we've had a problem."

**Archival:** Roger, Main B Interval.

15:00

Okay, stand by thirteen, we're looking at it.

SFX

Apollo 13 was 210,000 miles away from earth when an explosion inside its oxygen tanks damaged the main engine and left oxygen supplies venting into space. On the ground at NASA headquarters, the primary objective of the mission changed. Now, they needed to figure out how to get the three astronauts home safely, without being able to actually inspect the damage to the spacecraft. Fortunately, NASA engineers had physical duplicates of many of the spacecraft parts on the ground in Houston,



and they had fifteen simulators that were used to train the astronauts for the mission. While Apollo 13 traveled further and further away from home, NASA gathered data from the ship, adjusted the simulators on the ground, and ran tests. The engineers wrote up procedures in three days that would normally take

16:00

three months. Ultimately, they were able to bring the crew home safely.

MUSIC

**Josh:** What NASA used was a precursor to what we call a digital twin today. A digital twin is a digital representation of a physical object. It's like a schematic, connected to the object that it represents. Just like Apollo 13, you can use digital twins to monitor the status of an object, simulate different scenarios and solve problems. Right now, about 18% of companies are already working with some form of digital twin, mostly as an exploration. But the technology trend we're talking about - Mirrored World - is much bigger.

MUSIC

**Josh:** The Mirrored World is the extension of digital twin technology. It's when companies create and connect massive networks of twins to create living virtual models of entire factories,

17:00

supply chains, or even ports.

**Allard Castelein:** In all earnest, it probably goes back to when a dam was built in the river Rotter, creating the city of Rotterdam.

**Josh:** This is Allard Castelein, the CEO of the Port of Rotterdam in the Netherlands. The port was constructed in the thirteenth century, but it's gotten a lot bigger since then. Today, it's the largest port in Europe. Over 400 million tons of cargo passed through in 2019.

**Allard Castelein:** It is responsible for some 385,000 jobs in the area, 6% of the gross national product, with an added value of some 45 to 46 billion euros per annum.

**Josh:** And although it's existed since the Middle Ages, the port hasn't skipped a beat when it comes to evolving its technology.

**Allard Castelein:** We identified that, uh, the two big disruptions approaching us were likely to be related to

18:00

digitization and the energy transition, and we immediately went on to identify that we should look at these disruptions as opportunities rather than as threats.

**Josh:** If it surprises you that the shipping industry is ripe for digital transformation, it shouldn't. Here's how a port call normally works.

MUSIC, SFX

**Allard Castelein:** A, a major ship may come into the port, but might have to wait outside of the port because the terminal is not freed up, because the pilot is not there, because the boatsman isn't there to connect the ship to the, to the quay wall. Then the cargo might not be taken onboard or off board immediately. Crew may have to change. Papers, they will need to be exchanged. Water may have to be taken in. Fuel might have to be taken in.

**Josh:** You can see where there's room for improvement. The Port of Rotterdam looks different from a standard port of call. There are very few workers on the docks, or - terminals. And instead, the terminals

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are embedded with 80,000 lipstick-sized digital sensors that tell self-driving vehicles where to move. Robotic cranes move cargo containers here and there. Employees are nearby though, in a control room managing the digital twins of the port's physical objects, like its cranes and vessels.



**Allard Castelein:** So the digital twin to the port of Rotterdam is a digital representation of the physical reality on an IOT basis, real time, online, actual information. We're putting sensors on bollards and on quay walls. And those sensors will tell us what the stresses and the strains are on the quay wall or the bollards and what maintenance will need to have to be conducted.

**Josh:** This is clearly an efficiency gain for the port itself. But, the Port of Rotterdam's digital twin efforts are extending beyond the dock. It's building a mirrored world by adding sensors and gathering information from the port's surroundings, all so that it can provide value to its customers, its community and the environment too.

Allard Castelein: We use the, the, the internet of things platform to,

20:00

to have real time online, accurate data on water depth, on currents, on salinity.

**Josh:** The "internet of things" platform – also called IoT– describes the network of physical objects that we've made intelligent with software and sensors so that they can communicate with each other over the internet.

**Allard Castelein:** And that might sound trivial, but the mere information on salinity, which has an impact on buoyancy, may already allow a shipping line, which deploys a 400 meter long, big cargo vessel to take on just slightly bit more of cargo... So it can sit a centimeter deeper, and the centimeter deeper might actually add 40 or \$50,000 to its cargo. And once we had identified that there was an efficiency gain to be made, we immediately made the connection to the perspective that those efficiency gains would also mean less harm to the environment.

MUSIC

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**Josh:** Ultimately, the port's mirrored world will extend far beyond the dock and surrounding water. Eventually, it'll include the ships themselves and even the cargo on them.

**Allard Castelein:** We are at this juncture sending a container across the globe, Container 42, we've called it, which is fully laden if you'd like with, with all kinds of sensors.

**Josh:** Container 42 is a smart shipping container, embedded with sensors. It monitors its contents and it can sense tampering, but it also knows its surroundings: the temperature, the location, it can even hear its environment. It will know its position and it's journey. A Container 42 filled with food cargo can warn shippers if the route will pass through an area where the temperatures will cause the food to spoil, and redirect it.

**Allard Castelein:** We will be much better able to steer our goods in the direction that the value is retained rather than gets lost because of those external circumstances that currently are not visible and not readily available.

**Josh:** In the future, a customer will be able

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to log in and see their purchase on its journey in the shipping container. And those containers will all be aboard an autonomous shipping vessel. That future isn't here just yet. But it's not far off. And the Port of Rotterdam is ready for it. It's proven that with investment in digital twins and other innovative technologies, it can set the course for the shipping industry in the twenty-first century.

**Allard Castelein:** We, we, we do not wish to analyze, uh, behind a screen, what may happen or might materialize. And we wish to be on the pitch in order to understand the game in the best possible way. We wish to be able to determine our own outcome almost, and our destiny.

**Elise:** That Port of Rotterdam is so beautiful. It's so funny. I got married in Amsterdam, and so I spent a little time in Rotterdam itself and I just, I love that port.





And I imagine given what we've just learned in that last segment, that it looks completely different than it did when I visited ten years ago.

Josh: Well, yeah. For one thing,

23:00

there's autonomous vehicles and sensors everywhere.

**Elise:** That is so cool.

**Josh:** It is. It is super cool. And it's amazing because it's the culmination of, I mean, the technology they're using, the sensors they're using, the autonomous vehicles, all of it, I mean, that's been being studied for a decade plus. But it took someone with real courage to say, "Let's try it. Let's, let's go all in and really do it." And man, they're reaping the rewards.

**Elise:** It's a lot to take in. It's tremendous change for this company and all the companies that are having to pretty much abandon the way they were doing things, abandon everything that they knew about their business's technology and essentially start over.

**Josh:** But the upside is we've proven in this last year that you can. Right?

**Elise:** You can change quickly. Yeah. You can fundamentally upend the ways that you were doing things before.

**Josh:** Yep.

**Elise:** Our capabilities and our capacities are immense.

**Josh:** Yeah, which mostly comes down to embracing change at speed. And that's what we're going to talk about next.

MUSIC

ACT III

24:00

**Paul Daugherty:** Yeah, I think one thing that a lot of people talk about is the new speed that COVID brought us. We've accomplished, companies have accomplished, things you just wouldn't have imagined, you know, at the pace that, uh, you know, that we're developing new capability.

**Josh:** Here's Accenture's Paul Daugherty again. Paul says, COVID set a new precedent for the speed required to be a technology innovator. Moving forward, fast is the new normal, which means that companies need to get used to making decisions fast, and innovating fast.

**Paul Daugherty:** We were, we've been in an, in an era where fast follower was okay. You know, and I think a lot of companies would say that, you know, that's their approach – to be the fast follower. And that, that may still be okay, as long as you can follow really fast like, not, not everybody can be the first mover in their industry. But yeah, you know, those who are, are the first movers are seeing an advantage. And that's why we have that achievement gap that we talked about.

**Josh:** But a lot of companies are hesitating, they're holding onto old legacy systems. They're sitting on technology debt that they've accumulated in supporting yesterday's business operations. Moving forward,

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technology's no longer a facilitator of business strategy. The technology becomes the strategy itself.

Paul Daugherty: Yeah, I think you need to look at it, look at the future differently, through a different lens. How can you use technology differently to advance the business? And how do you look at the business case for getting there differently so that you can invest to get rid of some of the technology debt and, you know, pay that down to create your technology bank for the future, you know, with the investments that you make to position yourself with the agility,



The flexibility, the new platforms for the future. And that takes, you know, some imagination. Josh: And this imperative, to move fast and decisively, to embrace change and act on it now – this is crucial for all companies:

Paul Daugherty: I think there's going to be a big reshuffling of the deck. And if you look at even the reshuffling of the deck that's happened in the last, uh, 10 to 20 years, the number of, uh, Fortune 500 companies that are, still exist compared to the list uh, 10 and 20 years ago, it's a, it's a dramatic number of companies that aren't there anymore in the same form. And, uh,

26:00

and that pace is accelerating, you know, in terms of, uh, leaders being challenged and existing incumbents being challenged. And, uh, and if, if you don't move fast, I think you, you risk big disruptions to the business and you risk falling from the position you're in to, to falling behind and in the worst case, you know, becoming, uh, less relevant or irrelevant.

MUSIC

**Josh:** Elise, so the thing that strikes me most about listening to what happened with Nvidia and Port of Rotterdam is that, you know, obviously we, we tend to think that highly digital small companies are the ones that are gonna be successful. And in some cases that's true, but often it's not - it's the big ones that really make the investment. Conversely, even large legacy companies and, and in some cases, specifically large legacy companies...

**Elise:** Yeah.

**Josh:** Can be crippled by this bureaucracy that prevents them from moving at speed.

**Elise:** Totally. Yeah, because not only do you have to be willing and able and have the capability and the technology and resources to change, you have to do it quickly, right? You have to act

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like a motorboat and not a battleship.

**Josh:** Amen.

**Elise:** And those motorboats can turn, and that's the thing, battleships take a while to turn.

**Josh:** So as we recover from the COVID-19 pandemic, business leaders need to act now and develop their technology plans for the future.

**Elise:** You can go to Accenture dot com slash built for change to read up more on the trends in the Tech Vision 2021 report. They include themes on democratizing technology innovation, multi-party systems, blockchain and much more.

**Josh:** Thanks to Paul Daugherty from Accenture.

**Elise:** And Dr. Mona Flores from Nvidia, and Allard Castelein from the Port of Rotterdam for talking to us!

**Josh:** Built For Change is a podcast from Accenture.

**Elise:** More episodes are coming soon. Follow, subscribe, and if you like what you hear, leave us a review.

MUSIC OUT

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