

AI-GR Podcast #10 Mark Cuban

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[00:00:00] The same thing is starting to happen and will continue to happen with large language models, and that is a disaster for a lot of the expectations that people have for large language models. So, what'll end up happening is they'll be branded by the partnerships that they have. And, so, for a medical database, right?

Sure, you know, based off of what it already has, it'll pass the MCATs or whatever, right? And it'll do basic stuff. But every day there's new knowledge accrued in medicine and the latency of that is important, right? And, so, if I'm, and I'm just using these hypothetically, I don't have any insights or anything.

If I'm Cleveland Clinic, and I think I'm adding, creating new value every day because of the doctors and the research we do, am I going to give that to BARD and to Open Source Facebook and [00:01:00] to Microsoft OpenAI? Or I'm going to say, look, I think we're worth a hundred million dollars a year. Mayo Clinic is going to say the same thing.

Harvard's going to say the same thing. And, so, then all of a sudden, they're all going to realize there's not enough money for everybody to get paid. And then the prices will come down some and they'll rush to it a little bit to get out front, but you're always going to have a situation where something's excluded.

Welcome to *NEJM AI Grand Rounds*. I'm your co-host Raj Manrai and I'm here with my good friend and co-host Andy Beam. Andy, this is episode number 10 and we have a very special guest today, Mark Cuban. Mark is a man who needs no introduction. He's a shark on *Shark Tank*, the owner of the Dallas Mavericks,

a businessman and investor who also has been quite outspoken on the thorny social and technical challenges in health care. We had a great conversation about Mark's work on lowering drug prices with the Cost Plus Drugs company, AI [00:02:00] large language models like ChatGPT, and of course, basketball. Andy, I'm especially happy that you got to ask Mark Cuban a question about Skip Bayless and large language models, which is a sentence I did not think I would say this year or maybe ever.

All in all, this was a really fascinating and fun conversation. Yeah, it was such a fun conversation, Raj, and I can't believe I got to ask Mark Cuban about Skip Bayless. However, what struck me the most, and what I think is Mark's particular superpower, is his ability to walk in a super complex space like health care and then instantly distill it down to a set of simple principles.

For example, he talks about his company Cost Plus Drugs and the product that they're actually selling is not drugs, but it's actually trust. They get consumer trust through radical transparency. And this is something that you almost never see in health care. And it's actually this trust, um, is the thing that they're selling.

You know, when I heard him say this, this was a big light bulb moment for me. And I think, again, reflects what I think is a very unique skillset that he has. He also does the same things with large language models in health care. Consumers want [00:03:00] trust and therefore branded LLMs, that have been vetted will likely win.

So, I may disagree with him on some of these points, but his ability to so clearly articulate his position provides really fertile ground to have that discussion. And just before we start, I wanted to provide a note to our listeners. As many of you probably know, Mark is a passionate guy and just as a heads up, there's some colorful language at the end of this episode.

So, you might not want to listen to it with the kids in the car. And mom, if you're listening, I'm sorry. The *NEJM AI Grand Rounds* podcast is sponsored by Microsoft and Viz AI. We thank them for their support. And with that, we bring you our conversation with Mark Cuban. So, uh, thanks for joining us today on *AI Grand Rounds*, Mark.

It's great to have you on. Thanks for having me on, guys. Mark, let me also welcome you to *NEJM AI Grand Rounds*. It's an honor to have you here. This is a question that we always get started with, and please first forgive our AI puns. Could you tell us about the training procedure for Mark Cuban's neural network?

Take us back to the early data and [00:04:00] experiences that led you to where you are today. And maybe also touch on when you first got interested in artificial intelligence. So just from a tech perspective, I got a job out of college in Dallas at a software store in the early days of PCs. And about nine months in, I was rolling, and

I got fired for making the executive decision to go out and close the sale. That's really what got me into tech. And the best part of it was to get the job. The guy asked me a simple question: you don't know the answer to a question. What do you do? And I told him, well, I do what I always do: I read the manual.

And I don't have a problem reading the most mundane manuals. It was like, all right, you got the job. And that kind of set the tone for my approach to technology going forward. I always looked at it that whenever a new technology came out, there were two types of people, the people who created the technology, they had the edge.

And everybody else. And if I spent the time reading and learning and experiencing, and I did it enough, I could at least [00:05:00] be caught up with everybody else. And so that turned into a systems integration company called microsolutions and taught myself to write software from, you know, basic, to a little bit of C.

At the time, Visual Basic, DBase, you know, database languages did a lot of really cool integrations with audio and video. That was a lot of first out, um, became one of the first local area network integrators for Novell, and that's really where we made our money at one point. Way back when I was the largest systems integrator for Token Ring for IBM.

I mean, just on and on and on. Then I sold that to CompuServe, which was part of H&R Block at the time. And then took some time off, traded stocks, because it was weird back then, it's totally different now. People didn't really understand the technology they were buying. And, so, the fact that I was hands on with local and wide area networking technology gave me a big edge.

Then from there, my buddy from college at Indiana, Todd Wagner came to me one day and said, look, this is the mid-90s, late 94, early 95 and said, look, there's this [00:06:00] new thing called the Internet that's happening. You're the tech geek that I know. We've got to be able to figure out a way to listen to Indiana basketball down in Dallas, Texas.

So, I started off thinking, okay, I was going to use some MTFs files, stuff, way back configuration files. Then they were going to do slow loads over the Internet, over, you know, um, anyways, long story short, we started doing some basic streaming on demand, going to different radio stations and music sources and created a site called AudioNet, where we grew that, added video, became Broadcast.

com, we were the YouTube of our time, where we basically dominated all audio and video. We're a top 10, 15 website on the entire Internet, sold that to Yahoo. They destroyed it, bought the Mavericks and fast forward. I always was interested in AI, but AI was very much in the early days from my exposure to it.

And if this, then that, right, it was logic based as opposed to neural [00:07:00] network based. And so, I tried to write some basic things where if you're looking to design a stream or looking to, you know, should you choose a multicast versus a unicast and what protocols should you use, you know, run it through this and it was awful.

So that died very quickly. And then fast forward with the Mavs, always looking for an edge. That's really what pushed me towards trying to learn as much as I could and read about AI as much as I could. And then I read a book called *The Master Algorithm*, and that was about seven years ago, I guess. And that's what really got me into it because it really started to make sense for me.

At that point, trying to distinguish between machine learning and neural networks, and even though there's no real good definition, you know, people like to call everything machine learning now. I always looked at it as machine learning was linear and neural networks was not, was everything else. And so basically refreshed on my JavaScript, taught myself how to do a three layer [00:08:00] neural network in JavaScript from tutorials.

Read up, watched all the tutorials I could get with a goal of being able to someday be able to take a lot of different inputs from as many different sources as I could and put it into a neural network and hope it spit out something of value for the maps. And got to the point where I was like, no, I was going to have to spend all day, every day trying to build models.

If I was going to do it and got to the point where I can hire people that continue to try to do that. And the interesting thing about that as it applies to the NBA and sports in general, it's become a very efficient marketplace. It's really, really hard to get an edge, even trying to, I think the biggest push that we've made more recently is trying to use computer vision.

And a world of occlusion, which is what the NBA is and trying to figure out ways to, you know, extract data and put it into a network. So, you know, that, that's been my journey. That's a long about description of my journey. Oh, but I love it. It seems like [00:09:00] basketball is a continuous sort of thread from the very beginning, beginning even up to now, right?

Well, I'll tell you the craziest story there, right? So. When I was in Indiana, I did everything back ass half words. My mission was to take my hard classes when I was a freshman and sophomore and not drink since I was underage and then take freshman classes when I was a senior, so I could party like a rock star.

And so, I snuck in and was able to register for a graduate level MBA. Graduate level statistics class when I was 18, and there was a prof by the name of Wayne Winston, and he always used sports examples, which made it easy for me to learn. Got an A in the class, that's not the point. Fast forward 20 years later, right after I bought the Mavs, I'm watching *Jeopardy!*, and I'm like, oh wait, that was my profs, that my stats prof that was just killing it on *Jeopardy!*

Fast forward three months later, I'm at the Mavs Pacers game in Indiana, and I hear Mark, Mark, Mark. And had I not seen him on *Jeopardy!*, I would not have [00:10:00] recognized him. And I saw Wayne, we got together, and he became the first full-time analytics employee for an NBA team. And that helped us when I couldn't even begin to tell you how many playoff matchups and got us to the finals in 2006.

And that was long before anybody else. And we were just doing basic regression analysis, but for lineups, it was a big deal. And so that's a little fun aside story. That's cool. So, you know, you've seen a lot of technology trends come and go over the years.

How do you compare the recent rise in AI with previous tech booms, like Internet or mobile? I mean, it's all relative, but I think it blows them all away. Because it's consumerized much more quickly. So, in the early days of the Internet, it was hard. Right? Trying to get people to understand what it took to set up just to connect to the Internet.

People forget you had to have a modem, which came with every PC. That wasn't a big deal. But you have to have a dial up account. Most people's dial up accounts were AOL or [00:11:00] CompuServe or Prodigy. These things people don't even remember. But to try to get online, you had to have a TCPI client. You have to have an Internet service client.

There were all these steps that were difficult. And then when you got to streaming, it was the same way. You had to have all those clients to connect online. And then you had to have a streaming client as well. And then you had to find the right file to connect to. Not like we see it today where it's all automated.

Well, all of a sudden, up pops these LLMs like ChatGPT and my 13-year-old son is figuring out how to use prompts to get out what they want. That's a big part of what makes it different. And that's a good and bad in a lot of respects as well, because it's so black box. And so, while we have yet to see the best of it, I think the fact that it's been consumerized so quickly is what makes it so impactful and even more quickly than the Internet.

Yeah, I think that's well put. It's, uh, forgot the numbers, but something like a hundred million users is [00:12:00] the fastest time ever. It's a hundred million users in a couple of days. Most people used to complain how hard it was to get on the Internet. You know, and how you could, you know, and it's so funny how trust is such an underpinning issue because back in the early days, Oh, I'd never put my credit card online, right?

I'm not going to give my credit card to Amazon. That's ridiculous. It's all going to get. So, each new platform, if you will, has its stumbling points, but LLMs have just blown all that out of the water. So, we're gonna, we're gonna dig into LLMs, but first we wanted to talk about your work with, uh, Cost Plus Drugs.

Good. So, you know, everyone agrees U.S. health care costs are unsustainable. Prices make essential treatment inaccessible to many Americans. I think we have this tendency in academia to keep estimating the scale of the problem, writing about it, theorizing new risk adjustment models. But you said, let me start something just to take on this massive societal problem of patients not being able to afford prescription drugs.

I don't know if you're a *Game of Thrones* fan, but when [00:13:00] trying to tackle something as thorny of a problem as this, one image that comes to my mind is Jon Snow just waiting for this sort of charging Bolton army. Uh, you know, I think what's impressed me is your commitment to transparency and trust here. So maybe we could begin with you telling us about the mission as you see it of Cost Plus Drugs and how you got started, which I think I read, uh, started with a cold email you received from a radiologist.

Yeah, so, um, Dr. Aleksosh Mayansky, a radiologist, um, sent me an email and I've, I've invested in a ton of businesses from cold emails. It's actually insane in hindsight. And he had a compounding pharmacy that felt like the pricing for generic drugs was out of whack. And by making them, we could. Save a lot of people, a lot of money, but that was hard to scale. As I started digging in and doing like I did, you know, reading the manuals across all these different elements of the industry

it became obvious that this was a business where the incumbents did everything possible to obfuscate everything that [00:14:00] they could, and that they were really predicated on keeping things the way they had always been done, plus the obfuscations that they added. And to me, when you see an industry that hasn't really changed, it's usually the easiest to disrupt.

It's just a question of where's the money and how can you create a business that can be profitable? And so after talking to Alex, then the next step was, okay, what is it that would really segregate us and really differentiate us so that people would wanna work with us? And the most obvious thing was transparency.

You know, there was not anything that would keep us from being transparent. That was just an industry step that the incumbents used to sustain profitability or increase profitability. So as we put together the idea, I said, okay, if we're transparent about our costs and we do a markup that we disclose so that everybody knows what the price is, let's call it Cost Plus Drugs.

Let's go out and see if we can get that URL. We could, and we [00:15:00] did. And so, it's costplusdrugs.com and it's really a very simple business. We buy drugs and we sell them on a transparent pricing basis. So, when you go to costplusdrugs.com and you put in the name of the medications, imatinib, right? You'll see, and I'm, I'm, I don't remember the exact price, but let's just say it costs us \$60.

Then you'll see, we add 15%, \$9, so it's \$69. And then we add \$5 for pharmacy fee because the pharmacist has to check everything and \$5 for shipping. And now we've added an additional option where partnering with Kroger's and a lot of independent pharmacies, rather than having to buy a mail order, you can go to an affiliated pharmacy.

We actually have a separate website called teamcubancard.com, I didn't name it, um, where you can do the same thing. And pay the same price and pick it up locally. And by having the transparency and having a markup of only 15%, [00:16:00] the net result was our prices were stunningly lower and people were finally able to understand what they were going to pay before they paid it.

Because part of the craziness of the industry, as you guys know, if you think about the process of getting a prescription, your doctor says, you need this medication. Okay, the next question out of their mouth is what pharmacy do you use? Not, can you afford it? Not, here's what it costs. Not, you know, what insurance.

None of that. It's what pharmacy. And then when you go to the pharmacy, you still don't know what you're going to pay. You still don't know what your co-pay is unless you've got really, really good insurance. And on the flip side, on the other side of the counter, the pharmacy doesn't know what they're going to be charged yet and they don't know how much of anything they're going to make and, in many cases, they actually lose money on a per prescription basis and so the whole industry was just ripe for transparency and that's the foundation of costplusdrugs.com.

It's a very simple business. Very, very [00:17:00] simple. We buy drugs and we sell drugs all transparently. And by doing that, our total marketing spend from day one has been zero, not a nickel. And I remember when I was talking to Alex, he's like, well, we need a marketing person. We need to pay. I'm like, no, you don't understand if you're on chemotherapy and you have a need for imatinib, right?

And you're saving \$200 or \$500 or \$800 a month. What are you going to do? Everybody else that you know, you're going to tell because you're in the same Facebook community groups, you're talking to your doctor, you're talking to others in similar circumstances and you're going to tell them because that's what we do.

You know, when that, if there's one area where we're collectively aligned in this country, still today is in the distrust and the dislike of the financials of the health care industry. And so, I knew everybody would speak about it. And so that's where we are at Cost Plus Drugs. You can go to costplusdrugs.com

and buy there and have it mailed to you. [00:18:00] You can go to teamcubancard.com and find a local pharmacy. And we're actually in the process of finishing a manufacturing plant in Dallas, where we'll be making injectables of generics that are in short supply. And we're going to start with pediatric cancer drugs, which are

horrifically short-supplied right now and causing hospitals to do a lot of abnormal things and really, you know, negatively impacting patients. Now we'll have a capacity of one to 2 million vials, so we're not going to end the shortages, but once we can get this thing up and running, it's a great first step.

So, I think the thing that clicked for me. When I saw you describe this was not like the business model. Okay. So, we're going to, we're going to sell generics cheaper. So that's like the business model. But the thing that you said that really stuck with me is that's not actually our product. Our product is transparency.

And that's actually our product. Our product is trust. And the way we build trust is transparency. Right. And so that to me was [00:19:00] like the non-obvious leap here. And it made total sense when you said it, is there something in your approach, that's the abstraction that you make when you look at this very complex system, that that is the key ingredient that's missing, or is that just like the Mark Cuban of it?

No, no, that's the key ingredient that was missing, you know, for the reasons I just mentioned, right? You can't go to a pharmacy and know what the price is. And one of the benefits that's accrued from all this is now we've become the benchmark price. So that there have been studies done, Harvard and Vanderbilt, all, you know, et cetera, where they've compared the price that CMS pays for various medications versus if they bought from us and the savings, you know, I forget, urology drugs, I think it was, that the CMS would save \$1.2 billion dollars. For some specialty generics, it was like \$6 billion dollars a year. I mean, it's just insane. And you get example after example where... It's just mind boggling. [00:20:00] I had a friend who was, you know, tragically paralyzed and came to me and said, look, I've got to get this drug Droxodopa and I lost my insurance and they're telling me it's going to be \$10,000 dollars every three months.

And I'm like, let me check. I mean, I don't know what Droxodopa is. I'm not a doctor. And so, I check it's a generic and it's available generically. And so, I have our guys go look. Within a day, we got the price down to \$60 dollars a month. Now it's even lower and it's all because when people just let things get done the way it's always been done and nobody checks to see if there's a better way or opportunity, it just stays the same.

And health care is like that across the board and, you know, right now, medications were the best place to start because you can inventory them. You know, generically, health care, you can't inventory a doctor, right, and just put them on the shelf and say, we're not paying you anything until we have a patient come in.

I haven't found any doctors that work on commission yet. And so, you know, we'll get to [00:21:00] health care and other elements of it, but medications were the best place to start. I guess one more follow-up question there is, you know, Raj and I both come from a technical background. Raj was a physics undergrad, I was computer science, and for whatever reason, we found health care interesting and the problems worthy of study.

My experience has been, though, that that's not typically the case. When you're coming from a tech background, you show up with a set of assumptions about how you're going to solve problems, and then once someone shows you the full scope of the complexity. And it's not just technical problems. It's like a socio-political thing.

A lot of people run screaming the other way. So, what is it about you that made you see these problems and not say, no way, I'm not going anywhere near that. I'm going to think hard about sort of the non-technical things here also, in addition to what the technical solutions might look like. So, I always, when I look at a problem, I always look at process first.

Cause process is the underpinning of all technology. Right? You can't benefit from the technology if you don't get the processes right and you don't have the inputs right. And so, it was always like I just said [00:22:00] earlier, you know, what's the cause of this this issue and having looked at it and read, you know, MedCap reports and, you know, all this other stuff just looked at analysis of, you know, MCR all the garbage that comes with analyzing health care, right?

You start to realize that nobody knows anything. Everybody guesses. Even Medicare rates were set from like a 1993 benchmark price amount that was just pulled out of thin air. And so, I just kept on questioning the processes. And then when you look at health care now, there's so many, like we saw a lot of them at the a16z stuff, but everybody's trying to throw technology at a problem.

That's not really solvable by technology. You know, you can gain improvements to the processes on the edges using technology, but it doesn't change the fundamental problems that are the real issues for health care. You see it as, you know, for doctors and handling patients and the problems, but the real problems are the insurance companies. Right?

If you were to extract the [00:23:00] insurance companies and how payers dealt with paying for care, 99% of doctor's problems would be over. You know, it's only because you have to meet the goals and the requirements of the payers that the whole structure is bastardized. And so, I've looked at different systems.

I'm a big believer that we just dump insurance companies, which is not going to happen in, you know, in the next 10 years and replace it with means tested payments to the government, right? Where the government acts as the insurer's last resort. And if you're making two times the federal poverty level or less, it's free.

If you make what I make, then it's 100% of the cost no matter what, right? I just pay the bill, and everybody else is means tested in-between. It may be 2% of your income, 5%, and then when you pay it off, you pay it off. You know, and if it's something that's a specialty medication or therapy, um, and it's outrageous, outrageous just in terms of being expensive, not outrageous in terms of [00:24:00] value, then, you know, we put a threshold above which you don't have to pay.

And the government just picks that up because taxpayers pay for illness of everybody in this country. No matter what you pay for it on the front end or the back end and it's just a matter of modeling it to figure out the best way to do it. Did I understand that correctly or do I hear Mark Cuban

advocating for something that sounds a lot like single payer? No, it's not though because the difference single payer is nobody pays, right? Other than you're a graduated single payer system though, right? It's means tested. Yep. Right? So that everybody that makes over two times the federal poverty level would pay on a means tested basis, some percentage of their income, as they use the system.

And the reason you do it that way, if you start reading, as I did, like an idiot, some of the proposals for single payer, the first thing it says at the beginning of every federal proposal is it's created, run, and maintained by Health and Human Services, HHS. And whoever is in charge of that is the political position.

So, that means every four years, there's going to be somebody trying [00:25:00] to modify what single payer is or Medicare for all is and how it's defined. And that's going to be a disaster. So, you have to look at the processes from, like you mentioned earlier, from the socio-political side and trying to anticipate what those problems are going to be. And you're always going to get a problem where every four years, somebody else has a new way of doing it, which you can't put

patients in that position. But if you make it from you, you know, to paraphrase to your need, from your ability to pay, right. It's every day that you normally hear billionaires quoting Karl Marx. So I, yeah, I know. It's, it's, it's great. Yeah. Yeah. So, but you know, I, again, like I, I got into it with, um, somebody who really leans far, right in terms of how do you deal with health care.

And I, and I just try to convey as much as you want to apply empathy, it's just a math model. Right? We're paying for every bit of health care and wellness that

we've experienced in our lives. Um, for everybody in this country, we pay for it one way or the other.

We pay [00:26:00] for it via education, we pay for end-of-life, we pay for it not having primary care, whatever it may be, that cost gets picked up somewhere. And it's possible to model that, just nobody, it's just not easy. Right. And so, you know, maybe that's a transition to AI because, you know, being able to ingest a lot of this data and trying to extrapolate where the, you know, what data is relevant is such an enormous project, maybe that's an opportunity in an application.

Mark, so, you've run a lot of organizations, but correct me if I'm wrong. The pharmaceutical industry was not a major focus area for you before Cost Plus Drugs. So, you're, you're jumping into this area, you know, with this plethora of arcade acronyms, PBMs, ICDs, CPTs, PDPs, HSAs. And, you know, as Andy mentioned, right, exactly.

So, our listeners won't be able to see it, but we're all sort of like, uh, shrugging. It's just, you know, a lot of acronyms now, particularly with analytics, right? Yeah. Nothing compared to the pharmaceutical. [00:27:00] It's complexity, right? It's complexity and it's human and obfuscation. Like it's a lot, an obfuscation.

But so, you know, exactly as Andy, I just want to spend another moment on this before we jump into the next topic. You know, Andy, Andy said that we see all these people come very smart from math and physics and tech and computer science, and then they just get overwhelmed and sort of disillusioned and run the other way.

You know, I think you said it, which is you just, just read, right? You read the manual, you read, you talk to people, you learn, but what, you know, what, what can you tell our listeners who are intending to do good in health care, but just get overwhelmed by this complexity and don't even want to bring their, their sort of their skillset to solving these problems?

You ignore it, right? You don't, you don't try to change what's already there. You tried to reimagine what it should be. And can you get there? So, when you, that's been part of the problem with a lot of the investments in health care. They try to take what appears to be on the surface, the obvious [00:28:00] application of new technology to gain better results, right?

I'm gonna use telehealth, I'm gonna use the Internet, I'm gonna use this, I'm gonna use that. There's so much money in this industry, um, across all the facets of it, that trying, I mean, it's possible to make money on the edges. And if your goal is an exit, then this is a great industry to do things on the edges in order to get an exit because the incumbents will buy you to, to, you know, avoid any potential competition or other issues, right?

So from an exit perspective, it's a great industry to get into as a, for a technologist. But for a disruption perspective, you have to ignore everything that's going on knowing and just asking yourself, can I do it better if I were going to recreate it today? And the crazy part is if you go back in history, 75 years, they're doing exactly what we're doing, right?

You'd go to the pharmacy, the pharmacist purchased it from the manufacturer and they show you the price and [00:29:00] they'd sell it to you, you know, after the doctor prescribed it, it was super simple. And for medications, it's the same for health care. It's kind of the same way too. You know, I looked at potentially buying a hospital in North Texas.

And with the idea of going back to the back in the day where the origin of insurance was a local hospital would charge all people in the area. X number of dollars per month as a backstop in case there was some care that they couldn't afford. And then it just got complicated, right? And then when there were price freezes, it became a benefit for a workforce.

But why couldn't we go back to that original model where you get rid of the insurance companies and you take a hospital and you look at all the costs and you don't have all the, you know, what do they say? 20-to-25% of costs in health care administrative costs. And you don't have those costs and you just simplify it.

And you go to the community and you go to the individuals, you go to the families and you go to the businesses and say, [00:30:00] look, local business, instead of you pushing your people through the ACA, or instead of you self-insuring or you buying health care, we're going to charge you \$200 per family, per month, whatever it is, and we're going to go get reinsurance behind that, which is an extra

however much, and then we'll make the numbers work. Well, the problem was when I looked at this hospital, there were so many extraneous things that they were already doing that it was impossible. The biggest challenge is how do you

determine what services are needed? Do you need gynecology, you know, and obstetricians, or do you need an ICU?

And so, I wasn't qualified to do that at this point. But I just think a simplification is going to be what changes health care as opposed to trying to improve the processes using technology. I don't think that's the end game. I think what I'm hearing you say is that a lot of action in this space is essentially retrofitting.

Like you have this outdated house, this outdated building, and you're trying to [00:31:00] retrofit something onto it for a house that maybe wasn't made for electricity or plumbing. And forget that, just build a new house. You just build a new house, right? You know, people, it's really easy to understand people's motivations when it comes to health care.

They want to be healthy. And when there's an issue, they want to be able to get healthy at a price that doesn't wipe them out. They'll even pay more if they feel safer and trust it and think there'll be better outcomes. But there's nobody you can trust. That trust is missing and you're not going to go into the existing system and find.

Somebody who makes \$75,000 or \$40,000 a year and put them in that system and say everything's okay and have them believe you. That is just not going to work. But if you do it in a transparent manner and create a hospital and say, here's all my costs. Here's my P&L and here's my general ledger using accounting terms, right?

And I'm gonna make those open to everybody [00:32:00] without showing personal patient information. Then you start building trust that wasn't existing, and then you can start making decisions. Now, doctors don't necessarily like to go along with that, and you know, doctors want to earn more money, etc, etc. So, there's going to be a push and pull to find the equilibrium from a cost perspective.

But, at that point, maybe laws will change, or you try to make changes to the laws so doctors can be equity owners. Or even... Patients, even your patients in that community can be equity owners. There's no reason if you open up a hospital that everybody within a 10-mile radius that becomes a subscriber and is paying their X dollars per month.

You can't allocate a third of the equity to those people. So, they participate in any appreciation. So, I like it that I think that's a good transition to the next

question we want to ask. So, you know, I think the recurring themes I'm hearing in your discussion of Cost Plus Drugs are transparency, patient empowerment, and how together they build trust.

I want to stay on those meta themes, but switch gears from Cost Plus Drugs to another topic, which I think [00:33:00] will also move us right to AI. So, you know, this is the idea. It's very important to me as a researcher to, you know, Andy and I, uh, discuss this work on this. And a lot of, a lot of researchers are working on this, uh, today.

And this is the idea of what's normal in your health exam, including in your blood labs. So, our listeners, uh, can't see this, but normal, I'll put in quotes here, right? Um, because it's, it's very, it's very much debated and misunderstood in medicine. Even for these routine markers that are used every day. Um, so you commented on Twitter a few years ago, you know, you knew, you knew, it was coming.

You knew, it was coming. You knew, it was coming. It was coming. And I got torched. So yeah, so, so I want to discuss that. So you, you know, you commented that we should all get our blood tested broadly and quarterly to have our own baseline. If you can afford it. If you, if you can afford it. So, you got some pushback and one concern was that this would lead to false positives.

A normal test result would lead to another test. Anxiety, potentially a procedure down the line you don't need. You know, so Andy and I, as he mentioned early on, we're [00:34:00] postdocs sitting in lab discussing this like feud of Mark Cuban with all these doctors. And we just started analyzing it and thinking about it.

And then we spent maybe a day or two just talking about this debate. So, what's interesting to me is that if you had said something in a similar spirit that wasn't a testing policy, but was instead about medicine's ignorance of what normal baseline variation is, or what population prevalences are, I don't even think this is news.

So, you know, who are those comparable demographics we assume are on our, our blood reports? Is it people the same age and place of birth? Is it people who can do, you know, it's not right. Is it people who can do one legged fadeaways like Dirk? That's a silly example, but this is a real fundamental problem, right?

How do we define normal and what is normal? We're having this big conversation around the misuse of race as a way of indexing your normal

variation. So, it's actually shocking to me that we make so many of these decisions in medicine without understanding normal variation or assuming certain group characteristics are kind of the stand ins for the individual person.

So [00:35:00] forward looking question for you, you know, maybe now, and as we move into talking about LLMs and GPT4 and its descendants. Can you see signs that point us to a reality in medicine that is more welcoming to data to inform clinical decision making around normal variation? Look, you know, as you walk down the street up there and look at how many people have iWatches.

You don't buy an iWatch to tell the time. It's the data accumulator that goes into your iHealth, right? And now you're able to look in things like gait. I mean, I wear, I got to get my thousand move points every day, or I feel like I failed, you know? And so that's your indication that people are willing to do it.

Now that's not cheap, right? And there's also the risk for false positives. But even if you have a symptom and you go into a doctor and get a blood test, you have a greater risk of a false positive having a more dramatic impact, right? Because that, that false positive hopefully is random. And it's just [00:36:00] as likely going to hit you on your singular test as it is if you have a series of tests.

But with that series of tests, you know what the outlier is. And so, like I mentioned back then, I didn't know I had a Synthroid problem until I saw my TSH scores start to scale up. And so, it got me ahead of the game. And so, again, not everybody is going to be able to afford it. And then, going on another tangent, I was at an event that Elizabeth Holmes was at and she was talking about it.

And so, I connected with her and she invited me to see everything and potentially invest. I'm like, no, I'm not going to invest because you broke all these rules of business. You know, she had this huge building and all this security for a startup. I'm like, something's wrong here. And then I saw she was running her analysis, her blood analysis on Windows seven servers.

I'm like, but anyways, but that concept, right? I love the concept because just a pinprick to be able to get your blood drawn and I get my blood drawn every three to six months to this day. And now, as you were alluding to, there's [00:37:00] more markers. There's companies like Grail that are coming out and we'll all just get smarter

as these things start to happen, but you can't just dismiss it because you don't trust your fellow doctors to be able to analyze the data correctly. And that's

what this comes down to. I'm smarter than you. Now, I understand for big populations, you have to be able to deal with the socio-political issues because you don't want to have people feel like they're marginalized because they can't get their blood tested.

And so, there's a balance there as well. But again, it's becoming more affordable and we're making bigger investments and managing our own data. And I think getting your blood tested is just a natural progression. So, I admit to not having Karl Marx and Elizabeth Holmes on my bingo cards in this conversation.

I got more! I got more! Just wait until the lightning round. Before we get there though, I want to switch gears and talk about LLMs and specifically their applications [00:38:00] in health care. So, um, you know, as you and I talked a little bit before about, uh, the emergence of ChatGPT, um, barred from Google, and now there's this whole ecosystem of LLMs that are reshaping large sectors of the economy, large sectors of science.

Um, so before we dig into those applications, I'm actually just curious, given your sort of penchant for productivity, how do you use them in your own life right now? Not as much as I expected to, honestly. I use them more as a typing hack, you know, where, okay, I know I'm going to have to type a lot, whether it's a plan, whatever it may be.

So you use the prompt and it spits out something that's, you know, five pages at a time or whatever. And that saves me a whole lot of typing. I don't use it as much as a search engine as I did at the beginning because you can't go back to the sources and I don't know when it's lying. And so at least I can look at, in a search engine, and I always use this example, are vaccines safe, are COVID vaccines safe?

And I can look at the authors and look up their [00:39:00] history in a search engine. I can't do that with an LLM. And so it's mostly for, for silly stuff, or to write a business plan, or to kind of act as an adversary, pick apart this business, or, you know, how would you compete with Cost Plus Drugs? Because it's, I analogize it to, I used to love to walk through bookstores, you know, back in the day, because I couldn't afford to buy the books, but I would sit there and glance through them because all it took was one idea that helped my business.

And it was well worth the time. And if I was able to buy it, buy it. And LLMs are a lot the same where beyond the typing hacks, you might just get one rudimentary idea or one advanced concept. Now that that's for the stuff I do. If I

was a programmer, it's a whole different beast now, particularly with the tools that are available.

If I was teaching myself the program and starting to get in that, I'd be all over ChatGPT. And, and so maybe it's worth cutting right to the chase there. Um, do you think that we're in a hype bubble for LLMs? If you start with this like huge, it's [00:40:00] your search engine, it's your everything, but actually it's just a better sort of grammar check for me or, you know, text generation when I'm writing and maybe it's worth qualifying for your average person.

I think we'll go into the scientific verticals later, but for your average person, have we oversold what current LLMs can do? Yes and no, right? So, let's put in terms of college kids or high school kids, right? I like it and I tell my kids to use it because if you don't have domain knowledge, you're gonna look like a moron.

If you ask it to write a paper about the Civil War, and it gives you the dates 1961 to, you know, 1965, and you don't catch it, you know... Also, some high schoolers are putting in, like, as an AI language model, I cannot tell you blah blah blah as the beginning of their essay, too, so... Right, right, right.

You gotta filter that stuff out, yeah. Right, you gotta filter stuff out, and there's ways to... You know, deal with the sensitivities and all that kind of stuff, right? To game it in some respects and kids will get smart like that, but it doesn't change the hallucinations, particularly in the more complex things.

Like I have a company called Foodguides.com, which is for people with acid reflux [00:41:00] and similar issues, and just a way to find foods and stuff that are safe for you. And we put together an LLM as a test there. And we found that if somebody nested more than five questions to the prompt, it always hallucinated.

So, we had to put a limit to five questions. And you're starting to read more research that says the exact same thing. I don't mind it for kids or everyday people, if you will, because as long as you understand that it hallucinates and you have to check your whole card. I have a semi-spicy take that I think hallucinations are this like transient issue.

Essentially, it's an engineering problem that we haven't solved yet, but I feel pretty confident that in the next two years, we will have mostly solved it. So, it depends on how incremental information is ingested, right? So right now,

everybody's using vectors. To try to look up databases because that's a simple, just regular database lookup.

Right. You know, I need to access this piece of information, who is the president, you know, and it just looks it up. Right. But that's not really knowledge and [00:42:00] there's no wisdom associated with that. And so I think being able to modify ChatGPT so that you actually ingest everything. And that helps train it, which is expensive, obviously, but it'll get cheaper.

I think that's why Facebook's open source model really has legs because just using databases to access. I don't think that solves the problem of hallucinations. I think it makes it worse. Oh, interesting. So I, maybe I'll come back to that, but while we're staying pretty broad here. I'd like your opinion on the AI revolution that we're currently experiencing.

So you were at the forefront of the personal computer revolution, the streaming Internet revolution. And those were, I think, paradigm shifts in large sectors of the economy, large sectors of everyday life. Again, I think you live in a similar bubble that Raj and I live in, and all of us should walk around with the assumption that the AI moment that we're having now is of a similar scale.

And I wonder, like, if you agree with that, or if, again, we're just living in this echo chamber where we all know, I [00:43:00] agree with it, but I, what I think everybody's missing, and I think you and I alluded to this in our conversations before is the business side of it, that the business side of it will skew everything that'll happen with large language models, because one of the lessons of the Internet by IP companies was.

Google and others were built on the back of their IP. If Google was not able to spider everything, if the *Wall Street Journal* and *The New York Times* and every newspaper in the country, you know, turn spiders off day one. Search engines wouldn't be that valuable, would they? Right. And having talked to people at Microsoft, excuse me, and others who are working with LLMs, their perception is, well, we'll just spider away.

And you're already, you saw Sarah Silverman sue, you're seeing the music companies, you're seeing a lot of IP owners work together, even though *The New York Times*, like, extracted themselves from a group that was doing that. And this also applies to medicine in particular. People are [00:44:00] not just going to contribute their IP.

As a result, just so like when we were starting AudioNet that turned into Broadcast.com, the early days of the streaming industry, just like the early days of the Internet, people gave us all their content. Because they wanted the reach. They wanted to be able to reach people that were online that they otherwise couldn't reach with a newspaper or radio station or whatever.

And we would say, look, radio station and then TV station, you can't reach anybody in the office where there's broadband and so give us your content. We'll show you the numbers that simultaneously you'll listen and you'll know your extension on reach. And then they got to the point where those numbers were big enough where they said, well, shoot.

You know, I'm not going to give it to you anymore. You're going to have to pay me, or I'm going to keep it myself because there's value. The same thing is starting to happen and will continue to happen with large language models. And that is a disaster for a lot of the expectations that people have for large language models.

So, what'll end up happening [00:45:00] is they'll be branded by the partnerships that they have. And so, for a medical database, right. Sure. You know, based off of what it already has, it'll pass the MCATs or whatever, right? And it'll do basic stuff. But every day there's new knowledge accrued in medicine and the latency of that is important, right?

And so, if I'm, and I'm just using these hypothetically, I don't have any insights or anything. If I'm Cleveland Clinic and I think I'm adding, creating new value every day because of the doctors and the research we do, am I going to give that to BARD? And to, you know, open source Facebook and to, um, Microsoft OpenAI, where I'm going to say, look, I think we're worth a hundred million dollars a year.

Mayo Clinic is going to say the same thing. Harvard's going to say the same thing. And so, then all of a sudden they're all going to realize there's not enough money for everybody to get paid. And [00:46:00] then the prices will come down some and they'll rush to it a little bit to get out front. But you're always going to have a situation where something's excluded.

And I don't know when we get to the point where whatever it was that a doctor came up with based off of a patient or research experience that the AI will figure that out without that experience so it's interesting because, like, I think like many other people I think of LLMs as like the new search engine and

therefore, the trajectory of Google is the right model. But I think what you're saying is actually the right model is, like, Spotify.

So, Spotify didn't solve the technical was a prerequisite, but the licensing deals that they struck with content creators and, and music and record labels was the enabling factor that made them successful. And I think that that's what I hear you saying, right? Yeah. And they're still losing money. You know, all these years later, and those, those content providers keep on raising what they charge Spotify and Spotify finally raised their prices after trying to absorb it.

And so you're exactly right. And that's a better way to put it than I'd been [00:47:00] putting it, because why wouldn't you, if you're a content owner, if you're an IP owner. And then you have the Taylor Swift of the world that just walk away and renegotiate an entire... Well, yeah, just rerecord everything. And now it's hers, right?

In particular, you know, for. An agent that I use for content and entertainment, I'm like, hey, I'm willing to license my voice, right? I'll record whatever, and I have, I'm an investor in a company called Synthesia.io, which does a lot of that, right? And so, I record stuff for them where you can have me say anything you want in my voice.

That's very handy for us in this interview. Right? I like the answers that you give. This is the best podcast I've ever been on. As long as you pay the commercial rate, I'm good with that. But you get the point, right, that this is not a direct line like people expect it to be because IP drives it. And as much as we don't know what that neural network's going to create for the LLM, right, we do know that if there's something that's excluded from it, [00:48:00] the chances aren't great, unless it's very horizontal in basis, that it's not great for that model to get there.

And that while it may not... It may or may not hallucinate relative to that IP. It's going to lean one way or the other in terms of what it does output to prompts. And so that's like a comment on where the raw inputs are going to go. But I think I also hear you saying that like branding, getting back to your sort of central health care thesis is also going to be a trust mechanism for patients.

Yes. So, if I, you know, why am I going to trust random Joe Schmo's LLM when there's a Cleveland Clinic LLM that has been vetted by, trained on that data. And then it's going to be Mayo versus Cleveland versus Harvard versus you name it, or they partnered or we partnered. Just like you see now with research and different projects, right?

And there's a reason why those places pay premiums to, you know, guys like you to go work for them. Because they want that brand and trust and they want the best they can get and no [00:49:00] matter what we do with LLMs right now, there's a huge difference between knowledge and wisdom and we have no basis on which to judge wisdom being output from an LLM. Could I get you to tell me the difference between knowledge and wisdom?

Sure, knowledge if I said this to you before I know I this is one of the things that I didn't get to follow up on the last time we spoke. Okay, so knowledge is knowing that a tomato is a fruit. Wisdom is knowing not to put a tomato in a fruit salad. Interesting. I heard that from a rugby player guy. I'm gonna have to meditate on that one for a while.

Am I wrong? Have you ever seen a tomato in a fruit salad? Does, uh, I not let, nope, I have not seen tomato on a fruit salad, potentially. That is wisdom. You have to know to be able to take fact. So to use a computer science metaphor, it's like integration tests versus unit tests or something like that. You know, something like that.

Okay. So I guess one thing that I'd like to ask your opinion on before we move to the [00:50:00] lightning round is I think you've clearly shown that you don't need AI to lower health care costs, but I'm curious if you think that, you know, that's one of the things that we all agree that we have an unsustainable health care system.

Something has got to reign in costs. Is AI at least a partial solution to the runaway health care costs that we have now, or are they going to make them worse? Because I can imagine a scenario where now you have an infinite billing machine. You can run infinite tests and that could be... It's not even the billing machine, it's just who is the payer and how do they make determinations about the services they offer and what they charge?

And the payer makes those determinations. Here's what I'm going to pay, and here's what I'm going to pay for. And... AI is a complexity in a medical environment that allows them to obfuscate. Look, the ultimate black box is their ultimate dream. We can't even determine sources right now, right? I mean, you can at some levels, but, right?

So your best answers are the ones that... Come from your most expensive assets, [00:51:00] whether they're researchers, doctors, whatever it may be. And those are the ones you're going to charge the most for. There's no system within that,

there's no environment within the health care system where the processes are so efficient that people are going to charge less.

Okay. I mean, I, I, I, I hope that that's not the answer, but I think that you're probably right. I think there's an opportunity to change that, but that goes back to the building the house, right? Right. You've got to build a new house that's designed with it. And I think people will try that. You're seeing more and more cash-based care centers that I think have the right idea.

They just don't, it's because you can't inventory doctors who aren't being used. That's the Catch 22. Okay, so I think, Raj, unless you have any follow ups, I think it's time for the lightning round. Let's go!

Okay, um, so the goal here is like, we're gonna ask you a bunch of [00:52:00] random questions. Uh, you can take them as seriously or unseriously as you want to. Uh, but because it's the lightning round, try to keep your answers brief if possible. Yeah, okay. Um, so I am an avid pickleball player, have a 4.0 rating. Um, I know that you are a owner of a professional pickleball team.

Uh, so the question is, uh, will a pickleball tournament ever have the same viewership as a major tennis tournament? And I know you like data, so I have some numbers for you. The U.S. Open gets about 800,000 viewers, and which is a, you know, a major tournament, uh, the, uh, the sort of second tier tournaments like Indian Wells get 400,000 viewers.

So the answer is no, but just remember the medium is the message because those numbers are defined by the platform that you produce it on. So, got it. Okay. All right, Mark, who is the best NBA player of all time? And why is it LeBron James? Okay. It's Dirk. Love it. And that's my, that's my answer. I'm sticking to it.

We'll allow you a little bit more leeway. If you'd like to [00:53:00] elaborate on the questions, you know, the M.J., um, LeBron thing, if I have a team where I need a killer to finish out a game and get that last bucket, then I'm going with M.J. If I have a team that has got a lot of great players and I need someone to make the right basketball play and potentially, you know, hit the game winning bucket, I'm going with LeBron.

That's fair. That's fair. Um, if you had, uh, so if you had to pick one of these two individuals to fight in an MMA bout, who would it be? Mark Zuckerberg or Elon Musk? I'll go with Mark because he's training. I mean, training's

everything. Yeah, so you're, but I'm saying you yourself have to fight one of them.

Who would you pick? Oh, I don't care. I'd kill him either. I would train first. I wouldn't just walk in and think, you know, oh, hey, you know, I'm bigger than these guys. I can beat them. I'd have to... So we got a twofer there, I think. I think you're putting your money on Zuck, uh, in the Coliseum showdown. Uh, and if they're fighting you, it doesn't matter because it's going to be a wash.

Yeah, as long as I train, I'm good. All right. I think I know the [00:54:00] answer to this one because you alluded to it. But have analytics and AI made the NBA game better or worse? I think it's made it better, but now it's an equal market now. It's almost impossible to get an advantage. There's not new data, there's nothing.

So, you've seen everybody adopt pretty much the same approach to basketball. So, a uniformly better product, but now there's essentially no, like, information arbitrage opportunity because... Okay. Got it. Um, so I've wanted to ask you this one for a long time, uh, but which NBA commentator could be most easily simulated by a large language model and why is it Skip Bayless?

Oh, because he says the same dumb shit over and over and over again, right? Same shit. Different day. Yeah. So we can, we can just throw an LLM, uh, in, in, in for Skip and we should Right. We'd actually get better commentary. Lemme just tell you, I think the most undervalued LLM opportunity is to, uh, absorb and you could charge people for us [00:55:00] obviously absorb everybody's, um, email and texts and voicemail messages and make that their internal.

You know, you're, they're in eternal LLM. So a hundred years from now, Skip Bayless can have his show. 40 years from now, Skip Bayless can have a show and all of us could for that. No clutch gene, no clutch gene, no clutch gene. You watch him way too much. All right. What, what skillset do you value most for founding a medical AI company?

The technical machine learning skill, medical knowledge, or business skills? Curiosity. You've got to always keep on learning. That's the key. All right, so this is our last lightning round question. Um, so I know you said you're not running for president. You can correct the record here if you want to you heard it first here. But if you were given absolute power for one day, what change would you make to the U.S. health care system?

Um, I build a reinsurance program and get rid of payers. You couldn't outlaw them, but you can make it so that you [00:56:00] price them out of the market. Awesome. Yeah. All right. Mark, congrats on surviving the lightning round. We just have a few concluding questions left. So the first one is, will AI replace or augment physicians?

No, because as long as, as long as evolution is evolution, and as long as there is lead time or just delays, right? There's always going to be something new, and you're not going to be able to ingest and process fast enough. All right, so this question requires a little setup, so I'm going to have to read a couple sentences for you before we get to the question.

So, have you read Marc Andreessen's "Why AI Won't Cause Unemployment?" Blog post. Yeah. Um, so the, the crux is, is that there's essentially two sectors in the economy, highly regulated and unregulated. And as a function of GDP, the regulated versions are going to essentially dominate the economy because they're rising faster than the price of inflation.

The [00:57:00] unregulated, essentially the marginal cost of everything is going to zero. The example he uses is you can buy like a 50-inch HDTV for a hundred bucks now. Previously that was like a \$5,000 thing. So just the math works out where these highly regulated sectors of the economy are essentially going to be the entire economy and sort of by definition, you can't replace, you can't move AI.

You can't do technically innovative things in that space. And so, he uses this argument to say that AI isn't going to cause mass job replacement. I guess, one, do you agree with that? Oh no, mass. So, I'm thinking ahead. No, I don't think it's going to cost mass job replacement. No. Okay. Okay, do you think it's for them?

I agree with them there. Okay, the regulation essentially ensconces... No, because he talks a lot about regulatory capture. Right? And that's what we see a lot with health care. And there's tons of regulatory capture trying to go on right now in the pharmacy business. Right? And we basically... You know, disassociate with that.

So, you can disrupt a regulatory captured business, but if it, if it's not disrupted, then it continues to grow faster. But I think [00:58:00] the piece that is applies to AI that he's missing is we will have technically literate politicians at some point. Who will start to use AI for government as a service and to use AI to try to optimize what happens in government, not just from a regulatory perspective,

because that's not really where you benefit, but in optimizing processes and, and creating.

So, if you look at it, if you were going to disrupt the United States government and its impact on its citizens, you would say, okay, here's our tax pool as we have as day one, and we're going to model out as best we can. Here's all the services that we think our citizens need. And you can even use technology to have polls or whatever to get, you know, real time feedback or near real time feedback and start to weigh these things and try to, you know, use AI to determine across this model.

And I'm trying to optimize it. What gives me the best outcomes for the citizens and what processes can I include that use technology and AI to accomplish those? So, where he's wrong is [00:59:00] regulatory capture is enhanced isn't the right word, but increased because we're so human in what we do, right? The number one job of a politician is not to improve things, it's to keep their job.

The number one job of a political party is to sustain and retain power. And so, if you start to undermine those things, you start to undermine the opportunity for regulatory capture. So that's why I've been a big proponent of ranked choice voting. And other types of models because it takes away a lot of the extremes and allows more opportunity for people to participate.

So, if you start thinking in terms of government as a service and optimizing government because we finally have people like yourselves that are technically literate, you start to diminish the regulatory capture, which undermines his point, if I read it, his points correctly. I guess like hoping the, but the, is the I bet then that there's going to be technical literacy within the government, and that...

At some point, yeah, because by default, you know, my generation, we're idiots, right? [01:00:00] We went from sex, drugs, and rock and roll to Fox News. How the fuck that happened, I have no idea, right? It's the most embarrassing thing ever. I thought we'd all be 65 years old smoking joints and playing the guitar and, you know...

And singing give a piece a chance and instead we're like, well, what happened to Tucker Carlson? That's just ridiculous. And so, I think with Gen Z and maybe the Millennials, but particularly Gen Z and Gen Alpha, whatever they're calling afterwards, where you're born technically literate and not having it there for the things that you want and need is,

you know, ridiculous to them, you're going to see it. So, in science, we have this phrase, uh, that, uh, field advance one funeral at a time is that there will be some luminary who makes some discovery. And essentially the field is captured by the ideas of. I don't think it's a luminary discovery. Sometimes it's just, you know, you know, cars came around and people realize cars, the Internet came on.

It wasn't, the Internet was not some discovery. AI was not some discovery, right? It was somebody productized [01:01:00] it. And somebody will productize government as a service and say, look, all these things that you do right now that are ridiculously difficult or take, you know, a lot of time and money to automate.

We're going to simplify that right now. We're going to be able to look at your existing. So I'm going to ingest the entire state of Texas. Every single one of your websites. I'm going to take all the code from all the software that's behind it, and everything that you do on a technical basis, um, using software.

I'm going to ingest those into this large language model, and I'm going to give it prompts to say, take all that information, take the data that we have for our citizens, and output a new platform, a new product that accomplishes all the same things on a least cost optimized output basis. That, if we sat in one of your classes and just tried to design that, we wouldn't say that's extraordinary, right?

We would say that's a normal potential program to try to create. That's what's going to happen. Isn't this just like health care though, where we have the technical solutions, but you know, [01:02:00] there's regulations that dictate you have to take the minimum bid, so contractors will underbid. That's because of the politicians, right?

As long as you've got the system that we have in place, who's, who's the dude that lied from New York that lied about everything? Uh, Santos. Santos, right? And there's equivalent Democrats that have been charged with whatever, but they have to keep them because they need to keep the majority. You're right.

And so when you start making decisions based off of that, that's because of the underlying political system. If you want to destabilize all these downstream issues that we've just talked about, you have to change the political system. If you look at where there's ranked choice voting, that's where you saw Republicans vote against Trump in impeachment, right?

That's where you see them vote against other issues that in other Republican locations, you wouldn't see that. You know, so looking at disruption, you have to look at the underpinning of the problem. And while regulatory capture is an issue, that's a function of how we elect our officials. Interesting. [01:03:00] Again, not where I thought that was going.

And I feel like my job has been done because I got you to drop at least one F-bomb. I think that was, that was on the checklist. So, I'll hand it over to Raj for, I think, probably. Wait, wait, before you go, am I way off base or what do you think? I don't know. I, I'm just skeptical that, technically, like I would not place my bets on technical on the government becoming extremely technical literate and even 50 years from now I mean, so by what standard?

Um, so it may be technical, technically literate by the standards of 1980, uh in 50 years. But Mark is saying this is our kids, right? This is our kids growing up in 50 years, right? They're growing up in GPT4 and you know, it's going to be a different group. Yeah. I mean, look, all it takes is one, one, somebody going in that's literate on GPT4 and saying to the local university, here's access to everything that we do online, and here's all the software that we have going back to COBOL, going back to assembly language, whatever it is.

I want you to import all this software and spit it out in [01:04:00] Python or whatever it is, right. And what the most optimal output is. That's not hard. It's not simple, but it's not hard. It's not technically hard. I agree with you there. And also, that's the point. All it takes is one person. All it takes is one person who's literate enough to say, fuck, why wouldn't we do this?

Now, if I did run for president that would be one of the first damn things I would work on, right? Because that's... If I may, Cuban 2024 fuck, why didn't we do this? Let's do it right. Let's get this shit right. Alright, so we have one last question and I mean, you might disagree with the premise actually of this, of this question, uh, but I'm hoping you can leave us on a note to bottle up some of your energy and do good things in medicine and health care.

So I think you've said that the most important talent that you have is your ability to sell. Can that be taught or is it like humor? And it's something that you've either got or you can teach people to sell. It's really easy to teach people to sell and selling is really a simple proposition. How can [01:05:00] I help you?

Just all the things we just talked about in terms of politics and regulatory capture, the hard part isn't the technology. The hard part is selling it. And once you teach somebody that it's not about, you know, selling ice to Eskimos to, to

use a poor phrase, but it's about, here's your needs. And let me make sure I understand your needs.

And here's how I think I can make your life better. That's what we did with CostPlusDrugs.com, right? We didn't really invent anything. We just made it transparent and the selling takes care of itself. As long as people trust us, it sells itself. So I think selling can definitely be taught. All right.

That's what I was hoping you were going to say. Go ahead, Andy. Yeah. I might want to ask just like one follow up question. And just cause I'm curious how you keep this going. So you have been so successful at selling. Obviously you've had a lot of success in business and other sectors. My experience has been that when people reach a certain level of success, they run out of people to challenge them.

But it seems like to me, at least based on following you on Twitter, that hasn't been a problem for you. So how do you make [01:06:00] sure that there's still enough people around you who can challenge your ideas and you're not just surrounded by yes men? I'm never surrounded by yes men. I mean, I'm so competitive.

I'm always looking for a game. Now, my basketball game's not where it used to be, so it doesn't take as much to challenge me there, but intellectually... I'm always looking for a way to challenge my, that's why I do stuff like this, right? And that's why I asked you, what do you think? You know, because I don't want someone just to agree with me.

You know, I, I learn more when people disagree with me. And it's like going back to that blood thing on Twitter, you know, back in the day. We're doing it now. We're calling out Elon or calling out whoever. You know, it's unfortunate that it brings out the trolls, but it's still, there's still value there.

Right. Awesome. Mark, thank you so much for being on *AI Grand Rounds*. This was a real pleasure. Yeah, this is fun. I really enjoyed it, guys. Great. Thanks for coming. We had a lot of fun, too. And I'm so glad I got to ask you about Skip Bayless, because that's one of my favorite, favorite YouTube clips of all time.

You just completely... You know, not on my card to be asked about Skip Bayless. [01:07:00] When the Mavs beat the Heat in 2011, and then you went on the show and just... It was great. You torched it. I put up, I had a picture of my son who was like two at the time and I forget exactly what it said, but I used it to call out Skip, right?

He's like, come on the show anytime, anytime. So I happened to be in Miami where they were filming and I'm like, okay, I'll come on. And I started talking and I kept on waiting for the hammer to fall, right? Because they prepare for these shows and him and Steven A were on there. And I figured at worst, Stephen A is gonna try to rip me, but... They just do vocal cord warmups.

Like they just shout, they don't actually do like information. Yeah. He is like, no, no clutch G, no clutch sheet, and then blah, blah, blah. You're like, well, no clutch gene, un skip. You know, or those guys. And then he like got the frozen, the frozen water, whatever. Right. Oh my God. I really expected it. Something I, I kept on, you know, trying to stay on my toes 'cause they were gonna hit me with something and just never came.

Awesome. Well thanks again, Mark. This was great. I really enjoyed it, [01:08:00] guys. Have me on again. Thank you. And let me know the feedback. Let me know the feedback you guys get in terms of, oh, he's an idiot. Because if someone thinks I'm an idiot, I probably am, but I'm willing to learn. Right? You know, just so whatever feedback you get, let me know.

Will do. Appreciate it, guys. Thanks.