

Hello, everyone! Welcome to another episode of Q&A about business, innovation, and Managing Life.

All right, I see a number of questions saved up here. There's one here from CEO in Training. What goes into deciding whether to rebrand an existing product or create new products entirely? Complicated question. I mean, the... if you have... kind of... The world always likes the new. And if it's something where it's like, oh, that it's, you know, it's version whatever it is, 11 of this thing we have 10 previous versions of.

Much of the time, that will be less exciting than, it's a great new thing, it's called something different.

I'm going to qualify that statement a little bit, because there are things where people know they're using

whatever it is, some product, and it's like, oh, I'm going to be excited to see what the next version of that product is. There are very few companies that have managed to pull that off consistently. I mean, Apple is probably one of the better examples, and it helped that Steve Jobs was really good at, kind of, pitching new products and making them seem exciting.

I mean, I have to say, I remember the time when the most important new feature of Apple products was dark mode, and at least at the beginning, I thought, this is pretty silly, that by the time they're saying, that's the most important big new feature, but then it turned out it actually was a more important feature than I expected. But there are very few companies that manage to get one to be excited about every successive new version.

I mean, we try to do that. We're excited about, you know, the fact that version 15 of Orphan Language is about to come out, and certainly some of our users who really care about, kind of, the leading edge of what we're doing are similarly excited, but that's a rare case where you can keep people excited through all these different versions, and people tend to be much more responsive to it. It's new, it's a new thing, it's something completely different, you have to learn about it.

The downside of that is, maybe nobody cares. You say, we're putting up this banner, we've got this new thing, and it's like, just, nobody pays attention to it.

So...

it's, and I think the other thing that can happen is, if you're a company, and you... every time you do something even vaguely new, it's, let's call it fish, let's call it fowl, let's call it elephant, let's call it chameleon, you know, have a completely different product.

each time, pretty soon, you lose track of what all those products are, and so does everybody else.

I mean, I think it's, the time when one knows things are going wrong is when you, as somebody involved with some company, are like, I can't remember all the products we have.

That's a very bad sign. And that's... that's a sign, and usually it's the case when that's happened, is you're spinning off new products, and each one you're trying to say, we're putting out press releases, or whatever the modern version of that is, but nobody is showing up, nobody is caring.

So I think that, the question of, of, I mean, you, you can have a certain number of products that you get out.

Depending on the size of the company, the nature of the market, and so on, you know, maybe it's one every two or three years, maybe it's something slightly more often than that, maybe it's something rarer than that, but it's a modest rate of, kind of, fundamentally new products.

And, then it's a question of explaining what you have. Now, the other thing that I think is kind of important is... is, sort of, when you have a product.

There should be some kind of

Fairly short description of what the point of that product is.

I have to say, in our product space, where we're building very general products, like Wolfram language, I think we have a great description. It's a computational language.

But that description is a description that we understand, but that isn't a, like, it's one of 17 computational languages. It's the only kind of computational language in what we mean by computational language that exists.

So, it's... it's something where, but there's a... there's a question of, can you... the thing you don't want

It's something where you have this product.

And it's called an A or something, and it has 3 main features that are all a bit disparate.

And then, you know, that's an A.

And then you realize, well, you know, people are buying that because of one of those features, and maybe another one, and so on. You'd probably be better off having product A and product B separately, where people can know, I wanted this.

let me get product B, I want a that, let me get product A, rather than having this sort of confused thing where you're trying to explain, well, it's, you know, product A, you should get this because it's a both a that and a this.

So, at least that's a little bit on,

on the rebranding of products. I mean, another thing about rebranding products is what happens internally within a company, that people... it's always good to have sort of a clear, aspirational objective. We're building blah, not

You know, where you can say blah is this named thing, not, oh, we're doing this improvement to this thing and that thing and the other thing, and nobody can really understand what people are doing. It really helps when you have a name for a product or a thing you're building

Because then people... it somehow helps, kind of, people understand what they're doing and kind of come together to make that thing happen. At least that's been my experience. Now, sometimes, also, you end up with an initial name, which actually is a pretty bad name, or it's a name for what you thought the thing was going to be when you started building it, and then you realize later on that it should be something different. You kind of have to just sort of bite the bullet and change the name at some point.

And people may be confused for a while internally within your company, but much better that they be confused before the product is launched

Then that everybody is confused after the product is launched.

Another thing that can happen as you're trying to name products is you'll be like, well, this isn't a very good name, and then

then it will turn out that everybody kind of uses some particular name for the product internally.

And then you say, but that isn't really the name we want to promote outside. You try and change the name, and it just never gets... it never sticks. The new name never sticks.

The worst case, which has happened to me plenty of times, is you say, we've really got to come up with a name for this product. And by the way, it really is important to try and come up with the right name for products, because if you have the wrong name, people are just continually confused, or continually don't care, because the thing just doesn't sound that important.

The, but, you know, you end up in meetings where you're talking about what should the name of this thing be, and you come up with some name.

You get to the end of the meeting, you've talked about maybe some additional things after the... after you came up with the name, and then at the end of the meeting, you kind of are asking people, what was the name we came up with?

That's a dead name. If you can't remember it, even in the space of one meeting, it's... it's not going to work.

And when you come up with the right name, people immediately, in the next sentence or two, are using that name to refer to the thing. It really is often very, very dramatic, when you get it right, how quickly it catches on. And when you get it wrong, how much you can't even remember what the name you came up with was.

Let's see...

Oh, actually, this is a related question from Techstart. How important is a product to a company? Should companies focus on one big thing, or focus on many smaller, new products?

Well, it's sort of a related question. I mean, the fact is, most companies that have a decent degree of success have some anchor mainstream product that

Typically got them to that success.

And, you know, one of the things that happens to companies all the time is you get a certain mainstream successful product, and then you say, what's next? And you say, well, to really expand our market, we need a different product.

This is a very dangerous and difficult moment for companies, and rarely navigated terribly well. Because what happens is the, you know, you've got one product, it's making X number of millions of dollars a year. Then you've got another product which you're trying to get launched. And that product is going to make less money at the beginning, usually, than the original project... product.

And within your company, people are saying, why are we doing this out... this extra thing? We've got this mainstream thing, and it's working.

And then, you know, the... it's the probability of success with any given product.

is far from 100%. And so, you try and make this... you had this one success, you try and make this kind of spin-off or different thing, and it might not be as successful. And that's... it might be something which would be great

for a company one-tenth the size of your company. And so, you know, by even trying to include it in your company, it can't make it, because it's the little, tiny, sort of ugly, small, extra piece.

That nobody really pays attention to, whereas if it was its own separate company, it would be great, we're doing well. We've got a company of size X.

There might be another company of size 10X, which we couldn't support from the product we have, but that's okay, because we have a success within our domain, so to speak.

So I think, the, this question of, you know, just pick a lot of products and, you know, throw them out into the market and hope for the best, I think that is very rarely going to work.

I think that,

I guess in some areas, and maybe that's changing, maybe that's a thing that can change now that the cost of certain kinds of product development have gone down. I mean, I...

I tend to think that unless you put a lot of effort and sort of emotional energy into a product, unless you kind of tell the world about it with some degree of force, that it's not going to work.

And so if you say, let's spread the energy that we have across 5 products, most likely you'll have 5 failed products, rather than having sort of a better shot at success.

Now, there are counterexamples. I guess I haven't been close enough to them to be sure that I know the history, but

You know, there are... there are cases where people say, well, we made 5, sort of, proto-products, and we brought them all to some trade show, and we saw what people cared about, and then we picked the thing they cared about, and pursued it.

I don't know whether those stories... I mean, I know people who've done that. I don't know how convincing those stories are, because I don't know whether really what was happening was the people who'd built these products, by the time they showed up at the trade show, they had a favorite, and they were sort of emotionally communicating that favorite, so it wasn't really a fair, you know, a fair kind of comparison. But I have to say, I think that that's a,

You know, it's hard enough to make a product one product, and try to make five, and then letting the market decide which one is the best. Seems a really, difficult road to go on.

Let's see...

Okay, Double is asking, how will AI ultimately affect the way business is done, will capitalism survive AGI, post-scarcity, and so on?

Well, let's see. So, the first question is, sort of, how will AI ultimately affect the way business is done?

You know, every wave of automation that's come in in history has changed the way that business is done. I mean, there were filing clerks who were using, you know, putting things on index cards and doing hand calculations and so on, and some things were really difficult to do.

that became very easy to do later on. I mean, some things for a while, keeping data on things, was at one point really difficult to do. Then it became very easy to do.

doing something like, you know, printing up a thing that looked like a sort of professionally presented, kind of thing was at one time hard to do and then became easy to do. Each one of these things has both

kind of removed certain kinds of activities that people used to do kind of by hand many times over, and made them automated, and on the other hand, created new opportunities that became possible because you could do something more easily. And so it will be and is being with AI.

I mean, I think that, there are, you know, the idea of, I'll make a simple website that does something.

that has been a thing where that hasn't been a thing lots of people have been able to do, sort of, with their own fingers, and now they can. I mean, I have a friend who is, kind of, runs a Has run for many years kind of an incubator of companies, and you know, he's... was just telling me, you know, he's had all these projects that he's really wanted to do for 20 years, and so on, and he's tried to hire programmers to do them, and, you know, he did

you know, do a degree in computer science at one time. He's not programming incapable, it's just that he hasn't been, sort of, on the ground doing programming for a long time. And now, suddenly, he can just tell an AI to go and create one of these websites, and it'll more or less do what he wants.

And be able to get him to the point where he can go from an idea to an actual working website that executes the sort of product concept that he had.

Now, I have to say, you know, it's fun to see somebody like that be excited about the possibility of doing that. For myself.

I've built myself the tooling to be able to go from idea to actuality for the things that I want to do. I've had that tooling for 40 years now. I mean, that's basically what I've been building in Wolfram Language and our whole technology stack, is the best tools I can for going from ideas that I have

to real things that I can kind of execute with.

And so, in fact, most of the science and technology I've done for the last 4 decades has been enabled by the fact that I really can take some... just some idea that I have, and in five minutes, I can get something to happen with that idea, so I can develop it, build on it, and so on. And that's been the big thing that our technology stack has enabled.

our technology stack has been about, kind of, things relevant for research and development and education, and sort of algorithmic deployment of things. It's not been about making, sort of, random consumer-style websites.

that's a different kind of activity, and different kinds of tooling. People have made... we've made plenty of consumer websites with our technology, but it's the... the place where our technology is most significant is where there's some real algorithmic

Factual, etc. content to what's going on.

Rather than just, you know, something that is more, you know, I have a consumer idea, and I'm going to create something that lets me sort of post messages about this, and have people respond to those messages, and do this or that sort of consumer kind of thing. But now those things have become

vastly cheaper to execute, and it has become more realistic to go, as an individual, from idea to actual implementation. I mean, a lot of things I've done

Most obviously in science.

There are things where the volume of work that has been possible for me and my computational tools has been very great.

And those are things where one might have thought this would take, you know, decades and large numbers of people to do them, but it's just been me and my computational tools, together with a bunch of very talented assistants at various times. But it's been... the dominant effect there is me and my computational tools, I would say, to go from that being impossible to that being possible. And we're going to see that

With a bunch of other domains right now.

I mean, there's a... there's, lots of areas where

things have been hard and became easy. It happened fairly suddenly with the current wave of AI. The kind of the fluency of language generation and language understanding from the sort of chat GPT situation of three years ago now, and more recently, the kind of sort of fluent arrival of kind of writing low-level code and so on, is... are things that

Sort of change the landscape of what humans need to spend their time doing, and what becomes possible to build on to make companies and things like that.

I think that

the... we can fully expect that sort of a layer of intermediation by AIs is coming to lots of kinds of business. It's kind of like, am I... am I doing this kind of... you know, there was a time when if you wanted to know what was available at some particular store, you would go, drive, walk, take a horse to whatever that store, and go look inside and see what they had.

Obviously, we now live in a time where a lot of that is available on the web, and then we've also got very aggregated kinds of things where you can say, I'm trying to buy this, you know, show me the 20 different places where I can buy this thing.

And likely, we'll have another level of, kind of, automation and AI agenting going on there.

I have to admit that I incredibly rarely buy things online. I don't, end up buying an awful lot of stuff directly myself. Perhaps that's a mistake, but it certainly saves money to not buy lots of

stuff, you know, at the click of a mouse or whatever. But in any case, the, you know, this question of, well, I want to get roughly this kind of thing.

go find... I mean, right now, you can do keyword searches for that. Probably, there's a higher level of sort of agent-to-agent interaction that will become possible that's not just, you know, I want to buy roughly this kind of thing. Then there's kind of a, well, you have to put this together with that, and you have to negotiate with this or that company about whether they can deliver this thing and get it to there, and connect it to that.

And so on, and my guess is that more and more of that will be done kind of at the AI level, rather than at the direct human level, and maybe at the end of it, the AI will sort of summarize for you, this is the collection of things that I can get to put together the thing that you're trying to do, so to speak.

you know, will that have a profound, transformative effect on business? Not really. I mean, it's still people buying things from people, but, you know, will it make certain things more efficient, and will it make it possible to do, to see around more corners? Yes. I mean, it's kind of like at a time when you had to memorize

the way that you would drive from here to there, you were more likely to use main roads. Once it's GPS that's sort of automating, finding the route, you can much more use those side roads that happen to get you around the traffic jams, so to speak.

And so it will be, I suspect, increasingly, with sort of using products, putting products together, building things, and so on, that you can really use, sort of, the best the world has to offer, because the cost of figuring out what the best the world has to offer is considerably lower. I'd like to think that that mechanism will benefit folks like our company, who've built things that really are very good ways to do things.

Where maybe it's not... there's so much to talk about that it's not been as obvious what one has on offer as it might be.

I think,

that, okay, so the second part of this question was, will capitalism survive AGI, post-scarcity, and so on?

You know, the thing to understand about scarcity is

Okay, many theories of economics are sort of based on, you know, how much material stuff do you get?

And material stuff tends to have this character of scarcity, and it tends to cost more if there's less of it, and things like this.

When it comes to more, like, intellectual property kinds of things, software, those kinds of things, those... those kinds of economic principles don't really quite work. Like, it could be the case that it costs more if there is more of it.

Because you're kind of buying into a network effect that makes the thing more valuable, for example. And that's kind of the opposite from, you know, if what matters is getting, you know, mining copper out of the ground or something, and there's only a certain amount of it.

So, you know, I think these kinds of ideas about what does scarcity make value and things like this get kind of... by the time it's not material objects, actual atoms that you have to be sort of mining out of the ground or whatever, those pictures change a bit.

It's also worth realizing that some things that are valuable, things like, are you the first person to climb this particular mountain

you know, with, with your hands tied behind your back, or something like this. The, you know, that kind of, experience, you know, have this particular experience.

that has a certain scarcity, like, be the first to do X. That has a certain sort of built-in, or perhaps manufactured scarcity that, however many AIs there are in the loop is not going to be changed.

It's,

it's something where... or if you say, you know, am I going to be in the room with, you know, 10 people with this person? Well, it's just... you can count the people. There's no AIs that are going to help with that.

You know, you can have a virtual simulation of the thing with AIs, but if what matters to you is being there, so to speak, that's not something you can get over by automating more things.

So, I think there will always be, there will always be certain kinds of scarcity that, exist in the world, and the only question is, do people care about that scarcity? I mean, in other words, does it matter that you have the, you know, the chair that Napoleon once had, or are you happy with just a comfortable chair to sit on type thing? You know, does it... what aspects of what's going on really matter to you? Does it matter that this thing was created by an artisan Or are you perfectly happy with a thing that is almost atomically identical to what would be created by an artisan, but wasn't created by an artisan?

similar kinds of things with, you know, diamonds. Does it matter that this diamond was, sitting somewhere in the Earth for 2 billion years, or is something atomically equivalent that was made in a high-pressure diamond-making machine, is, you know, which one is important to you?

And those are things which are more a matter, I think, of the way people perceive things than they are a matter of what's sort of possible to have out there.

I think...

that, in terms of, kind of, the operation of the economy, as I say, some jobs are kind of going away right now. New jobs are coming into existence. New things become possible.

I think that there will be another wave of this when robotics really takes off, and I fully expect, sort of, a chat GPT, maybe it's a moment, I don't know how short the moment will be, when, for example, humanoid robots really start working well and become something that one could routinely use, then, you know, people right now have been saying.

you know, with all the chat GPTs of this world, so to speak, lots of white-collar informational jobs are suddenly under attack. But, you know, the blue-collar jobs, where you're actually making physical things, they're safe. I don't think that's the case.

I would fully expect that those will fall, you know, both kinds of jobs have lots of actual human skill and judgment involved in them some of the time.

But some part of it is quite routine and mundane and automatable, and I fully expect that in both cases, there'll be a level of automation that will be possible.

So...

you know, what then happens? Well, you know, there's so many things that any level of automation makes possible that weren't possible before. And I think the general trend that one sees is, sort of in the early stages of an economy.

there are very basic things you really have to do, like grow enough food that you don't starve, and then there's lots of focus on doing agriculture, for example. As that gets automated, people can do other kinds of things, and people want to do other kinds of things, and so what you typically see is sort of the pie chart of an early developing economy.

Has a big piece for things like agriculture.

And then, as sort of development goes on, you get... the pie chart breaks into smaller and smaller pieces, things become more and more specialized, people start having a wider diversity of jobs, people start having multiple jobs of very different kinds, like, I'm a podcaster by night,

and you know, I'm a software engineer by day, and I'm, something else at the weekend, so to speak.

And, you know, that becomes possible because of automation, because the barrier to entry in those different fields goes down because so much of what has to be done there is just, oh, I just used this program, or this machine, or whatever to do it. And so, what ends up happening is the parts that are sort of for... the parts where you have to decide what you're going to do.

Those become more important relative to the parts that have to do with the doing of the thing. So I fully expect that, sort of, there'll be more and more of that, of, of kind of things that people do where what's really relevant is sort of applying human judgment two things.

And that that becomes a bigger piece of, sort of, the pie of what, of what gets done. Now, a lot of professions started fairly small and started with high human judgment, and then as they got bigger, there were lots of activities that became kind of routine, but hadn't been automated, because for one reason or another, automation was difficult. It was, you know, writing reports. Automation of that was difficult. That became much easier.

So things where it started as a small number of people had to make sort of serious judgments, and then it became, let's scale up that judgment. Let's teach people how to do those judgments. Then it's a thing where we can have, you know, 200,000 people making those kinds of judgments. But as soon as that's the case.

it becomes much more realistic to say, let's automate making those judgments, and have that, in the end, post-AI or whatever else, be something that we don't need all those humans to do. I mean, I think one place where this is clear, for example, with programming and software engineering.

that just sort of vaguely pointing the AI at, oh, I vaguely want to build this thing, and it starts doing all this stuff, that really doesn't work terribly well.

you know, you... what becomes clear is that what you see, I've seen in our company, is that there is a great premium on people being able to understand what's going on, architect what's happening, kind of give the structure, the kind of judgment-based structure of what should happen, rather than just sort of blindly saying, hey, I want to, you know, this is my job description, now just do my job description for me.

It's, rather, it's... it's kind of get it... break it down to the point where the AI can do the things which are well-defined, where it can just do its automated thing and get that done.

So, you know, I'm really not expecting a world where there's kind of nothing for anybody to do, unless people decide they don't want to do anything. I mean, in other words, there are all sorts of activities that the world values that

I think that the world hasn't valued for a long time. I mean, the idea of being, you know, a, you know, a social media influencer, there have been analogues of that in the past, but actually making a living doing that is a phenomenon of a bunch of automation of payment systems and, you know, distribution systems for content and things like this. And that then becomes possible and is now a place

where, sort of, people can do things which are, in a sense, individually valuable. And I fully expect that more and more of those opportunities will open up. And it's always an interesting personal decision

When an opportunity is sort of kind of opening up.

But nobody kind of really knows that's a big thing. Do you end up being the first person in the world to do that kind of thing, or do you wait until it's a bigger thing, where everybody knows that's a valuable thing to do, and only then get involved in it?

In the second case, you have competition. In the first case, you might have a lot of effort spent explaining to people why it's important.

I know for myself.

I will say that I'm pretty sure one of... perhaps the... one of the at least two most valuable things I've done in my life is a lot of work on language design, computational language design.

But people don't see that as a valuable thing, particularly. I mean, mostly for a language designer, it's like, people just say, oh, it does the... it does what I want it to do.

the time when you know you made a mistake as a language designer is when people are complaining about some kind of rough edge that they keep on getting abraded by. But it's sort of a thankless task, doing language design. You only know about it if you get it wrong. But the truth is, I think that language design is an incredibly important, valuable, foundational kind of thing to be doing.

It's just not something that people mostly talk about, oh, wow, that's an amazing piece of language design.

It's, it's something which the world doesn't yet value, as it probably eventually, I'm sure eventually will.

But it's something where, you know, if you're doing something like, you know, you're making movies or something, and people kind of know that those are a thing.

And, you know, it's a great movie, and people can recognize that. It's kind of... you're in a matrix of other things that are sort of like it, where there's a whole way of talking about those kinds of things. And, you know, at any given time, right now in the world of AI, there are surely things opening up that are kind of, the...

you know, opportunities for people that, are, you know, the AI wranglers, the AI checkers, the AI, kind of, you know, how AI kind of connects into the world. There are lots of opportunities there that don't yet have

real clear job titles and so on. I mean, for a little while, there was the prompt engineer title, that sort of went away. I don't think there's yet really the AI wrangler, the AI psychologist, all those kinds of things. Probably will be job titles at some point.

they're not yet there, and it's sort of a question of, you know, when you say what's going to be possible for people to do, those are some of, you know, there are lots of emerging things. I think that, there's...

there's kind of a question of, sort of, in the development of things in the world, you know, post-scarcity. Well, you know, in most developed countries, for most people, sort of getting enough food to eat is usually not a huge problem. In fact, it's kind of the opposite problem, is more common of having too much.

But, the, you know, but in the past, not long ago, that was a fundamental problem for everybody, or almost everybody.

And I think, you know, one has to realize that so many things, you know, it's like, oh, can we get, you know, comfortable shoes or something? Yeah, you know, you kind of can do that, if, you know, a wide range of people can do that. Whereas in the past, that was, like, that's very difficult to get that, you know, you have to have a, you know, a cobbler or whatever, especially make you your, you know, the shoe that is the...

The wide-fitting, you know, thing that you can now just buy in a store.

Or the thing that has, you know, all the special padding and all that kind of thing. So, I mean, the thing to realize is we are continually living in a kind of very cushy world, in a sense, or at least many people are. And it's, you know, the level of cushiness in some respects might increase. People do crazy things with that cushiness, which sometimes lead to all kinds of trouble, but nevertheless, in, you know, the idea of what does it mean to be sort of post-scarcity, what does it mean that there's nothing anybody needs to do? Well, it's already the case in a lot of countries that for many people, there's you know, for better or worse, and the way the whole system is set up, you know, they don't really need to do things. It's usually very bad for people when they absolutely don't need to do anything. It doesn't... that usually isn't a good fit for the human condition, as the human condition has been and will probably continue to be.

So, it's, you know, I would argue that we're kind of already in a, in many respects, a sort of cushy, post-scarcity kind of world.

There are... and yet there are things which will always be scarce, by definition, so to speak. So, it's, I'm not sure how much of a change they'll be, and as I say, the question of what jobs will get done is going to shift.

As it has always shifted, and as I say, I think the ones that will become more prominent are the, sort of, there's a human... there's something added by having a human in the loop, there's something obviously added, because there's a decision that has to be made. Should we do this, or should we do that?

And it's not a matter of take all the constraints and there's a right answer, it's a matter of, sort of, human choice.

I mean, I suspect that there are also a lot of other places where sort of having a human in the room, or flying the plane, or whatever it is, is important for people to feel good about what's going on. I mean, it remains sort of an open question how much you can automate in, let's say, education.

of, you know, or does it matter in the end to the young of us, so to speak, that there's an actual human who's paying attention to whether you're doing something or not doing something? And I think it's, it's, you know, we humans do ultimately respond to other humans. It's sort of the way of our species, and I... I don't know to what extent, that is a thing that can be sort of automated away, and I suspect that... that requires kind of some kind of, you know, that's... that's activities for people to do, plus the activities that people choose to do, plus the activities that people want other people to do.

because they like watching those other people do them, or whatever else. So I have to say, I'm not...

I'm not a sort of believer in the idea that at some point, it's like idleness all the way out. I mean. You know, to be clear, in history, that has been seen in a bunch of places, whether it's some particular group that was, like, you know, supported by government, or whether it was something else, where it's like, you can just do nothing for the rest of your life.

And I don't think that works well for... for most of our species. I mean, they're... they're, you know, when... when... for some people.

that's, like, being told you can do nothing for the rest of your life translates into, I can do the thing that I'm really passionate about doing that some people would consider to be very hard work.

But I think it's just kind of fun, and thank goodness I don't have to, like, work for a living doing something I don't want to do.

I mean, I think that the, you know, it's another interesting question is whether, as more niches open up in the world, can more people do work that they want to be doing? I mean, I think And back in the past.

most people, I think it's fair to say, didn't really want to be doing the work that they were doing, or at least that's one's impression of history. Whether it's, you know, working in the fields to do this or that thing, or, you know, being in an army, or whatever else it was, or being in a, you know, an Industrial Revolution-era factory, or something like this. For most people, it's like, oh, I gotta do my work, and that's sort of painful, and then you know, then I can do other things when I don't have to do my work to make my living type thing. Maybe it's just my rosy view of things, or my personal experience, but I have this strong impression that more and more people are able to do work that they want to be doing, and where they say, I like doing this stuff.

you know, some of us like doing it, you know, 14, 15 hours a day. Other people, it's like, well, you know, 8 hours is enough for me type thing.

just by the nature of, you know, the level of one's tenacity for things. But I kind of think that that's sort of the trend, is come on, get to a point where most people are doing things that they want to do. I mean, that maybe is a more operationally interesting definition of sort of a post-scarcity world.

Rather than something that is more about, you know, who has to do what, that flows money in this or that way. Anyway, my point of view on this, I have to say, I think there's much more to be figured out about these things, and much that we will not be able to see in advance. Much where, kind of like the story of computational irreducibility, we just have to watch and see how things unfold.

And it's not really possible to make sort of a jump-ahead type prediction about it.

Let's see...

Heck is asking... If you had to...

I'm going to respond to something else here, about, AI limitations, what might be left as human special skills.

I think the fundamental thing to understand about that is there's an infinite number of things that can be done.

The question is, what do you choose to do?

And that's something that is completely arbitrary in some sense. I mean, there are things you could do that would cause you not to exist anymore. Okay, let's take those off the table. Then there's just a... you know, it's imagine you're writing a book, and you're starting on page 1, and you're about to type the first character.

There's an infinite number of books that could follow from that first character, and

The question of which book you write.

Is somehow a fundamentally human choice.

Yes, you can ask an AI, just write me a book.

It says, starting on a blank sheet of paper, blank, blank screen, whatever, write me a book.

Who knows what it's going to produce?

That's... but the thing that, you know, we get to inject is, well, which book do we want to write?

And I think that is, almost by definition, kind of the place where we humans have something to add.

when it comes to... once we have, you know, the outline of the book, how do we fill in this piece? How do we make this thing? How do we do that? You know, much of that can... once you've got the scaffolding, filling that in.

is plausibly automatable, but knowing in which direction to sort of build the building is really not. I mean, almost by definition, it makes no sense to say automate that, you know, start from nothing and just write me a book.

It's, that doesn't have sort of a meaningful way to progress. So, I think these things that are sort of human choices, those are...

you know, inevitably, they have to be sort of delegated to us, or those are things we get to do. I tend to think the most obvious places are things where there are a lot of human choices, and things where there's a sort of human-to-human interaction and commitment. Those are the things that are very non...

sort of non-automatable. And

you know, people are always saying, well, you know, there's this feature of humanity that will never be replicated, you know, the thing about how we show emotions, or how we do this, or how we do that. You know.

essentially, all of those things are... you can sort of capture those things, but the one thing that you fundamentally can't capture, almost by definition, is kind of the, where do we want to go? And that, where do we want to go, is... there's no right answer.

And... You know, what happens is what the humans choose to make happen.

And it's based on their history, and this and that, and the other, and it's also based on just these completely arbitrary kind of pieces of apparent free will that we exercise. And we don't get To our free will.

is not delegatable to an AI. The AI can have free will of its own, but if what matters to us is our choices, those are things that have to happen internal to us, and so they're not, in a sense, delegatable in that way. I mean, that's my point of view about the sort of the core things that kind of... we are... we're stuck with defining the future of human history. We're not stuck with defining the future of the history of... of the natural world, for example. We're not...

You know, there are things about... there are sort of automated things which will go off and do what they do, and we don't... we're not... we don't define that history, but we do get to define, almost by definition, the history that we're sort of involved with and care about.

Let's see...

Tech is asking, if you had to start from scratch and build a new company with only the knowledge you have today, where would you start?

Well...

if I was building a new company to do what we've already done, that's one thing. I think I'd end up with something pretty close to what we already have.

If I was building a new company, doing something different, the place where that would start is, well, what do I want to do? It's kind of a little bit back to what I was saying about AIs and so on. It's kind of the,

the AI CEO, at some level.

makes no sense, because it's all about deciding what you want. The big picture is about deciding what you want to do. I mean, the picture that has to do with, let me understand what's happening in this particular part of the company, and read through 200 monthly reports, and abstract from that some bigger picture about what's happening, those are things that one can absolutely expect to be AI-able.

But the... and so what do we actually want to do? That's a sort of human choice that necessarily is a human choice.

But, so, you know, there's a question right now of, what...

You know, if I'm starting a company, what should the company do? And that's... it's complicated right now.

There are lots of new things that are becoming possible.

there are lots of things where it doesn't really make sense to do that, because you can see that that's directly in the path of things that are going to happen anyway, and... well, it depends what kind of company you want to start. If you want to start a company where one of your big skills is raising lots of money and building a big team, then you could end up in something where there are, you know, you can plainly see that there are existing players who are going in that direction.

You can say, I'm going to make

a bigger elephant, so to speak, in that area, and my elephant is going to win relative to the other people who are sort of going in that direction. But if you're going to make something which starts as a small company, you do not want to be in the way of the advancing, you know, tank or whatever that's just moving in that direction.

So I think, Yeah.

A question here from... Pontificator.

What do you think the ideal mix of activities is for a productive CEO? What fraction? Meetings, decision-making, idea creation, and so on?

you know, Different CEOs have different personalities. Their companies usually reflect their personalities.

I will say that... I think it's really important to

try to understand the big picture of what is going on. I think that's an important role for a CEO.

I think that another feature of CEOing

is getting different parts of your organization to communicate with each other, getting some consistency in what happens, because, you know, in the org chart, you're ultimately the only point where everything, every part of the org chart comes together. So if there's a hope of knowing what the left hand is doing, of the right hand knowing what the left hand is doing, you might be the only link.

And so that's a thing that you have to be able to do.

And, I would say that in my experience, it sort of varied with the times how much sort of big, big picture thinking has to happen versus how much it's like, we know the direction.

it's going to be the same direction for the next 3 years, or we've known this direction for 3 years.

It's just a question of getting all of the kind of the bows tied and things sort of actually executed.

I think that changes over time. You know, right now, there's a lot of sort of AI-related turbulence in lots of areas, and there is quite a bit of sort of big picture thinking to be done.

At other times, things are much more of just, like, let's just execute on what we're... what we're trying to do. I think that, for me, I...

tend to spend most of my CEOing time with other people. When the company was smaller, I would spend more of my time kind of on my own, just, writing things and... and sort of defining things.

As the company has grown, I do most of those things kind of thinking in public.

I found that's a good dynamic, both

It immediately gives me more information, because other people have other expertise that they can immediately inject into my thinking. And second of all, insofar as I do have good ways to figure things out.

the people who are there in the room, so to speak, with me, in the room virtually, typically. It's, they get to learn something about how these decisions are made.

Both in terms of educating them about how to make their own decisions, and in terms of having them understand why we're doing this.

And, you know, this is one of the things that happens in companies of, like, I am, you know, 4 levels down from the CEO, and I was told to do this, and I'm just gonna do that. I don't know why I'm doing this.

And when there's some obstruction that shows up, it's like, I'm just going to keep bashing at that obstruction, because I was told to do this, and I'm trying to bash my way through that obstruction. If you understood why you were doing it, then maybe that obstruction was something that wasn't foreseen by whoever gave you that assignment to do that thing, and if you understood why you were given that assignment, and you see this obstruction, you realize, well, wait a minute.

the real thing the person was telling me to do, not this specific proximate thing that they were telling me to do, but the real thing they were telling me to do, I can avoid that obstruction by changing slightly the thing that... by my interpretation of what I was told to do, or whatever.

Then you can go back to your management and say, well, look, I'm really blocked on this thing, but I figured out how to do something that's pretty close to that.

and gets us to what I think the end goal is. And if you're doing management, and somebody comes to you and says that, and they figured out something good, you're like, great, well done.

Rather than, no, I told you to do this very specific thing where you keep bashing yourself against this obstruction that, I mean, if they were wrong that there's a serious obstruction, then that's a different issue. But let's say they were right that there's a serious obstruction, then it's something where if they can come up with a solution that solves the upstream problem, that's great.

But as a manager, if you didn't... if you didn't communicate the upstream problem, there's an issue.

Because the person down in the trenches really can't... can't make that determination if there's a different way to solve the upstream problem, if they have no idea what the upstream problem actually is.

So, I think that that's a reason, that's another sort of benefit of sort of thinking in public, is that more people get to see why decisions were made and get to have an idea if some decision ends up with an obstruction, how to get around that obstruction.

So...

for me, I should have this data. I mean, I have all the data going back decades about, you know, every meeting I've been in and so on. And I think, for me, the, it's... I...

I do several different kinds of meetings. I mean, there are ones which are checking on the status of a thing. It's the monthly such-and-such meeting. It's the quarterly such-and-such meeting. It's the weekly such-and-such meeting. There's a thing that's going on. Sometimes when projects are very intense, it'll be even a daily meeting, as one's trying to release some product or something like this.

And those are things where there's an agenda, and it's something where one's kind of going down the list of, like, you know, what's the issue with this? How are we doing with that? Is this getting

solved? Can we put that in the done column, so to speak? So that's one type of meeting, is these kind of status-type meetings. Another type of meeting is the, what do we actually want to do? What is going to be our strategy in this particular area?

For us, we have kind of a global project list, which is kind of a... we're typically in projects, in our global project list, go through various kinds of status levels. They're new projects, which we haven't really figured out things about. They're sort of investigational. They're being, you know, it's... people are looking at it to try and figure out, does it actually make sense? What resources will be needed to do it?

Then there's kind of green-lighted, which means we know we want to do this project, we just have to have resources available to be able to do it.

Then, there are ones that are underway.

if they're underway, it's really good if we know roughly how long we think this project is going to take. You know, this is going to take, you know, 5 people 3 months or something. And so then, if a year goes by and turns out 20 people were on this project, we know there's a problem here.

Then, you know, in the underway kind of thing, we also end up with projects that are on hold, because, for example, we were doing it

And then something came up. Some resources changed, something different happened in the world, and we're like, we're putting this project on hold. It's... we're not going to push to put resources into it right now.

And then we have projects that are just done and go into a kind of maintenance mode. They're projects that are done and don't need to be maintained, it's just a one-and-done thing. And then there are projects that get hibernated because

we realized this was just not the right time to do this. It's not on hold, as in we're just waiting for something to clear, and we know what has to clear for us to go on doing the project. There are projects where this just didn't make sense at this time, and we study it, it goes through the investigational phase, and we're like, yeah, it might make sense sometime, but not right now. And sometimes we've done significant work when projects get hibernated.

And I've just seen one today, actually, that was worked on 10 years ago, and it got to a certain point, and then we're realizing we are de-hibernating that now, and we can take what we did before, we have good archives and so on, some of the people involved are still at the company and so on, and we're bringing that project out of hibernation and putting it back in kind of the active

for, active bin.

But, so, there are meetings where

It's kind of like a, what are we going to do in this area? How does that relate to projects in the global project list, and so on. A thing that I find happens is, you know, you launch some direction. You launch some piece of the company, things are going, they go quite well for a while, and then over the course of years, eventually things kind of, you know, start getting tattered and eventually moldy and so on.

And then, at some moment, you have to realize, I gotta jump into this thing and sort of clean it up. And it's not a good idea to be spending tons of time, you know, like.

oh, I've got to... I've got to uptick this now, I've got to uptick this now. It's okay to let it kind of, you know, kind of degrade a bit, because, you know, 5% degradation in something for zero amount of time spent thinking about it can be a win.

So... but then you have to notice this thing got degraded to a certain point. Wait a minute, I've really got to pay attention to it, and I've got to have some sort of more intense meetings and so on to make things happen.

I think, you know, the nature of companies and CEOing is you're gonna have to talk to people, because companies are made of people.

And, you know, there's a fair amount... okay, so what does one do offline? I mean, I get hundreds of emails every day, including lots of reports from around the company. One thing that I suppose I typically do solo is read a bunch of those reports, and comment on them, and so on.

And, you know, in doing that, I get pretty good sense of what's actually happening.

you know, who's doing a bunch of energetic stuff in this area, where are things moldering, and so on. But that takes, you know, that is... I don't know, I should know the answers. I think these days, it takes me maybe an hour and a half, two hours a day of going through those kinds of things as a kind of, me alone going through that stuff, kind of thing.

It's,

And that's... that's a pretty useful thing. I mean, I think there are some CEOs who barely have a computer on their desk, who... where everything they do is a human interaction.

And there are others where, like myself, who have quite a bit that is just sort of delivered to them by computer, and where it's just them and their computer thinking about things.

In terms of, sort of, just sitting around and trying to come up with great ideas for what the company should do, I don't find myself doing an awful lot of solo work of that kind. Maybe that's a deficiency on my part. I usually can only work where I'm concretizing what I'm doing. So if, for example, I'm, I don't know, writing something about what the company is doing about this or that thing, then that's the moment at which I'm really thinking about it, when I'm putting it into concrete form.

And... or when I'm in a meeting, talking to people where we're trying to decide on strategy, or something like this. I, for myself, find those are the times when I really can concentrate on those things. Now, occasionally, I'll be mulling over some particular kind of thing, and I'll realize at some point when I'm just, you know, doing something totally random, I'll realize, wait a minute, some idea pops into my mind.

that I've been very much primed for, because I've been thinking about that particular kind of thing, and it's like, oh yeah, that's a good idea, and you know, then I take that, and that becomes a thing that we're doing, or whatever. I would say that that's not the commonest situation. The more common situation is it's hashed out either in the process of writing something, or more likely, in some meeting with people.

And I think,

you know, if I... if I say, I'm going to bring up, actually, on my screen here, my calendar, so I can... I can tell you with reality what, what kinds of things I'm... I'm actually doing. I mean, there are, there are things that are... are very repeated.

every week, every month, etc. There are things that are one-offs, because something came up, and it's like, what are we going to do about this? For me, a lot of what I concentrate on is product design, and so there are lots of, kind of, product design review meetings, many of which we livestream, that, are,

pieces of that. Now, there's also, what do I do inside the company versus what do I do outside the company? How much of my time is spent, sort of, interacting with the outside world?

One of the things that, for folks like me at least, can be sort of a trap in running companies is that you end up being salesperson number one for the company. I made the decision 40 years ago

when I started my current company that, that I wasn't going to be involved in sort of frontline sales situations.

Maybe the company would have done a lot better if I had been, but I just realized that that was a thing that it's just too easy to get drawn into. It's too easy to have one's sort of top assets get used in presenting oneself to the outside world, and

I... I... my sort of decision was, I'm not going to do that on a one-on-one basis in kind of sales situations. So, that is a thing that a lot of CEOs spend a lot of their time doing, visiting customers, doing... doing sales, making deals, things like this. I don't tend to do that.

I mean, I am... what I do do is, you know, I don't travel very much, but I go to some modest number of events and conferences and things, and I think over the years, I built up a quite excellent network

of people that I know in, you know, who run lots of companies and do lots of interesting things. And so, it's usually the case, if I want to reach out to somebody, I can send them mail and, you know, they'll be like, oh, yeah, you know, they recognize you know, we interacted 20 years ago, whatever else, and it's like, oh yes, I have some context for this mail that I'm receiving, and then if there's something that makes sense to actually talk about at a business level.

That discussion will happen, usually not with me.

I'm not the frontline person doing deals and things like this.

I am often the person architecting what deal makes sense to do, because I tend to believe that the only deals that are worth pursuing are deals that actually make sense for both sides, and there's a certain amount of creativity often needed to architect those deals.

the question of then convincing the other side that this is a deal they want, even though it's plainly obvious it's a deal that will benefit them, I'm not involved in the convincing side of things. It's not particularly what I... it's something I find fairly frustrating to do, and it's not something that I... I think it's a good use of my time, but many CEOs would be the ones in the middle of doing that.

I think there's a certain amount of, you know, how much is one sort of out and about, telling people about the company and what one's doing. That's varied a bit over time for me. I've tended to try and cluster that in small... I haven't done a grand tour

oh gosh, when was it? 20 years. More than 20 years now. And maybe those don't make sense anymore, and, you know, things are much more virtual in today's world, so you don't have to be, you know, go there to interact with people. I will say that,

I think the, you know, I do do a certain amount of kind of explaining what the point of what our company does is, and,

In a sense, I wish I could delegate more of that, and it's really a quirk of the particular times that we're in that I can't delegate as much of that as I would like, because so many things are changing, and I'm sort of the one who's trying to figure out how we should respond to these changes, and so I tend to know a bunch about that, and that hasn't been as well, sort of, as well absorbed around

around the rest of, for example, our company, so I end up probably doing more of that than in some steady-state situation I would.

you know.

for me, a large fraction of what I do in the CEOing business is making use of, sort of, strategic thinking that I can do that, you know, I've learned to do over the course of decades that I think I got reasonably good at doing, more so than, sort of.

just being there as the senior person in the room. I don't, it depends how one sets one's company up, but, you know, there are situations and people where it's like.

the main thing you're doing is just being the most grown-up person in the room, so to speak. Not particularly exercising strategic judgment or whatever, but just sort of being there as the person that is sort of anchoring things. Now, one thing that can happen is you'll have sort of warring factions within an organization, and then the CEO becomes kind of the, the diplomacy department between those warring factions. I'm happy to say that most of the time in our company, that doesn't happen, and I don't have to spend my time on that. I mean, that is a thing in terms of CEOing. The squeaky wheel problem is a serious thing. I mean, that is, there are squeaky wheels that develop in the company, whether they're people or situations or whatever, where you end up spending a disproportionate amount of

your time on those kinds of grinding issues, like I

had one recently that I think is now resolved, but, where it's like, really, am I really... should I really be spending time on this? You know, the upside is just not that great. You know, maybe we should just, you know, I should delegate this and just not worry about it.

And that's a thing, but sometimes there are things which just... even though they're not that important, they're squeaking loudly, and so you end up spending a bunch of time on them. I mean, the same thing often happens with employees, for example. There are...

there are cases where, you know, there'll be a person who's worked for one for 25 years, and it's always just been like, oh, they're doing their thing, and you're doing your thing, and, you know, they're doing what they... you know, they're doing good stuff, and so on, and there's just no... there's no squeakiness, so to speak. And then there are other places where there'll be somebody where it's like.

you know, they're doing their thing, but things keep on going wrong, and they keep on being, you know, it keeps on being little explosions and noise about it, and so on, and you end up realizing you're spending all your time talking about the, sort of, the squeaky wheel characters. That usually doesn't end well.

very rarely ends well. The only time when, in my experience, it's ended well is when there was sort of some reset that could be done where the squeaking was for one particular kind of reason. Like, you know, there are people who are working together who just couldn't work together, or people who were working on a thing that really wasn't the right thing for them to work on, and you reset that, and then, you know, then everything's smooth sailing from then on out.

That does happen, but if it, you know, a lot of time, if it squeaks too loudly, it's not going to end well.

Let's see... Well, there's a question from John here.

What do you think separates people who contribute incremental progress from those who create entirely new paradigms?

Well... That's an interesting question. Is one fated to do one or the other?

That is, or is it more a matter of circumstances?

I think circumstances are an important thing, but I think also there's... the... Probably one of the...

Principle issues is confidence.

That is, if... if you're not sure of yourself, it's really hard to go out on a limb and say, this is gonna be... this is this great new thing, it's very different from what everybody's talking about, because everybody's telling you, wait a minute, that's all crazy.

And unless you have

a decent degree of confidence, you're gonna say, oh my gosh, I really shouldn't be doing this thing, I better be doing the more incremental thing.

So I think, you know, I think confidence is an important part of it. Confidence is sometimes just a thing people have, sometimes irrationally so. Sometimes you see people who are, you know, young founders of companies, and it's like, they are so confident, but there's no reason for them to be confident.

Sometimes that ends well.

Sometimes that confidence allows them to do things that they can backfill with reality, even though, at the beginning it looked like they're a crazy confident, and they don't have anything to be confident about.

But they manage to develop, you know, backfill the thing that they can be confident about. But I think the,

The other thing that can happen is that you get one little achievement, then you say, oh, that worked out, now I can get the next level of achievement, and the next one, and so on.

I mean, I think I've been lucky enough in my life to have had that happen. You know, I started out doing physics when I was a mid-teenager, and that worked quite well, and then I did other things, and did companies and so on, and things kept on working out fairly well, and I kind of got to the point where I'm like, yeah, I think I can actually do stuff.

And I'm not really... and I also had observed that when people said, no, no, that's not possible, that they were often just completely wrong.

And, so I...

kind of got the confidence to just sort of say, yeah, I'm gonna... I'm gonna try doing big things. Why not? It's fun to do big things. Often, there's... it's no more difficult to do a big thing than to do a small thing, but it's sort of more fun, I suppose it's more ego-gratifying, to feel like you're doing a unique big thing than I'm sort of doing this thing that somebody else would do if I didn't do it, so to speak.

Maybe that's just my particular personality, but that tends to be a thing that, Is... is a motivator for me.

I mean, it's not... for me, personally, it's not, let me do a thing and show that it's better than everybody else's thing. It's more, let me do a thing that I think is...

really an interesting thing. I don't really care what other people think about it. It's, and that's... and that... I think that point of view probably helps in doing bigger things.

The other thing that is important for me, and I've seen, sort of, in other people's lives, is every successive thing I do, I don't try and measure in advance, is that how big of a thing is it going to be?

You just don't know. You just do things you think are interesting, and some of them turn out to be, you know, develop a life of their own, so to speak. I mean, I just learned about something that I did 45 years ago that developed a life of its own recently.

that, I didn't know at all whether it would be a big thing or not. We'll see how big a thing it ends up being, but, might be a big... a quite big thing. But I think it's... it's a, it's something where you know, it's a trap. If you say, I did one big thing, now everything that I have to do next has to be at least as big. And we talked about earlier today, companies, and whether they have one big product, or whether they have, sort of, the next product, and the next product, and so on.

And, you know, one of the things that could happen is that the company is like, we got this one big product. To do anything else, it has to be even bigger than the thing we had so far. And that's

often a big trap, and often ends very poorly for companies. As they sort of say, they put all the eggs into that basket of, it's got to be really big.

Whereas if they just said, we're going to do this thing, we don't know how big it's going to be, if it isn't the right size for us, we'll spin it off, or something like this, then that's a better way to do it, I think.

I think that, if...

you know, I will say that there's... I find it more fun to do big things than more incremental things, to sort of do paradigm-changing things, rather than incremental things. I... that is not necessarily for everyone. I think that, you know, I don't...

you know, perhaps as a matter of confidence, arrogance, whatever you think of it as, you know, I'm just prepared to just go off and do something. I don't really care whether people think it's sensible or not. And I'm confident enough in my own abilities to believe that either the thing I define to do is going to be a good idea, or at least I can sort of mid-course correct it to the point where it's a good idea. And so, for me, that's a good thing to do. Now, I'm not...

if I was always worrying, you know, am I out on a limb, and the branch is going to break type thing? If I was always worrying about that, I wouldn't be having a happy time, and it probably wouldn't be the right thing for me to go out on these limbs and, you know, try and do sort of paradigm-changing kinds of things. It's just my particular personality at this point in my life, so to speak. It's kind of like it doesn't...

it produces no stress for me, thinking that other people might think that what I'm doing is crazy. For other people, it's a different story.

And it's a matter of, perhaps also of one's kind of, network and social dynamics, whether you want to be in a situation where people are saying to you, I mean, it's kind of funny for me, because I'll, like, you know, I was at an event just yesterday where I'm telling people some of the things I'm doing right now, and I kind of see, like, eyes are rolling type thing, like, really?

I mean, there are people who know about other things that I've done, and they're like, oh, those other things you did, they were pretty cool, and maybe they used them, or whatever else. And, like, the new things are something different, and they're not...

you know, they're things where they don't really... it doesn't really compute for them what those things are, and it's not self-evident to them that those things are important, perhaps just because they're in a different direction from the direction that the things are in. Now, does it... do I...

Do I mind that

it's sort of eye-rolling for people, why are you doing that type thing? I don't care at all. It's just a... it's sort of just a data point for me. And, you know, maybe I choose to talk to them about something different, because I want to talk to them about something we're both interested in, so to speak, rather than something that's an eye-roll for the person I'm talking to.

Anyway, so I think, You know, in, in,

An interesting question is whether you can sort of swap between doing sort of incremental stuff and paradigm-changing stuff. As I say, you don't know necessarily whether it's paradigm-changing. I... I mean, I guess I...

do a little bit of, sort of, incremental stuff, particularly in the area of ruliology, studying simple programs and what they do. Although what I've found in that incremental stuff, what I'm really trying to do is that I know that I'm going to need that incremental knowledge to be able to do bigger things later.

And so, building up that incremental stuff makes sense as an investment, so to speak, to be able to do bigger things later.

I think, you know, the thing that can happen to people is, like, I'm so convinced I have to do a paradigm-changing thing, I'm just going to do a paradigm-changing thing, even though I really can't do that, even though I don't have the sort of the... the... I don't have the idea, I don't have the context to do it, but I'm just doing it for the sake of doing it.

That, as I say, doesn't usually end well, although I have seen some cases of CEOs who just said, our company is going to do something amazing.

And, you know, I don't know any of the details of it, but it's going to be amazing.

And that sort of human energy and leadership has led, in some cases.

to sort of being able to get teams that are just convinced they're going to do something amazing, and then do do something amazing. Now, of course, there's a big backstory to that, because of course, it's a matter of once you define the aspiration, finding people who can really live up to that aspiration, and will be capable of executing on it. So it's not quite just, you know, define the moon, and then everybody's going to build a tower to it.

type thing. There's a lot more to it, and a lot of skill of leadership to make those kinds of things work.

Anyway, alright, I think, we should,

wrap up there, so thanks for a bunch of interesting questions. I don't know, somebody was asking about, CEO activities, and this particular one of doing these live streams, I... I find it useful as a way of, sort of, both personal contemplation and,

Hopefully, other people find these livestreams interesting and informative and perhaps fun, but for me, it's kind of a thing that I think really helps me to, kind of.

concretify my thoughts about lots of different kinds of things, and that's really driven by lots of interesting questions people ask that kind of make me think about things and verbalize things that I often have not verbalized before, and verbalizing them sort of helps me make those thoughts more concrete so I can build on them in a more effective way, and makes me better at sort of

being strategic about things, which I think is sort of a key attribute, both in doing CEOing and in doing basic science and so on. So anyway, that's a piece of my day, and it's one that I find both fun and valuable, and, well, thanks for making these live streams possible and lively.

And full of interesting questions.

But, I'd better go back to my day job for today now, so thanks for joining me, and, talk to you another time.

Bye for now.