

Intelligence as Infrastructure: How AI Is Rewiring the Economy

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SUMMARY

The discussion centers on the transformative impact of AI on the economy, particularly regarding employment, inflation, and the semiconductor industry. Experts Leon and Alex explore how AI is currently reshaping labor markets, the potential for deflationary pressures in the long term, and the significant demand for computing power driving semiconductor growth.

- AI is seen as a deflationary force in the long run, providing more services at lower costs, especially in sectors like healthcare.*
- Currently, there is a time lag in AI's impact on employment, with robust hiring in software engineering as companies integrate AI technologies.*
- The semiconductor industry is experiencing unprecedented demand due to AI, leading to supply constraints and a need for increased capital expenditure.*
- Companies like Google and Nvidia are positioned to benefit significantly from AI advancements, with foundational models and specialized hardware.*
- The market is witnessing a shift in software priorities, with AI taking precedence over traditional software investments, leading to potential challenges for legacy software companies.*
- Investment opportunities are highlighted in companies involved in advanced printed circuit boards and semiconductor equipment, indicating strong growth potential.*
- The conversation emphasizes the unique nature of the current AI boom, comparing it to previous tech cycles, and suggests that the best investment strategies will focus on foundational AI technologies and hardware innovations.*

Uh, this conversation is going to be a really good one, a very timely one. I know the topic is intelligence as infrastructure, how AI is re-wiring the economy, and there's been a lot of thought pieces lately on this very subject. So, it'll be good to get your perspective, what you're seeing, talking to the companies both inside the AI ecosystem, as well as outside. Um, Leon, you know, when we spoke earlier, you said that this may not be an issue now.

This is something that you're looking at being an issue for unemployment in the future in terms of AI working its way through the economy. Uh, how do you see this all playing out? >> I think, you know, to [clears throat] approach AI and its impact on the economy is such a broad topic that I don't want to waste that I could be here for 3 hours. But, I think I'm going to be looking at it from a point of inflation.

And what the causation is. I think long-term, this is a highly deflationary force. And I just think it's as simple as

we're going to get a lot more for a lot less. I mean, just take health care industry as an example. I think it's like 18% of GDP. It's 10% of an individual's income. You you're going to get a lot of it just through all these LLMs and things like that. It's it's just it's it's really going to be disruptive.

>> What's the switch? Cuz we haven't really seen that yet. I mean, there's some companies and there've been a lot of announcements lately of companies that are laying people off and they say it's due to AI, but it hasn't really manifested in the broader economy yet. >> there's a time lag. Like, for example, I think actually [clears throat] think in the short term, you have to be a little careful with the deflationary call. Cuz I think in the short term, you can actually end up in an inflationary move.

Because if you look at it, the pricing of CPUs, memory, and just the infrastructure alone, it's skyrocketing. And that's an input cost. And on the labor market, labor market is actually quite robust. And if you look at it, like for example, you look at software engineers, you would think this is the one area that would be highly disruptive. Just going to fire all these guys. That's not what's happening. Last month I think you had an 18% increase in software engineer hiring.

And and I and I've been thinking about that more and more. Why is that? And I don't think it's happening on the tech side cuz they're actually laying off or being much more prudent about it. I think it's happening in the old economy. I think as everyone is trying to put these LLMs in place and and learn how to use them and how to implement them, they have to have someone help them. And and it's causing some of the hiring among these software engineers. Product developers are highly in demand. So I think right now the labor market and a lot of your old economy it's like they're a little slower to fire and be disruptive about it. So I think there's like a time lag first to get inflation, the labor market's pretty strong.

And then like for example, you know, each one of these models every 3 months you get a tremendous advancement. So then, you know, as you go even if from a software engineer standpoint as prompt you know, as prompt engineering advances and you can just kind of prompt these models to tell them exactly the task you want to do, there may not be so much need for these guys. So I think first you kind of get a sticky inflation and and long-term this is a highly highly deflationary move. And you put a robot a robotics on top of it, the labor market can have can look very different a few years from now. Which will make the Fed's job challenging.

I would I would I I I do not envy being these guys over the next few years. >> Yeah, because the tools at their disposal uh could be pretty limited. Alex, do you agree with this this timeline? >> I I got to say I think Leon has really come up with the answer here. There's there's super smart people on both sides that are saying it's going to destroy the job market. There's others are saying it's going to be a huge boom.

But I think it's dead on and that like for the first time we at Whale Rock, we want to be hiring. We're looking to hire Claude ninjas and we know we need help to build these amazing things. So you need to do a little bit of hiring before and, you know, coding is the one area where it literally replaces labor, but then that's allowing people to build software where they never going to build it before. And so, um I think it's still a very hard question what it does to jobs. It is going to be incredibly powerfully productive, but it takes time.

Really, we're in the first batter's box of AI. I mean, it really we all have been using AI, but it's just AI 1.0. It's It's search engine on steroids. But now we see what business AI is going to be, and it's Claude Code or something like that plugged into all your data sources. And then you can build skills on it, and then you can build agents that actually go out and do things. And there's just a tiny tiny percentage of the white collar population that's using AI in that very advanced way. Maybe like 10 basis points of the 1 billion white collar workers.

So, of course we haven't seen any major productivity gains. But if you look carefully at what these people are doing, it's astonishing and astounding. And then if you think of where we are in this whole AI story, that 10 basis points of people, there's Claude Claude Code has 14 million DAUs, only 14 million. These are the people who are really using it for business every day, but they're not the 10 basis points. And so, those 10 basis points are burning a thousand times as much compute and tokens as the rest of the people.

And so, you're going to see that 14 million DAUs go to 500 million DAUs, and then you're going to see the portion of people that really use AI, you know, with 14 agents running things without that's going to increase. And that's all happening straight up. We at Well Rock, we talk about S-curve adoption. This is an L-curve, straight up, and it's just starting now. And all this CapEx that we've been put put in place, and the reason these chip stocks are going up, we have half of what we need from a compute standpoint right now before it's even started.

Um so, that's I think that's how it's sort of going to play out um from that perspective. >> So, how do you think about an investing in an L-curve? >> Yeah. Nobody's ever seen anything like this, ever, um in in our entire careers. He was there We were there for internet 1.0. When I was my first stock at at Fidelity was Amazon. I remember at the time in '98, they there were only 100 million internet users and only 2 million uh e-commerce users. And I said, "It doesn't even need to grow for this stock to be a buy." This one's moving faster.

And the revenue growth that we're seeing at Anthropic going from 100 million to a billion to 9 billion and then it's already at 45 billion. It's going to be maybe 100 billion. >> That's run rate? >> Run rate. Last 12 last month annualized. So, it's not for the full year, but it it's growing so fast, it's a good metric. 10x-ing at major major scale. Um no one's ever seen anything like that.

So, I think it it we own we like we think the foundational um model layer, you know, AI is a is a stack with the chips at the bottom, the clouds in the middle, the foundational uh companies above that, then the applications on top, and I think the two places that capture the most value in AI are the foundational models, where we own Google, Open AI, and Anthropic, and then still at the chip layer. Because, like I said, we're in a dramatic undersupply of chips, and there's dramatic growth ahead, but also it's the golden age of hardware, where there's now so much innovation.

>> [laughter] >> I think the models heard you and wanted to also participate in the conversation. >> did they say? I couldn't hear them. >> I don't I don't know. I think they liked I think they liked your thesis of the oligopoly or LLM. >> one of the Claude agents. >> Yeah, exactly. >> [laughter] >> What do you call them? A Claude ninja? >> A Claude ninja. >> to that. Um >> I think the second that I think what's so powerful here is if I

think that between Anthropic and Open AI towards year end, you're going to be looking at \$200 billion of revenue.

You can break it down any way you want to. You can make a guess. What's more interesting about it is the margin profile these companies. Because they've been able to lock up compute, and they were the first some of the first, and they have it kind of already locked in for next several years, this is going to be enormous incremental margin. Because on a fixed cost basis, and the pricing per token, everything's rising. So, you know, there was this huge debate a year ago, even 2 years ago, even as as even 6 months ago, like, where's all this capex going? What's the ROI? What is this all going to look like? Are they just wasting money?

You're going to look at profitability at Anthropic that's staggering. So, it like you could be looking at something that's like 18 times earnings. So, that argument would be put to bed, and the L curve of the adoption is so enormous >> [clears throat] >> that it's I mean, I've traded several tech booms since '98, that's when I started. There's never been anything like this. >> Mhm. So, then what do you make of some of the more legacy tech industries? A lot of people have been describing semiconductor moves as being parabolic is the term that I keep hearing people say. Um you know, the sector's down today uh greater than the market, but is that something that you think is is the best way to play perhaps in the in the public markets right now?

>> I Yeah, I >> And how do you kind of decipher within within chips? >> Look, >> [clears throat] >> it's definitely gone up a lot. So, like I said to you the other day, this was much easier a month ago. But >> [clears throat] >> in some of the stocks probably, you know, you probably there's certain things that have gone 100 miles an hour in a 60 mile an hour zone, so there's going to be some accidents and someone's going to get pulled over.

But most of it is just on a incredible trajectory. Like if you look at AI demand, it it's it's driving so much compute demand. And first we started with GPUs, then we went to memory. Now it's CPUs, networking chips. And that if you look at it is just creating massive supply constraint. And if you think about the semiconductor industry, maybe just take the last decade, they've gone through so many boom and busts that most of these companies have gotten pretty disciplined about CapEx. I.e.

they just haven't spent. So, since the last foundry and memory down cycle, no one spent and it was really one big spender and that's Taiwan Semi. And even you have to break down their spend, you can make a very good argument that they've underspent significantly. And you can use metrics like profitability over CapEx or revenue growth rate acceleration over CapEx. They're all very anemic. And you can actually see it now that you've seen some of these announcements from Intel and Samsung and some of the lower end stuff as far as the foundry competition that maybe Taiwan Semi made a mistake.

And they they will have to rectify that. And now you look at the industry today and it's not just Taiwan Semi. You've got memory companies like Hynix, Micron, SanDisk. Um I mean what's the last time we talked about a NAND cycle? Must be I think decade ago. I don't know. >> Yeah, yeah. >> Right? And and it's a powerful cycle. You got the profitability of these businesses is absolutely enormous. And if you look at forward CapEx

indicators historically how profitable the customers are leads to forward CapEx.

And Intel is now, you know, this is a company that was dead for years and it's coming in and the foundry business is starting to pick up customers. So you got to look at this landscape and you say you've gone from one spender and by the way in that environment they probably had all the power in negotiating with semi equipment companies. You're going to multiple spenders, all of which under spent. And the forward metrics suggest they were going to have to spend a lot. I actually think, you know, I think people think it's like 120, 130 billion of WFE.

I think you're going to reach a \$300 mark over the next three to four years. And semi equipment companies [clears throat] like the price [snorts] also all of the customers now have 70 to 80% margins. The memory guys are 80%, Taiwan Semi is approaching 70%, semi equipment is at 50%. So you have pricing power on top of it. So these stocks may not screen as the cheapest things in the world right now, but I think the estimates are like 50 to 70% too low. And also these businesses will look less cyclical because a lot of the customers can now sign long-term agreements, right? Memory guys are signing LTAs right and left. So you now have much more visibility on the kind of CapEx you can put forth over the next three four years. So they'll be it it's just not as cyclical to them, so they're going to do it. So it maybe that could be reflected in the semi equipment multiples also. Pristine balance sheets, they can do M&A, they can buy stock.

I think the Look, I don't know what the next 10% is. Especially when you've had this kind of a move, but I'm guessing the next 50 to 100 is up. >> Alex, you look like not quite buying. >> No, no, I'm fully I agree. He articulated a lot of great points, but uh in addition to this just AI being the most compute-intensive thing we've ever seen and and shortages as far as the eye can see. We're in a golden age of hardware. And so, for the last 40 years, uh hardware hasn't changed. It's been an X86 server that costs \$2,000.

20 or 30 companies can make it. Every little part in that server has been commoditized, the networking, the PCB, the heating system, the cooling system. And now and and and compute basically grew 30% compute demand, the bits. And that's good, but Moore's Law is going 30%. So, there was really no growth. Everything was commoditized. All of the sudden, AI hits. Elon calls it a supersonic tsunami, and it really is cuz it's 10Xing every year with no end in sight. So, that is putting the old compute can't do these things. So, you have to innovate at every single layer of of these \$300,000 massive server racks that are now highly complex machinery. And so, a printed circuit board, which used to be a total commodity, now there's only two or three companies that can do this properly, and you've got to upgrade every year. For For example, the networking speeds. It used to be 1 gig, and then 7 years later, you upgrade to 10 gig. Now, you're on 400 gig, next year's 800 gig, next year's 1.6 terabit, the next year's 3.2 terabit. So, the people that are selling into that, there's only a few of them who can do that that are innovating in hand in glove with Google and Nvidia.

So, there's less competition, there's higher margin, there's higher ASPs every year, and you've got tremendous visibility. So, all these companies that nobody used to ever pay attention to are now golden, wonderful businesses, and that earnings algorithm is units growing 50%. That's the end user racks. Your ASPs growing 20 to 100%. Your gross margins rising 300, 400, 500 basis points, and your visibility's 3 or 4 years out.

You're growing earnings 100% for the next 4 years, not to mention we're in short supply of everything you're making for the next 3 or 4 years. I've never seen anything like it, and so the moves that we're seeing are justified. It's going to be bouncy, um but AI is a compute problem first and foremost, or you know, it's also a model problem, but I think it's a phenomenal way to catch it, and the multiples haven't caught up. The It's all been earnings. Um in some cases we've seen multiple expansion, but if you do a next 3 or 4 year kind of earnings analysis, it's really powerful.

>> There's no concern that AI gets more efficient and the computing problem goes away. >> I think, you know, there's always going to be innovations. Um but in general, it's the the the the tokens are growing. Tokens is the unit of computer AI. They're going 14x every year, and the chips basically get better 100%, maybe 200%, and so you're growing your CapEx, and you're adding that to the to the base, and so your computing estate can maybe grow two or three X as efficient with these innovations, but your your token demand is 12 X-ing. So, maybe you'll get some efficiencies that can push up beyond that, but it's still it's um it's not going to be able to keep up.

>> What does this all mean for software? Software sold off. Um in first few months of the year, it's rebounded about 20%. Um IGV, the ETF. Over the last month, it feels like kind of an inflection point where people are trying to figure out is this a zero-sum game as it pertains to AI versus software, but I'm curious your perspective. >> I think it's too broad to say software. There's different verticals within software.

>> Mhm. >> I think if you're a horizontal application layer, there's some troubles there. There's a lot of trouble there. >> Mhm. >> But I think if you're a data-driven business or infrastructure software, you can succeed. And you can be very successful. Right? We can debate some of the multiples that are being paid in the market for winners versus losers, but like now I look at a company like DataDog, that's a unique asset.

Right? We can again, is it 30 times or 40 times? The market will kind of get that, but they are at the heart of actually benefiting from everything that's happening. >> Mhm. >> So, I think just kind of saying all of software that that's that happened in January, February. You just had anything that had the word software attached to it. And now we've seen a lot of separation over the last month and a half. >> Yeah.

>> The people kind of start to you know, everyone goes through the rubble and figures out which ones are which. >> I think that the decline is largely justified. You basically the old way of doing code is pen and paper or horse and buggy. The new way of code, it's like it's not car, it's not jet engine, it's the transporter from Star Trek. It's so uh such a massive change in how software is getting sold. Um the good news for software owners is that software tends to be very sticky. And so it probably will take time. Nobody wants to rip out their existing system, but in the back of your mind you're thinking in 1 2 3 or 4 years could that really change? And it maybe it could. And then in the near term they have a problem in that software used to be at the top of the CIO's list. Now AI's at the top.

Then everyone's spending all this money all this money on tokens, and so that's taking budget away from software. And then the software companies themselves we thought they would be able to build great AI AI

applications and then sell them and get money for that, but that's been kind of a fail so far. Maybe it's just a matter of time, but maybe it's a culture thing. They don't have the right people. It's very hard. It's a different sales process cuz you're selling a service, not software.

And it's a different business model. So I don't think software's going to be bouncing anytime soon, but we're watching it really carefully because we might see a few software companies actually develop and benefit from AI. Um Leon mentioned Datadog. You know, a lot of the big model companies like Anthropic are using Datadog's tools. So that's also pretty good tell. >> That's my chain. >> Yeah. >> Um in the remaining time, let's talk stocks.

What do you think are the best ways to to play this What did you call it? Supersonic >> tsunami. >> tsunami >> See Leon's term. Yeah, I'll I'll just start with two. I'll start with a a small one that you haven't heard of and a big one that that's easy um to buy or think about, but the first one is TTMI. And they make [snorts] printed circuit boards, which used to be the biggest commodity of all time. But as these AI chips and servers are growing, demanding more power, needing more signal integrity, uh you know, running much much faster and hotter, they need more and more printed circuit boards. And and so there's a a tremendous unit growth story, and then the printed circuit boards themselves are getting much more complicated. They used to just have 10 layers, and now they're going to 20, 30, 40, even 120.

And that's causing ASPs to rise, and there's very few companies that can do these highly complex printed circuit boards. TTMI's one of them, and they make them for Google, Nvidia. They just won Nvidia, and they also do them for for other AI companies. Then they have 40% of their business, which is um defense. And there's a huge up cycle in defense. They've won business with the Iron Dome contract, and you know how defense is getting so electronicized.

Um the the second one is just Google. It's simple. They've won AI. They're the only public company with a foundational model. Their Google TPU chips are phenomenal. They're now powering Anthropic, and other people are using them besides Google. Uh search is actually getting accelerated, and they've got so many other assets like YouTube and Gmail and Google Sheet. They're going to infuse AI. The stock is very cheap, and we're going to see revenues accelerate at Google. So it could easily be up 50 50%.

I don't see very much downside. >> Um I actually like analog I I like semi equipment. I brought it up earlier. I Lam Research happens to be my favorite because I just think they have such a high exposure to memory, and and that's where the market's still skeptical, and there's been a ton of lack of spending, and I think this is more of a middle of 27 28 story where I think there's just going to be a boom in spending and these guys I think the street may be like 50 to 70% too low. I think they're going to do 55 billion dollars of revenue and margins will go significantly higher. I that's that's kind of one of my favorites in that and I actually think the analog semiconductor sector is quite interesting. There's a decent chance that this could look like memory from a pricing standpoint of how tight things are and you know, so I think someone pretty smart pitched in Finian earlier at the conference.

I like that one. I think Texas Instruments is very good. I think Renaissance in Asia is quite interesting. I think it's just going to take state really tight for a while and I think if you if you find ones with the AI power angle attached to them you're going to have significant upside. >> So my mother's in the audience. I think Leon's mother's in the audience and I bought I bought the SMH the semiconductor index for my mom a while back and she's going to keep holding it after what Leon said. [laughter] >> See that's what good sons do.

They buy their mom's ETFs. Happy Mother's Day by the way. >> [laughter] >> All right, thank you guys so much. Really appreciate it. Thank you.