

Greg Lotko: Hey, folks. Welcome back to the next episode of the Main Scoop. I'm Greg Lotko and I'm joined by my co-host here, Dan Newman.
Good to see you, Dan.

Daniel Newman: Greg, it is good to be back. We are in the chair, a lot going on. Got a great conversation today. We're going to talk about the economy, economics, technology, things that I really love to talk about, and of course a smidgen of mainframe.

Greg Lotko: Yeah, we're going to talk about the world. We're going to talk about the economics of technology. We know that companies around the world invest in a lot of different technologies to run their operations. It's a hybrid world. We've talked about that before. It's about using the right platform, using the right software, applying technology for the end goal of running one's business, but they all want to do it more successful than their competitors, more successfully.

Daniel Newman: Tech is deflationary, tech-economics, the idea that tech makes us more efficient and productive. And of course you're seeing trillion-dollar companies now, many of them, in fact, and we are seeing a multi-trillion dollar boom in the economy. But of course we've got this continuum of technology, which is what we focus here on the Main Scoop. We talk about all of it. We've heard this before on recent episodes, but it is a hybrid technological world, not just hybrid cloud. It is the hybrid technological landscape of every business enterprise, and that's what we're going to cover today.

Greg Lotko: All right, so let's pull in our guest for this episode, Dr. Howard Rubin from Rubin Worldwide. Welcome back. I know it's been a while. About two years ago you were with us, January 2023. So tell those who maybe didn't see that episode, tell us a little bit about Rubin Worldwide, and then we'll catch up with what's been going on in the last couple of years.

Dr. Howard Rubin: Yeah, well, if they didn't see that episode, they missed a heck of a lot.

Greg Lotko: I agree.

Daniel Newman: Catch them up.

Dr. Howard Rubin: Yeah, it's good. But anyway, actually, and then it was almost a hybrid world, or actually the hype was trying to make it a non-hybrid world and sort of a cloud monolith world and that sort of folded. But I think the main things that are interested, and you started to mention things about technology and the economy. My take is, I see a lot of researchers saying we're in the fourth industrial revolution. There's nothing industrial about what's going on today. It's technology. And we're in a technology economy, which is wildly different. I would define technology economics as understanding the interplay of technology with competitiveness of nations, impact on health, education and welfare, quality of life, and a whole bunch of other things. And there are very few researchers that are looking at that.

You can see by my age, I've been around for a while. About 30 years ago I said, something's going on. I want to start collecting data about technology and then start figuring out what it sort of means. And I've been sort of following a Charles Darwin kind of path of things, because the field is so new that technology got into business about 60 years ago, and classical economics has been around since the 1700s. Even the Federal Reserve can prove that no one knows how the heck that works. So don't expect we know a lot about technology economics, but you can look at patterns. So my world is a lot about studying what I call the patterns of the digital Galapagos and looking at different industries and different mixes of technology and choices and what they do, and try to model them and get an idea of how they work together.

Greg Lotko: So when you're doing that modeling, you look at a lot of different things, right? So I know that you've looked at this as kind of a technology class optimization, and you provided an update in the last couple of years and got into things about revenue per IT dollar spend and run change ratios and cost of goods. So can you talk to us a bit about what you're seeing?

Dr. Howard Rubin: Yeah, I think a few things. You're talking about the hybrid world, and in a hybrid world and you go back in time in technology, you'll see, well, it really started a lot with, what is it, electronic EAM machines, electronic accounting machines, and adding machines and things like that. Then you start moving forward, you got the mainframe computers. Then everyone thought distributives are going to save us, then client server is going to save us, then the Internet's going to save us. But when you go back in time, everything is a mix. So there seems to be a place for everything. And when we start talking about hybridization and the impact it is, the thing that fascinated me is looking at the evolution of the use of compute resources, how do you make choices? If I was a financial advisor and you told me your risk profile and stuff like that, we'd talk about what you put your money into, whether it's equities or debt or cryptocurrency and talk about-

Greg Lotko: But it would always be multiple things, right? It would be a balanced portfolio. You might have a heavier mix here or there, but you're right, in your financial investments, you would kind of turn the knobs and dials and have a different mix. And I also agree, what we've seen through the evolution of technology is, each time a new thing came along, everybody thought that was going to be the be all, end all. You said it as it was going to save us. I don't know that it was necessarily save our souls or save our business, but we thought it was going to be the ultimate savior of efficiency for everything we were trying to apply technology to. But we've learned over and over again that the new things do something well, but not necessarily everything well, and that's how we end up with a mix, right?

Dr. Howard Rubin: Yeah. And that's why I started, and you used the term already that I started looking at different compute and different platforms as asset classes. So again, with equities, debt or out to crypto or something else, they're asset classes, and you sort of choose an asset class mix or it sort of happens to you, and you start taking a look at different technologies, whether it's a mainframe, whether it's distributed, whether it's public cloud or private cloud, or eventually be quantum computing or something else out there. You take a look at the mix of those asset classes and you look at the economics of those classes, their scalability, the

security, and all the different parameters of them, even talent availability. And you can understand the difference of those asset classes. I said empirically you start watching. What I do is I start watching this digital Galapagos of what's the performance look like in different mixes, especially as they mature. Actually, some of the early stuff in cloud, I was just going to say, I coach little league soccer and the other coaches, all the kids followed where the ball was, the goal, and everybody went there.

Greg Lotko: A swarm of bees.

Dr. Howard Rubin: Yeah, that's right. Everyone is like swarming to the cloud. This will sound rude. I've asked some CIOs, do they want their tombstone, he or she, to take their tombstone to say, "He or she with the most stuff on the cloud wins." It just doesn't work that way. It's he or she who gets the most results out of their technology mixed wins, and you'd tune that to the business. And you can see that in the metrics. That's some of the stuff you started to bring up the difference in.

Greg Lotko: So talk about those metrics. Obviously, cloud hasn't lived up to the panacea that it was going to be the be all, end all and it was going to be as efficient for every workload. But you've developed a strategy for how you look across different platforms and you determine the value of it. So talk to us a little bit about that.

Dr. Howard Rubin: Yeah, exactly. Some of the things where the platform starts to manifest itself, and you've mentioned one measure. For a profit business, it's really interesting. What's the cost of supporting your revenue, of the cost of supporting a customer? When you bring that end-to-end, it's easy to look at the revenue and technology, but you're really in a business that does transactions. You're banking, you're doing deposits, you're doing oil, you're doing exploration. What's your technology cost of goods? So there are a whole bunch of factors. So some of them are the financial, some of them have to do with bringing it back to the business and the customer and even to net promoter scores of how you're doing with your customers, and even out to carbon footprint.

So the whole bunch of parameters to look at. And the interesting thing, and you use the word hybrid a lot, you find people who have sort of a monoline strategy. We're all cloud, we're all on-prem cloud or all mainframe. They're outperformed by the people who are choosing the mix. And with financial portfolios, it's sort of the same thing, except probably for cryptocurrency this week, but that'll have its hills and valleys. But it's usually not a mono choice. There's some big differences, and the differences in choices may have effect on those parameters, and we'll find companies that are making discerning choices and adjusting them over time, are tending toward a hybrid balance that really favors on one end mainframe and public cloud or private cloud if they're big enough to operate the scale, and they're shrinking the distributed server platforms. But the gap between companies that you call best-in-class or best-performing metrics versus those in these sort of monoline strategies or monolithic strategies, is pretty incredible.

Even in terms of operating the business, you'll find revenue gaps in banking. The folks that are doing clever things with the IT and doing the balance and maxing things in these, they're generating generally higher margins because they're using technology more efficiently to drive operational excellence. They're doing it much better to get customer intimacy. They're doing it much better to get product leadership, and they're having better security. So you'll find almost order of magnitude difference in some of the numbers and even simple things. Because if you have a single platform, you're supporting it, you have to keep the terms run versus change. You use run versus change. Run versus change ratios are very well. The average company that's using these sort of old-style single-line strategies, and this goes across a database of 3000 companies for about 30 years, is 70% of the cost to run, 30% is being able to change or invest in growing the business. While the companies that have a good balance strategy and have a best-in-class hybrid mix, their economics are wildly different. And the economics look like not 70/30 run, they're almost inverted. They're 40/60 or 55/45.

So making those choices has economic effects, but it has effects on what's going to happen out to the business. And you'll see that in other ratios. Even what you call technology, cost of goods, and banking. Again, depends on the size of the trading. It might cost you 11 cents for trade is your technology cost of goods for trade. You go for a best-in-class organization, you go further out, it's like 25 or 30 cents, because the choices aren't optimized toward the goal. And it's just like having a financial advisor. I call this stuff technology asset class optimization. The abbreviation is TACO. So I could have TACO Tuesday with the people I work with. It's a lot of fun. We don't necessarily eat, but those are some of the highest level ideas to look at.

Daniel Newman: So I like the thread line, and I remember when we had you on in 2023, we talked a lot about these things. That was about two months after ChatGPT had sort of taken the world by storm. Greg will pick on me when I do this, but I can't seriously go down this path without talking about the impact of AI on the enterprise IT stack. So now these companies are doing these technology class optimizations. I like where you're heading with that, but the cost is different, the timelines are different. You have one- or two-year cycles. As you go down this path, though, because I like everything you're saying and I like how you're thinking about it, but the enterprise has to be kind of in a state of massive reevaluation right now, because they can't possibly be thinking exactly about infrastructure purchases and utilization is the same when you have all these new architectures, GPUs, XPU's, DPU's and CPU's, and of course they're trying to stand this stuff up really, really fast and of course integrate it with mainframes, integrate it with existing CPU infrastructure, integrate it with on-prem cloud, private data centers, everything else. How is that kind of evolving your thinking about what you do?

Dr. Howard Rubin: It's evolving in the press. It's not evolving in real life. When you sample all these companies and you look at their IT spending, I gave you a number before, that 70% on average is being spent to run the business, 30% is to grow the business or transform the business. That stayed the same for five years. So if people are wildly investing on the other side of the equation and not everybody is getting into AI, it doesn't mean this stuff is bad, but you hit the press versus the reality. For example, public cloud spending for the past five years has stayed at 4 to 5% of IT budget. This is based on the sample. You can look at the Gartner reports

and everything else. So things that you'd think would be growing aren't growing. And if people were throwing money into AI universally, that would expand out and it would change the run change balance universally. But it's just not.

Daniel Newman: How do you make sense of that, though, when you have cloud growth rates at 20 to 30%?

Dr. Howard Rubin: Because the cloud growth rates at 20, 30% are including the SaaS load, not the public cloud load. Because people talk about who's on cloud. SaaS is a major driver of cloud going up. And if you look across industry, it gets interesting. You'll find that on average you'll see public cloud, cloud has looked at about 18% of IT spending, but of that, of the 18%, maybe 14% is SaaS influence on it and the rest is the IaaS and PaaS stuff. So it's nothing wrong with it, but things aren't growing.

And if you look at, there's an S curve on cloud growth, and you'll see the headlines about whether it's AWS or... We're going on a whole different topic than you want to talk about. You look at AWS or Azure somewhere, those numbers aren't that clear what's going on. When they talk about the growth, they load a lot of stuff into it. But I'm talking about making a platform choice and putting your stuff on those platforms versus using someone who's using those platforms. You get a lot of growth with the blow of SaaS. But when you take a look at the pure use of these technologies, it's just not there the way you think it is.

Greg Lotko: We talked technology across the board, so don't worry, we're all on topic. I'm curious, I want to poke with you, Daniel, because I was trying to figure out, it seemed like you were trying to lead with that, that he's talking about an evaluation of where your technology spend is and having an approach that ensures, or at least puts discipline into it, that you're getting a return on that value for the dollar that you're investing and that it's helping you optimize your technology stack. Maybe I misread, but were you trying to say, "Hey look, there's so much going on in AI that you need to lean in heavier and you need to invest ahead of that curve?"

Daniel Newman: I'm trying to figure out how that stack is being, how it's evolving. We all know that there's the 10 or 15 mega companies putting all this CapEx dollars into buying. And then of course you have all the cloud companies standing up this infrastructure and making it available for rent. By the way, most companies aren't going to stand up frontier models. They're going to take the off-the-shelf models and then what they're going to do is they're going to tune those models or they're going to rag existing on-prem data off the existing infrastructure that I was talking about. But I guess what I am saying is, ultimately they have to have access to these... Well, you can obviously inference on a CPU or a mainframe, but you have to have access to these additional computes. You're going to need a lot more network capacity to move data.

The inferencing location might be in the cloud, it might be on-prem, it might be at the edge, it might be on the device. And we're seeing all that happen. But we also in our, like you as an analyst, we track this market and we have hundreds of companies that we've tracked, I think about 700 CIOs, about \$15 billion of spend that we track, and we know that the biggest initiative

coming from the board is how do they implement AI. Now again, what we're sort of talking about is the diffusion of innovation curve, and what Howard's suggesting is maybe they're not there yet, but what I'm saying is that what the board is saying to them is use AI.

Greg Lotko: Yeah, but I think, I think there's-

Daniel Newman: It's kind of interesting to see where we're-

Greg Lotko: I think there's two things intersecting here.

Dr. Howard Rubin: ... use cloud until that blew up in their face.

Greg Lotko: But that's where I was going.

Daniel Newman: I'm asking.

Greg Lotko: I think there's two things intersecting here. I agree, whether it be boards or companies or technologists, there's a huge belief that AI is going to dramatically change everything that's going on with technology. There are a ton, ton, ton of companies that are saying, "Hey, invest in AI. We need to be doing something with this." However, and this is where I think it marries to a lot of the work that Dr. Howard Rubin has done, those that are being successful aren't just investing in AI for AI's sake. They have a method to their madness or they have a purpose. They understand what problem it is that they're trying to solve or what business opportunity they're trying to go after. So they're investing in AI with purpose. I do believe there's a ton of people out there, a ton of businesses, unfortunately, that are investing in AI without purpose. They're thinking they're going to discover along the way on implementation of what the heck they're going to use this for. And that is not going to make them more successful compared to that.

Daniel Newman: I want to throw this back to Dr. Rubin, but what I will say is there is this sort of curve of AI consumption. So I guess I was just trying to understand how it fits. It sounds to me like at this point it doesn't actually change the math very much.

Dr. Howard Rubin: No, actually no. Look, I watch things from a very high level. So this is nothing about anti-AI, but the press and the markets are thrilled with AI, like they get thrilled with the latest new shiny thing. But you made the point, you have to be discerning where you're applying and expecting some outcome and know what to use it. Know even the limitations of things like a ChatGPT, because a ChatGPT is fundamentally, it's a patterning thing. It's not giving you very insights. It's very powerful for what it's doing in its first of its kind. But if you watch what's going on with IT spending, I'll just tell you an interesting thing, 2023, and this is the survey, it's more than 2,500 companies, survey going from '23 to '24, the average IT budget increase was 4.1% worldwide across all these companies. That's a terrible average number. It's like climate change. It's two degrees warmer, doesn't mean-

Daniel Newman: Doesn't even beat inflation. Well, maybe. We don't know.

Dr. Howard Rubin: Well, IT inflation is the highest inflation in the world. No one's been tracking that. I'm tracking it. Because in 2023, it was the first '23, '24 was the first time IT inflation. That's the cost of salaries, software, hardware, managed services and everything else. IT inflation hit 4.8%. It was higher than the budget increases. So in fact, companies were starting to get eaten alive because their increases didn't cover the cost of inflation. It's like being at home, it's higher than GDP growth, it's higher than anything in the world. That was in January of 2024. By July it was up to 5.8%. And now folks are thinking that it's going to about 6% next year. Now, the Gartner projector, and I have an alliance with Gartner, Gartner I think is projecting that IT spending is going to increase 7.5% going into 2025. Well, even if 6% that inflation, that means your net increase is 1.5%. If you speak Yiddish, that's bupkis. So it's really not going to affect anything. And most of the issue is that inflation is going to hit your base, the keep the lights on cost, and if it keeps your lights on cost, that's your run costs. So how does that squeeze your ability to invest?

So you made a comment that only the biggest could invest. You get a JP Morgan invested relations, they hired 2000 people in data analytics and AI, or some number like that. They could put billions of dollars into that thing. And you made the point that the second wave of this stuff, for people that are going to be leveraging and using the capacity of the others, the second companies that invested. So you have a good model over there. But it's sort of interesting, because with all this explosion, and worldwide, I am talking a lot, worldwide IT spending is now going to approach about \$9 trillion in 2025. That is the third largest economy in the earth. Biggest is US, then China. So it's the third largest economy out there, and it's growing a bit faster than GDP. But right now inflation has gotten into that economy and that's driving some of the growth.

Greg Lotko: So that was a ton of numbers, that was a ton of numbers and a ton of data. But to simplify it, what it's really getting to is, if you're spending 70% on your run, if you only have 30% on change, if your budget is growing less than your costs are, it absolutely highlights the importance of where you're investing each dollar.

Dr. Howard Rubin: That's exactly why.

Greg Lotko: Especially that new stuff, the stuff in change. So you should be investing with purpose. And the reality is, we know that there have been a bunch of edicts on high about a particular technology to say, "Hey, we've got to do this. I don't know what the heck we're going to do with it, but you figure it out, we got to go there." And I know what Dr. Howard Rubin has been finding and seeing is, those that get the mix right, have a clear competitive advantage. And that has to be as they're going into this spend, they've got more purpose than getting to a technology or a platform. It's a business purpose that's driving the decision.

Dr. Howard Rubin: And that means connecting technology to business outcomes. You hit it right on the head. Operational efficiency is the easiest outcome to deal with, because you're automating patterns-

Greg Lotko: That's the easiest to measure.

Dr. Howard Rubin: That's the easiest to measure. Number two piece, you start getting into customer experience. Now you're getting into driving sentiments and getting insights from AI into how to drive sentiments where you want it. And the other thing is giving birth to brand new products and having product leadership. So there'll be stages of this kind of stuff. But it goes to your point, so what's the value of making platform choices and the value of platform choices, isn't having the cheapest platform, optimizing the cost of each platform. It's optimizing the outcome of each platform. That's the interesting sort of synapse that's missing, because if you focus on your technology economics, you might drive to have the lowest cost mix versus your business. But the other point is, it doesn't do it, because the idea is to get the maximum outcome per dollar. So actually a company spending more on tech might be doing better than a company that isn't spending a lot on tech, because they got the mix in the right place and they're getting the highest yield. So it's really the value of the platforms.

Daniel Newman: Well, we'll call it techonomics or technology economics. Dr. Rubin, thank you so much. Thank you, everybody, for tuning in, and we know that was a deep dive. It was a fun conversation, a little bit of debate and the future of the tech economy. There is so much more to learn. I hope you will download some of these reports and that you'll be back with us again very soon. But for now, we got to say goodbye. We'll see you all-

Greg Lotko: Next time.