

Masters of Scale Episode Transcript: Michael Dell

“Break it ’til you make it”

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NATALIE SILVANOVIK: I suppose I kind of always wanted to find the line of code where the soul is. That didn't quite work out.

I discovered there are lots of lines of code that all come together to make a soul.

REID HOFFMAN: That's Natalie Silvanovich, security engineer at Google. And the soul she's in search of doesn't belong to some hyper-advanced AI locked deep in a vault under Google HQ. Rather, something less sinister: the Tamagotchi.

SILVANOVIK: So Tamagotchis are basically a virtual pet. It has a creature on the screen, and you press the buttons, and you can feed the creature and clean up after the creature, and hopefully it grows into something cool.

HOFFMAN: Tamagotchi have come a long way since their heyday in the 1990s — from stilted monochrome and shrill beeps to full color singing, dancing, and pooping virtual pets.

SILVANOVIK: There's still the little black and white ones, but then there are ones that basically have the same microcontroller that's inside your phone in them, and they have a full color screen. And they cost about \$100, and those ones have so many possibilities.

HOFFMAN: Natalie's hobby is discovering what makes all the different incarnations of Tamagotchi tick by reverse engineering them.

SILVANOVIK: So reverse engineering on a very high level is taking something apart to figure out how it works. So you can pretty much do it with anything. You can do it with a clock; you can do it with a phone. And in my professional work, the way I got into this is I try and find security problems in software so that they can be fixed. And sometimes if you don't have access to say the source code for that software, you have to reverse engineer it. You have to look at the ones and zeros, inside the binary to figure out what it does.

And I basically did the same thing with the Tamagotchis.

HOFFMAN: This reverse engineering can involve scouring lines of code in the newer Tamagotchi, or taking a more physical approach with the less advanced older models.

SILVANOVIK: So the really cheapest electronics, they put the silicon on the circuit board, cover the whole thing in like glue epoxy.

There are reverse engineers who will use basically nitric acid to dissolve these blobs and then photograph these under a microscope to determine what they are.

HOFFMAN: The thing that unites these different methods of deconstruction is that they reveal the secrets that make a Tamagotchi what it is. Natalie can then use these secrets to hack the Tamagotchi — from tiny things like what they look like when they grow up to grand gestures.

SILVANOVIK: I got contacted a few years ago by a guy who says, "I want to propose to my girlfriend, and she's a Tamagotchi fan. And I think you are the only person in the world who can help me." I made it say, "Yanna, will you marry me?" And he gave it to her for Christmas. And apparently she said, yes.

HOFFMAN: Don't worry, no Tamagotchi were harmed in the making of this episode.

SILVANOVIK: Every so often I'll hear from a child, they're like, "Oh, I want to hack my Tamagotchi. But does it hurt the Tamagotchi?"

I'm usually like, "No, it doesn't hurt at all."

HOFFMAN: There's no pain involved when deconstructing a Tamagotchi. And plenty of fun upsides. But when it comes to your own business, making deep incisions to see where it works — and where it doesn't — can seem too painful and costly to consider.

The truth is that deconstruction can do the opposite of hurting your company; it can be the key to building it back better.

That's why I believe the first stage of building up a business is to break things down.

[THEME MUSIC]

HOFFMAN: I'm Reid Hoffman, co-founder of LinkedIn, partner at Greylock, and your host. And I believe the first stage of building up a business is to break things down.

You don't need to be a sci-fi fan to be familiar with the concept of teleportation. It's an everyday mode of transport in *Star Trek*, a horrifying experiment in *The Fly*, and a source of huge embarrassment in *Spaceballs*.

The futuristic technology can beam you from the bridge of your starship to a far-off alien world, and then back in time for lunch.

Of course, how this technology would actually work is a mystery to us ... for now. But in most sci-fi it involves scanning every molecule of your body down to the quantum level, converting it into bits and bytes, and then somehow reconstructing you at your destination.

For now, let's set aside the philosophical implications of whether the person who steps out of the transporter beam is the same person who stepped into it. Instead, I want to focus on how, by deconstructing its subject on the microscopic level, the machine allows for a perfect schematic of the thing it is transporting.

This ability to deconstruct a product, a company, an industry, or a problem is a basic skill every founder needs. It's not the deconstruction itself that is the main thing; rather, it's how you use deconstruction to gain insight your competitors lack and then build something bigger and better.

Once entrepreneurs understand something on this molecular level, they have the opportunity not just to reconstruct it, but improve it.

I wanted to speak to Michael Dell about this because his journey from selling computer parts out of his college dorm room to scaling one of the biggest tech businesses in the world has been driven by his desire to know what makes things tick. And the way he does this is to deconstruct them — sometimes physically, always thoroughly, before rebuilding his own, better version.

This approach let him disrupt the early home computer market in the 1980s with his direct sales model, which undercut competitors who relied on retail stores, and gave customers easy access to affordable, cutting-edge custom PCs — and become a breakthrough company that set the course for computer sales.

I've known Michael since my LinkedIn days. In fact, it was his curiosity about how things work that connected us.

HOFFMAN: As you remember, we first met because of your curiosity. I get this email from you saying, "This LinkedIn thing seems interesting. Can I come visit?" And I was like, "Wow, Michael Dell? Sure."

MICHAEL DELL: Yeah. Well it's sort of a simple idea. Whenever a lot of people are doing something, you should understand what's going on. Right?

HOFFMAN: Michael has always been driven to understand how things work at their component level.

DELL: I was just very curious, and I think I still am very curious, and I wanted to know how things worked. And so my way of learning about things was to take them apart. And sometimes I put them back together.

The way to do it was to get a screwdriver or a hammer or whatever was around. My parents got pretty upset with me.

HOFFMAN: Much to his parents' relief, Michael soon tired of taking a hammer to toasters and wristwatches, as an even more compelling technology caught his interest.

DELL: When I was in about seventh grade, I really got fascinated with the whole idea of computers.

About halfway between the school and our house was a Radio Shack store. And so when I'd ride my bike home, I'd stop in the Radio Shack and play with the computers there until they pretty much kicked me out.

HOFFMAN: Eventually, Michael left those Radio Shack employees in peace after he got his hands on a computer of his own, an Apple II.

DELL: The fun thing about the Apple II, of course, is that it was completely programmable, and you could take it apart easily. And every circuit in the machine was easily understood.

HOFFMAN: Soon Michael was doing far more than tinkering. He was learning all he could about the Apple II — going so far as completely taking it apart and rebuilding it.

DELL: You could get these books from Texas Instruments that explained how every logic circuit worked, and you could actually modify the circuits and get it to do different things. And so I loved figuring out how to program my own computer and was just amazed by the calculating power and the customizability of this thing.

HOFFMAN: Michael started helping his friends with their own computers. Word soon got out about his skills.

DELL: And then a bunch of the parents said, "Hey, will you upgrade my computer?" That was a nice way to make a little money, too. And then some of them said, "Hey, will you go buy a computer for me and set it up for me?" And so I was doing that.

Then I started making upgrade kits. People wanted to have hard disk drives. They wanted more memory. And yeah, that was the genesis of the company that I started after two semesters at the University of Texas in my freshman dorm.

HOFFMAN: Soon Michael's dorm room was stacked with computer parts, and he was employing fellow students to help meet demand.

One of Michael's customers was a lawyer who was impressed with Michael's thriving side hustle and offered to help him incorporate his business in return for help installing a hard drive.

Michael was still in his freshman year at college. But he decided to put his studies aside for a semester and give the business his full attention.

DELL: So I incorporated the business, started hiring more people.

I leased this 1,000-square-foot space, which lasted a sum total of about a month, and then we moved into the next space, and we were growing super fast. So I thought it could be a much bigger business. I saw lots of opportunities. Didn't exactly know how it would evolve. And as a 19-year-old, you're not exactly a master planner. But the opportunity was there, and I went for it.

HOFFMAN: New entrepreneurs rarely have everything planned out. But if they have this kind of ground-level, empirical understanding of their product and the market, it will help them make more intelligent leaps.

Michael was also inspired by the success of IBM — at the time, the biggest supplier of home computers.

DELL: At the time, IBM was like the most valuable company in the world. And it had a dominance in computing and technology that was unlike any other company in any industry really ever.

HOFFMAN: But it wasn't IBM's domination of the market that inspired Michael. Rather, it was what he saw when he took their products apart.

DELL: If you got one of these IBM PCs and you took it apart, which I often did, the striking thing to me was that none of the parts were actually made by IBM. And as best I could tell, if I added up the cost of the materials that went in this IBM PC, it was about \$500 of cost, and they were selling these for \$3,000. So to my 19-year-old way of thinking, it seemed like a criminal enterprise. You know? It's like, "How is this thing so expensive?"

HOFFMAN: Seeing this inspired Michael to move from supplying parts and upgrading computers to building their own.

The next thing he deconstructed was the supply chain.

DELL: So when I was 20 years old, the company was a year old, I found my way to Asia, and I was in Taiwan and Hong Kong and Korea and Japan building relationships with the companies that were actually making the ingredient components.

And ultimately those relationships that we started to form became unbelievably important.

HOFFMAN: Michael deconstructed the traditional relationship between buyer and supplier and built something stronger than his competitors.

DELL: We didn't treat them like transactions because if there's only one or two places where let's say lithium ion batteries come from, you don't want to treat it like a commodity. You really need to understand: how are they evolving the technology? You really wanted to build a partnership.

HOFFMAN: These deeper partnerships gave many advantages.

DELL: That not only opened up a much greater understanding of how the supply chain worked, but we cut out the distributors and were able to get far better costs. And that became another kind of rocket fuel element for the company's growth.

HOFFMAN: It was 1984, and Dell was growing rapidly. A new microprocessor from Intel known as the 286 had just been introduced that was almost double the speed of existing ones. Michael got hold of some component designs that would allow him to use the new 286 chip in Dell's computers. But he needed some help.

DELL: So what I did was I called up the Intel salesperson, and I said, "Hey, tell me the names of some engineers that could help me design a 286-based IBM-compatible PC." And the Intel salesperson starts rattling off all these names. I'm furiously writing them down, and I start calling these people.

Another long story short, I found this one guy who was kind of crazy. And he says, "Oh yeah. I could design a prototype for you probably in a week, maybe 10 days. And I'll do it for \$1,000."

And anyway, he got it working. We turned that into the motherboard for our first 286-based PC. And at the time, we introduced a computer that was twice as fast as IBM's fastest PC, and it was half the cost. And we didn't have any problem selling them.

HOFFMAN: This is another clear example of how Michael's deconstructionist approach can let you get the jump on a big competitor and their newest product.

But Michael wasn't just taking apart his competitors' products and building better versions. He was deconstructing the way computer makers sourced and sold their products.

DELL: They have all these computer stores, and the people in the computer stores had been selling shoes or car stereos or whatever the hot thing was. They really didn't know anything about the computers, were not adding a lot of value, and they had these really high markups.

And so that was all frustrating and confounding to me. And it seemed like there was just a really big economic opportunity.

HOFFMAN: That opportunity? To invent a totally new way of selling computers. Customers would be able to choose precisely which components they wanted — the hard disk size, the amount of memory, the monitor among others — and then have it delivered to them. A huge advantage in Michael's eyes was that customers wouldn't ever need to step into a retail store. Listen to how Michael deconstructs the prevailing retail system and uses his findings to build a better way:

DELL: Let's say you have 5,000 retail stores. You know, somebody's going to walk in the store and want to buy something. So you have to have it there in the store mostly. Well, it turns out that's super inefficient and with all the varying configurations and also the cost of the components is constantly dropping.

If you were selling directly to the customer, you didn't have all that cost. And of course, you could get the suppliers; the suppliers would literally deliver to us every single day. And we would tell them what to deliver because we just sold it. Right?

So we had this perfect understanding of the demand signal, and we had the latest cost because we were using the materials right away, and we also had much greater knowledge of what the customer demand was and how it was changing. So that was the genesis of the direct model.

HOFFMAN: At a time when brick-and-mortar stores were seen as essential for succeeding in retail, Michael wanted no part in it. Instead, Michael doubled down on his direct sales model.

This was in the early '80s, long before the internet-fueled direct sales model of today. Back then, direct sales was a more analog affair. The company took out full page ads in magazines with titles like Computing Now! and Interface Age, showcasing components and bespoke PCs, along with a phone hotline for orders.

This meant Dell could sell high quality, low-cost computers built to their customers' specifications and delivered to their doors. And the company avoided the heavy costs of having a retail presence.

Michael's counterintuitive realization — which he gained from deconstructing the whole system — was this: not meeting your customers actually gave you a better understanding of what they wanted and a better way to give it to them.

This model was ahead of its time, and it was also uniquely placed to take an early leap into an uncharted realm: internet retail.

DELL: We had like this program that you would stick in your computer and run. And it was like an online catalog before the internet.

And then when the internet came along, it was like, "Oh my God, this is incredible. People could just go to this website and see all these things. And they could actually order online."

And it just was a total rocket ship for the business.

HOFFMAN: In 1996, Dell brought its direct sales model to the Web, allowing customers to build and order computers online. It was very early days for e-commerce. Consumers were only beginning to wrap their heads around the concept of online purchases. But even at this nascent moment, Dell.com was a huge success. However, that success would falter when Dell turned its attention to another customer segment with huge potential: big businesses.

[AD BREAK]

HOFFMAN: We're back with Michael Dell, founder of computer and technology giant, Dell.

If you're enjoying this episode, share it with friends. Just hit the 'share' button in your podcast app.

And to listen to my full conversation with Michael, become a Masters of Scale member at mastersofscale.com/membership. You'll be able to hear all the things we couldn't fit into this episode, like how in his first job Michael deconstructed his local newspaper's subscription sales, how he and his team responded to the September 11 attacks to help keep America's tech infrastructure working, and meeting Mark Cuban when both were just starting out as founders.

When we left off, Michael had deconstructed not just the tech inside personal computers, but the entire sales system surrounding them. This cut out the inefficiencies of retail stores, and let Dell develop a just-in-time inventory system to ship custom-built computers to customers that were vastly cheaper than competitors. In short, Dell had disrupted the entire home computer industry.

To hone that just-in-time system, Michael took inspiration from another disruptive pioneer, Toyota. Its famed "lean manufacturing system" aims to maximize efficiency by eliminating Muri, Mura, and Muda — that is, overburdening, inconsistency, and waste.

Michael didn't just copy the Toyota system, he deconstructed it then rebuilt it specifically for Dell.

DELL: I totally studied the Toyota production system and found [this little green book](#) that explained the Toyota production system, and I was fascinated by that. And a lot of the things that we did had that at their origin, but we took it much further in terms of our inventory efficiency and supply chain. People would go to our factories, and they'd say, "Wow, this is a really interesting factory. Where's the warehouse for parts?"

HOFFMAN: The simple answer: there wasn't one.

DELL: We had this philosophy of: you don't need a warehouse for parts because the suppliers will deliver the parts, like every hour right onto the production line. And if you look at things like our inventory turnover and cash conversion cycle and other things like that, they were absolutely unprecedented in business, and that led to further competitive advantages.

At one point we had six days of inventory, which is kind of crazy to think a company with that big of a supply chain with so little inventory, but it was hyper efficient.

HOFFMAN: Altogether, this deconstructionist approach to supply, inventory, and sales supercharged Dell's growth.

DELL: The company grew its first eight years at about 80% compounded, and for the six years after that, 60% compounded. So if you put any number in that math, you get to \$10 billion plus. So around seven or eight or nine years in, it was pretty clear this was becoming a sizable company.

HOFFMAN: "Sizable" is Michael's modest way of saying that Dell became the world's biggest selling home PC maker.

But despite the rapid success with home computer users, Dell found a challenge when it came to enterprise customers.

DELL: The company was only five years old, and it turns out it was a bit too early. And I think one mistake that we made was that, this is going to sound a little strange, but we actually priced the servers too low, and it was so low that people thought we'd left things out. Right?

We didn't have what you would generally refer to as enterprise credibility, which is some amorphous combination of things, where it's trust and services and built up over time, it's like: who are you going to trust to store your most precious data and applications and things like that?

HOFFMAN: Michael found that what worked in the consumer market didn't work in the enterprise market. For once, he hadn't taken the time to deconstruct how this particular — and very different — market was structured. It's a reminder that what you learn from deconstructing one thing can't always be applied to another.

DELL: Finally around the mid '90s with the rise of Windows NT and all the client server-based computing, we were able to really get going in the server business.

HOFFMAN: Another area of learning that required new deconstruction was customer service.

Dell's direct sales model was a success not just because of price, convenience, and the ability for users to build their own machines. The company was also way ahead when it came to customer service: cheaper, faster, better machines.

But as PCs became less of a niche purchase, prices came down, and so did margins. Although Dell was well placed to thrive through this thanks to its innovative supply chain and sales, it found it harder to keep pace with customer service. And Michael realized elements of its customer service practice weren't as evolved as they needed to be.

DELL: We were growing so fast, trying to keep the costs low. And I think we let the service levels drop.

What we also hadn't quite figured out was that not all customers valued service in the same way. Some wanted a really high level of service. Some actually didn't want any service at all.

HOFFMAN: Michael's solution? As always he took it apart to see what worked, what didn't, and then rebuilt it better.

DELL: Ultimately we got through that and found our way to really understanding that reliability and customer loyalty were the enduring factors in success.

We started measuring those things super religiously and making them part of the incentive systems in the company and focusing not just on growth, but also on customer loyalty. And loyalty being beyond satisfaction, you want the customer to come back and buy from you again and again.

And we also learned a lot about: how do you prevent failures from happening in the beginning? How do you design quality in, and how do you make sure that every customer is supported in the right way?

HOFFMAN: This led to ideastorm.com — a website that Dell launched in 2007. At first, it worked like an online suggestion box. Customers simply posted their ideas for making the company better. From there, it grew into one of the earliest crowdsourcing platforms with users able to upvote, downvote and comment on each other's suggestions.

DELL: The idea was really a kind of network scale version of our direct model in the sense that, hey, you've got an enormous number of customer interactions. And if we knew everything that we knew and could apply that at scale, we would be a far better company.

HOFFMAN: In 2013, Michael famously made a bold move that would allow him to deconstruct the company and rebuild it to supercharge growth. Dell had listed on the stock market back in 1988. Now he decided to take the company back into private ownership.

DELL: We were trying to evolve the company. We were investing in software and services and storage and all sorts of new things. And the more we invested in those things, the less the market liked it.

HOFFMAN: Michael saw the company needed to be drastically reconfigured to grab hold of new opportunities like cloud computing. And he realized the most effective way to do this was through a thorough deconstruction and reconstruction of the company.

But Michael also knew that this would be too expensive and risky for public investors to stomach.

DELL: So the go private enabled us to really invest a lot more in R&D, expand our sales capability and capacity, and again, just accelerate that transformation.

We just slammed on the accelerator because we didn't really care about the quarterly results. And the results were very positive, but they were very volatile.

HOFFMAN: The many changes included acquiring cloud computing firms EMC and VMWare in deals totaling \$67 billion, the largest ever tech merger to date.

DELL: We added tons of debt to the company, but it created a super strong company. And then we added like \$30 billion organically to the company after the combination with growth, because customers really liked what we were doing.

HOFFMAN: With the transformation complete, Dell took the company public again in 2018.

DELL: Ultimately, we decided that the best way to simplify the capital structure, drive the debt down even more, was to go public through a kind of a strange series of transactions.

HOFFMAN: Dell was a new and different business that customers and investors embraced.

This kind of seismic deconstruction is a huge undertaking, and it can be a hard sell to your stakeholders. But it is a vital move that will set your business up for the next stage of scale.

But you also need to keep taking apart your own systems, values, and assumptions on a smaller scale.

DELL: Everything had to be constantly reinvented and reimagined, not just because the scale was changing, but because the industry was changing. And we were outgrowing things constantly. And so that was a constant, just rethinking everything and saying, "All right, what do we need to do in the next 3, 4, 5 years?"

In many cases, these things had never been done before. And so you're just starting with a clean sheet.

HOFFMAN: One strategy for doing this is to find fresh eyes for your problems.

DELL: One of the things that we would do in our operations group, we would go and hire a bunch of early-career, newly minted graduates from supply chain and operations degree programs. And we would give them like 20 grand challenges, and these are challenges that the company actually didn't know how to solve.

They would never solve all 20, but if they solved five or six of them, that would be five or six new solutions that we never had before.

HOFFMAN: Deconstruction isn't just something you do when you're founding your company, it's a constant process that you need to maintain at every stage of growth. Doing so will let you better understand the systems behind your product, your business model, and your industry — and hopefully make game-changing improvements that will leave your competitors scrambling to catch up.

I'm Reid Hoffman. Thanks for listening.