MICHAEL DELL
ORAL HISTORY

COMPUTERWORLD HONORS PROGRAM
INTERNATIONAL ARCHIVES

Transcript of a Video History Interview with Michael Dell Chairman and CEO, Dell Computer Corporation

Recipient of the 1999 Morgan Stanley Leadership Award for Global Commerce

Location: Smithsonian Institution
                Washington, D.C.

Date: June 10, 1998

Interviewer: Dr. David Allison, Curator (DA)
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                Smithsonian Institution

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Curiosity for the Way Things Worked

DA: I thought we would start with your family background. Tell me about growing up in Texas.

MD: I grew up in Houston, Texas. My father was an orthodontist; he just recently retired. My mother started working as a stockbroker when I was about fourteen-years-old, and she still does. It was a fairly peaceful upbringing. I have two brothers. Got interested pretty early on in science and math. I had a curiosity for business and for the way things worked and that led to lots of different things, various childhood business ventures, and into computing as well.

DA: Most people I interview don't say, "Gee, I was interested in business when I was growing up." A few people do, but what started that for you?

MD: I think it was a curiosity and an interest in the way thinks worked. I also have to give my parents credit for this. I remember they would always talk about whatever the interesting thing that was going on in the economy—whether it was the oil crisis or what the Fed Chairman was doing, or what interest rates were doing, or of course the stock market and financial market. Those were topics around the dinner table when I was growing up and I became interested in those things just as a matter of upbringing.

DA: Were there particular instances or events or people that stand out now, as you look back, that really shaped your career and your interest in technical things?

MD: I can remember when I was in the 7th grade; I was in an advanced math class and we had this thing called the "Number Sense Club." You stayed after school and you could do these math problems in your head. They had these contests at the city level, and if you were good enough, at the state level.

The teacher that taught us how to do all these math problems in our head, she was the first person in our junior high school to get a computer terminal. This was before there were really personal computers. There were these terminals, and if you stayed after school, you could write a program and send it off and the answer would come back.

I just got really fascinated with that whole concept and learned about programming. I would go hang out at the local Radio Shack and get close to the computer and see what I could make it do. Finally, I saved up enough money to be able to buy an Apple Two computer.

The great thing about computing then was that everything was very, very simple. You could take the top off the machine. You didn't have these big black boxes like you have today. You could actually see and understand every single circuit in the machine. You could take a chip out and program it anyway you wanted it. You could build your own things.

It was just a great time to be a young person to be learning about these machines. I got interested in what these machines did and how they could be a very powerful force in the way people would do work. This was the very beginning of the early days of the PC.

DA: Most people I talk to are older than you, and their first interest in computers was big computers. It seems to me that we're at such an age that the first thing you saw was a terminal, but it still looked to you like an individual small machine. Is that right?

MD: Actually it goes back further than that. I bought a calculator in the early 1970's. I think it was about 1972 or 1973. I would have been about seven or eight years old. I saved up my money and bought, I think it was a National Semiconductor calculator. It was the kind that you divided 22 by 7 and you got 3. It wasn't a perfect calculator. This was just a very compelling concept to me—the idea of a computing machine. I may have been interested in big computers too, but they didn't have those at my junior high school. I was interested in what I had access to.

DA: But the fact that that would be available at your age, you wouldn't have to wait until you got access to a bigger machine. You actually got interested in the hardware side of things at that time. It wasn't just the computing but wiring circuits and circuit boards. Was that part of your growing up?

MD: Yes. We used to do little things like building little circuits that would blink on and off. We would play around with building our owns cards that would go inside the PC to do different things. I built a bulletin board system, which I used to keep in my closet. I had a special machine for that. This was the precursor to online services of today where individuals would operate these bulletin boards.

I would do this on an Apple Two with a first a 300-baud modem and then a 1200-baud modem, the kind where the characters go much slower than you can read them. Of course that's all gone now, but that was my interest in both the hardware and software.

A lot of people would get interested in cars. They would buy a car and soup it up and sell it. I got interested in computers in that regard—not really as a business, but more as a way of learning more about the thing. I would buy a PC and I would soup it up with all sorts of extra peripherals and components. I would sell it and I would go and do it again. It was kind of fun.

DA: This was while you were still in High School?

MD: Right.

A Budding Entrepreneur

DA: Did you turn around and sell these to other people?

MD: Yes. I bought and sold several of them and helped lawyers and doctors in the Houston area. A couple of times I set up their businesses with PC's. One of the things that I discovered was just a total disconnect between the price that these machines were sold for and the cost of the components. It made for a very easy supplemental income for a high school student and soon to be a freshman in college. That turned out to be what helped to create this business.

DA: One of the things that interests me a lot is how people learn. It sounds like in your computing experience you were essentially self-taught? Or did you have other adults on the side that you looked to to help you out?

MD: There weren't really adults that helped me out. There were other kids that were my age; we used to hang around together and we were interested in computers.

I got one of my first 'real jobs' at the Houston Post newspaper. It has since been merged into the Chronicle. It has disappeared. My job was to call people on the telephone and sell them newspapers.

I very quickly realized that there were two kinds of people who bought newspapers: people that were getting married, or people that moved to a new house and were taking on a new mortgage. I figured out that if you went to the County Courthouse, there was this thing called the Marriage License Application, which was public information. On the application was an address there where people would want their license sent once it had been issued. I hired a bunch of my High School buddies, equipped them with Apple Two computers to go to the sixteen counties surrounding Houston and type in all the names and addresses and send out this mass-mailing campaign to all these prospective people who were going to buy the newspaper. It was an integration of business and direct mail and computing and it worked very, very well.

DA: This was while you were still in High School?

MD: I was sixteen years old.

DA: Did you have to put up the money to hire all these guys up front? Were you already taking that kind of risk, or was the newspaper funding this little enterprise?

MD: It wasn't much of a risk. This was a high profit operation. This was positive cash flow. You could see the immediate return in this activity.

DA: This is interesting. You were seeing a lot of techniques that you could later perfect in building a different kind of business. What did Mom and Dad think abut this?

MD: I don't think they knew exactly what to think. I think they thought I was a bit crazy for a while, and they were particularly upset when I decided to drop out of college. They eventually got over it. I think they were pleased that I had an interest that was constructive, but when it led to me dropping out of school, that was clearly a big shocker for them.

This Has Got to Stop!

DA: You had played around with different aspects of business as a boy and then at a certain point you got serious about it and thought of starting a computer business. How did that happen?

MD: When I went to the University of Texas, I was Biology major. I was a Biology major because my parents had whispered into my ear that I should be a doctor. My older brother was a doctor. My father was a doctor. All the cousins were doctors, and I should be a doctor too. I probably thought that for a littlie while.

What happened was that I had the typical freedoms that somebody would not have being in your parents' home. I got more and more interested in the upgrading and reselling of computers and the whole computer technology world that was evolving. I probably spent more time doing that than I did going to school. My parents became increasingly more upset with me, to the point where around Thanksgiving time of my freshman year, they made a surprise visit to me at my dormitory and said, "This has got to stop! You have to stop this computer stuff." I agreed that it would stop.

It was actually in the weeks following that event that I decided that this wasn't just a fun hobby, this was a real business, and this was what I wanted to do. It wasn't until they said, "No, you can't do this," that I decided this was really what I wanted to do. So I took the Christmas break off and then on January 2nd I went back to Austin much earlier than I had to. I was determined to start the business and basically didn't tell my parents.

DA: What did Michael Dell's college room look like at this point? Was it just filled with boards? What was that environment like?

MD: It looked a bit like a computer lab. My parents asked where my books were and I told them they were at the library. They didn't quite believe that.

The Right Instincts

DA: You were building PC's? What were you actually doing at this point?

MD: I was upgrading PC's. Basically I would buy memory chips and disk drives and I would upgrade computers and write a little software and make cables. This was in the day when the average buyer knew very, very little, and the average seller knew very, very little. I had an easy market to enter. And what really compelled me to start the business was, with the average PC; you pay about $3,000 for this PC. The dealer would pay $2,000 for the PC. He would make $1,000 and really didn't know very much at all and didn't provide much service. It was inefficient. There were these corner stores and dealers that popped up all over the US. But more than that, this $2,000.00 PC that the dealer bought only cost about $600.00 to make. I looked at this and thought this is a five-times mark-up, why should that exist? If I could build a machine that was better than this $2,000 or $3,000 machine and work directly with the customer— not have this inefficient dealer—it would be a wonderful business. When you opened up the "IBM Computer" it wasn't an IBM computer at all. It was an Intel computer, and a Microsoft computer, CGI and Western Digital, a whole bunch of companies, some of which are here today some aren't. They made the components that went inside the machine.

I started with upgrade kits. This was back in the day when the PC didn't have a hard disk drive. I would buy hard disk drives, controller cards and write some software, make cables and upgrade computers with hard disk drive kits. I would buy memory chips and upgrade machines. This was the starting basis of the company.

DA: How did you get customers at this point? Was it word of mouth? Were they people you had dealt with already or did you recruit them?

MD: We advertised first with little tiny ads in the Austin American Statesman, and then bigger and bigger ads in publications like PC Week. In fact PC Week formed right exactly the same month that our company formed, and we would run ads in there. Soon they became bigger ads, then several pages of ads.

The first ads had phone number in my apartment and that was great because you could work all day and night long, go to sleep, wake up and start over. Eventually, after the first month I moved into a 1,000 square-foot office, and a month later outgrew that, and kept growing and growing. In the first nine months the company had over $6 million in revenue. Then the first full year we had $33 million in revenue and we added a person every week.

DA: When you say "our company," we sort of skipped through the start of all this. Was that in 1984?

MD: May 1984.

DA: Who was it? Was it just you initially or was there a group of you? How did that beginning really take place?

MD: I got into the habit of saying "our" because it made it sound bigger, but when it started it was literally just me. Then I literally added a person a week to the company. There was a guy named Terry Hostettler that started with me, and he had responsibility for about half the things in the business, and I had responsibility for half the business. Later that year, in about October of 1984, he burned out and decided to go and do something else. That was pretty scary because I didn't understand the half of the things that he was doing, and thought, "Oh my God, this is going to be the end of this company."

DA: Did you have any plan when you started or did you just launch the ads to see what happened? Did you seek advice from a business consultant or anything?

MD: Not really. I had gotten to the level where I was selling $50,000, and at one point $80,000 a month while I was still in school. This was before May 1984. I basically figured: "Well, let's see, if I get an office and get a tie and do some things that normal businesses do, I could get this to $1 million a month pretty easily because this is basic stuff here, and I'm not really doing this as well as it could be done." That was in fact the right instinct. The business was profitable from its very first day. We didn't have any financing. We didn't know what venture capitalists were. If one of them walked in the door I'm not sure we would know what to do with them, maybe sell them something. We didn't have any venture capital.

DA: So you initially started just upgrading. When did you make the determination to do more with the business and actually create your own machines?

MD: This is a very interesting story. We had developed a very large business, perhaps one of the largest in the US, in the selling of disk drives for PC's. If you wanted a five or ten-megabyte hard drive for your computer, we would be the best company to get that from. We had some pretty serious customers. Martin Marietta was buying hundreds of these from us, and one of the managers from their company came down to see us. He observed that we were formatting all these hard drives on these PCs that we made ourselves. We bought some motherboards from another company and built these PCs only for the purpose of formatting hard drives. Actually few of them had snuck into the sales department. They didn't have any labels or logos and at one point this guy says, "What are those?" And I said, "Oh, those are our PCs. We just use those to format hard drives." And he asked us if he could buy some. The idea literally had never occurred to us. Of course this was only in a couple months time, so there wasn't a lot of time to really think through the opportunities.

I remember that in the middle of 1985, there was a large trade show in Austin. By that time we had become the biggest computer sales company in Austin, so we had this big booth in the center of this trade show. We brought a couple of these machines to this trade show and sat them out there. When somebody would come by and ask, "What's that?" we would ay, "Oh, that's our PC." "How much is it?" "I don't know. How much do you think it is worth?" And we would play that game for a while of, "What would the market bear?" We introduced this product called the "Turbo PC." We started hiring engineers - that's actually a whole other story. I concluded that the business of making and designing of our own personal computers would be a much better business for us than any of the other businesses we had created so far.

DA: Why do you say that?

MD: Because the PC was growing so quickly and was such a dominant part of the opportunity that existed. If you could sell the PC, it would be like being in the car business instead of the after-market tire business. It was pretty obvious that it was a huge business opportunity.

In fact, this Turbo PC that we created with a supplier, in two or three months became the dominant portion of our sales. So I said, "Gee we have to hire engineers if we want to be able to create our own PCs." This was right about the time that a guy named Gordon Campbell in California was creating a company called, "Chips and Technologies." It was the first chip set that integrated a lot of the functions that went into a 286 computer. The only problem was, I wasn't an engineer and I didn't know how to design machines at that level. Yes, I could take one chip and hook it to another chip but there was a lot more to this.

I called up this guy Gordon Campbell and I asked him to send me a couple of these chip sets and any instructions he might have to provide on designing a PC. I remember calling the guy who was the sales person for Intel, and I said, ""You know anybody who can design a PC using your 286 chip?" He probably did something he shouldn't have; he gave me a couple of names of engineers who were around town. I interviewed about seven or eight engineers or groups of engineers, because these guys would kind of travel in packs. I brought them in and said, "I've got this chip set, I've got this schematic, and I would like to design a 286 personal computer. Can you do this? How long would it take it to be successful? What would it cost?" I found this guy named Jay Bell. Jay works at our company still. I was about to go on a trip and Jay said, "Well it will take about a week or ten days and it will cost $2,000." I said, "Doesn't sound like a long time. Doesn't sound like very much money. Tell you what; I'm about to go on a trip. I'll give you $1,000 now and when I come back, if you've got it working, I'll give you another $1,000."

Sure enough, when I got back Jay has built this motherboard by hand. Not only had he got this chip set to work properly, but he found a number of bugs in the chip set that Chips and Technologies didn't even know about. He had enhanced the performance and we basically made that into a product, which became a huge product for us and got us into the computer business in a huge way.

DA: When did that new PC you were introducing really go to sale?

MD: It was in March of 1986 that we introduced the 286. It was actually a twelve-megahertz computer. At the time IBM had a six-megahertz machine. Compaq had an eight-megahertz machine. It was interesting because we were selling a twelve-megahertz machine, which was twice as fast as IBM's, and ours was actually half the price. It was a dramatic difference in price performance.

Already the benefits of the direct business model that we were creating were emerging and of course this was fueling a tremendous amount of growth.

Growing with Exceptional People

DA: Tell me what it was like in those early days of your business, the first two years of starting your business. What was your day like?

MD: Well, it was a lot of fun. Certainly it was non-stop. I think being a single, unattached guy at the time was certainly to my benefit because I don't think I would have also balanced a family life during those first couple of years. It started to get more normal in the later years. But the first couple of years were quite wild and crazy and unpredictable.

DA: A typical day in the office went into the late evening?

MD: A fair amount of time. I think it started to get more normal after we got more people into the business. I also think I started to realize that there was a point of diminishing return in the number of hours you would spend on any given activity in a day. I started realizing the power of hiring a strong team of people and giving them responsibility and not trying to do everything yourself. That's been a key part of our growth and success.

DA: How did you find people, and what did you look for when hiring?

MD: I looked for people that would be better at whatever they were doing than I would be, which in many cases was easy because there were a lot of things I didn't know very much about. I would often say, "They didn't teach that at my high school." And this is true when you talk about things like finance and others that were not necessarily things that I had a great understanding in, although I think I have learned quite a bit of that as part of being in business. I essentially looked for the strongest people I could find who identified with the vision and the ideas that we had. People who were clearly interested in the long term success of the business. People who could contribute at a broader level not just the area that they were in, and also who had a strong ability to grow with the business.

It became very, very clear that the rate we were growing, I either had to have really exceptional people, or we had to continually hire additional ones. We tried to do our best to find truly talented people who could grow with the business, but also establish a culture where it's okay to divide things up. We often found that it wasn't that we had a bad person; it was just that the job became too large or too complicated.

DA: In those early days, did you tend to make decisions yourself? Did you get a core group of people to help run the company? How did you develop the power structure for Dell?

MD: I think I've always been right at the center of the strategy of the company. The operational elements have more and more shifted to a management team as the business grew. What I found to be more important was focusing on what businesses we were in and what we were trying to accomplish. Of course in the early days, I was doing everything. I remember one point. I had the key to the Coke machine, and somebody came up to me and said, "I lost 50 cents in the Coke machine." I was thinking, "What am I supposed to do abut that?" And I figured out, "Oh, I've got the key to the Coke machine. This is an opportunity to learn about delegation. Give that key to somebody else and get out of that job."

That's a pretty basic lesson, but something I learned a couple of months into starting the company. I actually found it quite easy to bring in talent and to divide responsibility. It's quite liberating, in fact, because if you try to do too many things yourself it's very self defeating.

DA: Clearly when you started making the 286 machines twice as fast as IBM and cheaper, that was a major milestone in the company and from the get-go that was a successful business venture.

MD: Yes, in its first eight years, the company grew about eighty percent a year. It was pretty much a vertical take-off and there were lots of things we added along the way to continue that growth.

I remember when the company was two-and-a-half years old, we had a meeting out in California's wine country. We took several of our key people in the company, and also asked some industry gurus like Esther Dyson and Jim Seymour and a few other people to come along with us and think about what this company could become in five or ten years.

We came up with a few basic things that we wanted to pursue. First one was, we said we wanted to grow our business outside the US, which for a company with $60 million in sales, was a pretty big idea. The second one was to pursue selling to the largest companies in the world.

The idea we had was that we wanted to provide a level of service which was superior to that of the resellers or dealers. We created this whole concept of on-site service, which today is very common in the computer industry, but at that time, didn't exist in the PC industry.

We basically took that as the road map, the plan for the company, and in June of 1987, we launched business in the UK. The company was essentially three-years-old when we launched in the UK. We had no capital whatsoever. People thought we were crazy. I'm talking about people inside the company. It turned out to be a very opportune time because the market in the UK was growing quite a bit and, of course, we followed that on years later to open across the world.

DA: Who did you see as your biggest competitor in those early days?

MD: Certainly IBM was a huge factor and Compaq. Those two were always key factors in competition.

Formula for Success

DA: You clearly tried to differentiate yourself on performance and price, but it seems that you added some unique marketing aspects to your business as well. What, from your perspective, were those?

MD: What we created, this whole direct relationship with the customer, provides a number of unique advantages. For one, we have this input from the customer on a day-to-day basis. We're listening every day and learning from what we hear. We can improve the process and every aspect of the product and the process and the service based on customer input.

Yes, there is the core economic advantage with the elimination of the reseller markup and the inventory advantage that we have. Those two things create a rather fundamental economic advantage much like the killer distribution systems that have taken over a lot of retail business.

But it really goes beyond that. The relationship that we've been able to create with companies and the dialogue with the manufacturer is extremely valuable. It gives us the ability to configure the machine to the customer's order. The customer actually has a lot of input and say into what the product is instead of shipping things out and hoping the customer wants to buy them. The result, of course, is that we've grown very quickly and with a starting capitol of $1,000.00, built a very, very large business.

DA: You mentioned going into the United Kingdom, that there was a lot of concern on the part of the company, and yet it was successful from the outset. What made it successful?

MD: What really made it successful was really just raw economics.   I think that the origin of the computing industry is very much a scientific and technological base invention where the brilliant scientists would come down from the mountaintop and deliver their new machine. If you were lucky enough to get one and pay a million dollars, you would get one and they would take all your money until it was all gone. That was great in the beginning stages of the market. Then, of course the focus turned to one of more cost effectiveness, and how effectively could one manufacture versus another manufacturer to deliver computing power. Then the customers started to have a say in this and things like standards started taking hold. It was no longer just a game of technology; economics and service had a real play here.

The economic advantage that we created was quite massive. It was even larger in historical terms than it is today, but even today it's still quite large. The dealer had a markup of eight percent; it might be six percent now. The other factor, which is a big competitive issue, is this issue of the amount of inventory. We figured out that we could reduce the amount of inventory we have to be about seven or eight days. That came from being able to design products.

We used the maximum number of common parts plus a wide variety of product platforms. We also had our suppliers deliver them to us in an instantaneous fashion, and not have any finished goods. That helped us take advantage of the rapid declines in cost and deliver the latest technology. A competing indirect manufacturer would have about forty days to inventory. Their channel of distribution would have about forty days. Together that's eighty days. We would have eight days, which is ten times less inventory, or a 72-day difference, and when the value of the materials declines one percent a week, that's a ten percent difference.

You add on top of that ten percent, a dealer markup of six percent. Now remember, these are companies that have gross margins in the low 20's, and it's very easy to see how our competitors have been unable to keep pace. The question is, how long can they go on using their existing model before they have to respond to this economic advantage, which is quite profound.

DA.   You make it sound easy when you describe it. Was it you that sat and figured this out—reducing the inventory and keeping the flow of parts coming in? I guess this was even from the mid-1980s that you were working on trying to cut those costs everywhere you could. Is this your personal innovation?

MD: I have a hard time pegging everything on myself because so much of what we do is based on a collaborative fashion. But you go back to Dell's initial public offering, and if you were sitting in the audience and listening to the presentation, you would have heard exactly the same story. Perhaps you didn't understand it completely as well then as you do today, but the core concept is exactly the same. It's the elimination of the resale mark-up, faster flow of materials, and the compression of time that delivers value to our customers and to us.

I think there's a bigger concept that's going on here, too, which other companies will reflect on and embrace in the future. And if you think about the economic system, it's essentially based on the cost of interactions, transactions in and among parties, suppliers, customers, that sort of thing. As the costs of those transactions go down, the ability to connect different businesses together increases dramatically. This idea of vertically integrating a business becomes more and more obsolete.

What you have are companies that become very, very specialized in certain things and they become really excellent at doing those things. You no longer have to do everything yourself to be able to win, which is why Dell was able to create an $18 billion business in fifteen years. I think you can create a $40 billion dollar business in the next ten years using the same kind of principles just because of the accelerated pace of all this. It also means that companies that hold on to the past and the ways of the past will be very vulnerable to changes in technology, which of course are much faster than changes in thought processes and people and physical assets.

One of the ways you can think about this, is a business is able to achieve a return on invested capital of about 229 percent. Of course this is massively in excess of our cost of capital, which means we're creating a lot of value by focusing on what we do well. Firms that try to collect a bunch of activities and compete against firms that are really excellent at what they do, there won't be much of a place for them.

A Store in Every Telephone

DA: You talk a lot about the inventory side of your business, but another critical technology for Dell was the telephone. How did you convince your customers that talking to you on the telephone was all they needed to do and they didn't have to see you, shake your hand, and see your product on the floor? What was that like?

MD: That's a great question. I can remember in the U.S., we talked about growing the market and selling to customers over the telephone. We had the idea that there are 180 million telephones and there's a store in every single one of them. The cost structure of being able to work without the stores was just a huge advantage. While you could look back to 1985 and say, "Well, it's only three or four percent of the market that will buy over the telephone," it was pretty clear by 1990 - or 1995 - or 2000, the number of people who had never used the computer, people who didn't know what a computer was, was going to drop dramatically. What we also discovered was that when you sell to an organization with twenty or more employees, it doesn't matter whether people had used a machine or not. It only matters if the person making the buying decision had used it. So in companies, we could very quickly gain shares.

Then the consumer market that emerged comprised of this knowledgeable user who read publications like PC Magazine and PC World, those users got on the Internet. Every year that went by, customers became more and more knowledgeable. The utility and value of a retail store that supposedly offered some support, but most customers would say they really didn't, went down dramatically. Not only did we win in the corporate market with the largest companies in the world, but also in the consumer market. You take your U.S. market now of people who buy machines, it's getting to be less than thirty percent of the users who have never used a PC before.

DA: You touched briefly before on the service side of your business. If your customers could trust you, especially if they have never seen you before, they get the computer and they really have to believe you that you'll fix it if it goes down. How did you manage and set up the service component of your business and make it so successful?

MD: We recognized that having never heard of a company and perhaps the skepticism of buying things over the phone, that this might be a leap of faith. We spent a lot of time really offering a very surprisingly better experience. One, we didn't do business completely over the phone. For the largest companies and institutions, we worked on a face-to-face basis with sales and support people in the field.

Then we did things to instill confidence, like money back guarantees and onsite service. We won an unprecedented number of service awards and we really invested in services capability. We won the JD Powers Service Award. If you look to about any measure of service awards, Dell has absolutely performed extremely well. In a recent PC Magazine where they rated notebook and desktop, we were the only vendor to get an "A" grade in both desktops and notebooks.

We really figured out how to do service correctly by investing in it, finding good partners in the field service, and also fundamentally designing and building a better product. The best way to deal with this is not to fix the problem, but not to have the problem to begin with. We make a product that's extremely reliable. We measure defects per million and drive any defects out/ We hold our suppliers accountable for quality of materials they deliver to us, and when there is a problem, we are extremely responsive as to do the right thing and solve the problem quickly.

DA: You must chose your supplier extremely carefully and test pretty heavily at the front end. Is that right?

MD: Yes, absolutely. As we've grown, the number of suppliers has shrunk. Ten years ago you might have had 300 suppliers supplying eighty-five percent of our materials and now we're down to about sixteen. Yes, we have some smaller suppliers, but a handful of suppliers supply the vast majority of our components. That's because we've taught them and concentrated on them on meeting our unique requirements.

DA: We've talked a lot about the things that have gone well with Dell Computers, but clearly you have had bumps along the road. What have been the toughest mistakes that you have made and what did you learn from them?

MD: We made a number of mistakes. In the late 1980's we trucked out our own version of Unix, which certainly was a mistaken idea. We thought at the time, to get into the server-workstation business, we had to have our own version of Unix. It turned out that Unix didn't take off as much in the personal computer and the more entry-level product area. Having your own version of Unix was not an asset, but a liability.

We also believed people when they said that our business couldn't grow more on the direct side; that we had to participate in other distribution channels. When the computer superstores started to emerge, there was a chain in Texas called Soft Warehouse, that eventually became part of Texas Instruments, and we were one of the first larger brands at the time to sell through this chain, which was kind of a departure for us. Fortunately for us, it never became a large percentage for us for sales. We concluded a couple of years later that that was a bad strategy and a money-losing strategy for us and we exited it.

DA: And that was because the margins equations didn't quite work out the same. Is it strictly financing?

MD: Basically we took the two core advantages that we had and we eliminated them. It was a bad economic departure from the thing that actually created value for Dell. The other thing that happened in that period was that we validated that not only did we not earn a simple profit selling through these channels, but we didn't need to sell to them because we had plenty of customers who were going direct. These stores were not something we needed.

The Art of the Possible

DA: How have you made the decision where to grow in the computer market? You started with desktops and you've gone into servers, but you haven't tried to go into enterprise type machines to compete with at highest end. What drives the decisions where to grow your business and where not to go?

MD: The trade-offs include understanding the opportunities that are out there, and also the resources capability. The first thing we look at is, what is the distribution of profits among that various parts of our business? In looking at different products and looking at different geographies and trying to make sure we're participating in the most lucrative parts of the industry, then the fastest growing parts of the industry.

We then also look at our resources. We might find five new businesses that would be wonderful for us to start, but if we only have the ability to do two of them, then that doesn't do us any good. So we've got to be very selective. In fact, each year we usually look at about twenty or twenty-five new opportunities and we use about three or four of them. The rest of them we save for later because we can't do them all.

Our company is still growing about fifty or sixty percent per year, which means we have to be very selective. We've been focused on the server, workstation, notebook, the storage market, more the high end of the market. Actually we think the growth of the microprocessor world will take us up into the entry level of the mainframe over the next couple of years. We're going to demonstrate systems later this year, which are 200 processor, ten terabyte systems that are absolutely competitors to the IBM SP2 or the Sun E10,000.

DA: You are riding your architecture to see where it goes, is perhaps one way to look at it.

MD: We're focused on the microprocessor architecture and Windows NT. We think that's the right strategy to drive us up. We're strong believers that the shift from closed computing to open computing is going to continue, and that scale matters.

When you go talk to a software developer, they don't want ten operating systems. It's too expensive to develop and a fragment of the market doesn't help customers make investments competently in computing. The phenomenon that is created in roughly 300 million PCs; that is the one we continue to think will be the major portion of the market.

DA: You mentioned that you once made a foray to the software side of things. But by in large, you had a relationship to software vendors as being their customer. How have you decided what to do in software and how to choose you partners?

MD: It is pretty simple. Our choice has been really driven by what our customers want to buy. We've sold a lot of things along the way and provided a lot of things, but not all of them have things customers have wanted to buy. In the operating world we have lots of different operating systems - Nobel Netware and IBM OS2 and our own Unix and SCO Unix, and Sun Solaris and of course, Microsoft's operating systems. Ironically we've had a disproportionate percentage of energy applied to the one's that haven't sold very much. You can relate it to how much time do we spend getting OS2 ready, and how many did we sell. We spent a lot more energy on that given how many we sold, than we did on Windows.

DA: You would experiment with a lot of things and let the market decide, is what it sounds like.

MD: We have a strategy that really listens and responds to the customer. Now it's not completely passive in that regard. Certainly we can't wait for a customer to call us up and say, "Hey, I'd like Lithium Ion batteries." A customer just doesn't know what Lithium Ion is. What a customer will tell you is, "I would like to buy a notebook that will last all day long. It doesn't run out of battery life." The magic of the creation of the product is understanding the customer's requirement and the art of the possible in technology—putting those together. And that's where you get the winning pride.

Dell Revolution.com

DA: Let's talk a little bit about the Internet. The Internet has been important in a lot of respects for computing, not only the growth of what people do with their computers, but the whole change in how people buy computers or buy parts. How has Dell developed as the Internet come into being?

MD: The Internet has been a wonderful creation for us because it has allowed us to develop even a closer connection with our customers. We are really are making it our first point of contact with every customer. It allows a level of intimacy with our customers that we could not have had before. It's very easy for us to engage with a customer on the Internet, because we're already with them on a direct basis. This is just another form, perhaps the ultimate form of direct contact with our customer. It lowers the cost for the customer. What it gives us is it makes Dell ubiquitous and always available to our customers. It speeds the whole communication process for new products. And in the area of support, it just kind of eases the whole process of interaction and enhances the user's experience. It's extremely positive, not to mention the effect that are going on in the efficiency in our industry.

The way the consumer is buying things and receiving information about products and services is fundamentally changing. The field of consideration used to be what was in the newspaper, or how far you could travel in a car, or what you could find in the yellow pages. Now if you want to buy a product or a service, you can consider the entire world and you can have a transparency of pricing and information that goes well beyond how far you can travel. Of course, as the cost of transportation comes down, this really changes.

You think about a lot of businesses in retail, they talk about "location, location, location." The Internet blows up that concept except for certain kinds of products that may be rather instant gratification-oriented - a restaurant for example. But there are a lot of product categories where the presence of the physical location can actually be a liability from a cost standpoint. Certainly, we've proven that in the computing space. I think it will be proven in other industries in the future as well.

A lot of companies are really struggling with what does the Internet mean to them, partially because their alignment of relationship with their customer is based on historical alignment of commerce. You had dealers, distributors; you've got these complex chains of events that occur. But actually you have the opportunity to make this whole system much more efficient. Certainly there will be products that will continue to be distributed, but there a lot of things that can be made far more efficient and no longer require the various intermediaries and steps that add time and cost and reduce the productivity of capital and people that are involved in them.

DA: This is clearly making a fundamental difference in your business. On a personal level, when did you start becoming aware of the Internet? And what was that first experience when you started thinking about it?

MD: People talked about the Internet, and we used it personally as a transport mechanism for mail for those few people who had Internet addresses. They were usually very complicated addresses that didn't mean a whole lot. I remember before there was an ability to get on the Internet using Windows, I put a machine in my house and put Unix on it because it was the only way to run Mosaic at the time. I did that for the purpose of getting online and seeing what was going on on the Internet.

I remember ordering a T shirt and realizing this is going to be fantastic. This was going to be the way to provide support information, part information, sell products. But even with that, I think every year that has gone by, our knowledge of what this could be to our business and how it evolves, has just expanded geometrically, because it's almost hard to think through all the implications when you first see it. But it's something we embraced very, very heavily and ensured that it wasn't something that kind of attached onto our business, but rather integrated into the core of our strategy, at every point.

DA: It sounds like from what you say, that this wasn't something that ten people had to come knocking on your door to say, "You really have got to pay attention to this," that you even retained your own personal interest in exploring what was happening online at an early stage.

MD: Yes. I was knocking on their door.

DA: That interested you in moving Dell into this direction?

MD: I think it was, for me. Other people in the company could clearly recognize the significance of it. There's actually an interesting moment in time where I felt that a lot of our newer, perhaps more technologically oriented people understood what this was all about, what it meant. A lot of our senior managers were too busy in the daily activities of business, and perhaps weren't as technologically with it to know what was going on here. There was a bit of a gap there. We had this huge campaign internally to teach everybody inside our own computer company what the Internet meant to them. Of course now it sounds pretty silly, but at the time it was pretty important to make sure everybody totally understood the power of this because to fully exploit it in a public sense, we've got to really be understand what this means and embrace it. That didn't take long. It was only a couple of months before everybody knew what this meant.

DA: I think that that is a real difference between what you were doing and other companies, where you say "senior management get busy with business." They are often not going to attempt to know what's happening technologically. Tell us a little about actually funding the sales of Dell computers on the Internet. I know Scott Eckert, who was here, talked a little bit about that. What was the decision to go forward with that and how did you guys plan for it to grow?

MD: This was a pretty easy decision. The idea is that any transaction we can drive to the Internet, that's going to take out time, take out cost. It's actually going to give us a more reliable way of receiving orders because the customer has all sorts of confirmations built in. It's twenty-four hours. It's a tremendous release value against any overflow of calls that might come in through the voice system or face-to-face sales.

It's also embracing the technology that's fundamental to the way our industry evolves, and the way our product is used. This was the closest to a "no brainer" that you could get. You didn't have to do a lot of analysis to decide that Dell was going to sell PCs online in a huge way. Every single place you turned, you could see www.dell.com, and that would become more important than our phone number, or any other reference designation to point to our company. We wanted to do this all across our business. We became rather obsessive about it. We measured it and drove it and made sure we did it in every market in the world, and made sure it was part of the plans with every business that we had focused on.

Expanding Internationally

DA: We talked some about your growth in England as your first overseas venture. But now you've grown to a lot of different countries. How has the unfolding of the business internationally differed than in the United States? Have you had to have a different strategy, or has it just been pushing the American strategy in other countries?

MD: The business outside the U.S. has grown in a very similar way to the U.S. with a couple of noted exceptions. Those exceptions really have to do with periods in time when our own people didn't really believe our strategy would work in other countries. Once we convinced them, then we saw the success we had in the other markets. But there were times when, for example, some countries in Europe didn't quite embrace it at first. Germany and France come to mind. But after they did, the growth took off. In fact, our business in Europe this year is about the same size the entire company was three years ago. It's seen tremendous growth. The business in Asia/Japan is about the size the whole company was five-and-a-half years ago. The same phenomenon exists.

I believe the economic principles that we've created of elimination of dealer mark-ups, the inventory, those apply anywhere in the world and they're not cultural or language or territorial bound; they work in Beijing and Boston and Barcelona, Boatswain. Any place you go, those concepts work.

DA: What about the people side of the equation? When you go internationally, is it a case of sending a bunch of Americans to get started? To you have to hire locals? What's your strategy when you move into another country, in terms of the people you bring in?

MD: For the most part, our approach has been hiring local talent who understand the business environment in the countries they operate in and can learn Dell's business system and execute it. We'll occasionally send people over to help with that process or to get them started, but more often we found we do better with people who come from these local markets and understand them intimately and understand the culture and the ways of doing business and then can apply Dell business systems in those market.

DA: Do you find that sales over the telephone and service relationships are again pretty much in the same model that you developed here? Or are there also differences there?

MD: There are differences. They tend to be very subtle. I'll give you an example. In the United States, you can run an ad in the newspaper and somebody will call you up and they'll talk to you and then they'll buy something.

In Germany, there is a protocol of communication that is a little bit different. More and more people will just call you on the phone. But what they'll do is tear out an ad that takes the form of a fax, fill in some information, fax it to you, and then it's okay to call them. It's like one-step removed communication. Once you figured that out, we'd run an ad that you tear out, our fax ads, that you can fill out and send them back. There's a protocol of communication though it eventually changed. Germany is now more like the U.S. in its communication style.

Interestingly enough, the problem had been more the rate of growth and keeping up with that growth. I've seen this happen in twenty-five to thirty countries all over the world. You go to a new country and the press all lines up and says, "This will never work here. We should go home. This is an American concept. You don't know what you're doing." And then we're swamped with calls and obviously the customers were not reading the press reports. The thing takes off very, very quickly.

Japan was a real challenging experience. Japan is the second largest PC market in the world and a huge country. We were just inundated with telephone calls. We couldn't hire people fast enough to support the sales volume in the beginning of that business.

DA: The notion of trade barriers or resistance or that kind of thing, you didn't encounter in Japan?

MD: We set up our own distribution system in Japan to sell directly to the customer. So we didn't encounter those kinds of barriers. We encountered other interesting things where some of our competitors would call shipping companies and say, "Oh you don't want to ship products for Dell. If you do, we're going to stop shipping with you." They'd play what you would call "dirty tricks"- more so than you would see in this country, at least from my experience, but those are all recoverable.

DA: A big part of your growth in this country has been relations with large firms. You've spoken mostly thus far mostly about your relations directly with the customer overseas. Have you had a different experience dealing with large international firms than you have had with American firms? Is that a contrast to what you have here?

MD: No. In fact about seventy percent of our business in the U.S. is large and medium-sized companies, and about thirty percent is consumer and small business. Outside the U.S., we skewed more to large companies; about eighty percent large and medium, and twenty percent small and consumer, although the small and consumer is the fastest growing portion all around the world.

One of the things that has helped us launch into these new countries is having global companies, a company like Nestles or Unilever or ICI, or Ford or Boeing. When you launch into Brazil, you launch into a new international market these companies are ready to buy from you. They're familiar with you. You're already on the approved standard list. You've got a relationship with them.

DA: The other companies that don't know you, won't see their competitors or their counterparts and start taking up your business as well.

MD: Yes, and the same phenomenon has repeated itself. We enter a market. We win awards. People figure out there's value here, and often what happens is when we enter a market, the market is pretty inefficient. I think one of the big contributions Dell has brought to computer industry is the efficiency of the market has improved because we have been a catalyst to kind of wring out excessive margins and excessive steps in the distribution system. I think that's been a fundamental factor that's been helping the market grow faster and reducing the cost of PC use for every buyer.

You can even make the case that if Dell hadn't come on the scene, probably somebody else would have, but if no company had figured out that you can sell the machines the way we do, the gross market for PC companies would be a lot higher than it is today. The gross margin for computer resellers would be a lot higher than it is today, and the market would be a lot smaller.

DA: Do you find that your competitors are always after you because you are continuing to reduce the cost of the process? Do you find that people are hacking you from that perspective?

MD: We're after them! It's hard to really say that there is anything bad here. In fact it's quite the contrary for the customers, and for competition it's good. One of the more common questions I've had over the last ten years is, "What about the price war in the PC industry?" And my response is usually something along the lines like, "For us, it's normal everyday competition." For our competitors, it may be a price war, but that's only because they don't have a cost structure like ours. This is a key issue. If the market doesn't restructure itself in order to compete and earn a profit, then those companies are not going to be able to sustain their business.

Computers as Collaborators

DA: As you look forward the continuing evolution of computer technology, what do you see as coming? Is it more continuation of the same? Will the Pentium II be replaced by the next chip and keep going on the same pattern? Do you see a fundamental change of any sort coming at us in computing?

MD: If you look from one product introduction to the next, you see rather gradual improvement. But if you skip three or four generations and look between those, you see massive improvement. That's pretty typical of a lot of product categories. But there are more truly in this one, remembering that we've got the miracle semiconductors of this industry, which are just delivering tremendous amounts of power. A couple years ago, in a 486 machine, we were paying about $10 per mip. Last year we were paying about sixty-cents a mip and later this year, we're down to about twenty-cents a mip.

The power we are getting and the cost are just tremendous improvements. I think what that's going to do is drive for huge improvements in user interface. We're going to get away from these machines that actually present themselves as machines and machines that have much more human-like interfaces, using sound, video, graphics and full human sensory ability, using this processing ability and the ability to transfer massive amounts of data over high speed networks. People will be collaborating using video and much more, again, human-like interaction, as opposed to computer-like interaction.

I also think the tremendous price performance improvements will take the form of much broader proliferation of computing. We look at that communications department as the precursor of computing market. Before you get a computer, you get some kind of communications, like a telephone, fax machine, pager, or some combination of those. But that leads us to believe that the computing market will go from a stall base of about 300 million units now to 1.4 billion ten years from now.

DA: Will that continue to look like computers, or will they be sort of integrated into appliances or other technologies in our society?

MD: I think as this goes on, the array and variety of computing devices will expand. When you think back ten years ago, if you looked at our product line or any of our competitors, there were basically three-boxes, little ones, medium-sized ones and big ones. And now you have all sorts of forms and shapes and sizes. I think you'll see computing in automobiles, you'll see the evolution of the accessory or companion computers, and obviously microprocessor chips showing up in every imaginable device from toys on up. I wouldn't think of it just as computers on your desk. The best computers ultimately are going to be the one that disappears and you don't even know it's there.

Right now, until we can have a computer that sits here and interprets everything we're saying and can turn that into something useful, and index it and compare it and reference it, then we still have a long, long way to go.

DA: Does that mean you're going to make a whole slew of different devices? Does that mean you'll be in partnership with other companies? How does it look from a business standpoint to you as you look out five or ten years?

MD: I think it means we need to continually be selective. If we try to provide computing in every single form imaginable, I don't think we'll be a very successful company. Rather, we're going to select the best opportunities. Some of the opportunities will be much greater from a business standpoint than others. Imbedded computers that sit in appliances might only be an opportunity for somebody who makes semiconductors and even then, it might not be an affordable opportunity. Our focus is going to be on the more viable parts of the market, and the parts where we think we can add something unique using the direct relationship that we have with our customers.

If you think about it in productivity terms, the average person who uses a PC in a first world country today costs their organization or company about $150 per day in salary and benefits, overhead, facilities and everything else. A PC costs about $3.00 per day. Clearly, 300 million times, people have figured out giving them a $3.00 a day PC compared to a $150 a day of compensations and cost is a very, very good tradeoff, much better than getting them a sheet of paper, a pencil and a calculator.

I think that trend will continue, especially if you have economies where the cost of labor is going up. If you jump down to an economy where the cost is $3.00 a day and the computer is $3.00 a day, it's less relevant. But as more and more of the world gets into a higher wage, high productivity mode, computing is going to be the center of this.

DA: We've talked in rather positive terms about this spread of computing. You sit and watch it every day. Are there things that you worry about, that concern you as computing is spreading more and more throughout the world?

MD: I think that the majority of it is positive. There are certainly some potential risks in dislocation in the economy, where you have certain sectors of it zooming way ahead and others falling behind. I think there's a point here of responsibility particularly in this country, where you have such a large labor force coming on in the rest of the world where we don't engage the full society here in the tools of modern productivity and modern capitalism. There's going to be a portion of our society that is worse off than people in emerging countries. And certainly in a comparative basis, the gap could widen. That's a danger.

What would be great is if we could figure out how in this society we get everyone to come along in productivity, the drive towards higher value kinds of things. But that's going to mean some dislocation and some abandonment of activities which are probably not best served in a country like ours. It is perhaps best done elsewhere.

DA: You are much more concerned about being equitable than you are about privacy, or too much information, or loss of control, or things like that. Those are not issues that you see as being of great significance.

MD: I think privacy is a big issue for our industry to embrace. We've spent a lot of time on this whole privacy topic.

First of all, we never sell or use the information customers give us in anyway except for the purpose the customer intended. We don't sell our mailing list, or things like that. The problem is that when you create thousands or millions of e-commerce merchants out there, how do you know what they're going to do with their data?

As an industry, we're creating a couple of newly formed alliances to create a standard that we can all agree on for privacy. The larger companies seemed to have stepped up to the plate. We need to get more voluntary compliance in that. I think this is a big issue consumers are worried about, and you can see more traditional forms of information - credit card companies have been dealing with this for a long time and they've figured out how to deal with it. But the Internet presents new risks and new opportunities to use information either correctly or incorrectly.

DA: Do you think the industry should really get in front of that issue, as opposed to being reactive to it?

MD: I think we, as an industry, have to get out in front of it.

Experimentation, Change & Hope

DA: You are seen by a lot of people as being a classical American entrepreneur who saw an opportunity at an early age, wasn't afraid of it, took the risk, jumped into it. Many people think that entrepreneurship is what really makes America go, not only in the past, but in the future. What would be your advice to young people who are itching to do something new and try to be an entrepreneur themselves? How would you advise them to follow their dreams?

MD: I would advise them to experiment and to try things and learn that way. If you have to wait for me to tell you, then you're not an entrepreneur. This is not something that somebody can tell you to go do. You'd have to know to do it yourself and follow your dream and take it where it leads you. There is a lot that is learned by experimentation and making mistakes.

The key for us was making a whole bunch of mistakes, but trying to make them only once and learning from them, making course corrections along the way that led us to the right path.

We didn't have the perfect business plan and financing and the wonderful management team, but we did have a desire to improve and to learn and continuously to adjust our business to be aligned with the best opportunities.

DA: What gives you hope and what gives you pause?

MD: What gives me hope? My children give me hope, and when I see young people learning and having opportunities. And when I see young people embracing the Internet. When I get e-mails from sixteen-year-olds in Indonesia, asking for advice, that gives me hope that there's people out there who might be thinking the same kinds of things I was thinking, but they're fifteen years younger, twenty years younger.

I think the industry we're in provides unprecedented opportunities and that's the thing that's really exciting. The change that's going to occur because technology changes so much more quickly than people change, that's what creates opportunities for young people. And it won't be the things that the "old guys" that keep doing the same old things see. This industry does tend to recreate itself. That presents a challenge for us, too. I've always been inspired by the question, "What's going to change next and how do we make sure we don't miss that one?" Like the other guys missed one and we get to create our business. But I think this is a business that will continually recreate itself and at the pace that technology changes is only going to accelerate. That gives me a lot of hope.