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The computer industry is changing the way it does business. Tom Bearden reports.

Henry Ford revolutionized manufacturing when he invented the assembly line. Historians may eventually put Michael Dell in the same class of innovators. He's turned the assembly line idea on its ear, and parlayed it into a host of factories like this one all over the world.

The story goes that, in Henry Ford's factory, you could have any color Model T you wanted, as long as it was black. If you want a Dell computer, it's custom built to your specifications. They call this the direct model of manufacturing, and it's the hottest idea in computers since the microprocessor.

Michael Dell got into making computers as a student at the University of Texas in the early '80s. He took orders from fellow students, bought all computers, and then upgraded and customized them. Dell reportedly made \$180,000 in his sophomore year, and promptly left school to start his own company.

When I was in college, I saw that the computer distribution system in this country was really very inefficient. You buy a computer for \$3,000 that consisted of about \$600 worth of parts. And there were several different steps along the way they weren't really needed.

So I saw that, by having a direct relationship with the customer, you could not only provide a better level of service, but do so at a much better cost, and that was the basis of the founding of our company.

Dell's dorm room idea has grown into a company with nearly 18,000 employees in 42 countries. Dell computers are built in Texas, Ireland, Malaysia, and China, and another plant will open later this year in Brazil. It's the fastest growing computer company in the world, and they still build them to order.

Then Dell came to see me.

So I called Dell.

I went to Dell on the internet.

And they built it.

And they built it.

Just for me.

Just for us.

34-year-old Dell says the direct sales model is the key to his success.

Essentially, it's a smarter way to buy the product, with a higher level of service.

And if you do have any questions or you need anything in the future, just don't hesitate to give me a call.

It all begins with an order is placed by telephone or increasingly via the internet. Dell is the largest online seller of computers, each day moving \$5 million worth on the net. The bulk of their customers are businesses. Manufacturing director Lois Goss showed us how the customer specifications are printed on a piece of paper called a traveler.

This is like a customer order. And so, on this piece of paper is everything that we're going to put in a unit for this customer.

Workers use the traveler to pluck the appropriate parts from bins and put them all in a box, which then goes to an assembly area.

Everything the cell assembly operator needs is at their disposal.

Like a model airplane kit.

Absolutely, just like a model airplane kit.

But unlike Ford's assembly line, where a product traveled down a conveyor belt and many people worked on it, construction here is done by teams known as cells, who do the entire assembly.

These two operators are a team, and they're actually going to build the computer up. Once they build the computer up, their other team member in the cell is a quick test operator, and they will do a quick test on it to be sure the unit is functioning correctly.

If it works, three hours of rack testing follow to make sure all the components and software are operating. The whole process, from the initial receipt of the order to sending the finished computer out the door, takes just four hours, but that's still too long for Goss.

This is our challenge. This is what we're looking at is to reduce the test times down. We would like to get this to two hours.

If all this looks easy, it's not, according to Keith Maxwell, the man who designed the system.

If you look it, the assembly process, it looks like a water ballet. If you look at the people doing a water ballet, it looks beautiful on top and everything's orchestrated. You go look underneath the water, and their legs are just thrashing like crazy.

That's what happens below the surface is there's huge amounts of activity going on to go drive the demand, to equal the supply, and to continually be evolving the supply base to be able to meet the flexibility we need to go do things in the time frame we want to.

You're dancing as hard as you can.

Dancing as hard as we can.

The biggest advantage of direct sales is inventory control. Most manufacturers forecast demand, construct the machines, and ship them to retailers. The problem is, if the forecast is wrong, they're stuck with a lot of machines they have to dump at a steep discount.

On top of that, computer sitting on shelves lose their value as newer and faster machines enter the pipeline. Dell doesn't build a computer until it's ordered, and therefore has no inventory problem. John Schreiber, a financial analyst with Janus Mutual Fund, says that gives Dell a huge pricing advantage.

Dell carries roughly seven to eight days of inventory. So it's turning its inventory roughly 50 times a year. If you look at competitors like Compaq, Hewlett Packard, IBM, they're really dealing with three to four weeks of inventory in the channel.

Add to that three to four weeks roughly within the factory walls, and you're talking about six to eight weeks of inventory as compared to Dell's one week. That alone gives Dell a five to seven percent pricing advantage. And when you add, on top of that, the margin that the reseller is taking to stay in business, Dell really enjoys a 10 to 15 percent price advantage out of the chute.

If there is any cloud on Dell's horizon, it's the prospect of facing its own weapon in the marketplace. The number one computer maker, Compaq, announced recently it will begin selling computers directly to consumers via the phone and the internet. Moving toward direct sales is a tricky business for a company whose dealers still sell most of its product.

But, Compaq vice president Mike Winkler says Compaq's retailers understand the computer business is undergoing a fundamental change.

What they have recognized is that their business model must change over time as well. That they must be less dependent on hardware, and more on software, support, services, and consulting with the customer. And that's what they're starting to do now.

And we're helping them in that way by trying to push business their way that enables them to get this higher margin services business, that we believe more than compensates for the loss in some of the hardware business.

Speakers come with the monitor.

Exactly.

Despite the advantages of direct sales, Compaq is not deserting retailers, assuming there will always be customers who prefer that way of doing business.

Part of it is they like, what I call, a single throat to choke. They want a single point accountability for the success of their installation.

With Yourware, people like my dad can buy a computer with an Intel Pentium II processor and unlimited internet access for just 449.95 a month.

Executives at Gateway, and the company that sells computers in those quirky, cowhide looking boxes, agree about that single point of accountability.

What do you call this thing?

Yourware.

Yourware. That's different.

The South Dakota based manufacturer has been selling computers directly, primarily to home users, for about as long as Dell. But, two years ago, Gateway began building what they call Country Stores to sell their products.

Now how long does it take to get these systems once you place an order?

Usually about a week.

They now have 150 of them, places where customers can try out various models and then order a computer to be built just for them.

This is the standard monitor on there.

Gateway believes this combines the best of both retailing and direct sales. Joe Burke is in charge of the Gateway Country stores.

It's actually about 25% of all PCs sold in the US are in the retail channel, and unless and until we participated in that channel, we weren't going to serve any of those customers. When we came up with the model for Gateway Country, we took a look at what was wrong with the PC buying experience and tried to address all of those issues.

When you walk in from the environment, the store look somewhat engaging, it looks different. It's not a typical warehouse or grocery store set up. It's rather engaging. You can get hands on and live demo with every piece of technology here in the store.

Several giant retailers have also started to see the direct handwriting on the wall.

It's really very simple. Sales counselor determines term your needs, comes up to the kiosk here, and determines that you wanted the Pentium II 400.

Places like CompUSA and Circuit City have installed kiosks where customers can order directly from a variety of computer manufacturers. Mike Ryan is in charge of computer sales for Circuit City.

The manufacturers realized that this is what we needed to do to serve the customer better and optimize what we call supply chain management, or the amount of inventory that's in the stores. And we want to balance that, because we know there was some stuff that people wanted to order direct, and some stuff in the store.

So this gives you access to a market you didn't have before?

Yeah, I think that's true. I think the direct customer wanted certain choices that we weren't able to offer them on the fly. They wanted to have a better video card. They wanted to have Microsoft Small Business Edition so that they had the right software loaded. So yes, absolutely. It's increased our assortment, not decreased it.

Ryan says, although ordering directly from the manufacturer is becoming more and more common, he doesn't think it poses any real threat to retailers who still sell computers the old fashioned way.

But Dell thinks, in the near future, all manufacturers will adopt the direct sales model, in spite of the difficulties that poses for them.

Essentially to do that, they have to go into competition with the people who sell virtually all their products today. So it's a fairly monumental transition for them. But still, they're headed down that path.

So we're focused on how we can take our business model to the next level using things like internet, product line expansion, and driving further efficiencies through our business.

Dell predicts this new way of manufacturing may well eliminate the middleman retailer once and for all.

