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Diebold Reinvents Its Supply Chain

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President and C.E.O.
Thomas W. Swidarski

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Enterprise of the Year

FOR GLOBAL SUPPLY CHAIN EXCELLENCE

Diebold Reinvents Its Supply Chain

A manufacturing icon retools itself from a product seller into a solutions provider. BY NEIL SHISTER

We're touring the Global Solutions Center at Diebold headquarters in Canton, Ohio, the part exhibiting prototypes and concepts of the future for the company's visitors.

For a century and a half this maker of safes and then automated teller machines has been around, a stolid example of those Midwestern manufacturing icons that put American industry on the map. But time marches on and today those same legacy assets and practices that once fueled U.S. prosperity now threaten to put it at risk. Just down the road from Diebold, testimony to the precarious paradigm change underway, stand what used to be the headquarters for Hoover vacuum cleaners—now mostly empty shells.

This lesson on the imperative of change has not been lost at Diebold.

It is the public face of Diebold's forward-looking vision that is on display here at the visitor center—the products and services it is betting on. There is a state-of-the-art ATM (already in service) capable of directly taking checks for deposit (no envelopes), verifying the amount on the screen, electronically crediting the customer's account and returning a printed receipt complete with an image of the check—all in seconds; and do the same with cash (even racking the bills of different denominations in different canisters within the machine for easy processing by the bank). There are elaborate video surveillance systems, which enable a single control center to monitor far-flung facilities and locations (indeed, potentially anywhere in

the world). Even full-scale interior plans for banks, which Diebold can design to enhance customer experience, optimize worker efficiency, and also, by the way, cut costs.

A visitor feels a palpable spirit of excitement here, a confidence in the transformations underway. But it likely wasn't always thus.

This year, on the occasion of its 150th anniversary, the company (which made its reputation in the Great Chicago Fire when over 800 safes manufactured by Carl Diebold survived) felt the need to re-position itself. "We won't rest," its existent tag line, didn't work. Not only did it confuse non-English speakers (one global customer asked "do you have trouble sleeping?") and send the wrong message to the company's employees that they were over-worked, but it failed to convey the essence of an emerging new corporate vision.

The preceding several years had not been kind to the company's image nor business: the stock had been hammered, its entrance into the voting machine business was marked by controversy (Diebold is now seeking "strategic alternatives" to owning that piece of its business), and there has been an investigation by the SEC. And then, throughout much of 2008, its independence itself was at risk as Diebold fought off a hostile takeover bid from United Technologies.

The time was ripe for a new strategy, complete with a new marketing image consistent with a new operational



Diebold's President and Chief Executive Officer, Tom Swidarski



An overview look at the manufacturing space at the Lexington, North Carolina facility. Each workstation is constructed to provide maximum efficiency and quality for workflow.

roadmap. The focus of the company was going to change from essentially making and selling customized products to a broader positioning as a solutions provider. Diebold would still offer ATMs to banks, but its competitive differentiator would be a range of services available to those bank customers moving outward from ATMs.

The marketing mission was to fuse this grand ambition into a company tag line. “We went back and forth,” recalls Director of Corporate Communications, Michael Jacobsen. In the end it came down to two words, ‘Innovation’ and ‘Deliver.’ They chose ‘Innovation Delivered.’ “We ultimately rejected ‘Delivering Innovation,’” remembers Jacobsen, “because we didn’t want to be confused with a transportation company.”

While it’s the product side of the company that shows off its public innovations, there’s also a less visible, ‘back-room’ side to the transformation underway—centered on the supply chain. Indeed, it is fair to say that the foundation for the advanced products and new initiatives on which the company is betting its future are sustained by a state-of-the-art approach to supply chain. Success at Diebold depends on the supply chain—not only in terms of physically moving product through the value chain, but arguably even more important, contributing to operational savings in substantial enough a manner to significantly free up capital for technology R&D.

It is for these reasons that Diebold—in collaboration with their supply chain partner Menlo Worldwide Logistics—has been chosen *World Trade’s* winner of Enterprise of the Year for Global Supply Chain Excellence.

In looking at what is happening at Diebold, there’s a bit of irony in their concern about being confused with a transportation company. Of course, they are not in the transportation business but, at the same time, it is transportation and

logistics which are proving key drivers in transforming the company. Much attention is being paid at Diebold to supply chain strategy and processes—and at pay grades higher than operations managers.

Top level decisions—about product development, procurement, customer service—are increasingly being structured around the supply chain in ways which, only a few years ago, would have been barely imaginable (let alone feasible).

Until just a few years ago, Diebold’s supply chain looked like your typical aging manufacturer—with multiple production and warehousing sites scattered around the country and a scant few FTEs (fewer than a half-dozen) “managing” an annual spend of one hundred million dollars. Foreign acquisitions in Brazil and Europe in the early 2000s effectively changed the company from being wholly North American-centric to global (the roster now includes Russia, China and India). With this came added opportunities (and pressures) to optimize procurement, assembly and distribution.

As President and CEO Thomas W. Swidarski began laying the foundations for Diebold’s transformation, he explicitly cited “strengthened supply chain” as one of the company’s five top priorities (right after increased customer loyalty and better product quality).

Accompanying these priorities was an internal campaign named SmartBusiness 100, a pledge to deliver \$100 million in cost savings by the end of 2008 as a measure of success—and simultaneously invest in technological innovation.

The framework for re-tooling the company hinged on a fundamental change in strategy. Diebold’s historical evolution had been like many other manufacturing companies, adding production facilities and distribution facilities as need arose. The result was an assemblage of plants and



Above: Diebold's Greensboro warehouse.

Left: Frank Natoli, Diebold.

warehouses that had not been organized in terms of optimizing supply chain processes or minimizing transportation and logistics costs. This was not necessarily a fatal flaw within an earlier business model, the essence of which was to build customized product (customers can configure ATMs according to a wide range of options) at separate facilities, from which they would be shipped—often circuitously—to end-user destinations. To repeat, this was a feasible business model—until it wasn't!

But changing circumstances dictate changing approaches. Fundamental to the new corporate strategy was manufacturing to delayed configuration, effectively turning the old model upside down. Now factories would be expected to produce, with maximum efficiency and the minimal amount of storage and inventoried SKUs, 'plain vanilla' units. These units would then be collected, on the North America side, in three large-scale distribution centers (70,000 square feet-plus) where final-stage customer specific features and capabilities would be added. In addition to manufacturing, this would also produce significantly more efficient logistics and transportation flows.

"Three or four years ago, we weren't ready to move on this rapid distribution model," observes Frank Natoli, Vice President for Operational Excellence. He arrived at Diebold from a career in the automobile industry, lastly at Delphi, where he experienced first-hand what it takes to implement variations on just-in-time. Ranking high on his list of Diebold requirements was a sufficiently robust ERP/SCM platform that could track in-bound and out-bound movements of components, parts and even finished units. "Without that certainty, we had to buffer with inventory."

How do you cut in half the time it takes to deliver a cash machine, to go from a 'push' model of driving out product to a kind of 'pull' model that creates a base model, which

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can be quickly configured? "The responsibilities start with product management," explains Frank Natoli. He cites the different departments that require coordination—sales, product development, engineering, operation planning, materials management, warehousing, and distribution. All of which fall under his authority ("to have that breadth of control is unheard of in your typical large company, each stage would be a separate silo").

And the performance level they set as their goal left little room for misdirection.

Several years into the transformation, the ambitious norm expected "is to hit 20 days from the time manufacturing is told that a self-service terminal is needed until it is delivered." As Natoli proudly points out: "This has been nothing short of a business transformation. That's less than half the time we used to take."

How was Diebold able to make such a supply chain turnaround in such a relatively short amount of time?

Enter Menlo Worldwide Logistics.

In Diebold's decision tree, an early choice point was how to implement a sufficiently robust supply chain man-



A team of Diebold associates work together to put the finishing touches on a newly configured ATM at the Greensboro facility.

agement platform. “We needed a logistics management system with a command center,” recalls Frank Natoli. “We asked ourselves ‘where do we want to spend our IT dollars? Developing LMS? Or in product innovation and service solutions?’” It was a no-brainer.

An informal RFP went out for a 4PL with enough horsepower to overhaul Diebold’s supply chain. That 4PL had to be non-asset based, it had to be able to operate globally, and it had to have technological competency. There was one added proviso: experience in large-scale industrial realignment (Diebold didn’t want to be financing somebody else’s learning curve). Given Menlo’s role in Vector SCM, the joint venture 4PL established in 2000 with General Motors to manage GM’s supply chain, Diebold’s choices of 4PLs “turned out to be a pretty short list,” recalls Frank Natoli. (GM subsequently bought out Menlo’s interest in Vector in 2007 and took the operation in-house.)

“We identified our suppliers’ core competencies,” explained Natoli, “and then we’d ask ourselves ‘why out-source?’ The answer was that we wanted suppliers who were more expert than we were. In Menlo’s case, that expertise was in logistics and warehousing.”

Diebold named Menlo Worldwide Logistics, which had been providing transportation management services since 2005, as its lead logistics provider. Menlo’s two specific designated responsibilities at the time were warehouse network optimization and waste reduction. The grand underlying collaboration envisioned, however, was apparent: Menlo would work with Diebold’s top supply chain executives to improve the company’s global logistics infrastructure, particularly its network of warehousing and fulfillment operations, and redesign its global logistics footprint by “analyzing material and information flows, physical network layout and capacity needs.” In effect, take over responsibility for significant portions of Diebold’s supply chain.

The steps in the process, as Natoli recounts them, sound

pretty conventional, drawn from the standard MBA textbook. “We started out doing procurement value stream mapping,” he explains. “We worked the logistics end with Menlo. Together we assessed suppliers in terms of reliability and quality. Before that, we had been managing commodities. Now we began planning ahead.”

The preliminary goal was to reduce inventory variations. To accomplish this, components that were deemed to be critical—heavy gauge steel, circuit boards, electronic components, module sub-assemblies—would be sourced from a limited number of suppliers (as few as one or two) to optimize relationships and reliability. When it came to more easily obtainable commodity components (the Lexington, North Carolina factory, for example, tracks over four thousand SKUs), Diebold’s option was to deal with multiple suppliers.

Next came a ‘gap analysis’ to determine where the ‘holes’ lay in terms of capabilities and competencies. “We did this in real-time and also looking forward, to where we wanted to be in the future.”

By 2006, with the launch of SmartBusiness 100, the pieces were beginning to fall into place. The goal of cutting \$100 million out of the cost structure within two years was announced—with \$18 to \$20 million of that expected to come from logistics.

So how does a company go about saving \$20 million a year in logistics?

“We started from scratch,” says Natoli. “Went to the white board. Our over-arching principle was that ‘warehousing is all waste.’” The perspective was customer facing; Natoli’s mandate to his troops to ‘de-construct’ the supply chain working backward from the customer. Networks were analyzed and broken down into smaller units with the same set of questions asked again and again: How many nodes were in the network? How much freight was moving through it? What was the cost to move that freight?

There was low hanging fruit to pluck for quick wins: new transportation carriers, revising the balance of transportation modes. It became evident that there were significant opportunities in the pipeline to ‘cube out’ and realize savings by being able to assemble full truckloads and container loads for transport (“we discovered, for example, that it is sometimes better to be fully utilized on air than partially utilized on ocean.”)

But the big returns would come from shrinking the supply chain itself, by moving as little as feasible as infrequently as possible.

Natoli uses the image of a ‘water conduit’ rather than the conventional links to describe Phase Two of Diebold’s supply chain undertaking. With delayed configuration kicking in, the supply chain needs to move “like a smooth, efficient, continuous, waste-free flow of value from the source to the customer.” How? Fewer nodes and control points.

The focus of analysis shifts in this stage to inventory, the operative questions are: When is it at rest? Why is it at rest? Does it need to be at rest?

“How fast,” asks a visitor, “do you figure inventory can be made to move?”

Natoli cites the Mercedes assembly line by way of response, describing how the made-to-order cockpit of each car (even when customized to the preferences of an

How Diebold's Supply Chain Works 'In Real Life'

I've come to Greensboro as spring is beginning to unfold in the North Carolina piedmont (dogwoods are in blossom) to see how Diebold's supply chain works in real life. The executives I had been interviewing in Canton were adamant that I visit this massive 70,000 square foot Configuration/Distribution Center, insisting that I'd never be able to fully appreciate the magnitude of the supply chain transformation they are undertaking without seeing it in action.

They were right!

The macro message here is core competency! That means the Diebold FTEs on site configure, test, and stage the ATMs (and, to a lesser degree, bank safe deposit boxes) here. The Menlo folks on site are in charge of everything in between: managing incoming shipments of units and parts, organizing and racking and keeping track of the inventory, picking components and assembling kits for each specific unit ordered, even driving the fork lifts; and, on the other side, getting the crated shipments out the door and onto the right trucks.

"There are lots of things that we used to do ourselves," explains Diebold's Production Supervisor, Mike Carter, "which we have learned can be done cheaper and better by Menlo's folks. Our customers don't want to be paying us for picking parts."

The way these two organizations have fused on this DC floor to literally 'flow' goods from station to station is enormously impressive, particularly to a reporter who has long written about the theoretical virtues of supply chain collaboration. Think of 'vendor managed inventory' on steroids with Menlo's logistics resources amping up an ever-compressing lead-time! "If you're doing more with less,"



Work stations in Diebold's Greensboro, NC final assembly plant use sequence carts that have a standardized layout with a "map" which shows exactly where commodities are placed to maximize operator efficiency in the assembly process.

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observes Diebold's Chris Kushmaul, "you need a bigger tool box."

The scale of what's going in Greensboro, and its impact on Diebold's business can be gauged in an observation Mike Carter makes as he guides me around. He points out logistics activity, warehousing activity, manufacturing activity. "When I walk through here, I see all the elements that used to be done in many different sites—five or six—all being done now in one place!"

The DC has now become a key venue for continual process improvement (as in 'lean'). Inventory consolidations from various branches into a single central site, greater visibility, and much higher accuracy all enable the Diebold/Menlo team to keep driving incre-

mental change through the system.

And the current 'net-net' of all these process changes? Dock-to-stock, which used take 20 hours per order, is now down to two; on-time shipping was 95 percent, now it's better than 99 percent; order-to-cash cycles are faster.

What's next? There's a discernible appetite for more success. The 'lean' journey is in full swing and, from what I could gather, the troops are loving it. One of my guides points out a glitch that has recently been identified, but rather than apologize he sounds elated. "A problem is celebrated," he says, borrowing a mantra from Toyota's book on continuous process improvement, "because it is an opportunity to make an improvement."

individual customer) was expected to go "from order to install in two hours."

As Natoli wraps up his presentation, with Chris Kushmaul, Diebold's Director, Global Logistics, and his Menlo counterpart Carl Fowler, Senior Director, Operations, listening, the visitor asks him to distill his experiences re-engineering Diebold's supply chain into some 'life lessons' that might be useful to others facing a comparable task.

"The more I learn, the more I have come to appreciate the significance of context," he answers. Just like in engineering where 'simpler is better,' so it is with the supply chain. The fewer components, the better. You ask, 'What does each component do?' then you separate it into sub-systems, then ask, 'How does the next component in line interact with that module?'"

Specific stages in the supply chain, specific processes and practices, can't be dealt with in isolation; rather, they

must be approached in reference to how they impact upon the intent and goals of the entire system they support, even the entire enterprise. "Words and data are only as good as the context you put them in."

And there is no respite, no final destination. "The lean supply chain is a journey" is a phrase one hears repeated often within Diebold. "The pace of change continues to accelerate," says Natoli. "I didn't think it could be faster but it is. The need for flexibility becomes more and more critical. Situations change. Managements change."

Turning principles into effective daily practices is, of course, the proof in the pudding. For Diebold, this means managing a supply base that now is 75 percent drawn from low-cost countries. "Doing this requires expanded management and leveraging global processes," explains Linda Parcher, Vice President and Chief Procurement Officer, the executive charged with keeping the supply



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Chris Kushmaul, Diebold's Director, Global Logistics and Carl Fowler, Senior Director, Operations, Menlo.

chain filled. "But with global processes come global problems. Lead times are longer, which becomes particularly important when there is a change in demand. You have to understand every aspect of cost."

Parcher points out how what used to be 'supplier management' in simpler days when supply chains retained inventory buffers has now become risk management. Operational risk assessment is on-going as the viability of suppliers to sustain Natoli's "conduit" is continually evaluated (the critical question at the moment is what will happen to Diebold suppliers whose viability depends on the automotive industry). "Some suppliers are going to have issues," she says. "This requires long-term strategy to guarantee supply chain continuity."

Continuity is at the top of Chris Kushmaul's concerns, too, as he manages Diebold's physical logistics processes. Among the biggest steps undertaken during his watch has been the consolidation of a slew of smaller regional facilities into three distribution centers (located in Phoenix, Columbus, and Greensboro, NC). "Ability to scale is vital," he says of this configuration. "DCs have to be flexible to adjust to changing conditions."

The same thing is happening in Europe, where the company is looking at local warehouses and working to consolidate them into trans-national facilities: "We asked the question, 'Why are there warehouses in nearly every country, and what should our distribution system ideally look like?'"

As Kushmaul notes, the entire supply chain design succeeds or fails on the basis of information. In order for Diebold to implement its flexible, cost-benefit optimized worldwide logistics network, it has been imperative that he and his colleagues have access to relevant data organized in what Frank Natoli might call meaningful contexts. For that, they have looked to Menlo.



Diebold associates put packaging over a newly configured ATM at the Greensboro facility. The boxes used to protect ATMs on their way to the Greensboro facility are reused to protect them on the way to their installation sites.

"We lacked a transportation management system," he acknowledges. "Sure, I could tell you how much I paid a transportation provider, but I couldn't tell you why or where the bottlenecks were. How much were we spending on transportation? We didn't know. By mode? By segment? By supplier? By distribution? By transit time? We didn't know." Now he has access to all those answers. "This was a competency that Diebold didn't have before Menlo."

He cites one example of what this has meant. "Before, we would have goods bound for overseas all go to a freight forwarder in Cleveland and then be routed to a port of embarkation for air or sea. I might have looked at the rate, but the ability of another freight forwarder not in Cleveland? No. Now, our Lexington, NC facility builds, goods are shipped down the road to Greensboro, and then freight forwarded directly to Europe. This was Menlo's analysis. As a result, we're saving over \$1 million in transportation freight costs."

Diebold serves as an example for American manufacturers of 'the way forward' in the 21st century. While not 'the magic silver bullet,' a critical competitive competency in Diebold's arsenal of weapons is a consolidated, flexible, data-rich supply chain capable of quickly responding to market changes. "Our goal," says Chris Kushmaul, in a phrase that has been socialized throughout the organization from the CEO to associates on the factory floors, "is to have as small a finished goods footprint as possible while still being able to support the customer." WT