

Herman Re

C A S E

053

A D I S S E C T I O N

PHOTOGRAPH BY KATVAN NEW YORK



Miller



BY DAVID F. CARR

assembles

If it's possible for an office chair to create buzz, Herman Miller's Aeron did. Any foot-to-the-floor company worth its venture capital had to have them — until two years ago. Then, with the dot-com bust and general recession, the market tanked. Herman Miller is a third smaller today. It's taken five quarters to get back in the black. But it's still counting on 3-D technology to juice sales.



HERMAN MILLER INC. BASE CASE

Headquarters: 855 East Main Ave., Zeeland, MI 49464-0302

Phone: (888) 443-4357

Business: Manufacturer of high-end office furniture and related products and services for the workplace

Chief Information Officer: Gary VanSpronsen

Financials: Revenue, \$1.47 billion; net loss, \$56 million; net loss margin, -3.8% (fiscal year ended June 2, 2002)

Challenge: Lower expenses, improve sales and profitability, and increase inventory-turn rate

BASELINE GOALS:

- ▶ Steadily improve Economic Value Added, an earnings metric that measures how much more valuable a company becomes over time. Herman Miller EVA fell \$71 million in fiscal 2002
- ▶ Cut operating expenses as a percentage of revenue, from 35.4% in fiscal 2002
- ▶ Grow sales 15% per year. In fiscal 2002, Herman Miller sales fell 34% to \$1.5 billion
- ▶ Increase inventory-turn rate, which stood at 21 days in fiscal 2002

The end of the 20th century was a great time to be a laptop-toting Herman Miller furniture salesman. Roger Gunderson, vice president of sales at Interior Motions in Emeryville, Calif., remembers how wonderful it was to be able to fire up Miller's visualization and specification software, take customers on an instant 3-D tour of their new office space, and walk away with a sale.

"I can't tell you how many jobs we did two years ago with this, but most of those companies are not even in business now. We got major jobs with dot-com companies," he says. Miller's z-Axis software "was the reason we got most of those jobs—because other people couldn't do it that quick."

Today, the electronic sales tools Herman Miller provides to its dealers are still effective, and Interior Motions salespeople often make proposals by connecting a projector to a laptop so customers get a big-screen version of the z-Axis product tour. Still, the pizzazz doesn't translate into as many sales today—customers just aren't in as much of a hurry to spend their money.

"In today's market, it's survival we're worried about," Gunderson says.

Herman Miller itself is in much the same situation. Its survival is not in question, but it is hurting. Its sales fell from \$2.2 billion in its fiscal year that ended in the middle of 2001, to \$1.5 billion in 2002. After consistently earning between \$128 million and \$142 million from 1998 to 2001, it recorded a loss of \$56 million in fiscal 2002.

After an aggressive program of cost cutting, however, Herman Miller was able to report a return to profitability in the first two quarters of its new fiscal year.

And the technology bust has cut Herman Miller two ways: in its furniture sales, and in its own use of information systems to gain ground in the industry.

To make sure dealers like Gunderson had the tools that let him sell more Miller product—easily—to customers, Herman Miller had been spending about \$100 million per

year on information technology, such as visualization software and online ordering systems. It also created Web sites that encouraged smaller customers to buy chairs, desks and other products directly, online. This caused some friction with dealers (see "Conflicted Dealers: Does Web Help Or Hurt?" p. 46).

When the Internet boom went bust, Herman Miller felt a harsh backlash from a love-in with the dot-com companies that benefited from the free flow of venture capital into the "new economy." The company's stylish and ergonomically correct Aeron chair was a dot-com status symbol, one that top programmers would demand to cushion their backsides during late nights of coding. Later, it became a cliché to point to excessive purchases of Herman Miller furniture as an example of how so many startups burned through hundreds of millions of dollars of cash so fast. When the startups closed, a surfeit of those chairs and other Herman Miller products got auctioned, depressing the market for new sales.

After years of beating its industry in sales growth, Herman Miller's 33.9% drop in sales in 2002 exceeded the 25% plunge reported by the Business and Institutional Furniture Manufacturers Association. Still, Herman Miller has gained real advantages from its use of technology over the past decade. The question is how long those advantages will last—and whether the company is willing or able to continue to invest in maintaining them.

There is no clear answer. Herman Miller spokesman Mark Schurman says the company is too busy trying to demonstrate a sustained return to profitability for its exec-

utives to answer such questions.

"We just don't believe that now is the time to be making a studied evaluation of those investments and how they have held up during the downturn, since the business is still in the midst of that downturn," he says.

The story of Herman Miller's technology and business transformation initiatives mirrors its financial roller-coaster ride. On the way up, Herman Miller:

- ▶ Established a division called SQA (for "Simple, Quick, and Affordable") that proved to be a powerful engine of innovation. SQA funded the creation of z-Axis and was the first part of Herman Miller to pour resources into technologies that reliably match parts and products in its supply chain to customer demand.

- ▶ Built a separate technology infrastructure for SQA that delivered a built-to-order capability said to rival Dell Computer.

- ▶ Implemented Baan's enterprise resource planning (ERP) and manufacturing software, together with supply-chain software from i2 Technologies, eventually achieving similar results for reliability and supply-chain efficiency to those pioneered within SQA.

- ▶ Led the industry in exploring direct sales over the Web, first with HMStore.com, which sold the Herman Miller for the Home product line, and later with Herman Miller RED, which sold a new product line created specifically for home offices and startups.

When sales fell, however, some of the most ambitious plans had to be cut back. Within the last year and a half, Herman Miller:

- ▶ Eliminated more than 2,500 jobs worldwide, including many information technology positions.

- ▶ Shuttered the last remnants of the SQA operation and laid off information systems professionals responsible for its systems.

- ▶ Shut down RED, eliminating both the Web site and the product line, just a few months after introducing a 3-D product configuration capability meant to emulate the offline success of z-Axis.

Fresh technology spending is largely off the table. During the company's September 2002 earnings call, CFO Beth Nickels said, "We're now leveraging our prior investments in technology and will be making fewer investments going forward."

That gives former Herman Miller executive Bix Norman cause for concern.

"What they've got today will probably stand them for two or three years," says Norman, who became Miller's chief information officer in 1998 after five years as president of SQA, and then retired in May 2001. But Herman Miller's lead will eventually erode if it tries to coast indefinitely, he says.

AN INDUSTRY IN TROUBLE

Blaming Herman Miller's troubles on the dot-com bubble would be an oversimplification. The office furniture industry in general is suffering, as formerly fast-growing companies in all kinds of industries have cut back in the face of recession—and find themselves with more desks than employees.

The big contract furniture makers—Steelcase, Herman

THE PLAYER ROSTER

INSIDERS

Michael A. Volkema
President,
Chairman
and CEO



It wasn't long ago that Volkema said, "No one is going to lead this industry without leading in technology." But today, Herman Miller is cutting technology spending. When Volkema pulled the plug last year on Herman Miller's RED e-commerce site, he admitted he had probably become too infatuated with dreams of new-economy wealth.

Elizabeth A. Nickels



EVP and CFO
Nickels supported the launch of the RED site, based on an analysis that short-term costs would lead to long-term profits. Now the course she is charting back to profitability means that RED had to go, along with a lot of people and projects that suddenly look too expensive.

Brian Walker
President, Herman Miller
North America

Walker was one of the big cheerleaders for new economy "value net" achievements at Herman Miller. But as a former CFO of the company, he is also hard-nosed about financial discipline.

Gary VanSpronsen
EVP, eBusiness, and CIO

As CIO, he's had to scale back some of the information technology department's most ambitious plans, while seeking out relatively low-cost projects. VanSpronsen previously ran the technically innovative Miller SQA division.

Fred Guss
Director of Information
Systems

Considered by some who know the company to be "the real CIO," Guss is the top tech manager reporting to VanSpronsen. He's charged with ensuring continued improvements to core production and supply-chain systems.

Richard Russell
Director of Business
Systems

A former Deloitte & Touche systems consultant who came to Herman Miller as part of a Baan IV implementation contract, Russell was later hired to help complete

that project and supervise related systems.

VETERANS
Bix Norman



Former Herman Miller CIO (1998-2001), retired
Norman is best known for his role as president of Miller SQA, the division where many of Herman Miller's technology, supply-chain and business innovations originated. As CIO, he gave system development projects a focus on matching the high level of on-time, complete shipment of orders achieved by SQA.

Jim Von Ins Jr.
Former SQA information
technology director

Von Ins led the systems development team that created a custom factory planning and scheduling system for SQA, along with the ERP and supply-chain infrastructure for the division. He later co-founded a supply-chain technology business called 2Think (www.2THINK.BIZ).

OUTSIDERS
Uli Chi

Cofounder of Computer Human Interface, LLC
Chi heads the software development firm that makes the z-Axis visualization and specification tool under an exclusive contract with Herman Miller. The original idea: help Weyerhaeuser sell more lumber by helping consumers to design home improvements, such as decks.

Scott A. Moses



Former i2 Technologies project manager, now teaching at the University of Oklahoma

While at i2, Moses wrote a case study praising Herman Miller as the first company to successfully apply an incremental development methodology i2 had created, the Business Release Methodology.

Brian Kloostra
Managing executive
for CRM, Crowe Chizek

A frequent advisor on strategy and technology implementation, including an internally developed Customer Relationship Management application based on Lotus Notes.

TO PROTECT PRIVACY, ROSTER MEMBERS' E-MAIL ADDRESSES ARE OMITTED. WRITE THEM AT BASELINE@ZIFFDAVIS.COM. MAIL WILL BE FORWARDED.

BASE TECHNOLOGIES

Herman Miller created 3-D visualization and ordering software to help its dealers sell furniture—and tied the results into its production systems.

APPLICATION	PRODUCT	SUPPLIER
Financial management	Baan IV enterprise resource planning (version 4c3)	Baan division of Invensys
Shop floor control	Baan IV enterprise resource planning (version 4c3)	Baan division of Invensys
Inventory management and purchasing	Baan IV enterprise resource planning (version 4c3)	Baan division of Invensys
Production planning and scheduling	i2 Factory Planner, i2 Master Planner	i2 Technologies
Enterprise application integration	MQSeries	IBM
Logistics	LeanLogistics Private Transportation Marketplace	LeanLogistics
Supplier portal	SAP Enterprise Unification Portal (formerly TopTier)	SAP
"eZConnect" procurement portal	Commerce Server 2000, Biztalk 2000	Microsoft
Database software	Oracle, DB2	Oracle, IBM

DEALER CHANNEL

"z-Axis" office space planning, visualization, configuration and specification	Custom-built for Herman Miller	Developed for Herman Miller by Computer Human Interface
"Kiosk" Web-based system for dealer order tracking and management, training and communication	Lotus Notes/Domino, QuickPlace, Sametime, LearningSpace	Lotus division of IBM
Custom-furniture order specification system	DynamicDesignLink	PTC
Common financial and project management system for dealers (currently deployed to a few core dealers)	Khameleon Enterprise Planning System, industry-specific version underwritten by Herman Miller	Khameleon Software application hosted by OneNeck IT Service

SYSTEM PLATFORMS

Baan, i2, and other key applications run on HP-UX, Hewlett-Packard's version of Unix. Other production systems run on IBM mainframes or AS/400 servers. Corporate Web site and procurement portal for large customers run on Windows 2000.

SOURCES: VENDOR CASE STUDIES AND PRESS RELEASES, BASELINE

Miller and Haworth—also are under pressure from lower-price manufacturers such as HON Industries, which reported a comparatively modest decline of 12% in sales in the first nine months of this year and a 2.5% drop in its most recent quarter.

Steelcase also has suffered, seeing revenues descend to \$3.1 billion in fiscal 2002, down from \$4 billion the year before.

But Herman Miller at this point seems to be doing a better job of turning things around.

In the first quarter, it netted \$9.8 million or 13 cents per share, despite a 15.5% drop in sales. Miller's second quarter profit was \$11.8 million or 16 cents per share, even though sales were down 9.5%. Steelcase is suffering through a four-quarter losing streak, including a loss of \$31.1 million or 21 cents per share, with an 11.6% sales decline, in its most recent quarter.

Herman Miller also stands out by some measures of efficiency, such as inventory turns. The rate at which Herman Miller converts inventory to sales in a given year dropped from 27 turns in 2000 to 21 this year, but that's nearly twice the performance of Steelcase, which saw inventory turns drop from 24 to 12 over roughly the same period.

AN INDUSTRY PRIMER

The big three contract furniture-makers are headquartered in Western Michigan—Herman Miller in Zeeland; Haworth, a comparably sized private company, in the nearby city of Holland; and Steelcase in Grand Rapids. Their traditional focus is on winning contracts to furnish entire office buildings, where the specification of cubicles, desks and chairs is often part of the architectural planning process. When it works right, the manufacturer wins a long-term relationship with the customer's corporate facilities manager.

Unlike HON, which generally allows any dealer or retailer to sell its products, the contract players demand semi-exclusive relationships aimed at ensuring loyalty and deep product knowledge. Herman Miller dealers are prohibited from selling Steelcase or Haworth, even though they may also represent several smaller manufacturers.

D. J. DePree started Herman Miller in 1928 with money borrowed from his father-in-law, the company's namesake. A son, Max DePree, helped popularize the company's

PROJECT PLANNER

A PICTURE'S WORTH A THOUSAND WORDS AND COSTS \$750 TO BUILD IN 3-D (SEE FOLDOUT).

reputation for excellent management with books like *Leadership is an Art* (DTP, 1990). In particular, Herman Miller is known for promoting employee ownership and systematically rewarding innovation from within.

The current management also emphasizes incentives built around Economic Value Added (EVA), a way of measuring how much more valuable a company has become during a given period.

This metric takes after-tax earnings and deducts the cost of buying equipment or technology versus investing the same amount of capital in bonds, stocks, or other uses. EVA also treats research and development differently than standard accounting, spreading R&D costs over multiple years so companies aren't penalized for investing in the future.

Herman Miller credits EVA with helping guide it to more

GOTCHA! CREATING EFFECTIVE VISUAL SALES TOOLS

Did you know that:

? 3-D images need to be intimately tied to data about the products they represent

In office design, this means that changes to the visual representation of a layout must be instantly reflected in a product and price list. But it also means enforcing configuration rules so products in the virtual world behave like the real products. When Herman Miller's z-Axis is used to design a cubicle layout, the connectors needed to assemble that particular cubicle are automatically inserted.

Competing products from independent software vendors, such as Giza from 20-20 Technologies, traditionally have had a harder time with this because they support product catalogs from many manufacturers, where z-Axis only needs to cover Herman Miller's product line.

However, 20-20's new Office Design product incorporates an artificial intelligence rules engine from iLog, which should make it easier for manufacturers to add that intelligence.

? Elaborate visuals won't always be better, particularly for Web-based systems

Visual quality is not an attribute where more is better, says Anders Vinberg, executive VP of engineering at Viewpoint, which makes a variety of visualization software tools for the Web. "Either the image looks good enough for the need you have, or it does not. If it does look good enough, then further improving it doesn't help," Vinberg says. "If you just keep going, the budget will swell, the file size will swell, and what you come up with will end up being unable to run on the consumer's computer."

? Images still have to be convincing

The flip side of the visual-quality equation is that the images have to look good enough, Vinberg says. Some of Viewpoint's early software releases were capable of displaying a product in

a 3-D representation, but potential customers didn't care. "They would say, 'But that doesn't look like my product!' And we'd say, 'Yes, but you can rotate it and so on,'" he says.

Only after the technology was revamped to support a more photo-realistic look was Viewpoint able to interest customers like Ford and Toyota, which used the technology on their Web sites to showcase interior options and other features of their vehicles. "The fact that this was successful in the automobile industry is significant because they are very picky," he says. "They would not tolerate if the chrome does not look sufficiently shiny. The glass has to be transparent, and yet you ought to see the sky reflected in it. If you can't do all that, it doesn't look like a car."

? Building visual sales tools can be expensive

Herman Miller has invested tens of millions of dollars in z-Axis, created by Computer Human Interaction of Seattle. Meanwhile, 20-20 Technologies is offering Herman Miller's competitors office design tools that it hopes to make the standard across multiple manufacturers, a strategy that has been successful for the software vendor in the kitchen design industry. While not as expensive as Herman Miller's approach, employing these tools effectively still costs money.

"The specific product knowledge that the software is capable of embodying is really only contained in the people in the company," says Kevin Bidner, a 20-20 vice president currently working with office furniture maker Kimball International on its 20-20 Office Design implementation. 20-20 is doing most of the development of the visual models under contract to Kimball, but the manufacturer has assigned a team of developers to program the configuration rules.

Kimball will ask dealers to absorb some of the cost by buying software licenses, Bidner says. "But Kimball certainly subsidized a big portion."

—D.C.

efficient and profitable operations. The company added \$88 million of new economic value in fiscal 2000, a year in which the company earned \$140 million. Seemingly propelled by EVA, its stock price rose at an average of 28% per year for five years, as opposed to 2% per year in the early 1990s.

Lately, however, EVA has turned into a particularly harsh judge. While Herman Miller was able to report profits for the first two quarters of its 2003 fiscal year, EVA was -\$5.6 million for the first quarter and -\$4.3 million for the second quarter. To keep executives from losing heart, the board of directors adapted the incentive program to offer bonuses just for getting the company back to break-even EVA.

Herman Miller also is known for product innovation. In the 1960s, its collaboration with inventor Bob Propst led to the first "open office" panel systems—the forerunners of today's cubicles. Now Herman Miller is one of the leading makers of "systems furniture" in which wall panels and desks feature built-in accommodations for network cabling and electrical wiring.

In the 1990s, much of the company's growth came from exploiting systems of another sort: computer systems to boost sales, communicate with suppliers and schedule factory production.

Z-AXIS AND THE BIRTH OF SQA

One of the most visible symbols of that transformation was z-Axis, which started life as part of Bix Norman's strategy to transform a subsidiary that was competing at the low end of the market, using remanufactured furniture to achieve a price advantage.

To get away from this bottom-feeding, he devised a strategy focused on offering small, growing businesses a basic selection of quality furniture, simplifying the sales and ordering process, and shipping orders quickly and reliably.

Unlike Herman Miller's big customers, these businesses didn't place the same value on high-end products with a vast range of options, but neither was cost the only factor. Thus, the new division was named SQA for "simple, quick, and affordable"—putting price third on the list after simplicity of service and speed of delivery.

z-Axis became the entry point, the tool that dealer salespeople used to show customers how Herman Miller products fit together to meet a specific need.

What makes z-Axis work is that it's more than a drawing tool but does not require as much training or expertise as software aimed at engineers, architects and designers.

More about selling than design, the software offers a two-dimensional tool for laying out the office; a three-dimensional tool for presenting the result; and a bill of materials for all the Herman Miller products in that result—with their prices neatly totaled up.

If the price is too high, or the configuration isn't quite right, a sales representative can make changes on the spot rather than having to come back another day with new drawings and a new quote.

A Seattle company called Computer Human Interface, formerly known as Lembersky/Chi after founders Mark Lembersky and Uli Chi, created the first version of z-Axis in 1992. Early editions of the software had to be run on specialized Tadpole Technology laptops, which featured high-

powered Sun Microsystems processors and its Solaris operating system. Often that meant a dealership would have just one laptop to serve an entire sales staff.

Today, z-Axis runs on Windows and standard PC hardware, meaning it can be deployed much more broadly. Herman Miller gives it away to dealers and supplies it to facilities managers with some large customers. A freely distributed z-Viewer lets a customer view and annotate a z-Axis file e-mailed by a dealer.

Lembersky and Chi created their original sales aid for a previous employer, lumber giant Weyerhaeuser Co., to help market products for outdoor decks and home improvements.

When Weyerhaeuser cut funding, Lembersky and Chi came to Herman Miller looking for a new sponsor. While they initially got a “we’ll study this and get back to you” response from a corporate committee, Norman, then president of SQA predecessor Phoenix Designs, heard about their visit from a friend in the information technology department.

“It was one of those weird coincidences, where I was looking for a technology to make the specification of furniture easier to do, and I’d actually written a business plan saying we should do something just like this,” Norman says.

He intercepted the software developers, got a look at the deck design application and recognized that “the guts and basics were pretty close to what I wanted,” he says.

As z-Axis matured, SQA’s sales cycle—the average time it takes to close a deal with an interested customer—shrank from about 12 weeks to 12 days, and many salespeople reported securing orders within a day or two.

At the same time, SQA emphasized speed and reliability in every other aspect of customer service, production and order fulfillment. Factory systems were tuned to ensure that all parts of a given order were assembled quickly and ready for shipment at the same time, even if they were produced at different locations. Fulfillment capabilities were redesigned to ensure that every order would arrive on time and complete.

The use of z-Axis also helped with order accuracy because it enforced rules about the proper configuration of SQA products. This prevented SQA dealers from discovering at installation time that they had forgotten to order critical parts.

Because SQA did such a good job of building products to order and minimizing inventory, it earned comparisons to supply-chain paragon Dell Computer. “Herman Miller is a much less well-known story, but it’s equally impressive,” says David Bovet of Mercer Management Consulting, co-author of the 2000 book *Value Nets: Breaking the Supply Chain to Unlock Hidden Profits* (John Wiley & Sons).

Dell stands out because it turned what had been a build-to-stock business into a build-to-order one, giving visitors to its Web site the feeling of designing a PC specifically for their needs.

The office furniture business had a stronger tradition of tailoring the creation, delivery and installation of products to meet the needs of a specific customer, but the range of choices is also much greater than it is in the PC business, Bovet says. SQA figured out how to make the process simpler for customers and more efficient for itself, he says.

“It’s a classic example of the skunkworks approach,” Bovet says. Other executives at the company were initially skeptical of SQA’s approach, but they allowed the experiment to proceed. Now that experiment has transformed the

company as a whole, he says.

Custom applications included what former SQA Information Technology Director Jim Von Ins Jr. calls “a poor man’s APS tool.” That’s a reference to the advance planning and scheduling capability that the parent company later implemented using software from i2 Technologies, the Irving, Texas, company that pioneered “supply-chain management” systems.

SQA employed an artificial intelligence tool called Aion (now owned by Computer Associates) to create an expert system derived from the knowledge of SQA plant managers. The system scheduled most production tasks automatically and identified issues.

For instance, if a date forecast by the automatic scheduling couldn’t meet SQA’s guarantee of delivery within two weeks, perhaps because a critical part was not in stock, a manager would be alerted to troubleshoot that order.

SQA operated so independently that it selected a differ-

ROADBLOCK: THE CFO

THE OBSTACLE

Investments in new technology don’t always pay off, and that means, these days, the hardest person to convince of the validity of taking on a new project is the chief financial officer. Even when a project is on track, financial pressures within a company can result in an initiative being shelved. This was the situation faced by technology executives at Herman Miller, who had to decide which projects to kill and which to keep, as industry conditions worsened. Here are some guidelines on what to do when the bean counters come calling.

THE RESPONSE

► **Prepare return-on-investment metrics.** When word comes that budget cuts have to be made, prevent rash decisions—or making cuts just because they’re easy—by having a firm understanding of technology costs and the return on investment. It provides the footing needed to stand up to the CFO to protect initiatives that are key to the company’s future. “You have to have a good handle on what the costs are and why those costs exist,” says Sunil Subbakrishna, president of consulting firm Information Economics and a former CIO for several financial institutions. “If you haven’t gone through that process, you need to do it now.” By comparing the technology costs invested in a particular business unit versus the revenue being generated, it also may provide an argument for charging certain costs back to the business units.

► **Salvage successes through results.** When the CFO came knocking at furniture maker KI Inc. earlier this year, the Internet development group was able to salvage an Internet shopping portal from a larger e-commerce project. Dana Vanden Heuvel, manager of KI’s Internet operations, says the portal initiative was salvaged because it was succeeding and he could prove it. “We measure everything,” he says. “We can show exactly how many sales leads come in over the Web, and the resulting sales. It’s a lot easier to deal with the CFO when you have the data to back your decisions.”

► **Always look for savings.** If nothing else, start a review of software licenses and other technology assets involved in your important systems, to find duplication and to stop maintenance on assets that are going unused. Another sensible measure, says Bill Rosser, a Gartner vice president and research director, is to review applications in development to determine which projects are consuming resources disproportionate to their expected payoff.

► **Get to know the CFO.** Sometimes the CIO has to stand up and hold firm against shelving vital projects. When that time comes, make sure a friend is in your corner. Subbakrishna says it’s OK to push back if you’ve got a highly placed business sponsor on your side, and the facts to back up your case. “If you don’t have that, you’re on shaky ground. You could be damaging your credibility in the company,” he warns.

—MEL DUVAL

ent enterprise resource planning system, OneWorld from J.D. Edwards, while the parent company was busy implementing Baan. In each case, the ERP system was a linchpin for coordinating manufacturing and controlling finances, but SQA thought it had distinct requirements that dictated a different vendor choice.

Von Ins says he sold that decision on the grounds that SQA was a fast-growing operating company with a much simpler product line and different needs than Herman Miller as a whole. "It was also somewhat of a hedge because the Baan project was starting to stumble at that time," Von Ins says. SQA also adopted supply-chain software from SynQuest (now a unit of Viewlocity Inc.), while the parent company chose i2 Technologies.

But that degree of independence proved temporary, as Miller tried to implement what SQA had achieved throughout the company.

When SQA was integrated into the parent company in 1998, its technology lived on for a while as a separate fulfillment and production capability known as SCR (speed, convenience and reliability). But the last of the SQA production and supply-chain systems were retired over the past year, and Von Ins says was laid off at the end of 2001. He has since co-founded a business called 2Think (www.2think.biz), which distributes SynQuest's software with custom enhancements.

MR. NORMAN GOES TO HEADQUARTERS

Norman became CIO in 1998 as part of a reorganization that included the integration of SQA into the parent company. "They brought me in as a guy who knows how to integrate technology for business results," he says.

"Project Renaissance" included an implementation of a fourth generation of the Baan planning system. But it got into trouble, threatening to bust both its budget and its schedule. Originally budgeted for \$80 million, the project wound up costing close to \$100 million, participants say.

Bringing the project under control required a conscious effort to narrow its scope. Participants say it wasn't so much an issue of "scope creep"—the tendency of projects to bog down as new requirements are continually added—as that the scope of the project was already pretty ambitious to begin with.

Donald D. Zook, an independent consultant who worked on Herman Miller's Baan implementation when he was employed by the vendor, says the 100 or so consultants from Deloitte & Touche working on the project seemed to do little to bring the project under control. "Some of the consultants were knowledgeable, but many of them seemed to me to be trying to learn how Baan worked on Herman Miller's dollar," he says. Ultimately, Herman Miller ushered Deloitte out and finished the project with its own employees and a handful of consultants from Baan itself.

Deloitte declined to comment on its past work for Herman Miller. James Walsh, a Texas-based consultant who was part of that Deloitte team, said part of the issue was that Herman Miller "set certain management criteria that turned out to be difficult to achieve just by putting in an ERP solution."

For example, it soon became clear that Baan alone could not deliver the level of "availability to promise" functionality Herman Miller was looking for. The goal was to be able to quickly analyze current inventories, as well as the capac-

ity of suppliers and subcontractors to provide necessary components, so that Herman Miller could respond to an order with the promise of delivery on a given date and meet that promise reliably. Achieving that meant integrating supply-chain software from i2 Technologies to supplement Baan's capabilities. "But if they could get accurate availability-to-promise data, to give a dealer that promise over the phone, then it was worth it," Walsh says.

Herman Miller wasn't necessarily wrong to set ambitious goals for the project, but the extra integration work that resulted

did put a strain on the budget and the schedule, Walsh says. He believes Deloitte brought the right level of Baan expertise to the project, but acknowledges it did not have as much expertise with i2 or the manufacturing configuration software from Trilogy that had to be integrated with Baan.

The complexity of the goals also meant more time and energy had to be invested in the planning phase of the project. Even within the context of the original \$80 million budget, "the trouble with that is by the time the implementation guys show up, 75% of the budget is gone," Walsh says.

By all accounts, Norman's major contribution was to add a focus—reliability. SQA became known for on-time, complete shipments, but the parent company was only achieving that goal about 70% of the time. So Norman made reliability the central target of the enterprise systems overhaul—requirements that contributed to that goal were kept, and those that didn't were dropped.

Today, Herman Miller says its reliability performance routinely exceeds 99.5%.

Norman says it makes sense that Herman Miller ultimately decided the systems it had built around Baan and i2 made the separate technology infrastructure derived from SQA unnecessary. What bothers him more was the decision earlier this year to drop the SQA brand and the organization behind it. The marketing strategy focused on small businesses "was separate and distinct and is still separate and distinct," Norman says.

Norman won't say much about why he retired. But parties close to Miller say his forceful personality led to clashes with top executives. With or without the clashes, however, Herman Miller got results, says Bovet, the Mercer Management consultant. He is particularly impressed with its near-perfect performance with on-time, complete orders. "I've been working day in and day out with clients whom, if they could reach 85% or 90%, they'd be quite happy," he says.

Even if small business customers have different needs, Bovet thinks Herman Miller's management is correct in changing its focus to purchasing styles, rather than company size.

A big company may want access to the full range of products, finishes and fabrics Herman Miller offers when they're refurbishing the executive suite, even if they have to spend more and wait longer for delivery. But the same company

may want a simple, quick and affordable solution for furnishing a single, new sales office.

The z-Axis sales tool has evolved to reflect this change in emphasis. No longer dedicated solely to small business sales, it supports an expanded product catalog, with new products and product options, added in updates every few months. The very first screen a z-Axis users sees asks whether they would like to limit the graphical furniture catalog to just those products that can be shipped in 10 days or 20 days, as opposed to those that require a specific negotiation.

HARD CHOICES

Z-Axis also could prove to be one of the most problematic technologies for Herman Miller to continue to support. To solidify a proprietary advantage, Herman Miller purchased exclusive rights to the software. But that means Herman Miller also bears 100% of the cost of maintaining and improving z-Axis—tens of millions of dollars, and counting.

Conversely, the virtue of z-Axis is specifically that it exists to sell Herman Miller products, and *only* Herman Miller products. Rather than trying to create broad-based tools for many customers, Computer Human Interface is currently seeking similarly exclusive relationships with customers in other industries who want to offer their salespeople something unique.

For Herman Miller, there is a hazard: Competitors may

learn to deliver similar capabilities to their dealers, and for less money.

“When it first came out, clearly it was something that wasn’t available elsewhere,” says Malcolm Fields, CIO at HON, the rival office furniture-maker. But manufacturers can work with independent software vendors of specification tools such as 20-20 Technologies of Montreal, Canada, and those products keep getting better, Fields says.

Steelcase, which has developed a z-Axis clone called Vspec, acknowledges it is reconsidering development and support for that tool. Ken Tamelin, director of e-tools at Steelcase, says Vspec is not a major focus of his compared with providing better Web-based tools for dealers and customers. Steelcase continually evaluates whether it can replace proprietary technologies with off-the-shelf solutions, he says.

Dennis J. Insogna, vice president and general manager of BKM Total Office, a Steelcase dealer based in Connecticut, says he believes the decision has already been made to ditch Vspec in favor of a system based on 20-20’s Giza. Giza can be used to do the same sort of job as Vspec or z-Axis, but Insogna likes the idea that it supports the catalogs of multiple manufacturers.

“Vspec is more of a parochial solution,” Insogna says. “I want to offer my customer choices. If I don’t offer choice, I have a losing proposition.”

CONFLICTED DEALERS DOES WEB HELP — OR HURT?

Herman Miller’s decision to stop selling office furniture over the Web was an “I-told-you-so” moment for its competitors.

Rivals such as HON Industries and Steelcase had avoided online sales out of fear that it would alienate dealers, their primary sales channel.

Herman Miller CEO Michael Volkema originally saw the Web as a risk worth taking, to serve some customers well in a new way.

But when the company announced in March it was shutting down the latest incarnation of that store, Herman Miller RED, Volkema said the opportunity had slipped away. “We all believed in a new economy, and there’s no question RED got caught up in that,” he said.

RED may or may not have been profitable. But developers who worked on the site suspect it was scrapped for two reasons: to appease dealers and to reassure financial analysts that the company had not become too wrapped up in dot-com mania.

“That was my understanding,” says Brad Schneider, who served as technology director for the Dallas office of Xceed, the lead Web integrator for Herman Miller RED. While outsiders may have worried that the RED business was bleeding cash, he says it was showing strong sales growth until the end. “The thing that’s saddest about it is we had finally gotten to the point where we were really intelligently evolving the site,” he says.

Near the end, the developers had defined objective criteria for determining whether changes to the site improved its effectiveness, Schneider says. But some of the improvements they put the most energy into—such as a streamlined shopping cart and a 3-D product configuration tool—went live just a few months before RED was shut down. “We never had a chance to

see whether we were doing the right thing,” he says.

Herman Miller never disclosed financial figures for the RED division, but Chief Financial Officer Beth Nickels said—when RED was closed down—that it had saved Herman Miller \$4 million per year in operating expenses.

It was the company’s second try at figuring out how to sell online effectively. Herman Miller introduced its first online store, HMStore.com, in the summer of 1998 with the stated goal of \$150 million in Web sales by 2003. In this incarnation, the online store sold the Herman Miller for the Home line, rather than products aimed at companies.

In mid-2000, HMStore gave way to Herman Miller RED, a more sharply focused initiative that featured its own product line targeted at home offices and very small startup businesses.

The manufacturer’s Web sales were a sore point for Jack Keane, president of the Warehouse Office Furniture Mart, an independent dealer in Cincinnati that carries Herman Miller products. He was particularly irritated when customers would come to his showroom to try out a chair but say they planned to buy it online.

“It tended to limit our pricing ability because whatever they were selling something for on the Web set a ceiling on our price for the same product,” he says.

Herman Miller wasn’t entirely alone in experimenting with direct sales over the Web. Knoll Inc., a privately held furniture-maker based in East Greenville, Pa., that had 2001 sales of \$985 million, continues to operate Knollshop.com. But most of the other big players held back.

“We have stayed true to having the dealers as distribution partners,” says Jeff English, global information systems process

Herman Miller dealers tend to express a higher degree of loyalty to z-Axis, which they say is easier to use and does a better job of enforcing rules about how different pieces of furniture should be purchased together, than Giza or similar tools. But the balance of power may be shifting.

In June, furniture manufacturer Kimball International previewed its implementation of a new 20-20 product—20-20 Office Design—at the NeoCon furniture industry trade show, and captured a “Best of Show” award.

Kimball, of Jasper, Ind., plans to use the software exactly the way Herman Miller has traditionally employed z-Axis, says Kevin Bidner, 20-20’s vice president of commercial sales for North America. Kimball’s implementation, dubbed eMagine, will allow salespeople for the Kimball Office and National brands to make more dramatic presentations and close sales faster, he says. By investing development time in building in the configuration rules for its products, Kimball has the opportunity to match the advantages that have long been claimed for z-Axis, Bidner says.

Even with a specific implementation like Kimball’s, the underlying technology retains the ability to support product catalogs from multiple manufacturers, giving dealers more flexibility, Bidner says. In addition to product catalogs created specifically for the new product, 20-20 Office Design will also import Giza files.

Further, 20-20 Office Design also claims some functional advantages, including the ability to dress up 3-D representations of a design with textures and colors that match the walls and carpet of the real space, along with an “auto-decorate” feature that throws in potted plants and people for a more lived-in look.

For z-Axis to keep pace with these developments would presumably require millions of dollars of future investment by Herman Miller, which has been trying to cut back on its technology diet. Z-Axis has already cost tens of millions of dollars, and fiscal 2002 operating costs reflected \$15.6 million in accelerated depreciation related to retiring the “classic” version of z-Axis and replacing it with z-Axis: The Next Generation, the version now in dealer’s hands.

A weak economy may not seem the perfect time to invest for competitive advantage. Companies that have invested in building a technological lead may even feel entitled to cut back, says Bill Rosser, a Gartner Group vice president and research director.

But that may be exactly the time to invest in unique technology. Rosser says it often makes sense to maintain an area of strength, rather than sit back. “If you have an edge in some software or configuration tool that makes you different or better, then try to maintain that edge,” he says.

At the same time, Herman Miller must decide whether us-

manager at Haworth in Holland, Mich. “Even when we come across customers who say ‘absolutely not, we’ll work only with the manufacturers direct,’ we try to help the customers understand that although they may be working directly with us through a procurement portal, it’s in their best interest to have a local player involved for service and support.”

Steelcase strives to use the Web to support its dealers rather than competing with them, seeing it primarily as a communications channel, says Ken Tamelin, director of e-tools at Steelcase. “There’s a whole lot more to e-commerce than just buying furniture online,” Tamelin says.

For example, Steelcase lets customers buy products from its dealers through a portal called Ensyc. Using the portal also lowers the cost of routine interactions between the company and its customers. Customers can research fabric choices online, rather than having their dealer show them a swatch.

Herman Miller offers something similar to its big customers through a portal called eZConnect. Customers can place orders at this Web site, but they are fulfilled through the dealer network rather than by Herman Miller directly.

Herman Miller dealers say they never felt that they were given short shrift. Even while pursuing direct sales over the Web, Miller also was exploiting electronic ways to reinforce its dealer channel.

For example, the Kiosk dealer portal introduced in summer 2001 allows them to place and track orders, receive training, launch electronic marketing campaigns, and mine Herman Miller’s database of marketing and customer information for cues on the weaknesses of rivals’ products.

Earlier this year, Herman Miller also began offering dealers

the opportunity to subscribe to a common set of business applications. The manufacturer’s selfish interest is in getting all the dealers on its network operating on a common system. Dealers say they value this initiative because it allows them to replace a variety of other software for financial management, project management, and contact management with a unified system tailored to the project-driven nature of the contract furniture business. Herman Miller worked with Kameleon Software to customize a system previously used mostly by systems integrators and resellers.

OneNeck IT Services of Scottsdale, Ariz., hosts the system, which provides access over the Internet.

“I’m seeing a very big commitment to tech on Herman Miller’s part, to giving us tools that help us become more efficient and more customer-responsive,” says Ken Baugh, president of Pivot Interiors in San Jose. The focus is on making Herman Miller and its dealers easier to do business with and let them provide “better info, faster info,” he says. “That’s particularly important when business is very lean like it is now.”

While some dealers had concerns about Herman Miller’s direct sales over the Web, most say they had come to realize that RED was targeting a significantly different kind of customer.

“Maybe it’s because they beat it into my head that they don’t want me selling a chair, they don’t want me selling an office, they want me chasing the bigger fish,” says James G. Skolmutch, an account development manager at Herman Miller Workplace Resource in Fort Myers, Fla. “If a guy calls me and wants to buy a chair, that’s a pain for us. You spend a lot of time with someone and sell them one chair.” —D.C.

ing proprietary technology like z-Axis is essential long-term, Rosser says. "There comes a point where the value you get from being ahead is comparatively small," he adds.

Right now, though, competitors will not find it so easy to leapfrog Herman Miller, says Mercer Management's Bovet. "The brilliance of Herman Miller was how they put the whole thing together," he says. In other words, just because a competitor fields software that may have a feature or two z-Axis lacks, it doesn't mean they've replicated the whole "value net." In Miller's case, the laptop software doesn't just print out an order. It ties the sales right into manufacturing and supply-chain processes, Bovet says.

ON THE FRONT LINES

Dealers are a key link in that chain, and many of Herman Miller's surviving technology programs focus on helping them sell its products.

Kiosk, a dealer Web site based on Lotus Domino that replaced an earlier Notes-based solution, went live in the summer of 2001. CIO Gary VanSpronsen has been quoted as saying it cost about \$1 million, making it a relatively affordable project at a time when more ambitious plans for a company-wide portal had to be shelved.

Dealers praise this private Web site as a place to track orders, as well as to download boilerplate sales presentations and educate themselves about the company's latest products.

Daniel F. Morley, president of BFI, a large independent

Herman Miller dealer headquartered in Elizabeth, N.J., says Kiosk allows him to launch e-mail marketing campaigns that he could never afford to create independently. "I can use electronic marketing materials developed by Herman Miller, and with a little bit of manipulation through this system it can have my name on it when it goes out," Morley says.

Product education via Kiosk also helped BFI win a current pending sale of Herman Miller's Resolve product line, Morley says. Resolve does away with cubes, instead hanging desks and shelves off of vertical poles, so that workstations cluster in triangles or zigzag across a room. It's different enough that customers are a little afraid of it.

But when a Fortune 1000 company decided to combine staff from three locations into one, a BFI salesperson seized the opportunity to show the practical benefits learned through online study. Thus, BFI was able to show the customer how to put 250 people in a space that previously housed only 188 by replacing Steelcase furniture with Resolve.

"We sold it not on the basis of purchase price but real estate savings," Morley says.

Z-Axis also is effective at keeping price from being the deciding factor, says Frank Falsetti, a salesman for Building Service Inc. in Milwaukee. When he learned that a local engineering firm, TDI Associates, was moving into new offices, he decided not to take no for an answer.

LOOK WHAT'S COOKING A 3-D RECIPE FOR SAVINGS

Gary Millard used to have a standard recipe for cooking up new kitchen designs for his clients.

The chief executive of Wooden Thumb, a Milwaukee full-service kitchen design and construction firm, would typically sit down with clients and go over their shoe-box full of ideas.

His design team would then take those ideas, draw up sketches, look up cabinet and fixture prices, and, days or weeks later, present clients with a proposal. Then, more often than not, the clients would ask for modifications, resulting in new sketches, measurements and pricing, which could add up to another week depending on the modifications required. "It was a very time-consuming and costly process," Millard says. "It also placed limitations on our ability to grow the business."

Wooden Thumb threw out the old kitchen-design recipe about two years ago and brought in a new tool called 20-20 Design from Montreal-based 20-20 Technologies.

Now, every kitchen the company designs is drafted in 20-20's Windows desktop software. Kitchen measurements are plugged in, and cabinets, sinks and plumbing fixtures—with prices—are pulled up from a database built by 20-20 that consists of products from more than 180 suppliers. Within an hour or two, customers are able to look at a simulated 3-D rendering of their future kitchen. Changes or modifications to the design can be made on the spot by cutting and pasting in different products, and associated changes in pricing are automatically calculated. Once everyone is happy, a button is pushed and the designs and order forms are printed. If Millard chose, he could also have the orders automatically placed with

suppliers via the Internet through a network maintained by 20-20, but for now he prefers to negotiate his own pricing directly with suppliers.

Wooden Thumb is just one of the many kitchen and office furniture-makers that has embraced 3-D design software. But manufacturers in other markets, such as bathrooms, education and health care also are increasingly joining the fold. The ability to shave hours off normal drafting and design phases is a key driver behind the software's broad adoption, says Jerry Laiserin, an architect and author of a 3-D design column that's published on the Web. But Laiserin believes the biggest factor in the software's adoption is the ability to place products in context for customers. In other words, the data behind the 3-D design software, which tells customers whether products can work with one another and how much it will all cost, is a winning combination.

Laiserin says putting products in context works in other ways. Manufacturers of products for specialty areas such as furniture for a doctor's office, or a university lecture room, are creating simulated patient rooms, waiting areas, or conference rooms, so customers can "see" how their proposed purchases would look in those settings. "Looking at a 3-D rendering of a chair isn't enough," he says. "Being able to see that chair and the rest of the furniture in the context of how they'll be used is where the benefits are generated."

KI Inc. (formerly Krueger International), a Green Bay, Wis., manufacturer of office furniture for business and specialty markets such as education and health care, also employs 3-D

“The initial reaction was, we don’t have the budget for it,” Falsetti says. TDI had \$15,000 in the budget for furniture and thought it could get what it needed from Office Depot. But Falsetti got his hands on the plans for the new office, which he took home for an 8-hour session with z-Axis.

When he returned, he showed off 3-D renderings of a typical workstation, then expanded the view to show a layout of 18 cubicles. He would zoom in and out to show how it all fit together, and how it would look from different angles.

“Not only could I spin it around, but I had all the pricing right there,” Falsetti says. In the process, he was able to showcase the features of Herman Miller’s system, such as its allowance for wire and cabling, and room to tack engineering plans to the wall panels.

TDI’s owner was at that second meeting, and he was intrigued by Falsetti’s ability to quickly show the trade-offs of alternate configurations. Now the conversation turned to how the price would change depending on what options were removed or changed, and soon they got the price down to about \$30,000. That turned out to be close enough, despite being more than twice the original budget. In fact, once z-Axis helped open the door, his company was able to sell TDI enough of other products and services to turn this into an \$80,000-plus contract.

“What made this particularly sweet was I was up against a guy from Haworth, a competitor who was on this job before me and completely dropped the ball,” Falsetti gloats.

The other salesman apparently threw out a quote for the job, but didn’t follow through in a persuasive way. “They never went through the detail like I was able to do with z-Axis—and, really, win the owner’s heart over,” he says.

“There’s a very strong possibility that without that program, we might have gone with other furniture,” confirms Dennis Dederich, a principal at TDI. “When you’re just looking at furniture in a catalog, sometimes it’s difficult to envision how it will look in your space.” Falsetti’s persistence also played a role, particularly in contrast to the relatively passive Haworth salesman.

At the local Haworth dealership, MM Office, Vice President of Sales and Design Paul Groth says he doesn’t know the circumstances but doubts z-Axis clinched the deal. Although he previously worked as a Herman Miller manufacturer’s representative, Groth says he never liked the idea of z-Axis. “I really want a design professional doing my design work, not a sales professional,” he says.

Falsetti obviously disagrees. At his firm, professional designers do get involved, treating his work in z-Axis as a rough draft for the final proposal. But the software still helps him win orders more quickly and accurately.

His boss, Building Service Inc. President Peter Kordus, says that even in a down economy, customers value responsiveness. By making it possible to win sales quickly, z-Axis can be decisive, he says: “Before your competitor has a chance to come in and measure the office, you’re done.” ◀

rendering software, but in a more custom fashion. The degree and sophistication of the rendering depends on the stage of sale, the potential size of a sale, and the customer relationship. For instance, in lower-end sales the company uses an inexpensive package called Giza (acquired by 20-20 in July 2001) to produce office furniture renderings. For larger sales, the company will use a package called Studio Tools from Alias Wavefront, a division of Silicon Graphics Ltd., to produce office furniture renderings. The sophisticated design software allows companies to produce animations showing how to assemble a product or its functionality. Automobile manufacturers such as General Motors and Nissan use the same software.

The renderings are made available for viewing on extranet sites the company has created for its largest customers. Dana Vanden Heuvel, manager of KI’s Internet operations, says that about 900 such extranets have been created to date. KI does not sell its products via the Internet—it tried Internet sales for about 18 months but canceled the initiative in the spring of 2002 due to sales-channel conflicts and poor results.

Vanden Heuvel couldn’t provide a figure for the return on investment the company believes it is gaining for its use of 3-D technology. But he believes it is significant. “Our win ratio when we do produce a rendering for a client is exponentially higher than with customers who don’t get that level of engagement,” he says.

20-20’s CEO Jean Mignault says 3-D design software is not a good fit with all areas of manufacturing or construction, particularly in areas where the design or materials being used are

not complicated, such as drywall or flooring. There also has been some reluctance in the industry to use the software, primarily because of training and resistance to change.

But at Wooden Thumb, Millard says 3-D design software has basically revolutionized his business. “Back when we were doing things by hand, we were only doing 10 to 12 kitchens a year. Now we’re doing five to 10 a week.”

Wooden Thumb pays a software license of about \$350 a month for the use of the system for four installations—a sum Millard found difficult to swallow at first, but now feels is well worth it. “The cost was made up in the first two or three kitchens we designed,” he says, calculating the savings based on hours shaved off design times and increased productivity.

The key benefit in this case isn’t so much the 3-D design, says 20-20’s Mignault. The real benefit is in the ability to call up actual products from hundreds of suppliers, complete with pricing and associated installation guidelines. For example, if designers attempt to combine a sink with fixtures that don’t match or fit, the software flags the conflict. If a designer attempts to create a layout that doesn’t meet National Kitchen and Bath Association standards (such as not providing at least 16 inches of preparation space on either side of a stove), the software identifies the violation.

“It takes care of so many things automatically that we’ve come to rely on it,” Millard says.

And, says 3-D design expert Laiserin, the software provides the kind of savings and streamlining that will propel more manufacturers to reach the same conclusion. —MEL DUVALL