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By [CIOinsight Print](#)

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At Webcor, technology is the core of the business strategy. Ball's mission: to be a catalyst for industrywide change. Webcor sees new revenues from taking that kind of leadership. The strategy is behind Webcor's moves to

fund start-ups to get blueprints online, push software vendors to collaborate and, starting this month (May 2002), sell its own software to others in the industry. Ball admits it's a long and winding road. "Pushing technology in this industry means forcing it, sometimes, on subcontractors," he says. But the way Ball sees it, it's innovate now, or get hammered later on the balance sheet. "The construction industry is one of the few paper-heavy industries left. As a result, its culture and processes are ripe for change."

Webcor's technology strategy all began in 1981, when Ball was working as a project manager on the Hilton Hotel in Irvine, Calif. There, he devised a way to track orders and budgets on his PC. Back then, such tracking was usually done on paper, sometimes on matchbook covers, and rarely circulated beyond one man to another. Ball, though, began typing project data into his computer and circulating printouts at meetings. "For the first time, everyone began seeing why there were delays and what, specifically, was causing cost overruns," Ball says. "It was enlightening but it also was scary, as accountability to that degree was never a reality in the business before." The experience, he says, made him realize "the power of computers." Today, Ball's vision of using IT to cut costs and build better buildings rages on. And no wonder. "A project scheduled to take 16 months in 1995 is now scheduled to take 14 months," he says. "The demands are greater."

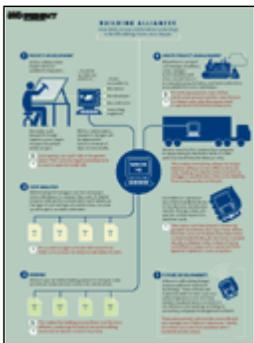
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For Webcor, the e-collaboration happens in a variety of ways (see sidebar). Consider blueprints. Some 4,000 separate blueprints, or 40 100-page sets are issued each time a change is made to a building. Getting them drawn up and approved each time, by architects, developers, owners, the general contractors, engineers and city planning departments—can cause hundreds of sets of blueprints to be issued in the course of a large project.

Webcor figured out a way to get blueprints online. "Before," says Ball, "you would have looked at maybe five ways of doing something over a six-month period. Now you can look at a hundred different ways of doing that in the same amount of time."

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format).

Once a construction project has begun, Webcor must track everything from the latest weather report to the price and delivery of materials to the scheduling of dozens of subcontractors ranging from plumbers to carpet layers to electricians. A logistical nightmare, right? "Andy was the first general contractor to tie all of his site offices to the general office through high-speed data lines," says Woolsey McKernon, formerly vice president of North American sales at Citadon Inc., a former Webcor vendor. "A lot of general contractors still don't do that."

Webcor also uses accounting software by Timberline Software Corp.; project management software by Meridian Project Systems Inc; BuildPoint.com, an online bidding site; and PlanWell, a Web site for storing blueprints. While Webcor is hardly unique in using these services, Ball is encouraging all four providers to collaborate. For example, he's pushed BuildPoint to create a link to PlanWell so that would-be bidders on a project can check out a project's blueprints before bidding. BuildPoint agreed, and the link went into operation in March. "Everybody can bid equally, and we know who has the blueprints and when they got them and how long they've had them," Ball says. "If a new drawing gets posted, they can all see it together, and it's all tracked through this one system."

Ball, meanwhile, is trying to persuade Meridian to link its project management software to Timberline's accounting software, to create a way for Palms to access and distribute project management information quickly from the field. Where Palms are used now in the process, Webcor can reduce the support staff on a \$50 million

project from 20 people to 10 because time cards, safety checks and labor distribution reports can be punched in and downloaded to the job site computer laptop and transferred to Webcor's main computers. Previously, a clerk had to go out to the site, retrieve the handwritten data, drive back to Webcor and then get a secretary to type the information into the computer.

Creaky Ceilings

Yet while Webcor has clearly benefited from collaborative networks, it hasn't been easy for the company to create them. Webcor's attempt to be one or even several steps ahead of the competition in the technology race has had its price. Rivals claim that sometimes, Webcor pushes new technologies too aggressively. "Should they be telling people it's wonderful before they've tried to make it work?" asks Charlie Kuffner, senior vice president of Webcor competitor Swinerton Inc., a construction company in San Francisco.

Ball acknowledges that Webcor's technology push has triggered cultural resistance—or simply head-scratching among those who don't see the potential benefits. Even now, Ball says, subcontractors sometimes "e-mail everyone that they're going to have a meeting but then set up a physical time and place, show up physically, take paper notes and then tell everyone they'll get feedback on what happened at the meeting a week later, in memos or word of mouth. It's frustrating."

And sometimes, Ball says, it's hard to get others to invent the product you need. Take Citadon Inc., for example, a company that Ball hoped would develop online project management software for general construction. Ball's involvement with Citadon shows how using e-collaboration sometimes means making some technology mistakes—and suffering resistance from tech-wary workers who may be skeptical about new ways to work.

Six years ago, when Ball met the founders of Citadon's precursor, Blueline Online Inc., Ball was so impressed with its plans to make blueprints accessible via its ProjectNet software on the Web, that Webcor became its first investor. Soon, Webcor also became ProjectNet's primary beta tester. While Blueline's product wasn't perfect, Ball figured he was on his way to getting what he wanted. He was wrong.

Two mergers later, Webcor was no longer a major investor in the company known as Citadon, and Citadon had changed its customer focus away from general contractors like Webcor to big international industrial builders like Bechtel Group Inc. Ball found himself unhappy with both the new management and the product, and ended the relationship. As Ball sees it, Citadon had become more interested in looking good for an IPO than in fixing the bugs in its software. The final blow came one Monday morning when Webcor managers logged into the Citadon project management site and found that a key module had been changed and no longer worked. For Ball, that was the last straw.

The Citadon experience also held some lessons for Webcor about managing change. According to former Citadon Vice President McKernon, there had been a struggle getting all of Webcor's subcontractors to use ProjectNet. Though plumbing, mechanical engineering and electrical engineering subcontractors were willing and able to get on board, smaller, less-technologically sophisticated subcontractors were not.

Ball, though, wasn't discouraged. Rather than look for another start-up to bankroll, Webcor acquired its own networking company, Hayward, Calif.-based BridgeNet Information Systems Inc., now known as Webcor Technologies and Webcor's technology development arm. In addition to creating connections between Webcor's internal systems, Webcor Technologies' 19-person IT staff also does technology consulting for 200 clients in the construction industry. This month, it was scheduled to introduce its first product, iPortal, an online employee-management database to help workers submit time cards via their Palm devices. "We're going to a completely paperless system," says Gregg Davis, Webcor Technologies senior vice president. "No more matchbook covers, no more torn cardboard paper. It's all going to be done on the Palm."

Will Webcor's plunge into the networking business continue to push the construction industry into the digital age? Maybe, but Stanford's Fischer says the proof will come when IT stops being a separate department or subsidiary and becomes an essential part of the core construction business at most companies. "We need to set the mindset differently. IT is still seen a bit as an appendix," says Fischer.

Ball, though, is looking for the next big innovation, such as programmable blueprints and what he calls "smart drawings"—computer programs that could let builders make most of their mistakes virtually instead of in actual production. Instead of a wall being represented by two lines on a blueprint, e-blueprints would make the wall appear as a smart object on a computer screen. A quick click on it would reveal the wall's characteristics, while ill-conceived attempts to change the design, like adding a doorframe that wouldn't fit, would be rejected. "You'd be able to realize pretty quickly, without spending a cent, that one piece of conduit is not going to go through a certain steel beam," Ball says. A big concept, indeed—but really just another strategy blueprint for one of the industry's most risk-averse innovators.

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