



Tech Boom – Or Bust?

The Next Generation of High Tech

These days, tenants are looking for more than just pretty surroundings, hefty corner offices, and keycard security.

They expect a building to be “wired,” or in some cases, “wireless.” They’re throwing out phrases like “system interoperability,” “bandwidth,” and “Wi-Fi” during lease negotiations; particularly companies that have a “high-tech” business focus – a desirable tenant base if your facility can support it.

Commercial buildings are in the midst of a technological boom. Nationwide, facilities pros are scrambling to update buildings to the best of their (and the building’s) ability. Sometimes the retrofits are feasible. Other times they are not.

But one thing is certain: To remain a player in the market, you have to do what you can to adapt, and you have to do it as quickly as possible. Technological evolution waits for no one.

“A technology masterplan for any building is key,” says Cyrus Izzo, senior vice president at Syska Hennessy Group Inc., New York City. “Cost is at the forefront of everyone’s mind, and in this economy, even more so. For this kind of investment, there has to be a return on investment. The question is: ‘How do you solve the technological needs of your tenants and still be competitive in the marketplace?’ ”



On the Road to High Tech

The new Fisher Plaza complex in Seattle provides a fitting case study to Izzo’s question.

The 300,000-square-foot-complex is comprised of two Class A buildings that were designed from the ground up for companies seeking a competitive advantage in what Fisher Plaza representatives refer to as a “rapidly changing business environment.”

The complex houses a growing number of communications, office, and retail businesses, in addition to Fisher Communications and radio and television broadcast operations, which occupy about 40

percent of the space.

The buildings have become a sort of Pacific Northwest Mecca for what the facility's Director of Customer Development Ed Doyne refers to as "alternative communications providers." The building rents space to nine different carriers, putting the facility well on its way to becoming the telecommunications hub of the 21st century in Seattle, he says. It's a lure to other tenants who are looking for communications choices.

"One of the things that's crippling older buildings now, to the point of them becoming obsolete, is that they don't have the ability to support these kinds of tenants," he says. "We gave carriers the opportunity to get a lot of bandwidth business. Secondly, we gave them a place where they could put their facilities, be serviced properly, survive a disaster, and have the power and air-conditioning to effectively run their business."

Fisher Plaza offers its tenants, high-tech and otherwise, a data center and co-location solutions, satellite and fiber transmission capabilities, media and communications services, and modern conference facilities, in addition to on-site building management and engineering. "That's why companies are choosing to come here," Doyne explains. "They have the ability to pick and choose their carriers and their systems. There's plenty of choice. We're providing multiple communications options."

Construction Decisions

The evolution of Fisher Plaza was a complex one. Back in 1996 when the project was first conceived, a 50-year-old building stood on the site. Fisher Communications, which owns both the broadcasting company and the property management company, originally wanted to retrofit the existing structure. The concrete block building housed a growing television station and was "probably designed to survive a nuclear holocaust, but not designed to be a high-definition TV station of the 21st century," Doyne notes.

"You're trying to make a silk purse out of a sow's ear," Doyne says. "It's not an impossible task, but it's a series of compromises that makes it difficult for the customer or tenant to succeed in the end."

Doyne says the facilities team figured out what it would cost to remodel the building to Fisher Communications' specifications. The company wanted to add a floor to increase the space. It also wanted to completely revamp the interior, which then consisted of solid concrete walls that weren't particularly conducive to today's modern telecommunications needs. "I had an office with four-inch solid concrete walls around it," Doyne recalls. "My cellular phone didn't work in there. Wi-Fi wasn't even talked about then, but it wouldn't have been possible even if it had existed."

Evaluations showed that it would cost multi-million dollars for a renovation that would add 20,000 square feet to an 80,000-square-foot building. This price tag covered only that. It would still leave the building without the features necessary to provide HDTV. The property company advised the communications folks that they would be better off buying a new building because it simply did not make sense to pour money into a remodel. The company owned land all over the greater Seattle area, and workers began surveying various sites to find property with the ability to "survive."

Survivability, Doyne says, was one of the most important factors in determining the fate of the Fisher Communications project. In fact, the news director at the television station, KOMO, made it the No. 1 priority, telling the property team: "I have to be able to operate before, during, and after a 7.5-point earthquake. I have to be able to work right through it to do my job properly."

And that's the way the job was done, Doyne says. The property team went straight to the

customer, asked what they wanted, forgot that they were in a blockhouse, and developed a new set of criteria.

A development team – its membership comprised of the broadcasting company and property company representatives, as well as consultants – defined the requirements for security, flexibility, power, and communications for the new building and also determined to build on the existing building's site.

"We demolished one 50-year-old building and built two brand new buildings that are designed to adapt over the next 50 years," Doyne says.

An Eye on the Future

Keeping a new, or even retrofitted, building adaptable for future technologies is important, Syska Hennessy's Izzo says.

"You need to come up with a strategy so all systems you are designing are scalable enough and flexible enough to absorb new technology," he notes. "There are things coming down the pike that people don't even know about yet. You need to be able to integrate these without a lot of secondary infrastructure reinvestment."

During the six years the Fisher Plaza project was under construction, the initial requirement for the amount of air-conditioning to remove heat from the central equipment room changed. The original spec called for the ability to remove 900 watts of heat per cabinet, but engineers six years ago built in flexibility to accommodate greater cooling needs if necessary. It paid off.

When the first building opened three years ago, it had a 1,000-watt capability. In the first six months of operation, the broadcast engineers realized they already were having problems with the central equipment.

"We put the meters on and measured and realized the room was generating between 2,000 and 3,000 watts of heat," Doyne says. "They already had exceeded the design spec by 100 percent. We were able to change the way we put air in the room and add three 50-ton AC units."

It was a simple process. Because the building was built for future changes, crews were able to take the units through the loading dock, transport them upstairs on an elevator, slide them in the room, and put them in place. The room floor was raised so piping was installed easily without the need for a jackhammer. Cooling capacity is now at 4,000 watts per cabinet and is working just fine, Doyne reports.

Operating 24/7/365

While trends such as Wi-Fi tend to garner all of the attention, it's the infrastructure supporting these bells and whistles that really makes high tech work in a commercial building, Izzo says.

"When the lights go out, you have a bigger issue," he says. "High-tech services need to be available on a 24/7 basis. You need to look at what's going to keep the facility up."

During construction of both Fisher Plaza buildings, engineers also took building power into consideration, looking back to the KOMO news director's request to remain in operation during a major earthquake.

A 100,000-square-foot building in the complex has generator rooms that feature both diversity and redundancy, offering four megawatts of power. If the need is there, building management can install two additional two-megawatt generators in each room for a total of six generators and 12 megawatts of power for this particular building. The second, 200,000-square-foot building has four

1.5 megawatt generators in it.

Doyne says the idea was to build the complex so it could stand alone if City Light, the energy supplier, loses its power.

"We have to be able to provide enough power to run everything in the building: every outlet, every light bulb, every computer, indefinitely," Doyne says. "We put in all of that generator capacity. We promised that we always will be N plus 1. If it takes three, we'll always have four. If it takes five, we'll always have six."

That capability was tested three years ago on Feb. 28, 2001, when a 6.8-point earthquake hit Seattle.

"The news department operated right through it," Doyne says, noting at the time of the quake he was leading a conference of telecomm and Internet companies, discussing the future of the industry so they could plan the second Fisher Plaza building.

"All of a sudden, the floors started going up and down several inches," he recalls. "Our CEO said, 'Don't worry; you're in the safest place you'd want to be.' When it was over, we looked around and kept going on with the conference."

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Security, Wi-Fi, and the Future

It seems that the phrase "Wi-Fi" is on the tips of everyone's tongues these days. Cities across the nation are talking about going totally wireless. Retail centers are installing wireless Internet connections for shoppers who just can't make it through an outing without checking their e-mail or the latest sports scores. And, commercial building tenants are starting to toy with the idea of the completely wireless workplace.

According to the latest numbers from the Geneva, Switzerland-based International Telecommunications Union (ITU), the global telecomm market is expected to grow six percent this year to \$1.4 trillion. Wireless industry revenue is estimated to be roughly \$414 billion in 2003, up 14 percent from \$364 billion in 2002. The total number of wireless subscribers will be 1.2 billion, up 15 percent from 1.13 billion last year. The total number of global Internet users is expected to grow 15 percent, from 580 million in 2002 to 665 million in 2003.

"Wireless is No. 1 on everyone's radar," says David Kinzler, senior vice president of technology at Syska Hennessy Group Inc., New York City. "It's seen as a premier service."

Sure, the technology is on the rise and the movers and shakers are discussing it, but are American businesses ready to fly unfettered?

Almost, but not quite, says consultant Paul Ziek of Savant Services Corp., New York City.

"People are hesitant to adopt," he says. "Wireless is intimidating. That generally is because of security. It's a big deal right now. Still, it's becoming a more popular vehicle. It's really and truly a networking alternative. We just have to get past the security issues, which are constantly changing."

Right now, off-the-shelf equipment generally comes with baseline security packages that are not that good, says Cyrus Izzo, senior vice president at Syska Hennessy's New York City headquarters. "It's weak," he says. "You need better standards, more encryption, and improved authentication of

users.”

Ziek notes that nothing is 100 percent, but agrees that current wireless systems aren't as secure as they could be. However, he adds, “They are more secure than people think,” thanks to efforts by such groups as the Wi-Fi Alliance (www.wi-fi.org), a non-profit international association formed in 1999 to certify interoperability of wireless Local Area Network (LAN) products.

“They're constantly training and teaching about intelligence,” Ziek says. “They also allow you to access their sites to help you better prepare your wireless LAN for security.”

But, for the time being, those designing building systems are seeing only limited deployment of wireless technology in commercial facilities.

“You're seeing Wi-Fi in conference rooms, courtesy log-ons for guests in hotels, or in building lobbies,” Kinzler says. “You're seeing it in areas where you want to provide Internet access. Right now, you're not going to see mission-critical on wireless access.”

Proprietary No More

Interoperability of systems also comes into play when considering technology issues for a new or retrofitted commercial building.

While proprietary systems such as lighting, security, and HVAC still exist, more and more facility managers are moving toward open systems that work together, no matter who may be the manufacturer.

“Interoperability, and trying to consolidate the operation of proprietary systems, has been a classic problem in building management,” notes David Kinzler, senior vice president of technology at Syska Hennessy Group Inc.'s New York City headquarters.

Ed Doyne, director of Customer Development at Seattle's new Fisher Plaza complex, supports Kinzler's claim, saying that in today's marketplace, you simply cannot rely on proprietary systems. “Choice fits into our goals for flexibility and adaptability,” he explains. “You need to try and find a system that all customers can interface with. When you put in a fire or security system, for example, you need to know that when someone comes into the building and builds their own system and ties it into yours, it will work with your interface. They have the right to decide what's there. And if you don't give them the choice of their security, their fire protection, their lighting, their HVAC, they'll vote with their feet to go somewhere else that does give them the choice.”

Things are improving as the industry becomes more educated about the benefits of interoperable systems, thanks to efforts of such groups as San Jose, CA-based LonMark International (formerly LonMark Interoperability Association). Supported by a “who's who” of controls companies, LonMark strives to enable the easy integration of multi-vendor systems by setting various standards for industry standard network services for design, installation, and commissioning of devices.

Since the organization's birth in 1994, it has moved beyond basic interoperability issues and is focusing on Internet connectivity of systems. Many of the new interoperable systems today have some sort of Internet connectivity component, where a facility manager or building engineer can run system controls from a PC anywhere.

“There is a desire, the Holy Grail if you will, of the industry to have a single point of access for any system in a building so you don't have to rely on multiple terminals or dedicated monitoring systems,” says LonMark Executive Director Barry Haaser, adding that this includes HVAC, lighting,

security, fire safety, and any other automated system.

In order for this to happen, the building management needs to be able to access tenant LAN systems and to be able to coordinate all systems and programs within a facility. Groups such as the Open Building Information Exchange (oBIX) are working to make this easier by defining the XML and Web services necessary for building systems so that they can all work together in a TCP/IP environment.

“The industry has become comfortable with the concept of open systems with LonMark devices. Those are pervasive,” Haaser says. “Now what we need to do is provide better connectivity through the Internet so people have much better access to the information, either locally or remotely. It makes the mobility of the facility manager much easier. There’s not as much running around.”