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Untethered But Not Disconnected

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New wireless networks and devices create more productive work environments. They can also generate anxiety. Here's how to cut the wires so that employees still feel connected.

Two years ago, Capital One CIO **Gregor Bailar** gave up his private office in suburban Richmond, Va., with its view of the woods, in favor of a conference table that put him in full view of his staff. The bold move was calculated to allow rank-and-file workers at the company, not to mention Bailar's C-suite colleagues, to see for themselves how a cubicle-free office environment supported with wireless technology could change the way they worked for the better.

Bailar quickly found that he and his staff talked to each other more, and more often, which led to greater productivity and better collaboration. Five-minute meetings, which once had to be scheduled up to two weeks in advance because everybody's calendars were jam-packed, started to occur more spontaneously. The open environment "made access to people easier and made the energy level much better," Bailar says.

Capital One executives and employees alike felt such collegiality had been lost as the credit card purveyor grew from its launch in 1995 to the \$12 billion behemoth it is today. Executives wondered: "How do we keep that feel of that small, entrepreneurial company alive inside of this relatively massive company?" recalls Bailar. The wireless, cubeless work environment, dubbed the Future of Work, turned out to be the answer: A year and a half after rolling out the plan, 11 percent of the company's 21,000 employees, executives included, have given up their fixed desks for unassigned spaces and work areas with more sunlight, advanced videoconferencing capabilities and wireless connections.

Capital One's realization of a leading-edge wireless work environment earned it a 2006 CIO 100 Award. But when Bailar and HR chief Matt Schuyler first proposed their plan, some top executives didn't like it one bit. "I was dead-set against the move and came [to it] with a pretty closed mind," one office-dwelling bigwig reported in a survey, which summed up the general thinking. Bailar's decision, along with Schuyler, to be the first to ditch their offices for a prototype Future of Work environment was a key part of their strategy for managing the massive change.

Like Capital One, more than a third of this year's CIO 100 honorees are using wireless technology to different degrees to transform how their employees work. They include:

CSX Rail operator CSX installed a wireless "black box" in its locomotives that collects information about how engineers are operating the trains. By using the data to coach engineers to drive better, the system has helped CSX save millions in fuel costs.

The University of Chicago Hospitals (UCH). Its Comer Children's Hospital uses wireless broadband and mobile VoIP phones for communication among employees instead of the

traditional public address system, improving productivity, patient care and nurses' job satisfaction.

UPS. The company reconfigured the handheld devices used by 96,000 drivers, generating greater efficiency from its already mobile workforce. The new devices give the drivers processing directions, as well as more detailed data about their performance.

Along with the benefits, however, the wireless technologies introduced new ways of working that weren't necessarily welcome to employees, or at the very least required extensive training. Success depended on managing changes carefully. Because wireless technology creates physical and social disruption, altering where employees sit, their work processes and who they work with, CIO 100 honorees recommend a phased approach that minimizes employees' dislocation. Such an approach includes three essential elements: laying the groundwork for changes in technology and the work environment, redefining cultural norms, and making sure IT staff and processes are organized to support new networks and devices.

"Any project of this scope and scale requires a great deal of communication and coordination between the IT development team and the team members that will utilize the technology," says UPS CIO Dave Barnes. "You have to let everyone involved know exactly what's going on, when it's going to happen, and the business reasons for why it's happening in the first place."

1. Lay the Groundwork

Capital One's Future of Work project took more than three years to develop. During that time, Bailar and his team employed tried-and-true project management techniques to see it through from start to finish. But they attribute the project's ultimate success to their unconventional effort to sell it to employees and executives.

Although there was general support within the company for making the workplace more inviting, at first no one knew exactly what that would entail for specific groups of workers. But Bailar was confident that maturing wireless technologies would play a big role. And so in 2003, the team cleared out an area in one of its buildings and for the next several months tested their hunches about how people might work in an open environment. Schuyler's HR and corporate real estate staff went first; IT staffers joined later.

The team experimented with floor configurations, white-noise levels, paint colors, the height of panels between work areas, and new conference and quiet-zone facilities. The group invited other employees (via the employee portal and personal contacts) to check out the space and give their suggestions, in response to which the team tweaked and retested their design. "We said, 'Stop by and take a look at us,'" Schuyler recalls.

Bailar also gave out wireless cards for laptops so that employees could try out the new Wi-Fi test areas. He quickly ran out of cards. "This was viral; it was magnetic," he recalls. By taking the time to not only talk about the new environment to the employees but to show them exactly what it was going to look like and allow them to play with the new technologies, Bailar and Schuyler learned what workers wanted as they built support for the change.

"All of these things helped us manage the natural emotions and resistance," Schuyler says. Among the decisions that eased the transition: They let employees whose workgroups joined the program decide whether they wanted to be mobile, and they designed new work areas for administrative staff who needed dedicated, everyday space. They also provided training to both workers who retained a fixed space and to newly mobile employees (who were equipped with laptops, BlackBerrys and cell phones) in how to work paperlessly now that they had less physical storage space.

The investment in marketing the new work concepts paid off: The Company has cut its real estate bill in half in its reconfigured buildings because so many employees no longer require

permanent space. According to employee surveys, more than 65 percent of those working in the new environment say they are more productive; it's easier to confer with colleagues, and the time spent in large meetings has decreased, among other measures. In the IT department, collaborative meeting spaces dedicated to supporting agile processes have contributed to a 40 percent improvement in project delivery times. And not one executive who made the switch says he would move back to his old office if given the choice.

Even when employees are used to working wirelessly, a major upgrade of familiar tools requires salesmanship. At UPS, drivers expect regular upgrades of the DIAD, the handheld device that customers sign when they receive a package. But the latest iteration, the DIAD IV, introduced last year, delivered more than incremental change.

UPS made the DIAD smaller and added a plethora of communications technologies, including Bluetooth, Wi-Fi, an infrared port and two wireless transmission standards that enable the device to work with any network. "You throw something at me, and I can talk to it," says Jack Levis, the portfolio manager in UPS's industrial engineering group and the de facto user representative on IT projects that impact small package operations. In addition, GPS technology will eventually give drivers better directions to pickup and delivery points: It will even be able to tell them, through an embedded speaker, when they're headed the wrong way. Once a driver scans a package and gets a signature, this information is wirelessly transmitted into UPS's tracking systems.

All of this new wizardry meant drivers had to learn how to use the device all over again. The smaller size meant fewer keys, resulting in new sets of keystrokes for some commands and making the new device more difficult to use at first. UPS laid the groundwork for change by testing the device with different groups of drivers.

First, developers worked with a small group to test many different keypad configurations, and then sent a prototype to some 750 drivers out in the field to use for a year. The development team incorporated many of their suggested tweaks into the device, such as keys that light up in the dark and a docking station that is easier to handle for drivers with smaller hands.

Next came a 5,000-driver deployment in mid-2005 (one of a series of ongoing deployments). To keep tabs on how the DIAD IV fared after each rollout, Levis and UPS management observed the drivers; charting their problems and helping them learn how to use the device. Acceptance took a couple of months, as drivers got used to the new configuration. Eventually, they were won over by the lighter weight and improved ergonomics of the DIAD IV.

"On any project, good management involves managing risks before they turn into roadblocks or deal-breakers," says Levis. The level of back-and-forth between driver, engineering and IT made the change successful. "We listened to as many people as often as we could," he says.

2. Define New Cultural Norms

For CIO 100 honorees like UPS and CSX that have a mobile workforce, a major benefit of wireless technology comes from its capability to collect data on worker performance. For workers at these companies who are used to the independence of being on the road or rails, new systems that can monitor their every move may generate fear. To get workers to accept such systems, managers positioned them as tools for improving performance, rather than as disciplinary devices.

UPS's Levis notes that drivers were apprehensive about the DIAD IV because the device can associate a misdelivery with an individual driver. The system is designed to make drivers more accountable for their performance, but Levis acknowledges the information could be misused. Thus, he has been drilling into managers' heads that the driver information isn't to be used for discipline.

Likewise, locomotive engineers for CSX, the largest rail network in the Eastern United States, were not used to having their performance observed minute-by-minute. Historically, they learned the nuances of their storied trade mostly from other engineers, without input from supervisors. "It was all on-the-job training," says Matt Gross, a road foreman and a former engineer. One thing engineers learned was to ignore the speed limit when they could (just as automobile drivers do), expending more fuel and wearing out the engine faster in the process.

Although the engineers received yearly visits from road foremen like Gross, like most human beings, they put on a good show for the supervisor's annual ride-along. "If someone knows they're being monitored, they tend to behave in a different manner," observes Gross.

Then in 2004, CSX deployed the event recorder automated download (ERAD). Similar to the "black box" in an airplane, ERAD logs how the engineer handles the locomotive: how hard and how often he brakes, how much fuel he uses and whether the train is going down a hill or is on a straightaway. The data is wirelessly transmitted to access points along the routes, which in turn feed a rules-based back-office system that creates metrics and scorecards for engineer feedback.

However, the engineers were apprehensive about giving management that unprecedented window into their performance. "When you roll out anything new, there's always a level of misunderstanding and fear," Gross says. "It takes time; there's still some guys that don't understand it."

To quell engineers' fears, CSX provided documentation to explain how ERAD works and what data it collects. But it's the responsibility of supervisors like Gross to continue educating the engineers about how the device can help them do a better job. ERAD encourages managers to take a more active role in the engineers' training, Gross says. For instance, if ERAD notes an exception to the locomotive operating rules (say the engineer was speeding), Gross has to show the engineer his scorecard, which details, using charts that show speed, distance traveled and other metrics, what he did wrong. Then Gross tells the engineer what he is expected to do instead in order to operate the train in the safest, most cost-effective way. "We haven't used it as a disciplinary tool," he says. But getting engineers to respond to the feedback they get is an ongoing process. "We're starting to get the behavior we want," says Gross, whose own performance evaluation depends on how well his 160 reports are handling their locomotives.

In fact, ERAD has filled what CSX executives considered to be an ongoing training gap, which they were aware of but hadn't known how to address. "We want to continue training and enforcement of rules, and continually reinforce best practices through observation," says John West, president of CSX Technology. Ensuring engineers follow the rules saves money. This year alone, CSX claims unprecedented fuel savings because engineers are handling the locomotives more effectively. Given that each locomotive holds 5,000 gallons of diesel, the improved performance is worth millions.

But the impact transcends finances, according to West. "This is just the start of the opportunity of working with these guys more closely," he says. "It is changing the way we run our business and changing the way folks in the field operate."

3. Rework IT Processes

Although acclimating end users to wireless technology commands the most attention during a deployment, CIOs can't neglect the IT staffers who need to be trained to support the new equipment.

Five years ago, when VP and CIO Eric Yablonka gazed on the hole in the ground that would become the University of Chicago Comer Children's Hospital building, he saw a technology greenfield. There, he planted a broadband wireless infrastructure. Yablonka knew wireless technologies were becoming more important to hospital operations because medical

staff is mobile and the latest medical equipment, such as IV pumps and cardiac monitors, is being built with wireless capabilities.

By building a wireless broadband network into the hospital's infrastructure, Yablonka would be able to support all the wireless-enabled equipment. He would also help the hospital staff achieve one of its top goals for the 155-bed pediatrics facility: making the hospital quieter. He was able to forgo the traditional (and disruptive) overhead loudspeaker system by equipping nurses with VoIP mobile phones. Not only have the phones cut the noise level, but nurses can also respond to patients more quickly. The cycle time from patient call to nurse response has been reduced significantly, Yablonka says, because nurses can be called from anywhere in the building.

But when the project started, Yablonka's staff wasn't large enough, nor did it have all of the necessary skills to build and support a wireless network, including the expertise to support the equipment that routed calls for the VoIP system. The nurses' VoIP phones caused subtle changes in the IT department's processes, including how different types of alarms and patient calls are routed through the network, Yablonka says.

He brought in vendors to design and build the broadband infrastructure so that his staffers could shadow their technicians. UCH IT staff also worked alongside the vendor reps as they troubleshoot VoIP router problems.

The deployment of the wireless infrastructure was one of the catalysts for bringing the clinical engineering staff, those who service patient-facing devices such as IV pumps, under IT's umbrella. Yablonka wanted to unite the two support teams because more and more patient devices are computerized and can transmit data wirelessly.

It wasn't hard to sell the wireless technology to the IT staff, because they wanted to learn new skills, but Yablonka had to ensure that the clinical staff understood why wireless broadband was so important to UCH's future. "I don't recall anyone really resisting, but they hadn't thought through the implications" of the convergence of IT and medicine, Yablonka says.

Yablonka sold the project as an opportunity for the clinical staff to learn about the latest medical devices, which would become critical as other UCH buildings were retrofitted with the wireless networks.

And because he spent time managing the expectations both of end users and his own staff about what working wirelessly would mean to them, he's reaping the reward of their enthusiasm and excitement. "They now see the possibilities of this convergence, and see opportunity and career growth," Yablonka says. "They know we're doing something special here."

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