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John Gilbert, Rudin Management

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Is the Recession Really Over?
What Lies Ahead in 2010

Jim Young
Founder and CEO
Realcomm

'Can a bubble that took 15 years to create really right itself in just 24 months—especially when considering the shadow inventories in both the residential and commercial real estate markets?'

Ask the 'recession question' of 10 people and you'll get 10 very different answers. While there's no doubt that the Internet, 24 hour-a-day news services, text messaging and social networking have all contributed to the deluge of information available to us, the fact that your neighbor has begun blogging and is now an 'expert' on the topic de jour, requires some intense 'sifting' of information. A strong argument could be made that there is too much information and an incredible amount of noise that actually slows down our ability to forecast and make appropriate decisions.

Residential Real Estate

Despite, or perhaps because of, our access to an extraordinary amount of information, it is ironic that there is a lot of important information that is not making its way into the mainstream media. Recent sound bites suggest that home prices are stabilizing and, in some markets, going up. Yet, based on a recent Deutche Bank report on residential negative equity, a congressional study on the status of the foreclosure market (old fashioned reading that takes more than 15 seconds), and several articles in the Wall Street Journal and other financial publications, we learn that there is a giant wave of 'shadow foreclosures'—up to 7 million, one report states—being 'held' by lenders. This, understandably, is significantly affecting inventories and prices. There is speculation that the banks are not processing these foreclosures at the normal (3-5 month) pace and are in some cases actually extending the process up to 2 years because they don't want to recognize/report the losses. The bottom line, based on the analysis of these 'shadow foreclosures', is that the residential real estate problem is far from over.

Commercial Real Estate

The commercial market is also experiencing uncertain 'signals.' Although the transaction market has come to a near halt, the wave of distressed assets has yet to materialize. One investor stated, "The party has begun; the buyers are here, and we are just waiting for the sellers to arrive." Various reports on the commercial real estate market show approximately $15 billion

in debt becoming due in 2009 with that number doubling in 2010. With asset prices down, the CMBS market gone, and banks not lending to 2006-07 levels, one would expect to see a large increase in the amount of distressed assets.

While there are few notable deals (one Southern California mixed-use project located near the 15 freeway once valued at $115,000,000 was recently valued at $3,000,000 in a bankruptcy proceeding), we still have not seen the wave of distressed assets many speculate to be out there. The consensus is that the speed of processing distressed assets is slow because 1) the institutions do not have resources in place to handle these assets; 2) there has been no push to process toxic assets that will negatively impact the organization; and 3) the Federal Reserve may have requested delays so as not to negatively impact the struggling economy. If you combine the stress of both the residential and commercial markets with the fact that the FDIC is (for the most part) out of money, the slow pace of this toxic asset delivery is more understandable.

According to most 'experts', the US recession is over. While not a noted economist, I have to ask the question, 'Can a bubble that took 15 years to create really right itself in just 24 months—especially when considering the shadow inventories in both the residential and commercial real estate markets?'

Unemployment

In this area also, getting clear and accurate information continues to be challenging. With the national unemployment rate in the 9.5 to 9.8% range, there is a wide range of positive and negative perspectives. The most difficult things to measure when it comes to unemployment trends are the many contributing factors which are not necessarily included—those who have stopped looking for jobs, those who have stopped receiving unemployment, 'consultants' with little or no work, those with reduced hours. All of these contribute to the total employment picture.

Unemployment is a critical component for the recovery of the residential and commercial markets. People don't buy new homes when they're unemployed and the office, retail and industrial market segments need employment growth in order to absorb the existing inventory before it can expand.

Stay Focused

At some point we need to look beyond the varying and confusing prognostications and keep a careful eye on our own ships. Owning and operating commercial and corporate real estate is very complex. Whether it's keeping track of space, collecting rents, marketing space, forecasting financials, managing energy consumption or providing secure buildings for our tenants, our business consists of a large number of people, processes and both manual and electronic systems.

In these days of economic uncertainty (either the recession is over or we will experience up to 5 more bad years, depending on

" … what we are currently experiencing is a cyclical economic occurrence and the opportunity for a transformational change in the way we do business."

who you listen to), it is critical to stay focused. Common sense tells us that streamlining businesses, doing more with less and becoming more efficient will be fundamental parts to recovery.

We encourage our industry to examine every business process—from answering the phones (no receptionists) to collecting rents (electronic funds transfer) to how you pay the bills (automated accounts payable). Strive for higher efficiency. One of our favorite sayings is, "Don't waste a good recession."

Whether or not the recession has ended is certainly important for long term planning; however, running our businesses daily is still the #1 priority. Technology, automating business processes, streamlining our companies, managing energy better, keeping buildings more safe and secure, communicating with tenants better and managing our complex information systems with more transparency should be even a higher priority than ever before.

While we understand the significance of the debt scenario our industry is faced with, making operations more efficient and therefore profitable is the other side of the equation. Throughout history, technology has played a major role in economic recoveries and operational paradigm shifts. We believe that what we are currently experiencing is a cyclical economic occurrence and the opportunity for a transformational change in the way we do business. If we merely emerge from this cycle and return to 'business as usual,' we will have missed the opportunity to significantly enhance the way we operate our multi trillion-dollar industry. Technology and innovation are continuing to have significant impacts around the world in places like Abu Dhabi, South Korea, Singapore, Finland and others. Whatever happens in 2010 with the US economy, don't lose site of the significant impact we can have by using technology and innovation to better design, develop, lease, operate, transact and use commercial space. •
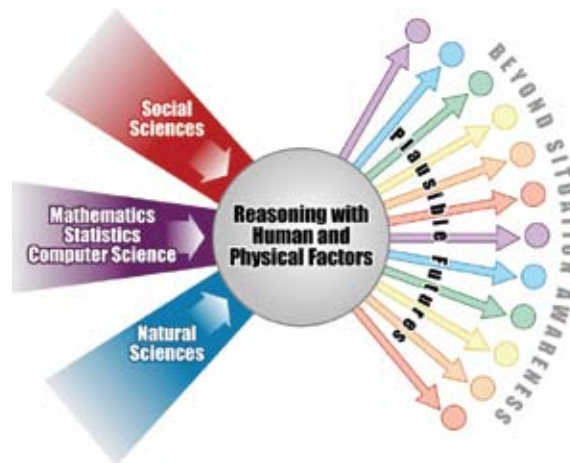
Cisco Acquisition Continues Real Estate Industry Transformation

Tom Shircliff
Intelligent Buildings, Inc.

Rob Murchison
Intelligent Buildings, Inc.

I n 2005, at the Realcomm conference in Anaheim, a marketing partnership was formed between Cisco, Panduit and Richards-Zeta (RZ), a small building automation middleware company that made a product called the Mediator. The group was loosely dubbed 'CPRZ,' and its message was about IP becoming the single platform for the management of both IT and traditional building systems—"one unified network," it was called. Fast forward four years and we find Panduit has advanced its Unified Physical Infrastructure (UPI) vision for connected buildings and Cisco (having acquired RZ) has seen its connected real estate (CRE) products and services mushroom to include the Mediator.

The Middleware Solution
Many in the "intelligent building" space knew of the RZ middleware solution as well as those from Gridlogix and Tridium. Middleware is a very important product type in the increasingly green and intelligent real estate industry because it allows disparate systems to be viewed and managed as one. For example, four separate buildings using different manufacturers' building automation systems (BAS) can be viewed and managed as if they were all part of one system. Middleware also allows communication between different system types, such as lighting controls interfacing with security, or electrical sub metering systems interfacing with HVAC. This is highly significant because events between the different system types can be linked for optimal energy usage, occupant experience and operating efficiency. Simply expressed … you can actually 'unlock' proprietary or disparate systems.

As a general rule, any building's efficiency effort requires three basic elements and middleware touches all of them:

"The Mediator can 'hear' signals from the grid and 'talk' to the demand side systems to reduce consumption. This makes building "nodes" on the smart electrical grid network and builds bridges between real estate and the utilities."

1) Better visibility into the building's performance;
2) More control of the main building systems;
3) New policy and business rules to affect goals

The Mediator is not all there is to what Cisco calls "Smart + Connected Real Estate." That involves a comprehensive vision which includes strategy, design and operations at the building or portfolio level and is part of the even broader "Smart + Connected Communities." As middleware, however, the Mediator is a powerful and enabling product at the tactical level. It's hard to imagine a green and intelligent building strategy that would not include middleware.

To many, Cisco's acquisition of RZ seemed inevitable because of its growing awareness of the size and relative primitiveness of the building technology segment. Comparatively speaking, companies within the real estate industry do not have large or sophisticated IT departments. Indeed, there are only a scant number of CIOs that are focused on the building side of technology (as opposed to back office software and traditional enterprise IT). This is a trillion-dollar industry and most of that asset value is relatively untapped (in technology terms). In this regard, real estate is one of the last great technology frontiers.

When you consider that, combined with the fact that individual building systems are becoming more and more technology-infused and network-dependent (in order to connect edge devices to controllers, controllers to management servers, and servers to remote operations centers—and from there to local and wide area networks), you begin to see that information technology (IT) and Internet Protocol (IP) are central to real estate technology. Why, then, shouldn't the world's leading IT and

IP company be in this space? All building systems are networks—and that is Cisco's core competency.

The Talk of the Town

The Cisco acquisition created quite a buzz in the industry amongst controls systems companies and many of their customers. "Did you hear? What does it mean? Who are they competing with? Who are they partnering with? What is the roadmap for the product now?", and so on. Cisco had already entered the real estate 'space' with its growing numbers of power over Ethernet (PoE) enabled switches, access controls, video surveillance interests, digital signage and the smart electrical grid (smart grid). This time it jumped squarely into the mix with building automation middleware. That completed the continuum from the core-switching platform as the backbone for all controls to the edge devices (e.g., security cameras and access control pads, now the enabling middleware and ultimately, the smart grid).

Illustrator: Trip Park

The Role of the Mediator

The smart grid itself is a hot topic in the US and throughout the world due to concern about GHG emissions, energy supply/demand pattern imbalances, outdated transmission and distribution facilities and rising energy costs. *The Economist Magazine* calls smart grid the "Energy Internet." That makes it a natural place for Cisco—a networking company with a history rooted in the Internet. Cisco sees Mediator as an important part of the smart grid solution because of its ability to communicate with different energy-consuming systems, the metering devices that monitor consumption and even the grid itself. This enables solutions such as automated demand response (ADR) and load shedding on the demand side (not replacing supply for supply with a generator) that can be done smoothly with little or no disruption to building occupants. The Mediator can 'hear' signals from the grid and 'talk' to the demand side systems to reduce consumption. This makes building "nodes" on the smart electrical grid network and builds bridges between real estate and the utilities.

Cisco's acquisition of RZ is an especially interesting event as it further consolidates the middleware sector. It follows the Honeywell purchase of Tridium a few years ago, the recent Johnson Controls Inc. (JCI) acquisition of Gridlogix and the emergence of Convia, a Herman Miller software and hardware subsidiary, which made a splash by announcing its signature client—the new United States Green Building Council (USGBC) building in Washington, DC. Tridium had been almost synonymous with middleware, both as a standalone product and as an OEM for many major BAS manufacturers; Gridlogix became known as a software and server solution without an appliance device; and many know Herman Miller as a free standing and systems furniture product company.

These events give rise to the question of which 'perspective' should owners be considering for building, occupant comfort and portfolio controls and ultimately sustainability and operational efficiency. Honeywell, JCI, Siemens, Trane and other traditional players would answer that the building automation systems (BAS) should drive the decision-making process. Cisco would say that decisions should be driven by the broader network. Convia would likely suggest that the occupant experience and the building interior should be central to the process.

Cisco® Smart+Connected Real Estate: Redefine the Real Estate Experience

Today's real estate market is filled with opportunities. Market trends including workforce globalization, environmental and social responsibility, and a growing worldwide population favor building transformation. The next generation of real estate and building services will turn workplaces and home spaces into environments that are personalized, efficient, functional, and profitable. Cisco Smart+Connected Real Estate Solutions make new and existing buildings more effective, efficient, and productive work places, more economical to operate, easier to manage with centralized functions, and environmentally sustainable.
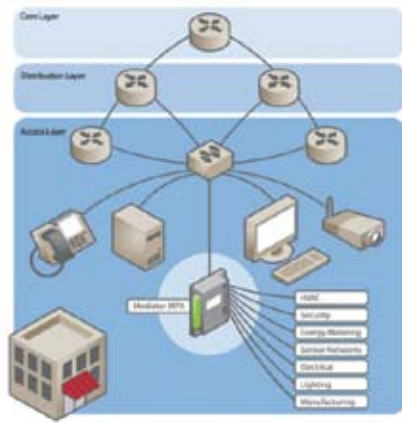
To learn more about Cisco Smart+Connected Real Estate Solutions, please e-mail us at **scre_info@cisco.com** or visit **www.cisco.com/go/realestate**

welcome to
the human network.

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Technology Makes Strange Bedfellows

And don't forget lighting control companies (such as Lutron and Encellium, just to mention two) and others responsible for 30-40% of energy usage in most buildings, or physical infrastructure companies such as Panduit, which have made a compelling case for the Connected Building Data Center (CBDC) in every building as well as innovative enclosures for building systems controls and backbone equipment. Most of these companies have software components that can do more than just operate within their own disciplines. Ironically, many of them are both partners and competitors, depending on the situation.

The partnerships notwithstanding, the 'perspective' question shows that there is a competition developing for operational foundation (platform) control of the building … and that competition is altering the decision-making process. Owners understand the connection between the building platform and strategic issues of great concern to them—sustainability, energy and operating costs, financing and cap rate pressure, and centralization. The importance of these issues, combined with the technology changes underscored by middleware, has had an increasingly disruptive and unsettling effect on traditional manufacturers as well as professional services, such as architecture and engineering. These companies will have to make changes to their business models and offerings to stay ahead of the curve as the industry continues to embrace a strategic approach and acceptance of technology as a transformative driver. The good news for building owners is that power is shifting their way, if they are able to develop a measurable strategy that takes advantage of technology to achieve corporate goals and mitigate risks.

The Challenge Ahead

The so-called 'people systems' are the next shoe to drop, as strategy and technology blur the lines between IT, facility management, finance (capital vs. operating expenses), risk management and other key departments—both internal departments and external vendors. Therein lies the challenge for Cisco and the many other companies that are selling solutions in a connected, open, high-tech real estate environment. The IT companies are not familiar with the real estate culture and operating environment and the traditional real estate resources such as BAS manufacturers, integrators, architects and MEP engineers are not as technology-savvy as traditional IT companies and integrators. Compounding the mutual unfamiliarity is the fact that it's often difficult to identify the decision maker. Is he or she in the IT department, or in facility management, or finance or somewhere else? Sometimes even the building owner doesn't know!

The Cisco acquisition of Richards-Zeta makes a statement about the ongoing technology transformation of the real estate industry, and it is evident that there will be no turning back.   •

About the authors: Tom Shircliff and Rob Murchison are co-founders of Intelligent Buildings, Inc. They provide strategic technology consulting for real estate development and management in commercial, institutional, and corporate environments.

John Gilbert of Rudin Management—
The Strategic Value of Technology

*S*tarted almost 85 years ago by Samuel Rudin and his brothers, the Rudin Organization has grown to be one of the largest privately held real estate entities in New York City. It has experienced its share of commercial real estate recessions. In the early 1990's, a time when the market there was anemic (with over 30 million square feet of vacant space in lower Manhattan alone) the firm took a risk on a high-tech project—55 Broad Street. This spearheaded the family's role in the revitalization of the city. Silicon Alley was born and lower Manhattan evolved into a Mecca for high-tech companies. This project set a new direction for Rudin, as is evidenced in the design of 3 Times Square and 32 Avenue of the Americas—two of the most technologically advanced properties in the world today. Technology has been integrated throughout the Rudin portfolio and the Rudin name is now synonymous with high-tech real estate.

RealcommEDGE sat down with John Gilbert, EVP, COO and tech visionary for the Rudin organization to get his perspective on the importance of investing in strategic technology.

Realcomm: *Tell us a bit about your background. How did you end up where you are?*

Gilbert: I attended Cornell University (Class of 1977), graduating with a degree in Economics and Public Policy with a minor in Housing. I had originally planned on becoming an engineer, but at the time they frowned on engineering students playing sports and I had been recruited to play football.

I spent the last semester of my senior year doing an internship with the New York State Assembly Housing Committee and worked my way up the ladder, ultimately overseeing several committees including Housing, Agriculture, Transportation, Parks and Historic Preservation, Commerce and Economic Development. Following his unsuccessful run for governor, Mayor Koch hired me in 1983 to serve as his Assistant Commissioner for Housing, and then ultimately his representative on the Board of Estimate, which acted as the board of directors of the City of New York the following year. This body controlled every contract entered into by the City, land use changes and all major policy initiatives. It also is the only executive/legislative body to be ruled unconstitutional by the U.S. Supreme Court. In 1985 I left city government to run NYC's largest real estate trade organization and served as its President/CEO until I became COO/EVP of Rudin Management Company in 1993.

Realcomm: *You were instrumental in the birth of Silicon Alley and the development of 55 Broad Street, the "Digital Sandbox" Event Center. Where did the vision for that project come from?*

Gilbert: When I came to work with the Rudin Family, Bill Rudin was named president and his father (Lewis) and uncle (Jack) became co-chairs. This began the management transition from the second generation to the third within a company that has owned real estate in New York City for over 100 years. At the time, lower Manhattan was in a severe depression with over 30 million feet of vacant space out of a total market of 100 million feet.

The family had built 55 Broad in the late '70s as the original headquarters of Goldman Sachs. Drexel Burman Lambert moved in and, in 1990, when then-US Attorney General Rudolph Giuliani caught Michael Milliken with his fingers in the cookie jar, the firm went bust, and 55 Broad stood vacant for six years. As part of the effort to revitalize this area of New York, the concept of creating a home for newly formed companies utilizing the Internet was born. When the City and downtown business leaders approached the Rudins to ask them to participate in this effort, they said yes.

During this period, we had begun studying the best model that allowed multiple telecom carriers to run their cables in the finite vertical shaft space throughout our properties. Our research resulted in a dark fiber design that allowed: 1) our tenants a choice of carriers; 2) the carriers a "just plug in" infrastructure; and 3) Rudin, as owner, to experience "spaghetti-free" vertical telecom risers that also became a new source of revenue. The marketing of 55 Broad began in earnest and focused on three important elements: access to the Internet on a broadband basis, flexible space, and a new community that stressed technological innovation. We leased the building up in eight months. The real vision was provided by the Rudin family who committed $40 million to re-open this property and who believed in the burgeoning new Internet industry.

Nicholas Negroponte's *Being Digital*, which was published in 1995, provided very important validation to our efforts by describing how "Smart and Ready"

real estate would be necessary to allow these newly-formed companies to grow and create. When we read that, we knew we were on the right track. At a tech show in France where Negroponte was speaking, Bill (Rudin) and I got a chance to tell him what we were doing and how important he was to our efforts. I think he thought we were stalkers.

55 Broad Street, New York, NY

Realcomm: *What about today? Can you give us three examples of how the firm differentiates itself through the use of technology?*

Gilbert: The challenges of today revolve around energy—electricity, natural gas, oil and steam. It really is all about decreasing the number of BTUs we consume. Building owners—rightly or wrongly—are, and will continue to be—made, responsible for monitoring, measuring and managing the electrical load of our customers. Creating intelligence within the grid is our new "holy grail."

We believe the next big thing is how we, as an industry, begin the process of integrating our IT networks with the electrical grid—or, in effect, enabling our telecom network servers to push and pull data to and from electrical appliances like meters, pumps, fans, stoves and washing machines. Using our BlackBerrys and iPhones to control our electrical consumption and make smart decisions about buying electrons is the most important next step for our industry. We believe the industry needs to establish a common set of 'infrastructure standards' that will allow this to happen—a building-wide network that

is both wired and wireless that can measure and manage anything that it's plugged into it.

Rudin was asked by Con Edison (the utility company in New York) to act as the real estate "petri dish" for its DOE Smart Grid application. We are excited to be a part of this team that includes Con Edison, Boeing, Verizon, and Rudin. In addition to smart grid research, we differentiate ourselves by owning and operating the largest building-owned fiber meet point and co-location facility in New York City. The "Hub" at 32 Avenue of the Americas allows carriers and enterprise customers to co-locate with all the advantages of occupying fully backed-up, air-conditioned space.

32 Avenue of the Americas, which we purchased in 1999, is one of the most important telecom buildings in the world due to its role as the centerpiece of the world's first global network. An historic landmark, it has been transformed into the 'meet point' between broadband wireless and broadband terrestrial networks following our $100 million renovation. Currently, the Hub allows our office tenants and others to place their mission critical data and telecom equipment in a space that can be accessed via airwaves and/or fiber.

Realcomm: *How did your tech strategy help you manage operations during the chaos that followed the 9/11 attacks in New York?*

Gilbert: September 11, 2001 was a tough day for our city and our nation. Personally, I was standing on the corner of Canal and Church streets, right next to a French photographer filming a documentary, who captured the only live video of the first plane hitting the North Tower.

From a technology standpoint, our lack of network diversity became all too obvious. One by one, communication networks began to fail—first landlines, and then cell phones and the last network standing was the wireless BlackBerry network. Luckily for us, we were an early adopter of this technology and it allowed us to stay connected with our buildings and customers. Being downtown that morning, we literally ran our entire company via the BlackBerry network, shutting down fan intake systems and coordinating the evacuation of 10 million feet of office space. Following that day, I was asked to chair the task force on rebuilding our telecom infrastructure—and many of our recommendations have been adopted and implemented.

Realcomm: *When it comes to the use of technology in our industry, you're a visionary executive who "gets it." Why do you think so many others in your position struggle?*

Gilbert: The Rudin family has always emphasized the importance of community with our customers. Technology, and adapting it to real estate, is really a natural offshoot of that philosophy. Sam Rudin used to say he only wanted to own real estate he could get to by subway. His grandson, Bill, modified this thought to include only owning real estate that is connected to the information super highway. Sam focused on physical "analog" connectivity, while Bill's focus is on virtual digital connectivity. They both matter. I'm lucky to be involved helping to run a company that thinks this way.

Realcomm: *Is there any one thing or person to whom you attribute your vision?*

Gilbert: In 1955, Bill Rudin's grandfather built his first office building and the beginning of the Rudin real estate empire was born. That same year my grandfather's design allowed the first successful transatlantic telephone cable to be built. (I have a chunk of this cable on my desk.) These two visions—quality real estate combined with global connectivity all came together at 55 Broad Street—40 years later—when the first totally wired work environment was born. Coincidentally, Bill and I were both born in 1955.

Vision is an interesting concept. Many people have great ideas but few actualize them. I can only give gratitude to the Rudin Family, especially Bill, Eric, Beth, Madeleine and Katherine and their fathers, Lewis and Jack, for allowing these ideas to become reality. Since the number 55 has been so significant in our lives, 2010 should be a great year—as Bill and I both turn 55 next year.

Realcomm: *What advice would you give to a peer when it comes to strategically using technology?*

Gilbert: Technology is a tool. If a specific tool doesn't make sense, doesn't create value, doesn't solve a problem that needs solving—forget about it. On the other hand, if that little voice won't stop pointing you in a direction, and you are constantly being reminded by seemingly disparate points of view to do the same thing—then do it. Surround yourself with curious people who look at problems from different angles. Never stop pursuing new avenues to achieve the goals that make us more efficient.

Realcomm: *How about a CIO to help further advance the technology topic at the top of their own organization?*

Gilbert: CIOs and CTOs need to focus on the core business they're in and to adapt technology to creating value towards this core business. The same language needs to be spoken. If this breaks down, then the company's objectives can't be met. Today's example is energy. Each of us needs to figure out ways to use less and make more. The CEO understands this, and the CIO will be the guy or gal that makes this happen. It's all about measurement and managing scarce resources. As Bill Gates said three years ago "Energy Technology (ET) is the new IT."

Realcomm: *Looking ahead 3-5 years, what are the next three big innovations you see in your space?*

Gilbert: Energy management is a crucial new aspect of our world—and the IT sector will run it. We are focused on creating the infrastructure necessary to measure the movement of electrons and photons throughout our buildings. It will run on optical fiber, copper and wirelessly through the air. It will have a web based 'dashboard' that allows efficient management by the building as well as the real consumer—our customers.

The key component will be the interoperability of our IT networks and the electrical grid. Con Edison has asked us to participate in the Smart Grid demonstration program and we will be testing many of these ideas in Rudin properties. Networked lighting systems will evolve and act as important components of this infrastructure. Sensors of light, CO_2, temperature—will all ride on this grid and allow intelligent automation of the building systems.

Realcomm: *You've traveled the globe. What is the most significant and advanced use of technology in the commercial property industry you've seen in your travels?*

Gilbert: The Realcomm trip to Dubai a year ago was an eye-opener

> *"CIOs and CTOs need to focus on the core business they're in and to adapt technology to creating value towards this core business. The same language needs to be spoken. If this breaks down, then the company's objectives can't be met."*

on many levels. We witnessed the peak of an amazing run of development in this part of the world and also saw two significant technology companies and developments—Festival City and Pacific Controls. Operating from sophisticated, world-class central command centers, both delivered advanced technology at the building level for multi-building projects utilizing state-of-the-art work order management software, operational dashboards, real-time reporting and trending analyses, and seamless integration with billing and financial systems. These two case studies offered a glimpse into the future of building automation and the opportunity to apply these applications in the energy and building management arena. All good lessons provided by the Realcomm team.

Realcomm: *Do you see technology being a driving force in our economic recovery?*

Gilbert: Technology won't be *a* driving force. It will be *the* driving force. We've already seen this in the energy field, as vast new sources of natural gas have been discovered which will set us on the way to energy independence. Technological breakthroughs in solar technology and battery storage will allow the technology to grow. New advances in measuring electrical consumption and breakthroughs in allowing interoperability between electrical and telecom networks will be crucial in creating jobs and managing scarce resources. Sensor technology and advances in building automation will drive operating costs down.

The most important aspect will be to create a set of infrastructure standards for our buildings—a set of rules that everyone subscribes to where applications can be written, and software and middleware established that will allow applications to "plug" into this sub-network, thereby allowing our buildings to be more efficient. •

IN THE **TRENCHES**

The power of collaboration can be a great tool in solving the sticky technology issues that we all struggle with. Featured on this page are two brief interviews conducted by Chris Saah, CIO, Transwestern—brief, informal, 'water cooler' conversations with two of the brightest, most innovative technology professionals in our industry addressing problems that many of us are facing today.

Chris Saah
Chief Information Officer
Transwestern

Chris Saah is Chief Information Officer for Transwestern, one of the largest privately held commercial real estate and development firms in the U.S. His IT department provides support to over 1500 team members at over 200 corporate and management offices.

Larry Schachter is the Vice President-Information Technology for Acadia Realty Trust.

"When I asked Larry if he would do an interview with me for 'In The Trenches', his response captured exactly why we are doing the series: 'It is a place where I spend more time than I wish. Sure—I'd enjoy chatting.' I'm sure all of us can relate to his honest response."

With Larry Schachter (Acadia Realty Trust)

Saah: *We're doing this series to keep an open dialogue going about the day-to-day operational issues we all face. Could you share with us some of the issues that challenge you and how you deal with them?*

Schachter: While the IT staff at Acadia would prefer to spend their time rolling out new technology, or implementing new systems that enhance productivity and efficiency, user support is part of our DNA. Within the IT department, roles and responsibilities are clearly defined, and each of us has our areas of expertise; however, to the rest of the staff, we are the "IT guys". Hand holding for our less technical staff is something that none of us can escape. I was talking to a colleague CIO with 2,500 users who said his senior executives still seek him out personally for help with their BlackBerrys. In a company of our size it is unavoidable.

Saah: *How do you deal with this, especially with a limited staff?*

Schachter: We embrace it. All staff want to access from home to corporate resources such as email, our MRI-based accounting system, intranet, and shared files. We recognize that these needs can extend into staff members'

personal technology. And since users are accessing corporate resources, we need to insure that there is adequate security on home networks, which means WPA keys and the like for wireless connections. This will affect the connectivity of personal items such as their kids' computers, TiVos, Wiis and iPods. So we are forced to become knowledgeable in these technologies, too. Clearly, the line has become blurred as it relates to where the corporate responsibility ends.

Saah: *So you service home technology?*

Schachter: To an extent, yes. People are working 24/7 and need seamless access. Their home is really an extension of their work environment. By simplifying and standardizing, we can minimize support needs. We are rolling out new Citrix XEN technology, in conjunction with the Legato email archiving product, which will allow users access to all of their Acadia applications from one website, as opposed to requiring VPN access for email, and a separate login mechanism for other apps and documents.

At the same time, many users will not know what to do when home networking issues arise (and we all know that they do). We've trained our users that more and better questions will yield more and better responses from us. Most "fixes" can be accomplished remotely, but we have been known to make the occasional 'house call'.

Saah: *And you don't view that as a distraction to your mission?*

Schachter: No, to the contrary, I see it as a way to build trust. The staff knows they can turn to IT to keep them connected. It is a tangible value we provide to them personally. Plus, it allows all of us to hone our problem solving skills. If we don't know an answer, but show an organized

and logical approach to finding it, that's a positive. When users see that we are competent in an area that they understand and directly affects them, they are more apt to trust our judgment in something that is harder to understand and indirectly affects them. It helps us get the business-side sponsorship we need.

Saah: *Do you have a recent example of that?*

Schachter: Yes. We recently automated our payables process. There is always hesitation when you want to "tamper" with something so critical to the operation, but we got the sponsorship we needed partially because the trust in being able to deliver was there.

Saah: *How did that go?*

Schachter: I think it's safe to say that everyone was quite pleased. We implemented the PayablesNexus product from Nexus Systems in Arlington, VA. This project had a January 1 hard start date. Between our internal interdepartmental team and the vendor's personnel, we were able to meet the deadline (through the difficult holiday season), at the budgeted cost, and there were no major surprises or hiccups after going live.

Saah: *Do your invoices go offsite for processing?*

Schachter: No, vendor invoices still come to us as they always have—either to our main office in White Plains, NY or to one of several regional property management offices. Our existing copiers were network-enabled, so in most cases, invoices are scanned to FTP sites by function and are then visible in the software for coding and workflow. The paper invoices go in a box and are destroyed after a period of time. The product is run as a "Software as a Service" solution and allows for enhanced workflow and visibility. At the completion of the workflow, the data is moved to and from MRI through a series of APIs. We save the time and expense of moving paper invoices both between and within offices. And with some minor process modification, we were able to shave time from the invoice processing, which adds up very quickly.

Ryan Wiederstein serves as the Chief Information Officer of R&R Realty Group and as the President of Realty Technology Services, Inc.

With Ryan Wiederstein (R&R Realty Group)

Saah: *In Chicago, you were telling me about the WIN/WIN model you've developed with Realty Technology Services …*

Wiederstein: We developed our current model in 2005 and have been pretty pleased with the outcome. We meet R&R's corporate IT needs as well as supply services to R&R tenants. Our knowledge of technology and relationships with local vendors allows us to give tenants a one-stop shop for many of their move-in or TI technology needs.

Saah: *You mentioned cabling and controlled access as two services. What else do you provide?*

Wiederstein: We provide voice and data cabling, managed access control, telephone system procurement, audio/video, and procurement of communication infrastructure such as voice, fiber, T1, DSL, and wireless. We also do a lot of data center contracting.

Saah: *And the brokers connect you with the tenants?*

Wiederstein: Yes. We are often at the first showing. We recently helped win a call center lease because we were able to give quick pricing and turnaround on services they needed to be operational such as access control and a VoIP phone system, where as they were on their own for these services at the competing space. The leasing agents and the property managers see us as a way to attract and retain tenants.

Saah: *What is your secret sauce? Why do tenants come to you for these services rather than their own IT people or existing vendors?*

Wiederstein: I think because we have gotten this down to a science. We have long-standing, dependable vendor relationships here in Des Moines and have done this enough that we have commoditized a lot of it. We can turn pricing around in a few hours and predict cost and delivery with great accuracy. And there is one throat to choke. Furthermore, the tenants' own people generally have enough on their plate with daily operations and don't have the experience we do with some of these services, so we provide a real service at a very stressful time for their organizations.

Saah: *What kind of work do you have in your pipeline currently?*

Wiederstein: We are the GC for a data center handling all of their needs including permitting and generator power, we are doing extensive AV work for a law firm, and have several tenants with cabling, card access, and VoIP needs.

Saah: *So the win for the tenant is a smooth relocation leveraging your knowledge and network of vendors. The brokers and property managers win because you help attract and retain tenants, and R&R wins because your income stream offsets some of their corporate IT overhead?*

Wiederstein: That's how we look at it. •

Bank of America:
Energy Management Infrastructure

In March 2007, Bank of America Corporation (BAC) announced a $20 billion, 10-year business initiative to address global climate change. As an integral part of that initiative, it launched a centralized facilities energy and maintenance management program designed to enhance employee health and productivity and contribute to the corporation's bottom line while, at the same time, diminishing its environmental impact. The Charlotte-based Intelligent Command & Control Center (iC3) integrates industry-leading hardware, software, analytics and intelligence to remotely monitor and control heating, ventilation and air conditioning (HVAC), lighting and other building systems for thousands of facilities across the nation—all from a single location.

"Since the inception of iC3 just over a year ago, energy (kWh) consumption and greenhouse gas (GHG) emissions have decreased approximately 11%. At full deployment, it is designed to save over 2,200 tons of CO2e a month (26,850 tons per year), and by 2017 is anticipated to save more than 225,500 tons per year."
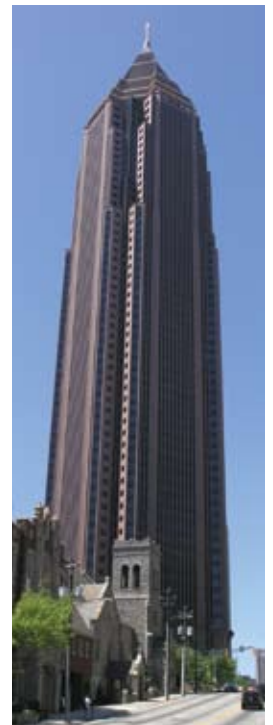
While energy management systems are not new, their traditional use has been reactive engagement in large facilities. The iC3 uniquely addresses facility issues of any size proactively using data, innovative (patented) analytics, and highly skilled technicians to maximize energy efficiency and optimize equipment maintenance. Its current scope comprises 3,200 nationwide retail banking centers that utilize more than 13,000 HVAC units.

It's All About Relationships
Several partnerships and strategic investments have contributed to iC3's success. Charlotte-based Mechanical Systems and Services (MSS) is the general contractor and systems integrator for the program's nationwide deployment. Tridium provides the technology platform that enables the remote monitoring, control and data efficiency; and, as part of the iC3 program, the Bank made a strategic investment in Philadelphia-based Field Diagnostic Services, Inc. (FDSI), a small engineering firm specialized in optimizing HVAC equipment performance.

With FDSI's help, iC3 provides HVAC equipment fault detection, efficiency diagnostics and control

Bank of America, Charlotte, NC

algorithms. FDSI currently holds four patents, with two additional pending and another two programs still in development. The iC3 is driving the completion of these and other industry-leading intellectual property innovations through capital investment, intellectual collaboration, an aggressive energy-efficiency strategy and the provision of an expansive facility base as a testbed. This innovation, combined with expertly installed hardware in the field, enables the Bank to achieve the shift to predictive maintenance.

verified equipment failures can be reduced in severity from "emergency" to "planned" by remotely making appropriate adjustments to other equipment supporting the space. Optimized truck rolls cut operational costs and eliminate unnecessary driving emissions. Other benefits include:

- Consistent temperature control in employee/associate workspace and customer-facing locations
- Proactive monitoring and adjusting of remote systems
- Decreased energy usage
- Diminished environmental impact

iC3 is an example of how Bank of America Corporate Workplace helps distinguish the company by delivering innovative, environmentally sustainable real estate and workspace solutions. •

Bottom Line Savings

HVAC units typically account for more than 40% of a building's total energy consumption; therefore, the environmental and energy usage benefits of proactive monitoring and improved performance are clear. Since the inception of iC3 just over a year ago, energy (kWh) consumption and greenhouse gas (GHG) emissions have decreased approximately 11%. At full deployment, it is designed to save over 2,200 tons of CO_2e a month (26,850 tons per year), and by 2017 is anticipated to save more than 225,500 tons per year.

In total, iC3 forecasts sustainable reductions in kWh consumption and GHG emissions of 10–15%—nearly half of Bank of America's 2004 aggressive (voluntary) goal of a 9% reduction in GHG emissions by the end of 2009.

The Bank is poised to achieve that mark with 2007 GHG emissions down 7.8% from the 2004 baseline. To put these benefits in context, the energy (kWh) and GHG reductions equate to powering over 2,200 homes for a year and removing the equivalent of 29 million miles of GHG emissions caused by automobiles.

Actual energy consumed in iC3-enabled locations has been down year over year despite utility cost increases. When real savings and inflation avoidance are combined, iC3 is yielding a 10–15% benefit to the company's bottom line (in the enabled locations), and this translates to millions of dollars annually.

Another benefit of the iC3 program is the minimization of non-productive (or mis-categorized) maintenance calls related to HVAC and lighting. Historically, these have accounted for a third of the reported problems that resulted in technician dispatch (or 'truck roll'). Issues involving client perception (i.e., that a space is too hot or too cold when all equipment actually is functioning properly) now are resolved remotely through the iC3 web-based software platform and customer interaction/education. Also,

The Winds of Development in the Middle East
Sustainability, Smart Technology and Innovation

By Jim Sinopoli,
Smart Buildings LLC

In a region with a long history and deep respect for its traditional culture and heritage, one would think that the Middle East's approach to innovation and modernization would be somewhat hesitant or slow. That is not the case; in fact, the truth is quite the opposite. The region has managed to retain and deepen its traditions while at the same time steadily and rapidly constructing new buildings and developments known for sustainability, intelligence and innovation. What follows are briefs of three projects that provide a glimpse of development in the region.

Bahrain World Trade Center, Manama

The Bahrain World Trade Center (BWTC), completed in 2008, consists of twin 50-story towers that are 240m (787 ft.) high. It is the second tallest building in Bahrain and has panoramic views of the sea and the city of Manama. The building hosts a five-star hotel, a luxury shopping mall, high-end office space, restaurants, cafes and a health spa.

BWTC is built on the seafront, exposed to the onshore winds of the Arabian Gulf and is the first commercial building to harness wind power for the generation of electrical power. Some may think that harnessing wind power is new to the region

Photographer: Sami Al Tokhais

but prior to having air conditioning it was common for buildings to have a wind catcher or wind tower. The wind towers caught cooler air at higher levels and directed it into buildings. So, in many ways, the BWTC is a modern manifestation of the traditional use of wind that has been around for centuries.

The building's towers are linked with three dramatic sky bridges, each equipped with a 225KW wind turbine facing the wind from the Arabian Gulf. The aerodynamic towers are shaped like sails and funnel the air through the sky bridges, which in turn increases the speed of the air as it flows through the turbines. The flow of the air through the gap between the towers is S-shaped, which helps create a wind-stream from winds within a 45° angle to either side of the central axis. The result is an increase in wind speed and power generation. It is truly an ingenious design.

The wind turbines operate about half of the time with full power being generated at wind speeds of 15 to 20 m/s or 35-45 mph. The generators are monitored and managed by a control center in the building. The system is expected to provide about 1.2 GWh per year or 11% to 15% of the towers' total power consumption. The wind power is fed to the power distribution system for the buildings, thus reducing the need for external power and lowering operating costs. The project has received several awards for sustainability including the LEAF Awards 2006 for 'Best Use of Technology within a Large Scheme' and the Arab Construction World's 'Sustainable Design Award'.

Jim Sinopoli is the Managing Principal of Smart Buildings, a professional engineer, an Accredited LEED Professional and a Registered Communications Distribution Designer, industry journalist and speaker. His latest book, "Smart Buildings Systems for Architects, Owners and Builders" will be released in November.   jsinopoli@smart-buildings.com.

ICT
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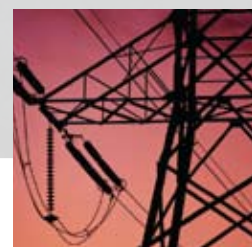# World Leader in ICT enabled Energy Services

Homes

Buildings

Industry

Infrastructure

Energy

Pacific Controls Global Data Centers

The Pacific Controls Global Command Control Centre for Energy Services offers Customers, Business Partner's Government and International Agencies, the ability to carry out real time measurement and verification of carbon footprint for homes, buildings, and Industries globally in real time using the ICT infrastructure. This 24X7X365 days unique service is being offered to customers around the world, who requires managed energy services, which will result in substantial reduction of energy consumption in assets. These services are being offered at a fraction of the cost of traditional energy services currently available in the market, using state of the art ICT enabled solutions developed by Pacific Controls.

Pacific Controls provides ICT enabled Software and Hardware solutions for systems integration and managed energy services for everyone from home to enterprise. It is a service offering in which "Energy performance" related capabilities are provided "as a service", allowing users to access them from the Internet (on the cloud) anywhere in the world.

PACIFIC CONTROLS

www.pacificcontrols.net

In addition to the energy and sustainability features, the BWTC is equipped with state-of-the-art information, communication and telecommunication tenant amenities. These include high speed Internet, VoIP, wireless, unified messaging, surveillance and security systems, consolidated tenant billing and capabilities for monitoring, analyzing and reporting on the building.

The Headquarters of the Ministry of Higher Education of Saudi Arabia, Riyadh
In a region rich in natural resources, Saudi Arabia is making a priority and huge investments in its human resources. It has set out to build a knowledge-based society. Part of the investment is a very ambitious education initiative, not meant to just build schools, but to develop world class educational institutions. A number of events in just the last two

months offer some understanding on the intensity and commitment of this initiative. One milestone was the opening of the King Abdullah University of Science and Technology (KAUST), a postgraduate research institution—a new multi-billion dollar facility, hosting one of the fastest supercomputers in the world, a faculty of top caliber scientists, and a $10 billion endowment to fund research. It puts Saudi Arabia in the global ranks of pre-eminent technological research, with operations spanning nanotechnology, applied mathematics, solar energy, membrane research and bioengineering. The other seminal event was the announcement of four new universities specializing in medicine, engineering, computer sciences, architecture and design. The long-range plan is for 12 new universities throughout Saudi Arabia.

Tasked with the Kingdom's higher education initiative is the Ministry of Higher Education (MoHE), and within the Ministry is the Smart Campuses and Buildings Department lead by Dr. Abdulrahman Al-Motrif. Dr. Al-Motrif has a Ph.D. in Instructional Technology; he is an educator and technologist having directed

"Why would the 8th largest oil producing nation, the 6th largest in proven oil reserves and the 3rd largest oil exporter be building a zero-carbon city? Wouldn't that be something the largest oil consumers should be doing?" The answer lies in the region's foresight, long range planning, ambitiousness and determination to be world-class leaders— all of which is embodied in Masdar."

e-learning, TV broadcasting and educational technology initiatives at King Saud University, the Kingdom's largest and oldest university. The mission of the department is planning and deploying technology in support of higher education and building operations.

The Ministry is currently completing its new headquarters building in Riyadh. The 15-story building has 380,000 sq. ft. (with 155,000 sq. ft. for parking and an adjoining 31,000 sq. ft. conference hall building). It can accommodate 1,300 employees, 800 attendees in its auditorium, has 20 meeting rooms, 3 training centers and can park 500 cars. The team from the Smart Campuses and Buildings Department has been intimately involved in the Headquarters Building and the result is a new Middle East benchmark for intelligent building technology.

MoHE set a basis for the integration of the systems in the Headquarters Buildings including the consolidation of the network cable plant, the use of open architecture and protocols for the systems, and system databases that transfer and synchronize information. Highlights of the systems include:

> Structured Cabling System	> IP TV System
> Local Area Network	> Digital Signage System
> Building Management System	> Video Conference System
> Middleware Application	> Audio Visual Systems
> Access Control and Security System	> Elevators and Lighting Controls
> Wireless	> Facility Management Applications
> Public Address System	> Car Park System
> IP Telephony System	> Data Center

The technologically advanced building provides visitors and employees with digital life-style amenities, and facility managers with very effective security systems and the tools to easily manage the building and obtain accurate and actionable information on the systems. Maan Al Farsi, Project Manager with the Smart Campuses and Buildings Department stated, "We expect the technology in the headquarters building to contribute to MoHE staff experience in many ways such as increased employee productivity, awareness and collaboration". Other benefits include ease of operation, higher performance, lower total cost of ownership and future-proofing the building. The building serves as not only a benchmark for campuses and educational facilities, but

also sets the bar for buildings in the region in saving energy and conserving resources.

Masdar, Abu Dhabi, United Arab Emirates

Masdar is a zero-carbon, zero-waste city under development a few kilometers outside the city of Abu Dhabi. When the project was first announced a few years ago, it justifiably turned heads. The question for many was "Why would the 8th largest oil producing nation, the 6th largest in proven oil reserves and the 3rd largest oil exporter be building a zero-carbon city? Wouldn't that be something the largest oil consumers should be doing?" The answer lies in the region's foresight, long range planning, ambitiousness and determination to be world-class leaders—all of which is embodied in Masdar.

Masdar is planned to eventually house 50,000 people within 2.3 sq. miles and have 1,500 businesses operating in the city. It will fund research and innovative companies involved in energy and sustainability. The city will be powered almost entirely by solar energy and other renewable energy sources. The first development is the Masdar Institute of Science and Technology (MIST), which opened in September. MIST has been developed in cooperation with the Massachusetts Institute of Technology (MIT) and will offer Master's and Doctoral-level degree programs

"…King Abdullah University of Science and Technology (KAUST), a postgraduate research institution a new multi-billion dollar facility, hosting one of the fastest supercomputers in the world, a faculty of top caliber scientists, and a $10 billion endowment to fund research. It puts Saudi Arabia in the global ranks of pre-eminent technological research, with operations spanning nanotechnology, applied mathematics, solar energy, membrane research and bioengineering."

focused on the science and engineering of advanced energy and sustainable technologies.

The power sources for Masdar will be diverse. They will include a 40 to 60 megawatt solar power plant as well as additional photo-

voltaic modules that will be placed on rooftops to provide supplemental solar energy totaling 130 megawatts. Wind farms will be established outside the city's perimeter capable of producing up to 20 megawatts. The city will also use geothermal and hydrogen power. However, Masdar will not produce enough energy to power itself at night and will import gas-fired power from Abu Dhabi's grid. It will export excess solar power to the grid during the day, so the carbon accounting is expected to result in zero carbon.

Water is the primary sustainability issue and resource in the region. Masdar will implement a solar-powered desalination plant and is projecting 60% lower water needs than similarly sized communities, with 80% of the water used being recycled. It will also attempt to reduce waste from the water to zero by using biological waste to create nutrient-rich soil and fertilizer, then incinerating the waste as an additional power source.

Transportation within Masdar will also be environmentally friendly with the city considering light rail transit (LRT), personal rapid transit (PRT), car parking and a logistics center addressing transportation and the distribution of goods at the edge of the city. With few (if any) real roads within the city, personal transportation will be underground, where people will use a driverless taxi or an electric podcar called the PRT (Personal Rapid Transit) that will travel at about 15 mph.

There is much more to the vision of Masdar, and this experimental eco-utopia has very high visibility and global implications for others pursuing similar developmental goals. The list of Middle East projects and developments that are involved or at the forefront of energy conservation, smart technology deployments, sustainability and innovation is extensive. These three projects are representative of the region and the potential it holds. •

Sears Tower to Get a $350M Makeover

"All portfolio managers and real estate owners to some extent have been concerned with energy efficiency, and they've done small things. What this project is going to show is that it actually makes sense to make large and significant energy efficiency improvements, not the 5 to 10 percent type things, but the 20 to 30 percent and more type of improvements, and that there is a business case for doing so."
—Clay Nesler, VP of Global Energy and Sustainability at Johnson Controls.

Almost 36 years since its completion, one of the most visible, iconic structures in Chicago, the Sears Tower (now known as the Willis Tower) promises to be the most aggressive, sustainable, green retrofit project in the western hemisphere.

Following on the heels of the Empire State building modernization, American Landmark Properties, owner of the 110-story building, has begun a $350 million, top down retrofit of what is currently the third tallest building in the world.

Designed by Chicago-based Adrian Smith + Gordon Gill Architecture, the project has been called the most significant of its kind ever attempted on an existing building. The unprecedented modernization project will involve:

• Improvements to the building envelope and windows, including thermal glazing along with replacement of all of the buildings 16,000 windows. Strategies to achieve a thermal break of the curtain wall are also being investigated; it is estimated that this alone will save nearly 60% of current heating energy costs.

• Mechanical system upgrades. New gas boilers that utilize fuel cell technologies, which generate electricity, heating and cooling at as much as 90% efficiency. New high-efficiency chillers and upgrades to the distribution system.

• Modernization of the 104 high-speed elevators and 15 escalators with the latest technology to achieve 40% reduction in their energy consumption.

• A reduction in water usage of 40% estimated to result in savings of 24 million gallons per year realized through upgrades to restroom fixtures, condensation recovery systems and water efficient landscaping.

• Advanced lighting control systems and daylight harvesting which (combined) are estimated to save 40% of lighting energy consumption.

• Renewable energy (wind and solar) and new technologies (green roofs). Wind turbines will be tested to take advantage of the tower's height and unique setback roof areas. Solar hot-water panels will help heat water for the building. Green roofs that can sustain the conditions at that altitude will be tested to reduce storm water runoff, improve insulation, help mitigate the urban heat island effect, and provide pleasant vistas for tenants.

The entire project will result in unparalleled energy savings and reduced CO_2 emissions, reducing the base building electricity use by up to 80% (through savings and co-generation). The annual energy savings are anticipated to equal 68 million kilowatt hours or the equivalent of 150,000 barrels of oil—enough to power a Chicago neighborhood of 2,500 homes for a year. It is hoped that those achievements, along with green cleaning, recycling and bike-sharing programs already in place, will be enough to earn LEED Platinum, the highest sustainability designation of the U.S. Green Building Council LEED rating system.

The project will create almost 4,000 jobs, according to project officials and is expected to take approximately five years.

John M. Huston, who with Yisroel Gluck coheads American Landmark Properties, said the retrofit will help maintain the building's competitive edge long into the future, although the decision was also personal. "We baby boomers have done a lot of things to the planet that are not very admirable. We need to correct some of those things. When I leave this building, I want it to be in better shape than when I arrived five years ago," he said. Ownership will make a "significant" equity investment in the project, he added, and it is pursuing government and nonprofit funding. All of the operational cost savings generated by the project will flow directly to tenants. •

For more information on the sustainability plans for the building, go to www.willistower.com/icon

Green Buildings:
Balancing Fact and Fiction

Ujjval K. Vyas
Alberti Group

"Concentrating on easily measurable options with short payback periods is still the best way to implement the hard cost energy reductions that will increase NOI."

As the recession causes the flow of one type of green in the marketplace to ebb, another type of green is everywhere. *Green*—as in the adjective applied to everything—from *green* buildings to *green* paper cups, from *green* portfolios to *green* computers, from *green* legislation to *green* businesses. The world of real estate has been anything but immune to the use of green marketing to create a positive buzz.

However, because of the easy attraction of positive public perception, misguided decisions to pursue a green strategy can be commonplace—especially when the marketing department controls the task of 'creating' the green perception and the actual (and crucial) relationship of green to actual performance is set aside.

What basic issues are at stake and how can green marketing evolve into the greater performance of real estate assets as well as provide real benefits to the environment and a property's bottom line? This is a difficult question, largely because honest discussions about risk-adjusted cost/benefit analyses are few and far between. Green seems to be a kind of kryptonite, dulling the powers of developers and owners who would normally demand clarity about the bottom line and added value.

Several important areas need to be addressed by all facets of the real estate operation, especially the boardroom.

Energy Efficiency vs. Energy Consumption.
At the policy level, keep in mind the difference between energy *efficiency* and energy *consumption*. The last five decades have seen significant improvements in the efficiency of all kinds of appliances, building systems and other energy-reliant technologies. However, the increase in total energy consumed has far outstripped any gains in efficiency. In fact, as economist William Jevons pointed out long ago, the more efficient we become using certain resources, the more rapidly we use those resources. Therefore, a major concern for the real estate sector should be the continued overall supply of energy to service the assets that currently exist. In the long run, an energy-efficient building that suffers from blackouts or brownouts will make no economic sense.

At a more granular level, it is important to clarify the ownership and leasing structure before a program of energy efficiency retrofits is put into place. This should be done at the same time as initial benchmarking. Dealing with assets as trophies, as Mark Jewel of RealWinWin indicates, can often lead to disproportionate interest in a few of the assets in a portfolio to the real detriment of overall monetization, energy efficiency and other improvements throughout the portfolio. This 'fixation' (often prominent at the corporate level, where certain buildings may become the 'signature' of a particular leader or regime) can be counter-productive.

LEEDing the Way?
Many in the industry are looking to rating system products to act as proxies for performance or added value for building assets. This has become a popular way for governmental entities to create stealth, unfunded mandates for additional requirements to be borne by developers, owners, or lessees. In fact, recent credible studies suggest that the performance results of buildings with LEED certification (or other ratings) may not be much better than non-rated buildings. Whether this is linked directly to weaknesses in the rating systems or something else is not yet clear.

What is clear is that depending on rating systems (rather than real, measured and verifiable data, as well as holding someone accountable for the outcome) can make the whole task meaningless. Concentrating on easily measurable options with short payback periods is still

the best way to implement the hard cost energy reductions that will increase NOI. NAIOP recently conducted a study that indicates that solar energy is not capable of having an ROI—even with a 10 year payback!

There are also real risks associated both with legal and legislative issues in the green arena. Do owners really understand what a green lease should contain? What happens when a tenant requires certain green elements or rating achievements? These questions are only beginning to be answered and most attorneys are not fully conversant in the ramifications of the many overlapping legal issues. Owners, architects and engineers face significant risks when attempting to deliver certain types of green buildings and these challenges must be dealt with knowingly. This is a developing specialized field, but many owners have little or no sense of the legal risks associated with 'pushing' green buildings, especially because failures have not been publicized.

Go Figure

Owners, developers and tenants should be on the alert for legislative changes that will affect their respective bottom lines. HB 697, for example—legislation recently enacted by the state of Florida—makes all land development in the state subject to greenhouse gas emission and energy conservation regulations. However, there is not yet in place a coherent rulemaking process to determine the meaning of 'fulfilling' the greenhouse gas emission or energy conservation requirements.

Other examples include the attempt by the Waxman-Markey Bill to create a national energy code and Toronto's new requirement that all buildings above six stories must have a green roof. Too often there is a lack of foresight as regards the consequences of such legislation. In Toronto, for instance, no analysis was done to determine whether property insurance would even cover the required green roofs.

Clearly, the desire to be green is sweeping the real estate industry. But, as with all new movements, trends and fashions, it remains to be seen how meaningfully this change can lead to *better* assets—in both environmental and economic terms. In the meantime, real estate professionals would do well to analyze the risks, benefits, and long-term consequences of their green projects with the same rigor they apply to any business opportunity. •

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Continuous Commissioning
Assessing Energy Efficiency

Michael R. Duff
EnthEnergy LLC

Besides the weather, no subject has had more said and less done about it than increasing the energy efficiency of large buildings. Even more, we have accepted a standard of accountability for the efficient operation of large buildings that, if judged by any other part of our organizations, would be considered tantamount to a dereliction of duty.

Ask building operations staff, "How are we doing?," and instead of a detailed explanation of budget variances that other departments routinely provide, the answer is usually in the form of an anecdote or a vague reassurance. If a CEO asked accounting for the latest financial results and instead received a description of the many features of the department's new adding machine, what would happen?

Good Help is Hard to Find
In all fairness, while the desire to improve energy efficiency is nearly universal, the tools with which to accomplish precisely measured and reliably reported results on a sustainable basis have been practically non-existent. Even with the best of intentions, it's been every building (every school, hospital, office tower, courthouse, warehouse and industrial plant) for itself.

This is certainly not because there is a lack of energy efficiency solution providers. Just saying the words 'energy efficiency' usually brings them forth in droves: consulting engineers, ESCOs, performance contractors, property management firms and even utilities.

More an Empty Gesture
For their part, consulting engineers (like archeologists) have dutifully burrowed into the guts of large buildings, unearthing piles of data from which to fashion a few recommendations and perhaps an ROI projection or two. This process usually culminates in the exchange of a 5 lb. energy audit for a $25,000 check. More often than not, the audit is then ignored, and ends up on somebody's shelf, more an empty gesture than a call to action.

Energy services companies line up to persuade building owners to 'jump to solutions'—preferably theirs. "Buy this, install that and trust us to justify the capital outlay with the projected savings we will calculate and send you annually, to prove how wise you were to pick us as your rip and replace vendor." Energy consultants do much the same thing, only with wheelbarrows filled with binders stuffed with energy efficiency strategy options that require at least one new FTE to stack and 'coordinate'. Their effectiveness is measured by the size of the check they are contractually obliged to write themselves from the shared savings calculations that are as proprietary as they are fanciful.

Property management firms have so comprehensively failed to deliver anything beyond the 'green theatre' of lofty phrases and impressive job titles that building owners have started searching for vendors with real programs, real

deliverables, real timelines and real track records of validated results. These firms are not alone in stating, stipulating, promising or even 'guarantying' the improved energy efficiency to be magically gained from their contracted services. They are also not alone in stonewalling demands for the hard evidence that their programs have ever really saved any customer a single kilowatt-hour.

After the Hype

And, for all the hype about utility 'smart meter' technology coming to a building near you sometime in the next decade, little evidence exists that this digital technology will do anything other than improve the utility's ROI with remote data collection, more complex billing tariffs, 5-minute price changes and the extinction of human meter readers. Utilities will also receive a mountain of publicity about how 'green' they're becoming.

There's no evidence utilities will allow the output of their new 'smart meters' to be used by the owners of large buildings to optimize systems, schedules and operations to bring down overnight loads or weekend demand, let alone become better-informed shoppers seeking better rates or more compatible tariffs since that would threaten their one and only bottom line concern: ROI. A few times each summer, we all hold hands to dampen demand to save the grid. The rest of the year, we're on our own.

Owners of large buildings face the major issue that energy is the #1 controllable expense in their budgets, and the average large building in the United States continues to waste 20-30% of the energy it consumes. Dreaming where that could be reallocated may provide motivation but it doesn't answer the question of how we start.

Benchmarking

Before initiating an energy efficiency program, it is prudent and wise to determine first how the buildings have performed in the past and how they're performing currently. Improving energy efficiency is like any other enhancement program; it requires a baseline of past performance, accurate diagnoses, informed recommendations and regular, validated results before any sustainable improvement can take place.

Physicians, financial planners, personal trainers and other trusted advisers also follow this path. They, too, share the fact that they have no financial interest in the results of their recommendations, freeing them to tell clients what they *need*, not necessarily *want*, to hear.

If a trusted advisor suggested that you 'jump to a solution' that benefited him financially without first doing a thorough assessment of your past and current condition, how long would he remain a trusted advisor? Would you trust a tax return prepared by someone compensated with 25% of your projected refund?

An Effective Program

You can't control what you don't manage. You can't manage what you don't measure. And you can't measure energy use without special tools. A truly effective energy efficiency program would likely consist of low-cost, flat rate, hosted software services that capture and analyze energy use and cost information (past and present) to:

- benchmark;
- baseline energy use and cost;
- prioritize by need;
- organize building data;
- make interval meter data understandable;
- be effective both above and below the ceiling;
- test building performance monthly;
- monitor for energy-wasting conditions continuously;
- send alerts when necessary; and
- report energy use by a variety of metrics.

Instead of waiting for a technological panacea to come along, consider returning to the basic blocking and tackling of management: What happened? Why did it happen? What can you do to make improvements and track performance to promote sustainability? Planned, directed, contracted or spontaneous, it all counts as long as it slows down the meter. In fact, it *only* counts *if* it slows down the meter. *Let the revolution begin!* •

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Grubb & Ellis in the Spotlight
with Microsoft Silverlight

"Simply put, it is a web-based application designed to allow clients and professionals to seek, review and interactively communicate regarding real estate across the globe."

N o one would argue that Microsoft's Virtual Earth is a great product on its own. The ability to look at aerial and oblique images, street maps and street views seamlessly enables a host of applications. All of a sudden, looking for a boutique hotel, checking out favorite camping spots on the computer, or even viewing Niagara Falls or the Tower of London is fun and easy.

Looking at real estate was among the first logical applications for aerial imagery and looking at/for residential real estate quickly also became one of the most significant uses of Microsoft Virtual Earth. It made sense and was of enormous value to be able to look over the fence into the yard, check out the color of the front door and see how close the school was, all without leaving your chair—all before deciding whether it was worthwhile to go see a property.

It also became apparent early on that commercial real estate would be another great application for this powerful program. Whether considering an investment or lease, a great deal of time is spent viewing properties. Visualizing the parcel, checking contiguous properties and even evaluating roof conditions are just a few of the ways commercial real estate professionals can use this product.

"Imagine seeing the vacancy rate or offering price hovering over a building or being able to overlay demographics, building codes or traffic patterns on a building, project or even a city!"

This powerful platform integrates and overlays imagery with robust, comprehensive and accurate property and market data. Imagine seeing the vacancy rate or offering price hovering over a building or being able to overlay demographics, building codes or traffic patterns on a building, project or even a city! This integration of imagery and data will have a dramatic impact on how business is conducted.

A project of this magnitude (and the 'game-changing' application that resulted) could not have been accomplished without direct and intense collaboration between major organizations—a market leading technology company (Microsoft) providing the imagery platform and a world-class commercial real estate services firm (Grubb & Ellis) providing the domain expertise and data.

Over the last several months, Grubb & Ellis and Microsoft have been working diligently to build such a platform. Using Microsoft's new Silverlight product (a cross-browser, cross-platform implementation of the .NET Framework for building and delivering the next generation of media experiences and Rich Interactive Applications (RIA) for the web), these two industry giants set out to build a new way to interact with market data and foster better, more accurate and timely decisions surrounding commercial real estate.

Main Search and Summary Screen

Property Detail and Business
Intelligence Details

Broker Profiles and Property
Tours in High Definition

Spotlight

The new product, named Spotlight, is the latest real estate solution from Grubb & Ellis for its clients. Simply put, it is a web-based application designed to allow clients and professionals to seek, review and interactively communicate regarding real estate across the globe. The ability to search an extensive research database of property and space listings, identify and save listings of interest, and view detailed information or imagery of properties and locations in a collaborative environment, provides clients with instant access and streamlined communication with real estate professionals. Spotlight also allows interactive data to be layered on top of Microsoft Virtual Earth maps to provide increased business intelligence capabilities which can be constantly updated and improved to allow informed decisions to be made more quickly and easily. Examples of this type of intelligent data layering are:

- property level statistics and analysis
- aerial mapping tool (with ability to save project-specific information)
- market and sub-market analytic information
- competitive/market analysis
- parcel and other associated statistics
- demographic statistics

High definition video of transaction professionals and virtual building tours, where available, are also accessible through a single click of the mouse, providing the client with greater insight into the professional and location than ever before. ●

LED Lighting the Way

LED lighting technology, also known as solid-state lighting (SSL), is one of the up-and-coming superstars in the electronics world. It could very well be THE 'next BIG thing'.

"The Department of Energy (DOE) has announced the availability of $346 million (from the American Recovery and Reinvestment Act) to expand and accelerate the development, deployment, and use of energy efficient technologies in commercial buildings, as well as new and existing homes."

When LEDs were discovered in the '60s, they had relatively limited applications. Now, however, they're doing hundreds of different types of jobs. They give light to traffic signals, take the place of LCDs in television sets, light up the jumbo boards at entertainment arenas, illuminate streets, parking lots and provide architectural and spot lighting for building exteriors and interior spaces. Adoption of these and other applications has been growing exponentially because, other than the sun, LEDs are the most efficient light source on the planet.

Smarter Than The Average Bulb

LEDs are different than conventional bulbs in that they fit directly into an electrical circuit. Instead of creating light by heating filaments or electronically exciting mercury vapor or other gases, they are illuminated by electrons that run through the semiconductor material to which they're attached. Because there are no filaments, LEDs don't get hot and, due to their efficiency, they require far less electric power than traditional light bulbs.

They're about 10 times more efficient than incandescent bulbs and double the efficiency of fluorescents. When you consider that they last 6 times longer than fluorescents (and easily outlast incandescent and HID bulbs by 40 times), the equation can yield a savings of up to 80% on lighting costs. Since lighting accounts for approximately 40% of total energy spend in buildings (lighting consumes 29% of all the electricity in the US), an LED retrofit can cut an energy bill up to 40%! True, LEDs are significantly more expensive to purchase initially—but the ROI over just one year is phenomenal, and the cost is continually coming down. LEDs are also much kinder to the environment and eliminate the hazards of mercury toxicity, CO_2 emissions, etc.

Numbers Don't Lie

Imagine an office with a bay of 2' x 4' fluorescent tubes that run from 9-5 weekdays at a cost of about $100 per year for electricity. To light the same area, LED tubes would cost only $30 a year. Every 100 lighting bays, therefore, represents an annual savings potential of $7,000—even more, actually, because of the life expectancy of the bulbs. The LEDs will last for 50,000 hours (25 years at 2,000 hours per typical year); by comparison, the fluorescent bulbs will burn for an estimated 20,000 hours, and they will lose 60% of their light output after 12,000 hours. The reduced maintenance costs could boost lighting savings beyond 80%.

Of the 1.5 billion sf of central business district office inventory in the US, the average floor plate is approximately 25,000 sf. Fire codes typically require one fire escape per 10,000 sf. Extrapolating from that, there are approximately 150,000 fire escape doors in the central business districts of the nation. If just *these* fire escape doors were retrofit with LED tube bulbs, applying the 80% savings factor would result in a national savings of $54 million (or an expenditure of $13.5 million per year as opposed to the $67.5 million for the currently used low-tech fluorescent tubes). Over an 8-year period, the collective savings would exceed $400 million for just fire door illumination!

A major east coast hotel with significant convention and meeting space had a run rate of just over 5 million kWh per year for its lighting. The annualized lighting cost for 2009 was slated to be $492,000; with deregulation in 2010, the

cost could have increased to $690,000. In 2009, however, the hotel performed an LED retrofit. It is now projected that electricity consumption will drop to just over 665,000 kWh and the lighting costs for 2010 will be just under $90,000—an annual savings of $600,000! For a million square feet, the $.60 per sf tax deduction adds another $600,000. In a 33 percent tax bracket, the net to bottom line savings is $200,000.
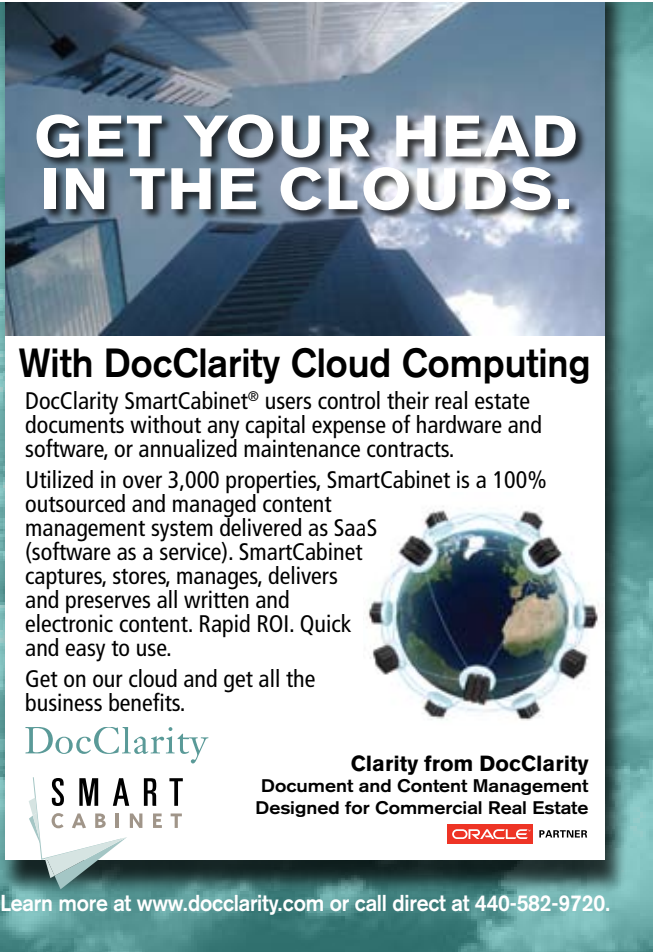
Stimulus Money Available

There are some motivating funding programs that are helping encourage the adoption of LED lighting technology. The Department of Energy (DOE) has announced the availability of $346 million (from the American Recovery and Reinvestment Act) to expand and accelerate the development, deployment, and use of energy efficient technologies in commercial buildings, as well as new and existing homes. Available for projects that will have a major impact on energy reduction, this includes LED lighting retrofits. About $50 million is earmarked for solid state lighting research and development, to accelerate the development of state-of-the-art solid-state lighting technologies and help bring products to market more quickly.

The American Recovery and Reinvestment Act of 2009 extended many consumer tax incentives to businesses, utilities, and governments in the form of tax credits. Any building that can cut its lighting power density by 25-50% is eligible to receive a tax reduction of $.60 cents per sf, and this includes retrofits. (A tax credit is generally more valuable than an equivalent tax deduction because a tax credit reduces tax dollar-for-dollar, while a deduction only removes a percentage of the tax that is owed.) Certain progressive lighting companies (e.g., Lutron, Illumitron) have put together creative financing strategies to help commercial real estate owners justify the capital investment and show an ROI in the first 12-18 months after installation.

Networking in the Future

Looking ahead, there will be new ways to power, control, and dim LED lights that take advantage of digital technology. Most LED lights sold today require an AC-DC transformer (a/k/a an LED "driver"), and leading driver vendors can incorporate very sophisticated dimming capabilities that offer very smooth and low-light dimming for LED lights. As LED lights require less power and become more energy efficient, there will be opportunities to create new network-based architectures to centralize these

systems. "We see an opportunity, introduced specifically with LED lighting, to fundamentally change the way we power, network, and control commercial lighting," said David Leonard, CEO of Redwood Systems (and formerly a general manager in Cisco's desktop Ethernet switch business unit). His California start-up is developing a solution that intelligently integrates power and control for LED lighting by removing the drivers from each light, and connecting all the lights into a centralized power and control-networking platform. Redwood states that such a network-based solution can both save costs, improve AC-DC transformer efficiency, and bring simplicity and scalability to the traditional control capabilities around occupancy detection, day lighting, demand response and other energy optimization techniques. •

Business Intelligence:
The Time is Now!

Howard Berger
Managing Partner
Realcomm

Why all the sudden interest in business intelligence?
When the realities of the shifting economy hit in 2008, among the first reactions by many commercial real estate companies was a hard look at 'non-essential' expense line items—ones that didn't directly produce or support revenues. This meant there would be little or no increase in capital or operational spending for 2009, certainly not in new technology—unless the investment could virtually guarantee a very swift ROI.

Where is the demand?
This may be a slight exaggeration in some circumstances, but may even be an understatement in others. IT budgets have flattened, but there is still a demand for investments that streamline operations, rapidly increase profitability, and measurably impact marketing by providing competitive differentiation.

Business intelligence (BI) is rising to the top of the 'want/must have' list for many commercial real estate CIO's. Gartner, Inc. a leading information technology research and advisory firm headquartered in Stamford, CT, surveyed 1,527 chief information officers and found that business intelligence was the #1 priority for technology organizations in 2009—the fourth consecutive year it has topped the list. Think about the possibilities! You have an enormous amount of data in your spreadsheets, property management, enterprise resource and CRM systems, which, if tapped, could potentially provide a variety of significant business insights. BI tools offer the opportunity to harness and leverage that data.

Large-scale packaged applications that digest and generate massive amounts of information are essential to commercial real estate operations. Some leading solution providers have begun integrating basic business intelligence tools such as ETL and dashboards in their product suites. Many of these key applications, however, are not designed to facilitate the extraction of information from this data. A BI strategy allows you to plan to retrieve and properly 'mine' that information and to put it to work for your company.

BI can provide: location intelligence; leasing analysis patterns to manage occupancy; information to enable benchmarking rental revenues against market data; the strategic ability to manage revenue; the wherewithal to track lease deals and calculate rents and perform portfolio analysis; the tools to optimize corporate workspace utilization; GIS-enhanced analytics with 2D and 3D data visualization; client and investor portals; the capability to perform sophisticated budgeting and forecasting; the capacity to benchmark fund performance against the NCREIF index; the facility to streamline CAM reporting; and the aptitude to simplify workflow analytics. And more!

Predictive Analytics
Hockey great Wayne Gretzky once said, "A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be." This statement illustrates the relationship between BI and the science of predictive analytics (though I doubt that's what Gretzky had in mind). Combining the two can uncover trends and patterns, facilitate more comprehensive forecasting, and result in wiser business decisions. These sophisticated applications are drawing the attention of many organizations. In fact, in 2008, the IDC (a premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets) conducted a BI and analytics survey and found that predictive analysis tools were the #2 priority for purchasing within the following 12 months.

Why the growing interest in BI? According to the IDC survey, the median ROI for BI projects using predictive technologies was 145%, compared to 89% for projects without them.

The key is to make the tools usable by as many within an organization as possible, not only those with a Ph.D. in statistics. •