Connectivity is all around us, from the smartphone in your pocket that provides instant access to anything you want to know to the tablet on your desk that allows you to keep up with news, correspond with colleagues and plot out projects from a single device.

What if you shared that same connectivity to the properties you own and operate? What if you could anticipate the needs of a building — down to the precise temperature and air flow necessary to keep employees in conference rooms comfortable during meetings or how much electricity to run based on their movements through an office? Take that a step further, and imagine if you could constantly monitor the whereabouts of occupants during emergencies, help tenants estimate foot traffic or parking availability outside their building on any given day, or digitally tag your space so it could be rented during off-hours or vacancies. These realities may be closer than you think.

The technology making this possible is the Internet of Things (IoT) — a concept that involves connecting physical objects to the Internet via embedded sensors and tags and enabling them to communicate intelligently with people and other devices. IoT is already becoming a staple in the logistics industry, which uses GPS-enabled tracking via sensors and wireless devices to optimize routes, measure vehicle and driver performance, monitor packages, and provide customers with up-to-the-minute delivery times and shipment updates. The industry will eventually use IoT technology to develop smart containers that offer providers across the supply chain detailed visibility of items in transit and streamlined warehouses that allow customers to order merchandise online from several different stores, while receiving all of their purchases in a single box.

By 2020, there will be 50 billion devices connected to the Internet, compared to 15 billion today, according to a report released by logistics provider DHL and IT leader Cisco. The impact of these devices over the next decade on innovation and revenue, asset utilization, supply chain and logistics, employee productivity, and enhanced customer and citizen experience is projected to generate $8 trillion in new net revenue for public and private sectors worldwide, the report notes. Commercial, industrial and public services are expected to benefit the most from this technology. In particular, retail, manufacturing, agriculture, energy and smart buildings will drive much of the demand for IoT devices, according to a report by FierceMobileIT.

So what does the future IoT revolution mean for commercial real estate? Here are three areas this technology will impact:

**Developing properties.** IoT will radically shape the infrastructure and design of buildings. Buildings will be dynamic rather than static, capable of communicating with personal devices.

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**Upcoming Research**

Look ahead toward reports and white papers published by the Research Foundation.

- **Repositioning Office Parks: Case Studies**
  January 2016
  Examines low-density suburban office parks that have been modified to increase their value by adding density, mixing uses and increasing amenities.

- **The NAIOP Industrial Space Demand Forecast**
  February and September 2016
  Forecasts demand for industrial space eight quarters out, at the national level.

- **Economic Impacts of Commercial Real Estate Development (2016 Edition)**
  April 2016
  Annual study on construction expenditures and their impact on jobs, GDP and salaries/wages on the national and state levels.

- **The NAIOP Office Space Demand Forecast**
  May and November 2016
  Forecasts demand for office space eight quarters out, at the national level.
As we close 2015, I hope that you find this issue of the NAIOP Research Foundation’s newsletter to be informative, jumpstarting your thoughts about the opportunities and challenges ahead for our industry. It’s been a banner year for the Foundation, with the induction of seven governors (see page 4 for our newest members) and the release of two white papers and two research reports.

The research we’re publishing next year is fascinating and forward-looking, with studies on the development of innovation districts, repositioning office parks, and the much-anticipated release of the NAIOP Office Space Demand Forecast, among others.

At the Foundation, our mission is to provide knowledge and insights that allow industry leaders to have a strategic eye on the future of the built environment, keeping us one step ahead of the competition. Foundation Governor Bill Hunt shared why he finds our research valuable (see page 4), and I think you’ll agree with his viewpoint on the Foundation’s important role.

As I conclude my term as chairman of the Foundation, I’d like to offer my thanks and appreciation to our Trustees, Governors and staff. Your commitment and enthusiasm for our mission is extraordinary, and I’m looking forward to the future of this great organization.

Sincerely,

Lawrence A. Pobuda
Senior Vice President and General Manager
The Opus Group | Phoenix, Arizona
2015 Chairman, NAIOP Research Foundation

The NAIOP Research Foundation fosters building better communities through practical research and education that advances the quality, and makes evident the benefits, of commercial real estate ownership and development. The Foundation’s work empowers developers, owners and investors to make sound decisions informed by cutting-edge data and analysis.

Governors
Governors support the Foundation’s program of work through pledging significant financial support and by giving their time and sharing their expertise.

National Research Directors
Thought-leadership from industry meetings with national research directors from major commercial real estate brokerage and data firms is applied to future research topics.

Industry Trends Task Force
NAIOP leaders and Research Foundation Governors meet annually to identify trends that will impact the industry in the intermediate and long term, often leading to future research.

Distinguished Fellows Program
Engages the nation’s foremost commercial real estate, economic and public policy experts and serves as a bridge between the practicing commercial real estate sector and the academic community. The program is supported by the Research Foundation, and Fellows conduct and utilize the Foundation’s reports.

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and providing improved access and security. Smart buildings will measure building performance continuously and respond automatically when sudden changes in temperature, humidity or other issues arise or modifications are needed. Equipping a building with sensor technologies to achieve these advantages will require an investment in the thousands of dollars plus strategic planning on the front end, but ultimately IoT has the potential to reduce waste and save costs for owners. Buildings currently account for about 40 percent of energy consumed in the U.S., but a study by the Oak Ridge National Laboratory found that advanced sensors and controls have the potential to reduce that by 20 to 30 percent.

Marketing properties. Digital technology has already changed the way people search for properties, as sites like CoStar and Zillow demonstrate, but the IoT movement will take that a step further with beacon technology. These small Bluetooth-enabled devices can be mounted anywhere and transmit data about the environment to nearby mobile devices. Using beacons in real estate will allow prospects to tour properties remotely in real time or receive vital property information on-demand when visiting a site. Marketing a building with smart technologies also provides brokers and agents with more information they can use to add to the value of the property or offer suggestions for enhancing it.

Managing properties. IoT will transform the way buildings are managed. As occupants interact more closely with a property, it will provide deeper insight into the most visited areas, paths of travel, use of spaces and energy consumption throughout the building. This information, along with building performance data from sensors, will help managers address the most critical needs first and use data to improve tenant experience, sustainability and building flow.

Deployment of IoT technology in buildings will raise questions about cybersecurity, insurance and redundancy as physical and digital spaces collide. Since this technology relies on the cloud to interpret and transmit data from sensors to devices, building operators will need to take extra measures to protect against data breaches and misuse of information. Owners will also need to be properly insured for this technology and be able to ensure business continuity for tenants in cases of power outages or other network disruptions. As IoT technology continues to take shape, it will create more challenges to explore, but there is no question it will provide investors, owners and developers with a crucial tool for making better business decisions and designing more efficient spaces for the future.

Emily McMackin is a freelance business writer in Nashville, Tennessee.

Viewpoint

What Keeps You Up At Night?

“The impact of the global economy on the U.S., as central banks around the globe subsidize their respective economies through Quantitative Easing because governments (including ours) don’t seem to have the political will to make the necessary changes. In the real estate business, we attempt to hedge against economic downturns by developing and investing in resilient product types, like healthcare-related and urban residential projects.”

Paul F. Ciminelli
CEO/President, Ciminelli Real Estate Corporation

“Managing through global uncertainty, inevitable interest rate hikes and an eventual global downturn that could depress asset values by 10-20 percent, resulting in a period of tepid investment and difficult development.”

Greg Fuller
Chief Operating Officer, Granite Properties

“We’re in a great spot in the market cycle now. I’m thinking about ensuring that we’re getting as much as we can out of it while planning for the next market correction. I also worry about things I can’t control, such as the economy and global unrest.”

Jean Kane
CEO, Welsh & Colliers International | Minneapolis-St. Paul
Meet a Governor

William E. Hunt  
President and CEO, Elmhurst Group  
Pittsburgh, Pennsylvania

Q: Why did you become a NAIOP Research Foundation Governor?  
A. Real estate is more than a data-driven business. Brokerage houses provide statistics on occupancy and lease rates, but it is critical to study a long view analysis of trends. The research published by the Foundation adds that additional level of insight.

Q: Does the work of the Foundation relate to markets of all sizes?  
A. Yes, I’ve been pleased to read several reports on topics such as distribution and demographics. For my mid-size market of Pittsburgh, the Foundation’s reports on national trends allow me to stay ahead of the proverbial curve.

Q. What keeps you up at night?  
A. National players with a lower cost of capital penetrating my market. Real estate is now less entrepreneurial and more financially-driven. Pittsburgh has experienced immense change as institutional investors see the benefits of a smaller, stable market that has realistic pricing.

Q. How does the work of the NAIOP Research Foundation benefit the industry?  
A. Independent research provides credibility to our beliefs as an industry, and I credit our research with being particularly helpful with our advocacy efforts. The Foundation’s annual study on the industry’s economic contribution to the national and state economies has been valuable in demonstrating the positive benefits our industry yields. It’s been useful to my chapter during our visits to Capitol Hill and Harrisburg.

Q. Governors enjoy special presentations and project tours. How have those been beneficial?  
A. Real estate is a locational business, and touring developments gives a level of insight beyond the project data. Last spring in San Francisco, we toured a “Mid-Market” neighborhood that’s home to Twitter and other tech companies. It’s a neighborhood truly in transition, with crumbling properties seemingly on the same block as major tech companies. This is where it’s happening — there’s big demand in what I’d consider “edgy” neighborhoods. It got me thinking about the opportunities that will come from these demand shifts for where people are choosing to live and work.

William Hunt has been a NAIOP Research Foundation Governor since 2011 and served as NAIOP Chairman in 2012. He is a longtime member of the Private Developers | National Forum and the NAIOP Pittsburgh chapter. He is president and CEO of Elmhurst Group, which invests in commercial real estate and private operating businesses with holdings of more than 3 million square feet of office, flex and distribution space in the Pittsburgh region.
A Foundation Report

Redeveloping Suburban Office Parks

Filling suburban office parks had become difficult in the years leading up to the Great Recession, but lease up of these facilities became even more daunting during the recovery. When demand for office space began to return, it became evident that walkable, amenity-rich environments, most of which are located in urban cores, were becoming the preferred location for office dwellers.

As vacancies persisted in suburban office parks, more and more owners got creative about ways to keep their projects relevant, and more importantly, leased. Some made minor tweaks by upgrading their food and fitness amenities while others embarked on massive rezoning and redevelopment efforts.

In the first quarter of 2016, the NAIOP Research Foundation will release a research paper featuring a series of case studies profiling and examining suburban office park redevelopment projects recently completed or underway. Principal researcher Daniel Shoag, assistant professor of public policy, Taubman Center for State and Local Government, Harvard Kennedy School, states that there “appear to be a range of approaches” to the conundrum of suburban office park redevelopment.

Below are some of the preliminary observations gleaned from the case studies conducted to date, illustrating how owners are transforming these auto-centric office environments:

- Municipalities are willing to work with landowners to rezone properties in ways that can result in increased densities and additional uses. State and local governments recognize that they are losing jobs to other states and municipalities as tenants choose to locate in accessible, walkable, amenity-rich, mixed-use environments.
- Private financing has been plentiful and affordable during the recovery, presenting tremendous opportunity to make massive wholesale improvements rather than minor tweaks. Public grants, tax incentives and fast-track approvals have also played prominent roles in the redevelopment of these projects.
- Because these parks are largely controlled by a single entity, there are few of the delays — like the need to assemble properties, obtain rights of ways, etc. — typically involved in new development at this scale.
- Isolation and exclusivity are giving way to integration and connectivity.
- Office parks that were once gated and projected an “institutional” feel are creating welcoming “main street” entrances that integrate with the existing streetscape and invite the public in to generate activity beyond the nine-to-five workday. Some owners are reconfiguring trails and walkways to connect seamlessly with adjacent properties.
- The Great Recession had a silver lining for some office park owners and investors. The stalled economy allowed some to purchase at deep discounts and others to redesign and develop at higher densities after the market came back.

Margarita Foster is Vice President for Knowledge and Research with NAIOP

“Repositioning Office Parks: Case Studies” will be published by the NAIOP Research Foundation in January 2016. naiop.org/research.
Research Foundation Governors

The NAIOP Research Foundation invites individuals who have demonstrated considerable dedication to guiding the future of the commercial real estate industry through their financial support, time, talent and expertise to accept the lifetime distinction of Governor.

Governors help shape the Foundation’s research agenda by serving on committees and giving direction to research projects undertaken. They enjoy exclusive networking and invitations to special events throughout the year.

Governors take pride in knowing that their contributions are building the capacity of the Foundation to develop and disseminate best industry practices that advance the profession and make our communities better places to live and work.

To become a Research Foundation partner, contact Bennett Gray at gray@naiop.org or 703-904-7100.

RALPH HEINS, VICE CHAIR OF THE NAIOP RESEARCH FOUNDATION, INDUCTED NEW GOVERNORS AT THE COMMERCIAL REAL ESTATE CONFERENCE 2015 IN TORONTO, ONTARIO, CANADA.

The NAIOP Research Foundation newsletter compiles strategic resources and analysis selected from the Foundation’s work and featuring its Governors. It is published by the NAIOP Research Foundation. • 703-904-7100