



# Cisco Digital Building Solution

There Has Never Been  
a Better Time to Make  
Buildings Smarter





## Executive Summary

Digital transformation is triggering disruptive trends in today's business world. Connecting people, businesses, and things sets the stage for personalized customer experiences, groundbreaking new business models, and workforce innovation. These changes are already in motion, and buildings are central to this transformation. However, as the number of networks and connections within buildings grows, they are becoming increasingly complex. While building technology has largely remained stagnant, the convergence of isolated building systems such as sensors; lighting; heating, ventilation, and air conditioning (HVAC); security; and audio-video equipment into a single system is fundamental to digital transformation of buildings. Today's building systems and equipment need to work together smoothly and efficiently to meet owners' and occupants' needs. Realizing the vision of smart buildings requires a holistic approach of integrating new technologies.

We are introducing the Cisco Catalyst® Digital Building Series Switch, the first step toward a robust foundation for the next-generation digital buildings. The Catalyst Digital Building Series Switch is the first purpose-built switch for smart buildings. It is designed specifically for powering and connecting multiple siloed building subsystems onto a single unified low voltage IP network. We are introducing the next generation building architecture through our ecosystem of partners, products and solutions custom built for managing buildings with a focus on networking and data transport.

This paper explores:

- What a digital building is and why it is important
- The challenges in transforming conventional buildings to digital buildings
- How Cisco can help you digitally transform your building with purpose-built networking solutions

## Key Facts and Figures





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## What Is Digital Transformation?

Businesses today are evolving rapidly, and digital transformation is leading the way. At its core, digital transformation is the application of technology to build new business models, processes, software, and systems that results in more profitable revenue, greater competitive advantage, and higher efficiency. Organizations need three critical capabilities to embrace digital transformation:



Figure 1.

Buildings—whether they are offices, hotels, hospitals, schools, or retail stores—are central to this digital transformation. Building owners are trying to converge disparate technology systems to deliver enhanced workforce and customer experiences and improved efficiencies in their buildings.

### New Customer Experiences

In the digital era, customer experience is critical to achieving and sustaining market leadership. User expectations are evolving. Two out of three customers switching providers cited poor customer experience as the main reason. Personalized lighting and customized environments can be an important first step toward creating a more innovative and productive environment.

Smart lighting enables many industry use cases:

- Themed lighting to feature sale items in retail
- Wayfinding and digital signage applications in schools and offices
- Diagnostics applications for patient care in hospitals and much more...

Studies show that retailers experience more customer dwell time in areas with warmer lighting, compared to spaces with cooler lighting. Retailers can also employ lighting in dressing-room areas to help boost sales and create a warmer environment with natural light.

**“On average, nearly 80 percent of respondents say they want to work for a digitally enabled company or digital leader.”**

—MIT Sloan Management Review and Deloitte University Press; Findings from 2015 Digital Business Global Executive Study<sup>2</sup>

### Transform Processes and Business Models

As more and more devices are connected, companies gain potential to collect data from every extremity of their value chains. This situation creates the ability to disruptively transform existing business models. Innovation in low-voltage Power over Ethernet (PoE) LED lighting is accelerating the transformation of building systems by decreasing installation and operating costs. Building codes such as California Title 24 and the International Energy Conservation Code mandate energy savings that you can deliver easily by using LED and PoE technologies.

Real-time insights on building occupancy, usage, and environment leads to leaner operations and greater agility. Automated controls enable:

- Daylight harvesting
- Motion detection
- Smart shut-off

### Empower Workforce Innovations

Customized workforce environments can help boost productivity, inspire new ideas, and attract and retain the best talent.

Innovations in the workplace today help adjust:

- Light color and intensity
- Room temperature
- Air conditioning

on-demand at sub-second response times...







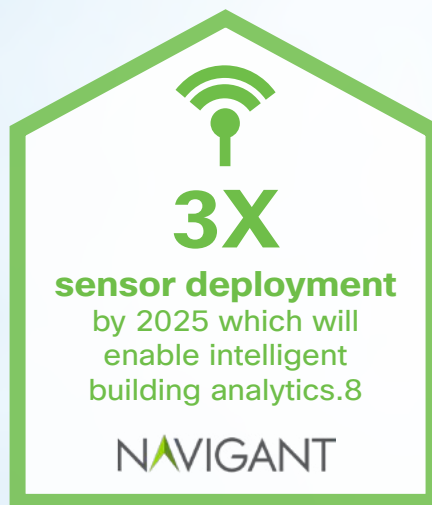
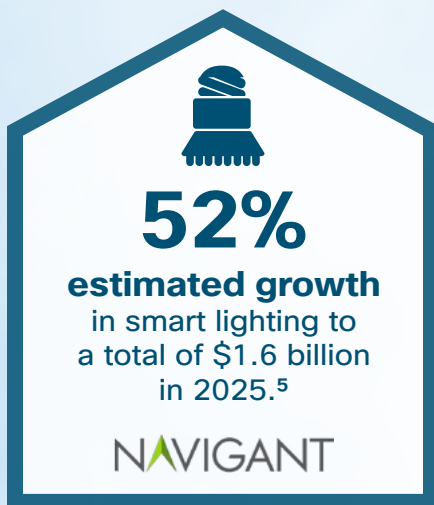
## How Big Is the Digital Building Market?

### Demand for Building Analytics is Increasing

As more people, devices, and sensors are connected, your business can gain access to new data. The data helps you get deeper visibility into your business and environment—and set the stage for real gains in productivity and efficiency.



“Companies worldwide spent \$5.5B on intelligent buildings in 2012, expected to rise to \$18B by 2017 at a rate of 27%.”  
– IDC Energy Insights<sup>7</sup>



Proactive building operations management with faults detection, optimized real estate use, unmatched security, and occupant services that improve comfort and experience would uncover a whole new potential for facilities by offering superior control over the building.

Although a smart building will not eliminate all initial costs for a new commercial real estate, it can help you realize a much higher return on investment (ROI) in the long term. For example, smart integrated building systems can help you dramatically reduce your annual energy costs by avoiding energy wastage. A smart building infrastructure lets you support powerful tools such as telepresence and advanced conferencing. Enabling better collaboration with voice, unified communications, and data services can significantly boost business productivity.



“We’ve shown how data can be applied to building systems to provide real value.”

—Stephen Foster, MD of Information Communication & Technology, EllisDon for RBC WaterPark Place III<sup>1</sup>



## Digital Building Challenges

### Connecting Disparate Systems

While a next-generation digital building can help businesses, interconnecting, deploying, and managing the multitude of advanced siloed building systems is complex and cost-prohibitive. More networked endpoints means more chances of security breach. Without uniform security policies, anybody can break in.

Building owners, managers, and operators are looking for simpler management with greater insights into reducing costs and improving efficiencies and occupant experiences:



## Facilities Manager

How do I manage...

Most of these concerns aren't new, but the building automation market has not been able to successfully solve them—until now.



## Putting It All Together with Convergence

Convergence has traditionally been the biggest barrier to realizing the full potential of a digital building. Convergence is occurring at the technology layer (wired and wireless), and at the protocol layer as well. Convergence to native IP connections is growing, and the use cases of PoE are extending with up-coming standards such as 802.3bt and the Cisco Universal PoE (UPOE) offering, so the need for a standard protocol for building automation, lighting, and other building services is growing. Building networks operate on a variety of technologies such as zigbee, z-wave, Wi-Fi, Bluetooth (BLE), and wired options, such as RS-485 and serial lines for communications, and protocols such as Constrained Application Protocol (CoAP) are driving convergence in the Internet of Things (IoT), smart energy, and building automation to bring intelligence to building systems.

A single infrastructure enables you to reduce the complexity of these siloed systems, reduce risk of security breach, and save energy to meet green standards. You can gain visibility into the health and performance of your entire building, without having to inspect each system manually every day.

The Cisco deployment in Smartworld's new headquarters will serve people's dynamic needs in real time. By connecting Smartworld's building services onto a single, converged IP network, the Cisco framework delivers multiple benefits that include human-centric environments, optimized workspaces, streamlined maintenance, and reduced energy consumption and operating expenses. The potential of the digital building goes beyond optimizing building systems and creates a platform for a new ecosystem of building applications and services.

An aerial night photograph of the Dubai skyline, showing numerous illuminated skyscrapers and a complex network of highways with light trails from traffic. The city lights are reflected in the surrounding areas, creating a vibrant urban scene.

“We’re proud to be the region’s first to deploy Cisco’s Digital Building Solution. It enables transformational applications, business intelligence and makes cost savings a reality. Our office building will act as a proof-of-concept for developers and organizations looking to build smart buildings in Dubai and UAE.”

—Abdulqader Obaid Ali, Chief Executive Officer, Smartworld<sup>10</sup>



## Cisco Catalyst Digital Building Series Switch

### Designed Specifically for Digital Buildings

To drive interconnectivity and convergence of building subsystems Cisco, the leader in networking and switching, is laying the foundation for the next generation smart buildings. Cisco is taking network innovation to the next level by introducing the Catalyst Digital Building Series – the industry’s first switch designed specifically for digital buildings. Unlike any other switch on the market, the Digital Building Switch Series powers and connects siloed building subsystems – lighting, HVAC, sensors, audio-video, and security networks – onto a single low voltage IP network. Catalyst Digital Building Series will greatly simplify the deployment experience with integrated security, lower total cost of ownership, pre-validated architecture, and ecosystem partner integration.

As far as convergence of IoT devices in a building is concerned, this product leap-frogs a generation of innovation. It brings new IoT protocol integration, automation and enterprise security by extending Cisco’s Digital Network Architecture to digital buildings. We are bringing new opportunities to our customers in the digital building and enterprise IOT space through our converged ecosystem of partners, products and solutions.

## Cisco Digital Building Blueprint – A Converged Ecosystem





## Innovative Set of Features

The Cisco Catalyst Digital Building Series Switch is unlike any other, designed to bring together and power a digital business environment. It offers numerous industry firsts:

### **Cisco and NuLEDs establish digital competencies for tomorrow's hospitality industry**

“Sinclair Holdings transformed its 1930 era Art Deco Building into an upscale Marriott Hotel utilizing Cisco's Digital Building Switch Solution, allowing Marriott to offer business travelers and vacationers an enhanced boutique experience and engaged services, delivering real-time analytics and reducing energy costs.”

—Farukh Aslam, President, Sinclair Holdings LLC



## Delivering Superior Business Value: Simplicity, Security, Savings



PoE+



UPOE

Cisco Catalyst Digital Building Series: First ever purpose-built switch for Digital Buildings

Creates the foundation for next-generation smart buildings



## Use Cases: Putting the Digital Building to Work

The Cisco Catalyst Digital Building Series Switch was designed to help you start taking advantage of the benefits of digital buildings right away.

## Conclusion: Empowering Your Digital Building

Cisco is the most trusted partner that completely satisfies the needs of a next generation smart building. Cisco is a leader and innovator in architectures, providing advanced, scalable network platforms and an optimized IP infrastructure. Our prevalidated solutions let you make the most of your technology investment right away, using proven technology and end-to-end security.

Our Catalyst Digital Building Series Switch is supported by a vast ecosystem of leading technology partners. Our partners provide the specialized tools, services, and solutions that help you make your vision of the digital building space a reality.

To learn more about the Cisco Catalyst Digital Building Series switches, please visit <http://cs.co/DigitalBuildingSwitch>





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