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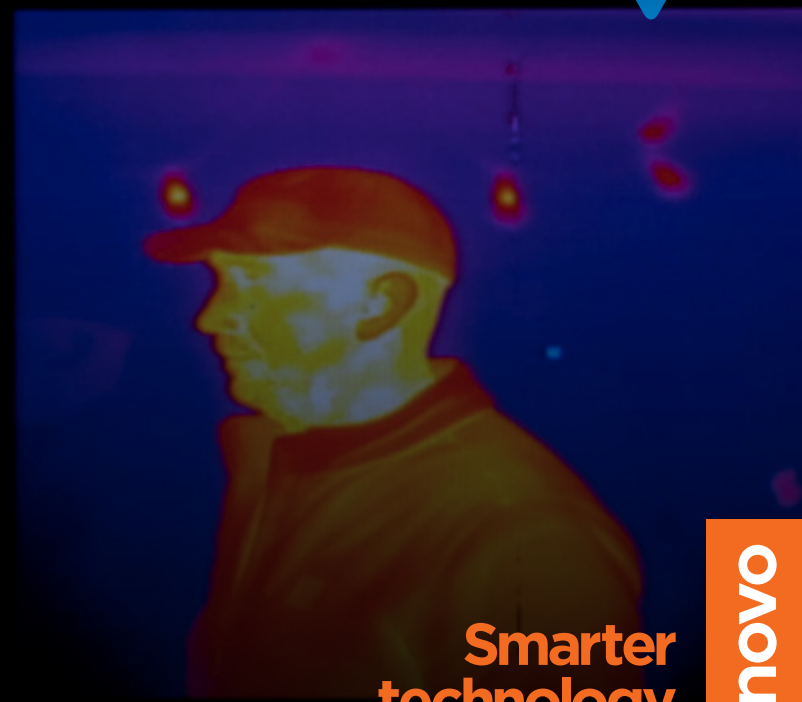
# Converge, emerge, merge

## Three ways technology strengthens large-enterprise security and surveillance



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Smarter technology for all

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Digital transformation takes its place in nearly every facet of life, touching nearly every industry and area of business. Building automation, including security and surveillance, is no exception. Managing and protecting an organization's physical space has evolved well beyond discrete mechanical equipment.

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Digital security and surveillance solutions are now core to residential and commercial building control systems and are important components in “smart buildings.” While these solutions may start out as standalone systems, building owners and managers, architects, and security teams can now integrate data from digital components to create broader awareness and control in one building or across a campus. Connected digital control systems make buildings, campuses, and even cities “smarter” — more responsive, sustainable, productive, and safe.

Like cybersecurity, physical security threats have become more complex for building operators. And like cybersecurity, physical protection technology has evolved. More advanced technology has the capability for data aggregation, proactive detection and diagnosis, and real-time response.

This e-book explores security and surveillance from multiple angles — with a focus on three categories of significant change:

1. The convergence of various aspects of IT and security
2. The emergence of new technologies
3. The merging of security and surveillance systems with integrated workplace management, building wellness, video analytics software, and smart building IoT

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# Redefining

## security and surveillance in a post-COVID world

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Major shifts in the way business gets done, especially the dramatic shift to remote work, have caused companies to take a hard look at their digital transformation plans, technology infrastructures, and building management policies in many areas. With public health and safety top of mind, building access control and surveillance have been thrust into the spotlight.

As business leaders consider how to safely reopen and transition their workforces (and customers) back to public workspaces, retail centers, and healthcare facilities, security and surveillance technology plays a pivotal role.

Protocols for stopping the spread of the virus, recommended by infectious disease experts and mandated by state and local governments, have prompted the installation of traffic control and temperature checks in commercial buildings. Depending on a property's portfolio of building management systems, optimal impact on operating costs, occupant comfort, and asset value are being considered in the overall equation of security, safety, and surveillance. The use of technology for tracking movement and contact tracing is certainly in the crosshairs of this important conversation.

## Balancing protection and privacy

Infectious disease experts agree that contact tracing is a critical tool in reducing virus spread, getting employees safely back to work and students back to school, and reopening the economy. Contact tracing can help prevent further transmission of the virus by quickly identifying and informing people who may be infected and contagious so they can take steps to not infect others.[1]

## Stopping virus spread at the front door

Monitoring and notification solutions (including opt-in smartphone apps) help businesses, healthcare organizations, schools, and local health departments identify and respond to infection exposure. New monitoring solutions are easy to use, CDC-compliant, and for the healthcare industry, may be HIPAA-secured. These solutions help businesses gain real-time status for all individuals, receive automatic alerts for reported issues, and simplify employee/visitor/student self-certification.

In addition to smartphone-enabled tracing, businesses may deploy video surveillance, thermal detection, facial recognition, and even drones to monitor the health and safety of buildings and campuses.

SECURE VIRUS EXPOSURE NOTIFICATION

Apple and Google's new exposure notification approach allows health authorities to submit a "configuration file" that dictates how potential exposure notifications are triggered and what steps they'll advise people to follow afterward, and provides information on any other contact tracing efforts that may exist in their area. This, Apple and Google say, is much easier than building an app and still ensures people's privacy and security.[2]

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### Employee privacy rights

Not surprisingly, there is increasing concern for the privacy implications of this use of technology to capture an individual's health status. Right now, the conversation revolves around the apps/solutions: what happens to the data, who has access, and how easy it would be to steal.

All employers will be expected to conduct risk and hazard assessments for all types of workers and create plans to address those risks. OSHA and CDC provide guidelines to maintain employee information confidentiality.

If the data collected via health surveillance technology by an employer, building owner, operator, etc. includes personal information, adequate employee disclosures and consent would need to be obtained.

Going forward, including public health threats like COVID-19 in plans for new buildings or upgraded security and surveillance systems will likely be top of mind for building owners.

### Growing market

Even before COVID-19, physical security technology in smart buildings was gaining steam, attracting more than $2.9 billion in global investment in 2019.[3]

Established manufacturers and newer market entrants alike invested in both traditional and emerging technology solutions for refining access security.

The market is expanding, with investments in facial recognition, thermal imaging, artificial intelligence (AI), machine learning (ML), and data science. In fact, the world market for video surveillance products is expected to grow at a CAGR of 13.43% to 2023, largely attributed to AI video analytics.[4]

# $2.9 billion

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# 3 forces

## changing the face of security and surveillance

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# 1 Convergence

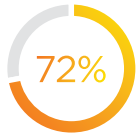
**Physical security and cybersecurity**

Physical and cybersecurity departments have traditionally operated in silos, limiting the collaboration essential for today's businesses. But that's beginning to change. In many companies, there are opportunities to break down collaboration barriers and converge security strategies and tactics.

IT leaders are being tasked with not only protection of their company's network and cybersecurity-related initiatives, but also physical security initiatives to protect employees, visitors, and assets from internal and external threats.

With the increasing interconnectedness of security and surveillance solutions, IT and physical security departments have become more interrelated. This is borne out in a survey of more than 1,500 CIOs, CTOs, IT managers, directors, and staff.[5] Among the findings:


IT is primarily responsible or has shared responsibility for access control within the organization.




IT influences technology decisions through the integration of access control within the ecosystem (72%) and by implementing access control technology (59%).



IT is very involved in decisions regarding physical access control technology investments.

The growing sophistication of hackers and the rising share of physical security dependent on IoT make both physical and digital property vulnerable. Synergy between the two departments is evolving, and companies could benefit from both perspectives on security and surveillance.

**Security and surveillance technologies**

There's also an opportunity for security and surveillance technologies to converge — for systems like video surveillance to connect to access control with a detect-alert-act scenario for locks and alarms.

# 2 Emergence of groundbreaking technologies

## Thermal imaging

What will it take for employees to feel comfortable returning to the office? New hygiene and health protocols top the list. Nearly half of survey respondents say they want to see new workplace safety measures, requirements for customer safety and hygiene practices, rapid response and shut-down, and mandatory pre-return testing.[6]

Thermal cameras enable:

- Contactless temperature checks
- Social distance monitoring
- Mask compliance
- Occupant volume and density analysis


## STANDARDS AND REGULATIONS FOR INFRARED TEMPERATURE SCREENING DEVICES

Thermal imaging sensors are not designed to diagnose COVID-19 or other medical conditions — their purpose is simply to detect temperature above a specified threshold.

Some organizations, however, have issued guidance or standards for human temperature screening devices. And while compliance is not mandatory for all of these, it's good practice to stay informed.

Some guidelines have been created or current regulations relaxed for COVID-19, especially relating to healthcare.[7] States may have additional or varying guidelines. And regulations could change as health experts learn more about the virus. Organizations offering guidelines include:

- The federal Americans with Disabilities Act (ADA) and other privacy laws
- Equal Employment Opportunity Commission (EEOC) regulations
- Food and Drug Administration (FDA) guidance
- International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) guidance
- Occupational Safety and Health Administration (OSHA) standards
- The Centers for Disease Control (CDC) guidelines

## Thermal imaging three ways

Here's how thermal imaging can be used alone or combined with other systems to meet the unique needs of three different types of buildings.


## AI-driven, real-time video analytics

Artificial intelligence is a game-changer for video surveillance. AI software uses machine learning to recognize intruders or anything else the user wants to surveil. AI requires a human for initial setup of the "rules" telling the application what to look for, where, and when — but from then on, it's hands off. This relieves a huge burden on the person who's tasked with combing through hours of footage.

AI solutions can be configured to send alerts based on surveillance metrics. Since the data is analyzed in real time, action can be taken at the time of an event. An AI-driven surveillance camera can also coordinate with other systems, like door locks and alarms.

### WHAT'S NEW IN ACCESS CONTROL

- Touchless authentication
- Single sign-on
- Biometrics
- Mobile credentials
- Bluetooth-enabled readers
- Coordination with other systems to enforce restricted access, send alerts, trigger alarms

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# 3 Merging of security and surveillance solutions with smart building systems

Smart building technology has come a long way. It now enables a wide range of devices to connect, forming smart ecosystems. Here are some examples where smart video surveillance cameras are the heroes.

**In an office building:**

- Traffic pattern data helps organize social distancing and occupancy limits, plan a lobby redesign that reduces bottlenecks, or reutilize space as fewer people work onsite.
- Occupancy sensing and analysis helps control heating and ventilation, find open meeting rooms, and detect lights left on.

**In a hospital:**

- Building layout data paired with computer vision enhances wayfinding.
- Occupancy sensing and analysis helps control heating and ventilation.
- Patient telemetry data detects falls and senses movement, keeping patients safe.

**For fire and safety prevention:**

- AI aids in the early detection of flames, smoke, or spills, and triggers alarms.
- Early detection technology can be a factor in lowering insurance rates.

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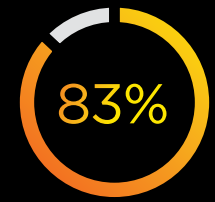
**EMERGENCY PREPAREDNESS**




The vast majority of employers don't have a process or system to track their workforces so they can quickly respond in a crisis.[8] Combining thermal imaging with other systems like fire alarms, video surveillance, entry logs, and personnel records can aid in swift response to imminent danger, expedite evacuation, and help first responders.

# How do buildings get smart?

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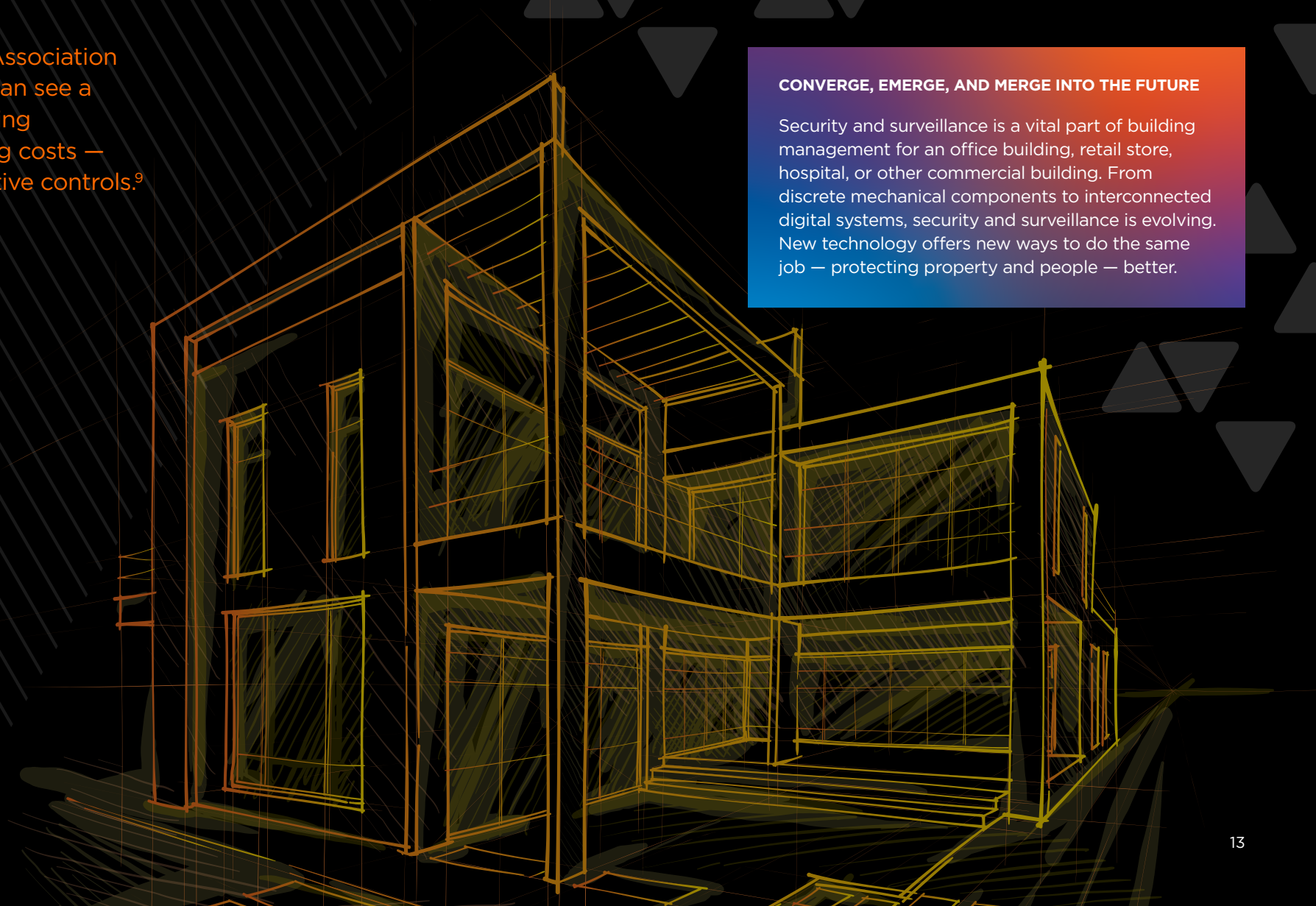
# 50%

The International Facility Management Association (IFMA) estimates that building owners can see a 50% increase in cost efficiency — including maintenance, energy, and other recurring costs — by incorporating IoT capabilities and active controls.[9]

**So how does the magic happen?**

Smart buildings use cloud- and IoT-based technologies throughout the property, including building management systems, which integrate data on lighting, physical security, workplace wellness, HVAC, and other systems into one display.

Smart IoT devices like sensors, meters, and circuit breakers are placed appropriately for the data they will be gathering. They are connected to the internet and typically can transmit data and/or receive instructions. Some can perform analytics and trigger alerts or actions.



**CONVERGE, EMERGE, AND MERGE INTO THE FUTURE**

Security and surveillance is a vital part of building management for an office building, retail store, hospital, or other commercial building. From discrete mechanical components to interconnected digital systems, security and surveillance is evolving. New technology offers new ways to do the same job — protecting property and people — better.

As the world's #1 PC manufacturer, Lenovo is committed to supporting the security and surveillance industry with world-class technology solutions and industry-leading service.

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