RETHINKING DATA CENTERS AS RESILIENT, SUSTAINABLE FACILITIES

Honeywell 2021
Building Trends Series

Honeywell

OVERVIEW

Data centers have become one of the world's most valuable resources. They enable e-commerce, cloud computing and remote work, helping businesses across nearly every industry meet growing demand. Due to the immense value and commercial sensitivity of the data stored and transferred, it's essential that they have a strategy to minimize downtime and reduce risk — not only from cyber and physical intrusions but from human error, mechanical failure and increasing operating costs.

Further, facility managers are facing additional pressures to create more sustainable data center operations and drive clear outcomes. Data centers consume about 3% of the world's electricity use — more than most countries — and produce 2% of total global carbon emissions — more than the entire airline industry. These numbers are expected to grow, making it crucial for businesses to invest in energy efficient infrastructures that lay the groundwork for a more sustainable future.

In today's digitally connected world, data is produced in vast streams at an overwhelming volume and pace. While stored data totaled roughly 40 zettabytes (trillion gigabytes) globally in 2019, it is projected to reach 175 zettabytes by 2025. Businesses demand ever-greater assurances of dependable uptime, putting the burden on data centers to invest in automation and efficiency solutions to help avoid unscheduled downtime.
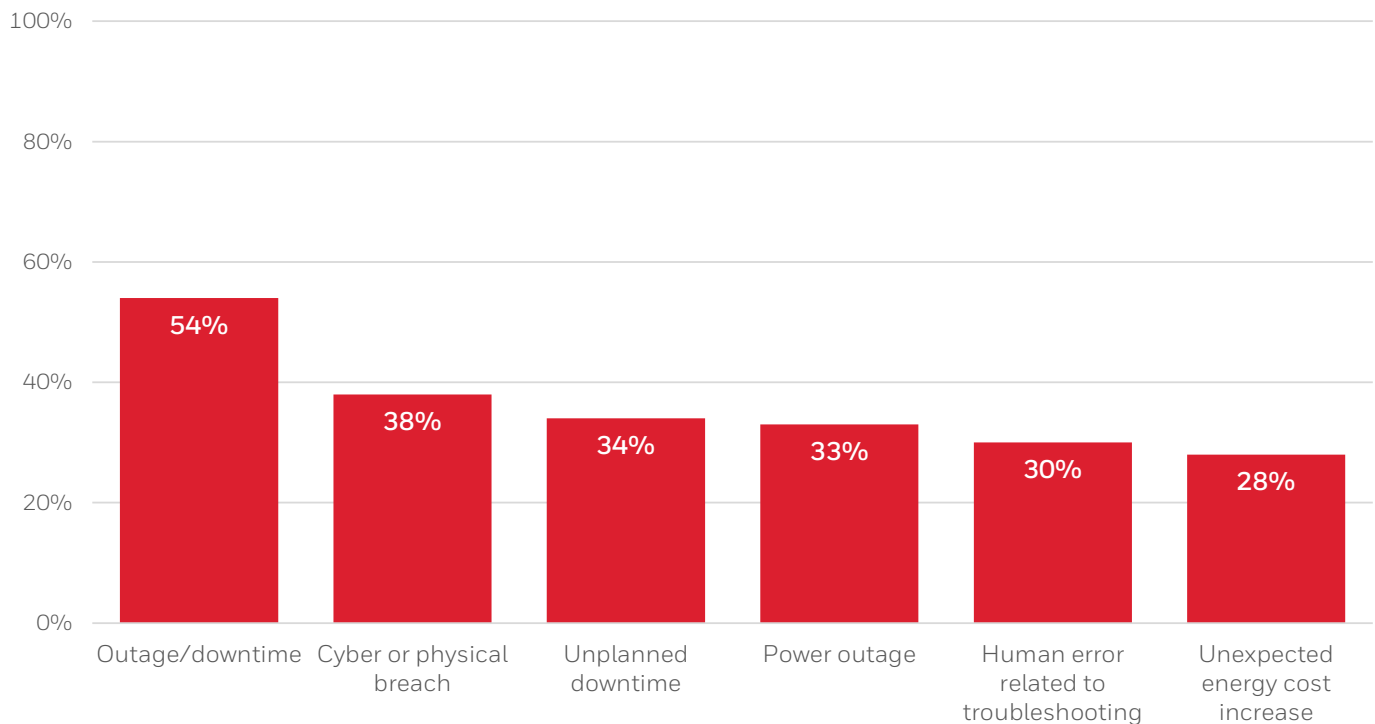
SURVEY REVEALS UPTIME, SAFETY AND ENERGY EFFICIENCY ARE TOP PRIORTIES

Notably, 91% of surveyed managers experienced at least one disruptive incident in the past 12 months.

A recent survey conducted by Honeywell Building Technologies sheds light on the challenges, concerns and priorities of data center facility managers in the United States, China, Germany and Saudi Arabia. Overall, the findings indicate that supporting uptime, cybersecurity for operational technology (OT), and sustainability top the lists of respondents' priorities.

Notably, 91% of surveyed managers experienced at least one disruptive incident in the past 12 months. These include downtime related to an outage (54%), a cyber or physical security breach (38%), or unplanned downtime (34%).

Incidents My Facility Has Experienced During the Past 12 Months

Category	Percentage
Outage/downtime	54%
Cyber or physical breach	38%
Unplanned downtime	34%
Power outage	33%
Human error related to troubleshooting	30%
Unexpected energy cost increase	28%

SURVEY REVEALS UPTIME, SAFETY AND ENERGY EFFICIENCY ARE TOP PRIORTIES

With the demand for secure data storage and transfer growing exponentially worldwide, it's no surprise that surveyed facility managers cite a range of other worries in addition to costly disruptions. More than 9 in 10 respondents (93%) express concern about lockdown monitoring — their ability to stop building management systems in the event of a problem. Keeping up with growing capacity needs is a concern for 73% of respondents, and nearly as many (72%) worry about providing adequate cybersecurity for OT.
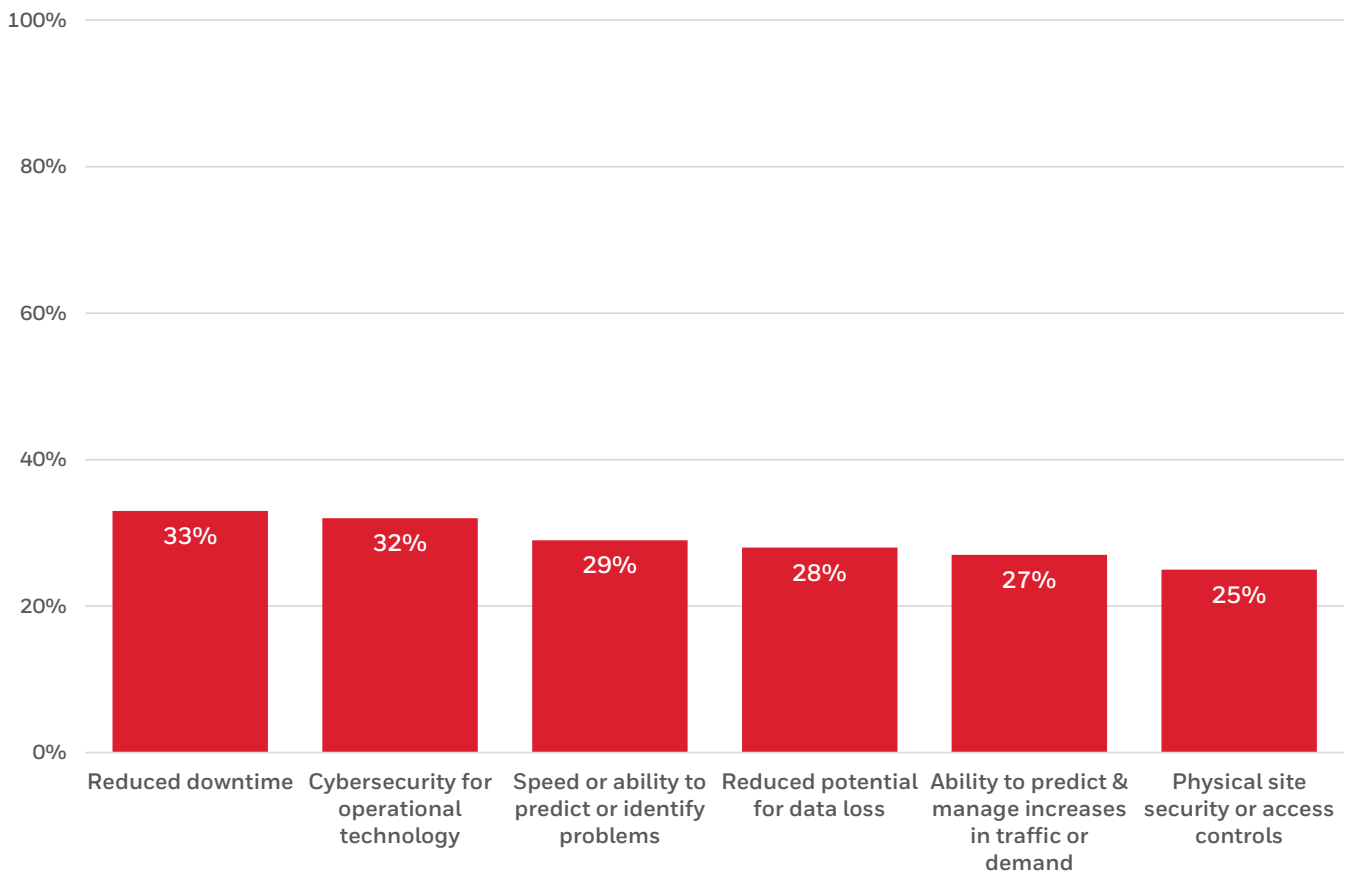
COMMON CONCERNS OF SURVEYED DATA CENTER FACILITY MANAGERS

1	LOCKDOWN MONITORING	93%
2	PHYSICAL SITE SECURITY OR ACCESS CONTROL	74%
3	MANAGING ENERGY CONSUMPTION	73%
4	KEEPING UP WITH GROWING CAPACITY NEEDS	73%
5	ABILITY TO PREDICT OR QUICKLY IDENTIFY PROBLEMS	72%
6	POTENTIAL FOR DOWNTIME CLOSURE	72%
7	CYBERSECURITY FOR OPERATIONAL TECHNOLOGY	72%
8	POTENTIAL FOR SUDDEN INCREASES IN ENERGY COSTS	70%
9	MAINTAINING UPTIME	68%

SURVEY REVEALS UPTIME, SAFETY AND ENERGY EFFICIENCY ARE TOP PRIORTIES

In fact, respondents cite reduced downtime (33%), cybersecurity for operational technology (32%), and speed or ability to predict or identify problems (29%) as improvements that would provide the greatest benefit to their stakeholders.
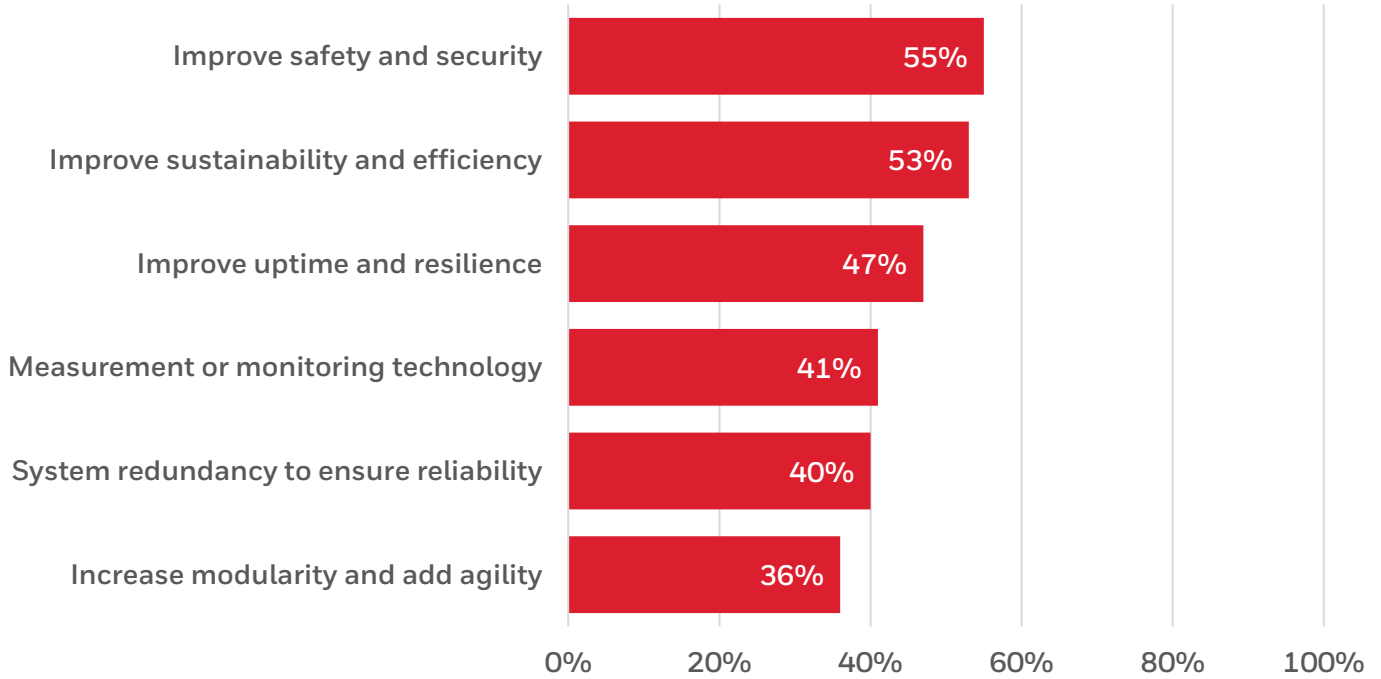
Improvements That Would Provide the Greatest Benefit to Stakeholders

	100%						
	80%						
	60%						
	40%						
	20%	33%	32%	29%	28%	27%	25%
	0%	Reduced downtime	Cybersecurity for operational technology	Speed or ability to predict or identify problems	Reduced potential for data loss	Ability to predict & manage increases in traffic or demand	Physical site security or access controls

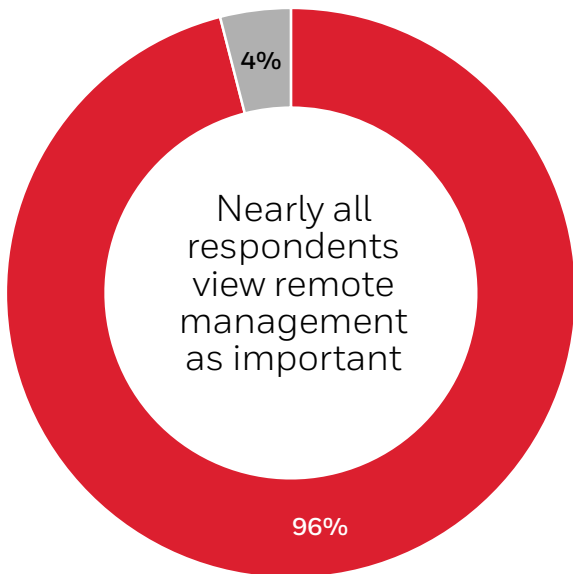# SURVEY REVEALS UPTIME, SAFETY AND ENERGY EFFICIENCY ARE TOP PRIORTIES

As for which improvements they are likely to invest in over the next 12 to 18 months to reduce downtime, 55% of surveyed facility managers opt for improving safety and security, 53% cite improving sustainability and efficiency, and 41% of respondents mention adding measurement and monitoring technology.

Likely Near-Term Investments to Reduce Downtime

| Category	Percentage
Improve safety and security	55%
Improve sustainability and efficiency	53%
Improve uptime and resilience	47%
Measurement or monitoring technology	41%
System redundancy to ensure reliability	40%
Increase modularity and add agility	36%

When asked whether remote management capability is (or would be) important to their facility, an overwhelming 96% of respondents answered affirmatively, yet only a third (34%) currently have this technology in place.

How Important is it to Manage Your Facility Remotely?

4%

Nearly all respondents view remote management as important

96%

Remote Building Management Currently in Place at Facility

34%

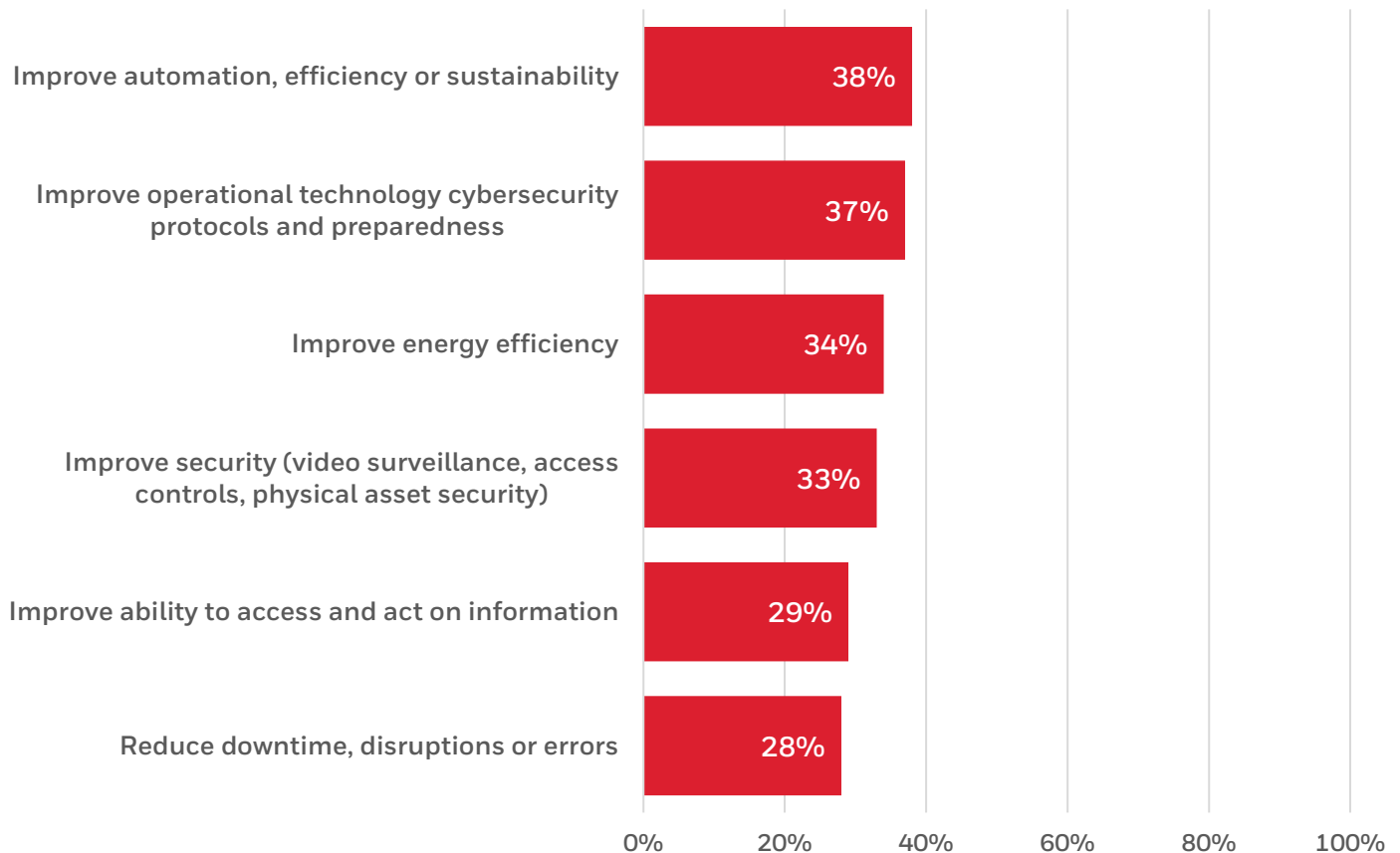Yet only a third currently have remote management capability

66%
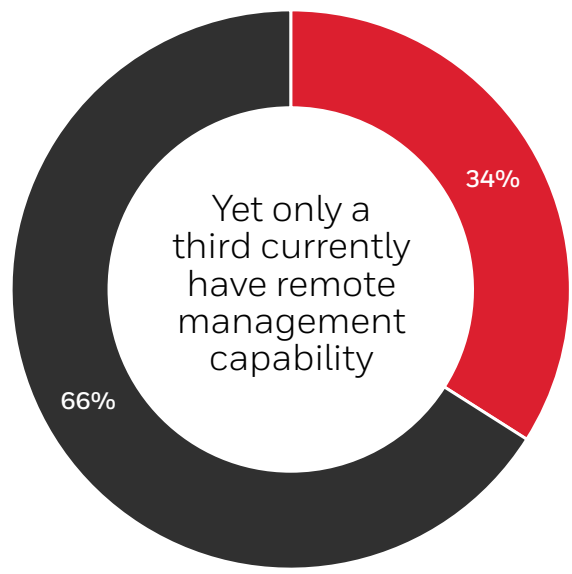
SURVEY REVEALS UPTIME, SAFETY AND ENERGY EFFICIENCY ARE TOP PRIORTIES

More than a third of surveyed managers (38%) cite improving automation, efficiency or sustainability as a top near-term priority. All three of these improvements would be enabled or enhanced by remote management.

The survey findings also highlight the importance of sustainability to data centers. A third of respondents (34%) consider improving energy efficiency one of their top priorities for the next 12 to 18 months.

Common Top Priorities Over the Next 12-18 Months

Priority	Percentage
Improve automation, efficiency or sustainability	38%
Improve operational technology cybersecurity protocols and preparedness	37%
Improve energy efficiency	34%
Improve security (video surveillance, access controls, physical asset security)	33%
Improve ability to access and act on information	29%
Reduce downtime, disruptions or errors	28%

SURVEY REVEALS UPTIME, SAFETY AND ENERGY EFFICIENCY ARE TOP PRIORTIES

Most Important Smart Building Aspects
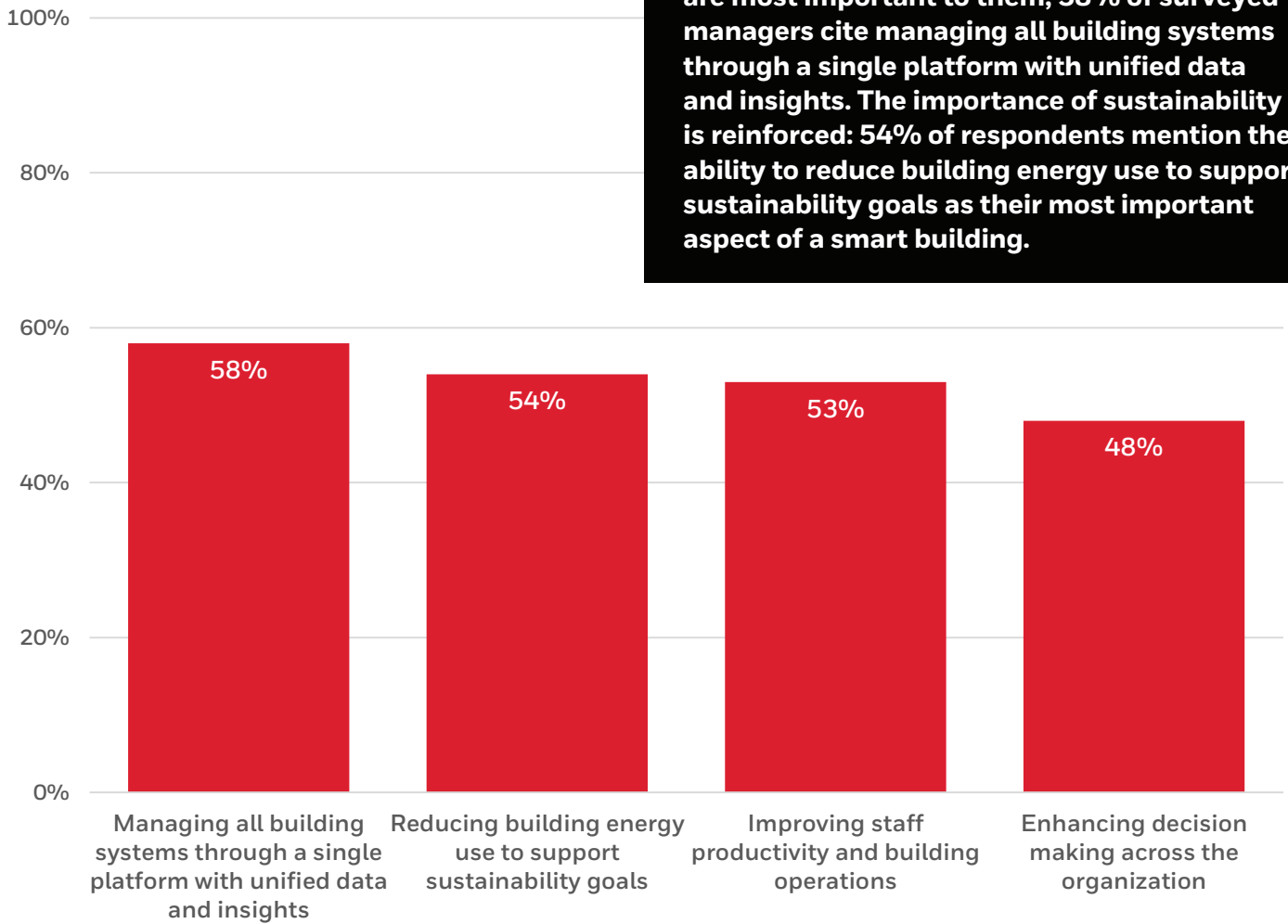
When asked which aspects of a smart building are most important to them, 58% of surveyed managers cite managing all building systems through a single platform with unified data and insights. The importance of sustainability is reinforced: 54% of respondents mention the ability to reduce building energy use to support sustainability goals as their most important aspect of a smart building.

Aspect	Percentage
Managing all building systems through a single platform with unified data and insights	58%
Reducing building energy use to support sustainability goals	54%
Improving staff productivity and building operations	53%
Enhancing decision making across the organization	48%

A PATH
FORWARD

The survey findings indicate interest among facility managers in investing in smart building solutions, which aligns notably with the three areas of strategic concern — efficiency, resilience and sustainability. Nearly all respondents cite remote management — a key enabler of all three — as a top near-term priority. Concerns with OT cybersecurity, reducing downtime and gaining more insight into fire detection systems all align with a focus on building resilience.

The survey also underscores an interest in reducing energy consumption, which typically accounts for over 50% of data center operating costs. More than half of respondents say the aspect of a smart building they value most is the ability to reduce energy use to support sustainability goals. Using an integrated building management solution has been shown to reduce energy consumption by up to 15%.

Such a solution also enables installation of multilevel security and fire detection/suppression applications that provide the protection and control needed to minimize downtime from both internal and external threats. As noted in the case study below, reducing data center risk requires not only prevention of security and safety incidents but also the resilience to respond quickly to such events when they do occur.

"Roughly 88% of data center downtime is caused by human error or mechanical failures," said Manish Sharma, vice president and chief technology and product officer, Honeywell Building Technologies. "Given that a single minute of server downtime costs about $9,000, supporting uptime is critical. A fully integrated building management solution provides a single point of control, delivering clear information and data processing for more reliable building automation and supervision. It also provides insights into a system's performance capabilities, making it easier to identify efficiencies and avoid potential outages."

CASE IN POINT

Italy's largest data center takes resilience to the next level

Milan-based Aruba Global Cloud Data Center teamed up with Honeywell to develop an integrated fire and security solution that helps increase Aruba S.p.A's integrity and reputation. The company provides maximum levels of redundancy and security to many of the biggest private and public firms in Italy as well as several global Fortune 500 companies.

To enhance the center's robust protection of data from potential external and internal threats, Honeywell designed, installed and maintains the fire and security system, which includes access control, intrusion detection and CCTV as well as fire and smoke detection, alarms and suppression. The technology solution identifies fire or security alarm events and helps address them with speed,

minimizing risk and maximizing both asset safety and operational performance.

Any fire or intruder alarm triggers the CCTV cameras in the vicinity of the alarm, enabling the security team to very quickly appraise the situation and respond. This protects data center operations and reinforces the value proposition of the Aruba S.p.A organization: to provide clients with the peace of mind they require. The Honeywell solution's modularity allows integration of additional (including third-party) systems or operational enhancements to accommodate the facility's plans for near-term expansion.

> "Safety and security are essential elements of our operation, both for ourselves and for clients who are entrusting us with their data. The Honeywell solution plays a major role in providing the protection we require, hence we are delighted to have Honeywell as a key partner in our data centers, where we must ensure innovation and security are at the highest level."
>
> *Stefano Cecconi*
> *CEO, Aruba S.p.A.*
> *Ponte San Pietro, Italy*

METHODOLOGY

The Honeywell survey was conducted online by KRC Research (http://www.krcresearch.com/) among facility managers in four markets: the United States, China, Germany and Saudi Arabia.

THE
FUTURE
IS
WHAT
WE
MAKE IT

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