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# Data Center Staffing Playbook

## 7 essential roles for facilities operations

JLL SEE A BRIGHTER WAY

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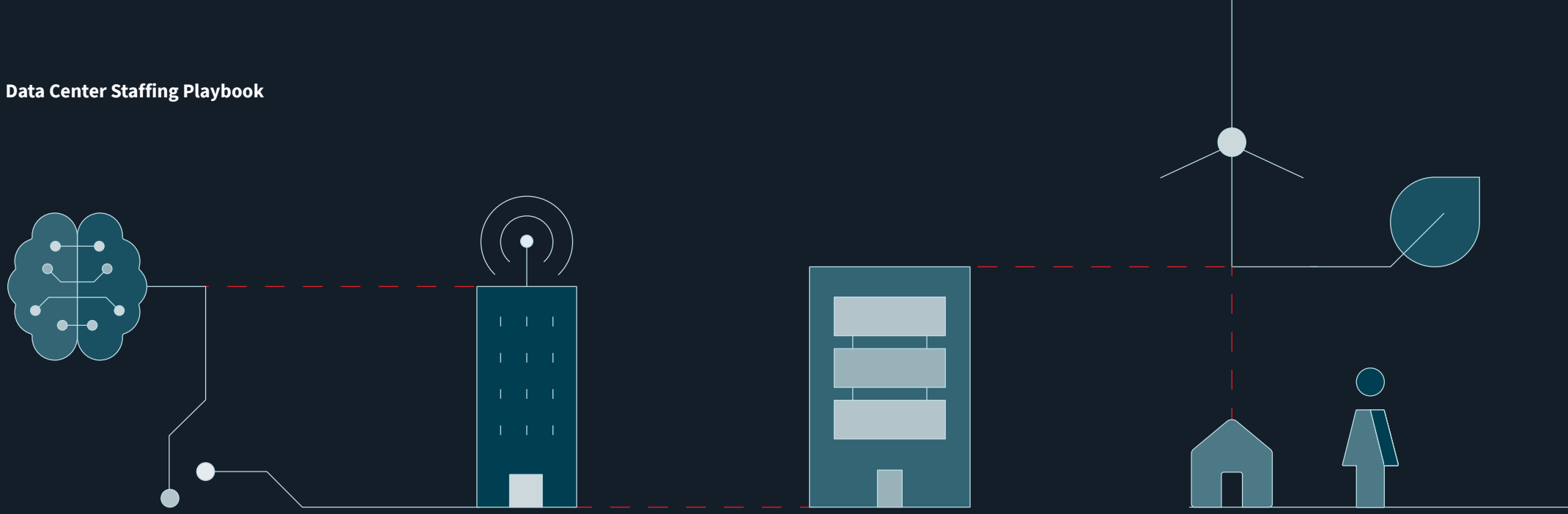


# The data center talent crisis

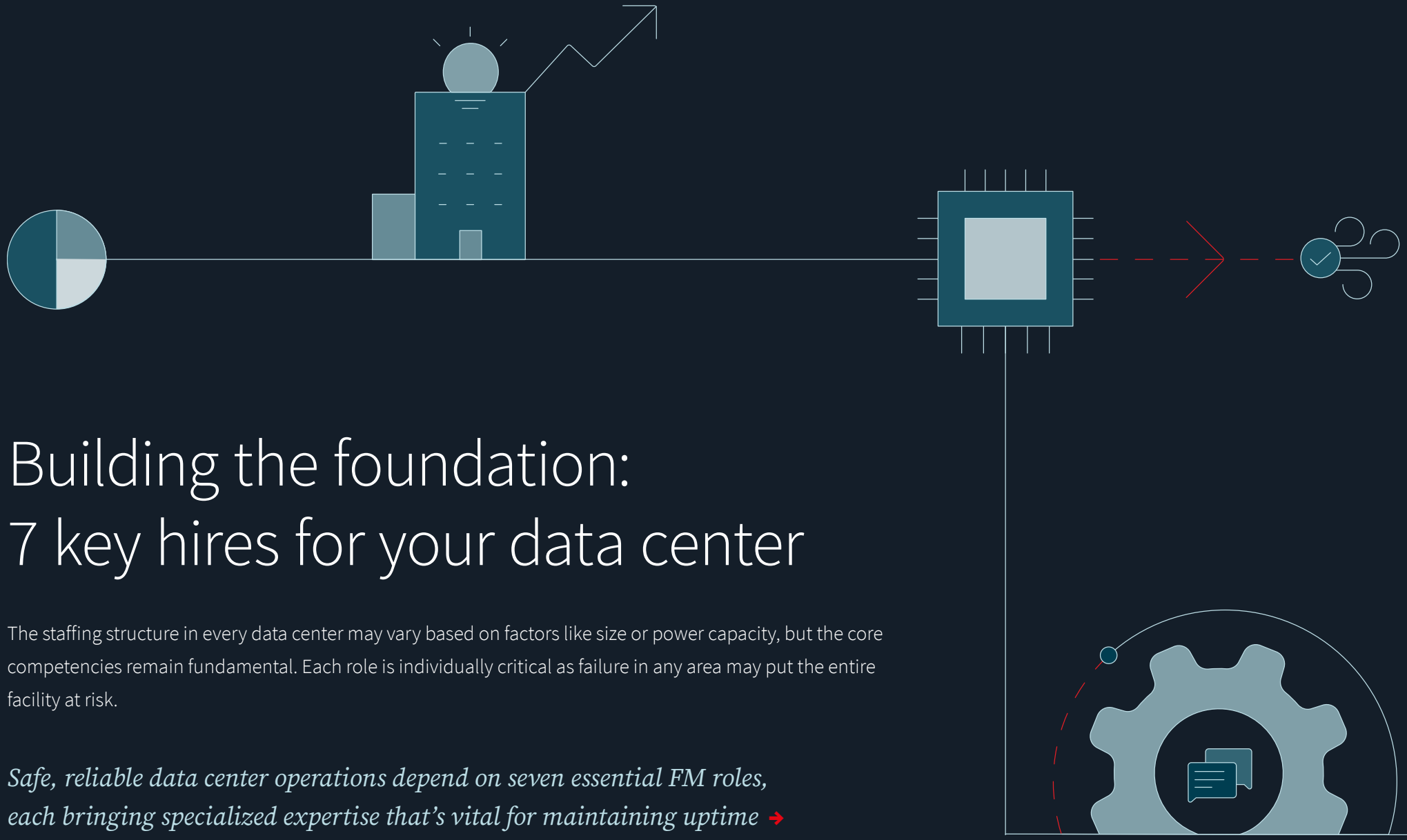
In the race to build new infrastructure amid growing demand, the data center industry is confronting a difficult truth: the pool of qualified talent to run them is becoming scarce.

Operators are struggling to find candidates with the right specialized skills to manage mission-critical infrastructure, where even minor errors can result in catastrophic failures.

The hunt for experienced professionals is most acute in remote locations where much of the industry's new capacity is being built, far from established talent hubs.

And the challenge extends beyond hiring. Many operators lack a clear understanding of the essential facilities management (FM) roles and the depth of expertise each position requires. This knowledge gap makes an already difficult hiring process even harder, as operators struggle to define the right positions, identify necessary competencies and evaluate candidates effectively.

This playbook provides the framework to help you staff the essential roles to operate today's increasingly complex data center infrastructure with confidence.



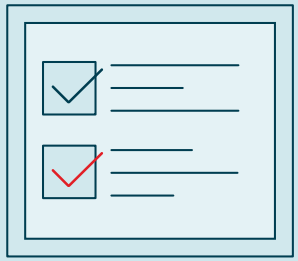
# Building the foundation: 7 key hires for your data center

The staffing structure in every data center may vary based on factors like size or power capacity, but the core competencies remain fundamental. Each role is individually critical as failure in any area may put the entire facility at risk.

*Safe, reliable data center operations depend on seven essential FM roles, each bringing specialized expertise that's vital for maintaining uptime* →

# 1 Critical facility manager

*A senior operational leader accountable for the facility performance, reliability, and business success of the data center*



**Core responsibilities:**

- Oversee facility performance including uptime targets and service level agreements (SLAs)
- Manage relationships with clients and/or senior management
- Coordinate teams to resolve escalations during major incidents
- Control operating expenses (OpEx) and capital expenditure (CapEx)
- Manage vendor contracts and make sourcing decisions
- Ensure regulatory compliance in the facility

During major emergencies such as power outages, the critical facility manager (CFM) takes command and makes the final decisions, directing technical teams while keeping clients and senior management updated.

In daily operations, the CFM requires deep knowledge of critical infrastructure systems to guide budget, planning and resource allocation to ensure the facility runs smoothly.

Facility size and complexity directly influence staffing needs for this role. Larger, more complex operations typically need multiple CFMs to ensure round-the-clock coverage across shifts and to handle operational demands effectively.

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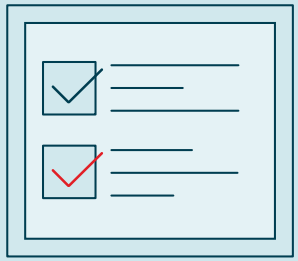
# Chief engineer

*A senior leader in charge of all technical operations, including managing facility system performance and emergency response*



**Core responsibilities:**

- Lead technical operations (electrical, mechanical and cooling systems)
- Direct emergency response to resolve technical issues before escalation to CFM
- Manage facility maintenance programs and coordinate with specialized vendors on repairs and upgrades
- Provide technical leadership and mentorship to engineering teams

The chief engineer is the technical authority for the entire facility's critical infrastructure across all electrical, mechanical and cooling systems. The role focuses on hands-on operational control to ensure systems run reliably and efficiently.

When incidents occur, the chief engineer leads the technical response to diagnose system problems and direct specialized teams to restore equipment quickly with minimal downtime.

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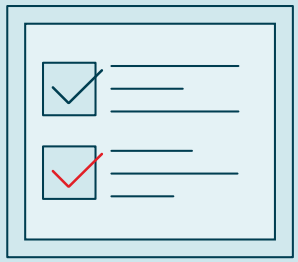
# Technicians (mechanical, electrical, controls)

*Subject matter experts (SMEs) with technical knowledge in electrical, mechanical and controls providing hands-on maintenance*



**Core responsibilities:**

- Monitor, maintain and repair specialized systems such as:

  **Electrical:** Uninterruptible Power Supply (UPS), generators, switches

  **Mechanical:** Liquid cooling components, including chillers

  **Controls:** Building management systems for monitoring
- Troubleshoot complex technical issues requiring specialized knowledge
- Support emergency response with niche technical skills
- Work with external vendors on specialized equipment and system upgrades

Technicians are the primary experts for tackling complex equipment failures that require expertise across various technical domains.

Consider the direct-to-chip liquid cooling infrastructure in AI data centers. These intricate and maintenance-intensive systems require a mix of specialized expertise in mechanical cooling, chillers, and heating, ventilation, and air conditioning (HVAC), forcing some operators to create dedicated specialist teams just to ensure reliable operations.

Ultimately, the number of technicians needed is determined by the facility infrastructure and configuration. Factors like the volume of equipment, maintenance demands and the number of shifts can influence staffing levels.

A 100MW facility, for instance, might employ up to 100 technicians or as little as 40 depending on the equipment complexity and whether each technician has specialized knowledge to handle multiple technical systems.

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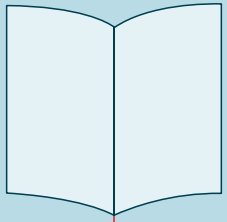
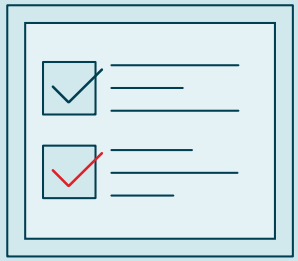
# Training manager

*Manage comprehensive technical training programs to equip data center personnel with essential operational skills*





**Core responsibilities:**

- Develop and deliver training programs across technical disciplines (e.g. cooling systems, electrical distribution and UPS operations) for different staff levels
- Conduct hands-on simulation drills for system failures for staff to gain practical emergency experience
- Ensure ongoing training programs keep pace with evolving technology and procedures

With data center technologies rapidly evolving, experience alone is no longer a guarantee of expertise. This reality makes the training manager a non-negotiable role in the core data center team.

This individual is responsible for ensuring the entire technical staff—whether they're new to the industry or are experienced professionals—stay current on the specialized skills needed to manage the mission-critical infrastructure and respond effectively during emergencies.

Dedicated training oversight closes the skills gap between a data center team and the facility's technologies, greatly lowering the risk of costly errors or safety incidents.

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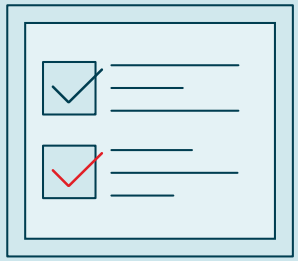
# Health, social, safety, and environment (HSSE) specialist

*Ensure the facility complies with all health, safety, security, and environmental regulations and best practices*



**Core responsibilities:**

- Create and employ safety protocols for the data center
- Ensure compliance with all local, state and federal safety and environmental regulations
- Conduct risk assessments and regular safety audits
- Investigate any safety incidents and take corrective actions

The HSSE specialist is key to mitigating risk and protecting both personnel and the critical infrastructure in a data center.

Depending on the facility's size and the complexity of local regulations, this might be a single expert or a full team managing everything, from developing electrical safety procedures to ensuring compliance of fire suppression systems and planning of emergency responses.

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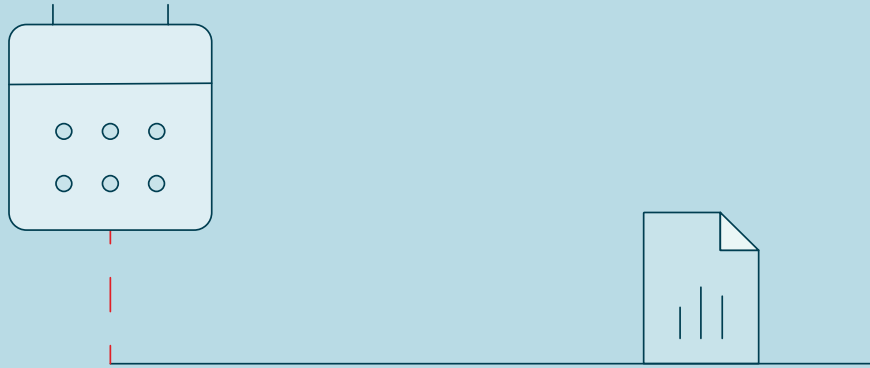
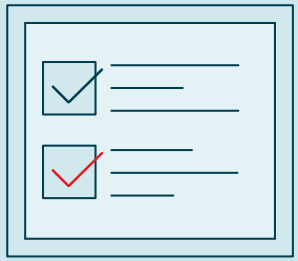
# Planner/scheduler

*Coordinate all maintenance work and technical staff resources across the facility*





**Core responsibilities:**

- Schedule maintenance tasks while balancing workloads across shifts based on staff availability and skill set
- Coordinate with technicians, engineers and external vendors to ensure work is completed on time
- Track all maintenance activities to prevent backlogs

The scheduler manages the entire maintenance workload, planning and distributing tasks across all shifts based on team availability and specific skill sets.

By controlling the flow of work orders, they prevent technicians from being overloaded, ensuring critical maintenance isn't missed while making full use of the team's expertise.

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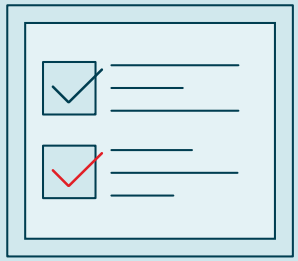
# Sourcing manager

*Manage vendor relationships and performance to ensure reliable service delivery across all technical disciplines*

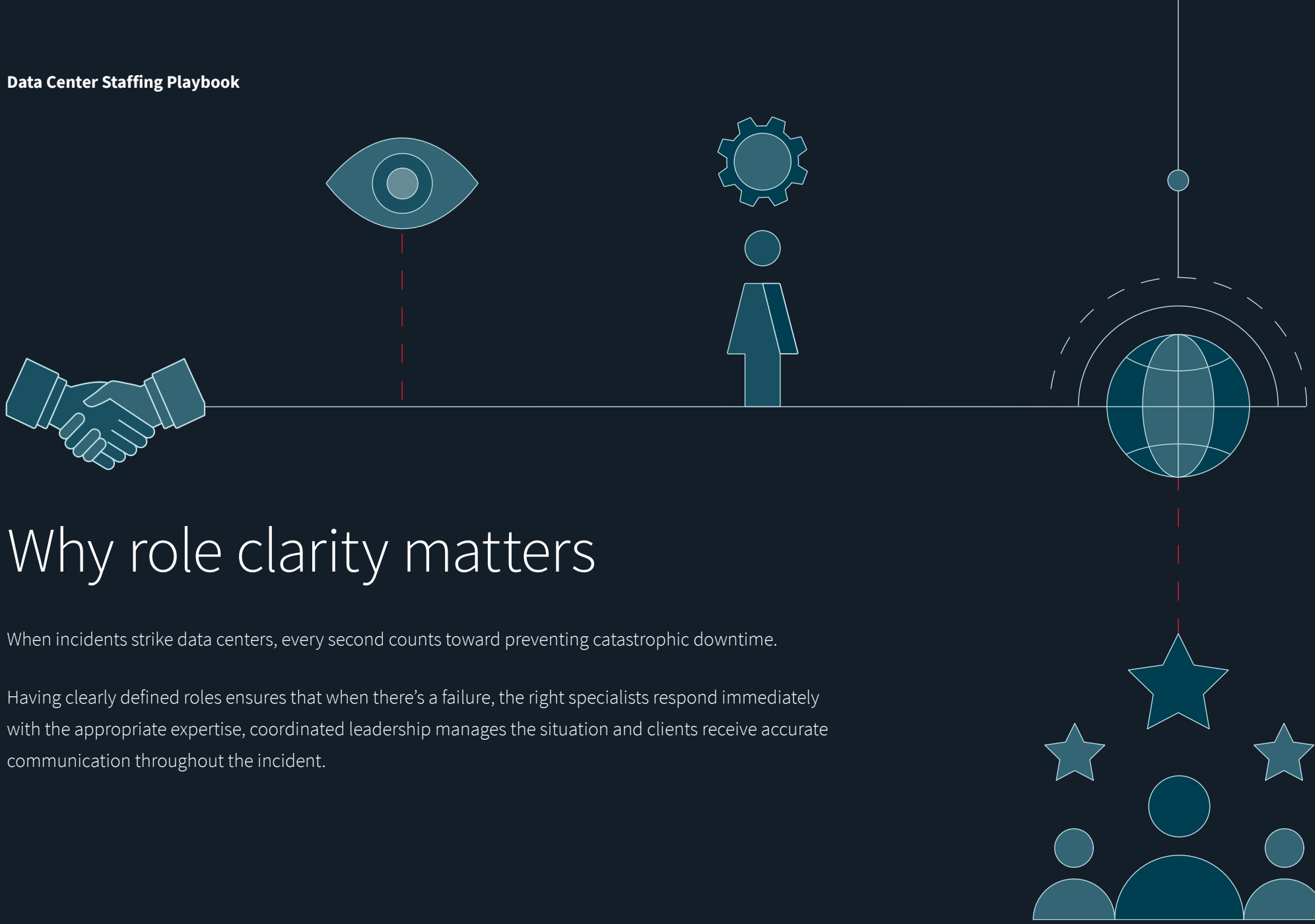


**Core responsibilities:**

- Recruit and manage vendors for comprehensive facility coverage
- Maintain two vendors for each task to ensure backup availability
- Assess vendor performance on SLA compliance and response times
- Coordinate vendor activities with internal technical teams

While CFMs often handle sourcing, vendor management has become complex enough to justify a dedicated sourcing role due to its direct impact on facility reliability and cost control.

For instance, a 200MW facility typically requires managing over 50 specialized vendors across various technical domains. This role ensures vendors meet performance standards, respond to emergencies promptly, have necessary equipment and deliver quality work consistently.



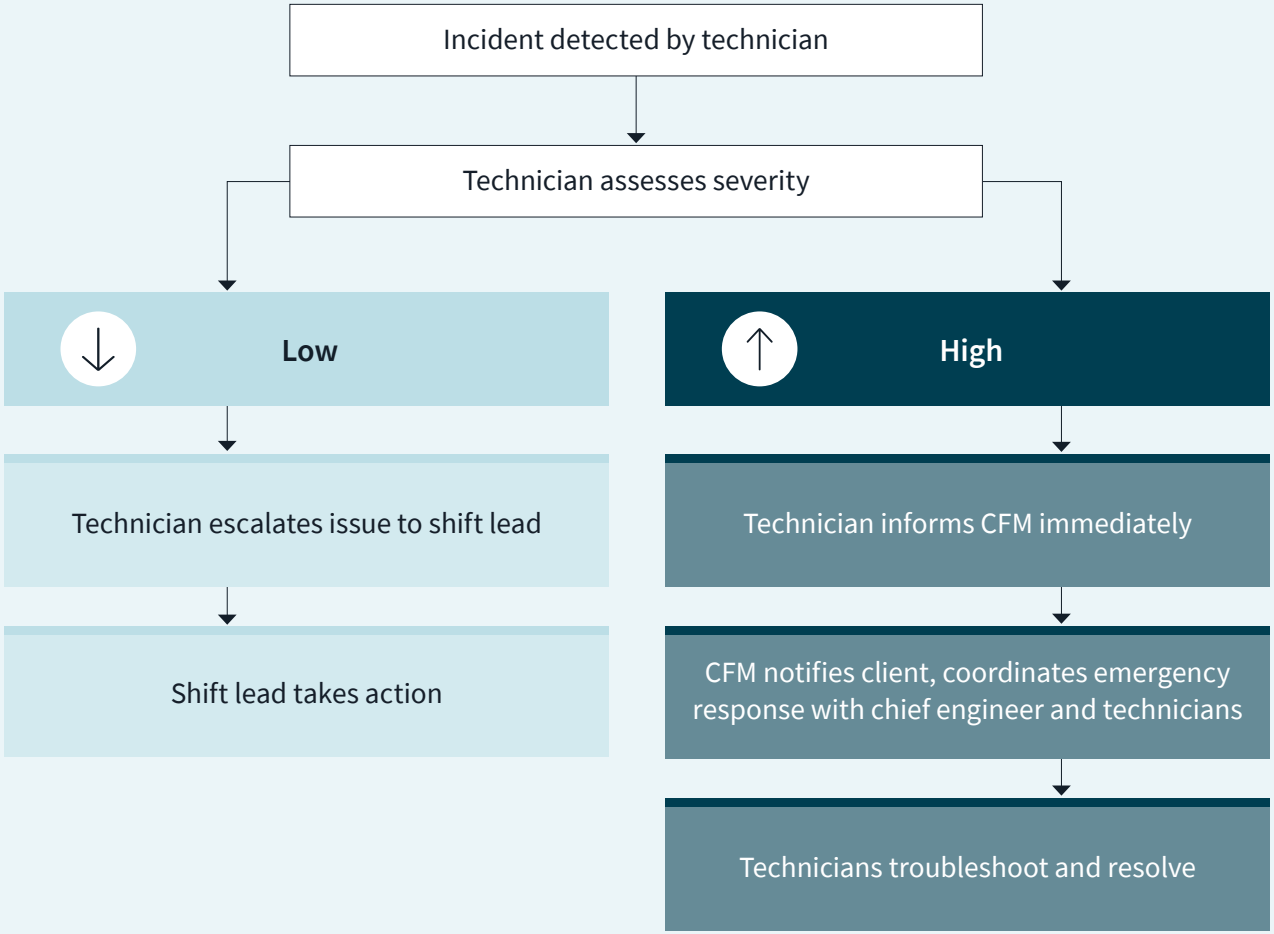
# Why role clarity matters

When incidents strike data centers, every second counts toward preventing catastrophic downtime.

Having clearly defined roles ensures that when there's a failure, the right specialists respond immediately with the appropriate expertise, coordinated leadership manages the situation and clients receive accurate communication throughout the incident.

## Example: Escalation protocol in action

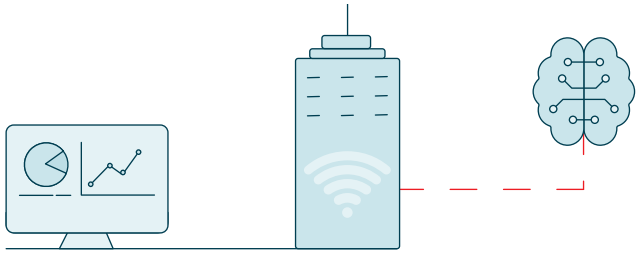
The following escalation protocol shows how these defined roles work in tandem to manage a crisis:




For a minor issue like a single fan motor failure, where there is no immediate site impact due to redundancy, the process is contained. In this case, the technician who identifies the issue would escalate it to their shift lead or chief engineer. This leader can then assess the situation, create a work order for the repair and decide if any further escalation is necessary.

However, for a major event like a site-wide power outage, the first call goes directly to the CFM whose immediate job is to notify everybody and trigger an ‘all hands on deck’ response. The CFM must ensure the client is aware of any potential customer impact and get the right SMEs involved immediately to figure out the root cause.

The clarity on roles and the right procedures empowers every team member to act decisively and ensure a swift response to any emergencies.



# Case study

## Crisis averted: From failure to full redundancy in six hours

The alarm rang through the 100MW data center in the middle of the night. A chiller unit supporting a colocation wing in the facility had failed.

The facility instantly dropped from its safe ‘N+1’ redundancy to a dangerous ‘N’ state—one more failure away from costly client outages. The technician quickly alerted the shift lead, who mobilized the mechanical expert. Emergency calls went out to the CFM and chief engineer while specialized vendors raced to the site.

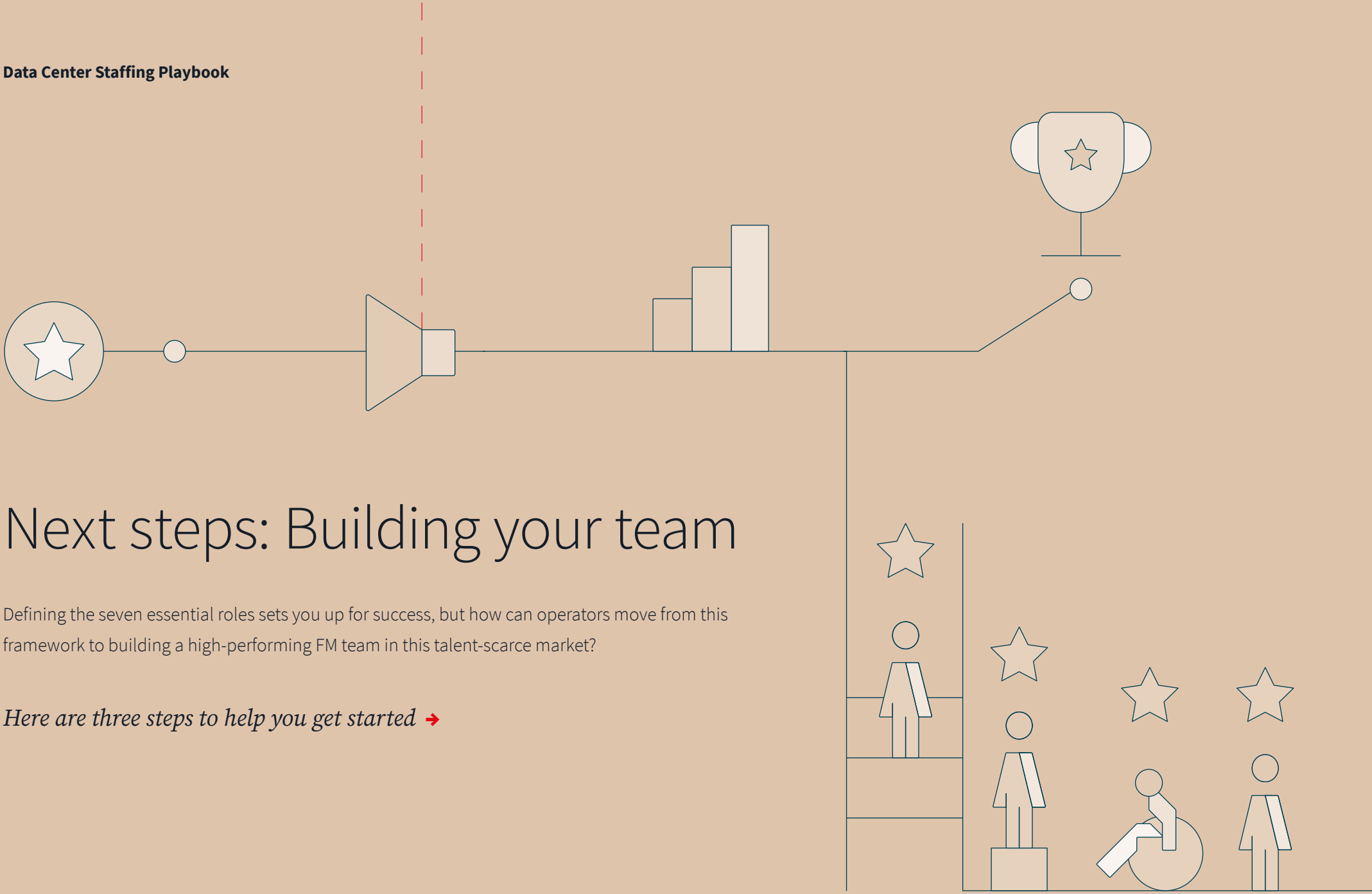
The clock was ticking. In mission-critical infrastructure, they had a narrow window before the risk became unacceptable. Client operations worth hundreds of thousands hung in the balance.

But the team’s training paid off. Through swift coordination, expert diagnosis and precise execution, they restored full system redundancy in just six hours—well under the typical eight to 24-hour window for such critical repairs.

By the time most clients started their morning routines, the data center was back to its ‘N+1’ state. The crisis had passed, the safety net was restored and business continued without missing a beat.

### Common data center incidents

- Cooling system failure
  *e.g. chiller malfunctions, pump failures*
- Electrical distribution failure
  *e.g. power outages, UPS/battery failures*
- Human error
  *e.g. accidental shutdown, inadequate maintenance*



# Next steps: Building your team

Defining the seven essential roles sets you up for success, but how can operators move from this framework to building a high-performing FM team in this talent-scarce market?

*Here are three steps to help you get started* →

## 1 Broaden your talent search beyond the industry

With the pool of qualified data center professionals in short supply, the solution is to get creative by looking for professionals from other industries and adapting their knowledge to the data center environment.

For instance, an electrician from an oil field with experience in motors and pumps, an electrician in a wind farm that understands electrical theory, or an experienced commercial HVAC technician may have transferrable skills that, with the right training, can be highly relevant to data center operations.

## 2 Start creating your own talent pipeline

Relying on experienced professionals is an unsustainable strategy given the talent shortage. There's a need for operators to build their own talent pipeline by training the next generation of technicians.

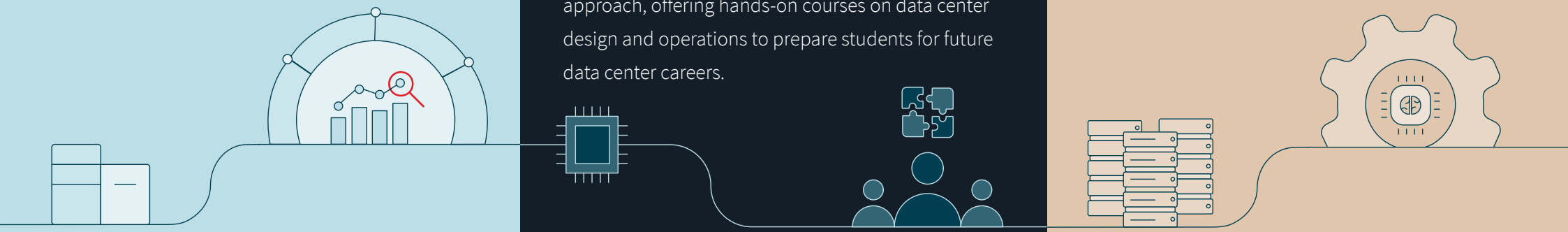
The most effective approach is to form partnerships with local community colleges and trade schools. By engaging with technical students early, operators can help students transition their mindset from doing commercial electrical or HVAC work to managing complex systems in data centers.

Major technology firms are already adopting this approach, offering hands-on courses on data center design and operations to prepare students for future data center careers.

## 3 Prioritize teachability over experience

With few candidates available who have extensive data center backgrounds, the criteria for hiring candidates should shift from their past experience to their teachability.

Beyond strong technical skills and good communication, having a strong understanding of safety procedures and the willingness to acquire new skills also make a candidate a good fit. Identifying this potential and investing in them through a robust training program can prepare a candidate to become a competent data center professional.



# Build a resilient data center team

It's time to put this playbook into action. Let us help you build the expert team your facility needs.

Our data center specialists will assess and define your staffing needs, source top talent and coordinate proven training programs to ensure your operational success.

*Schedule a consultation with a JLL expert today*

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