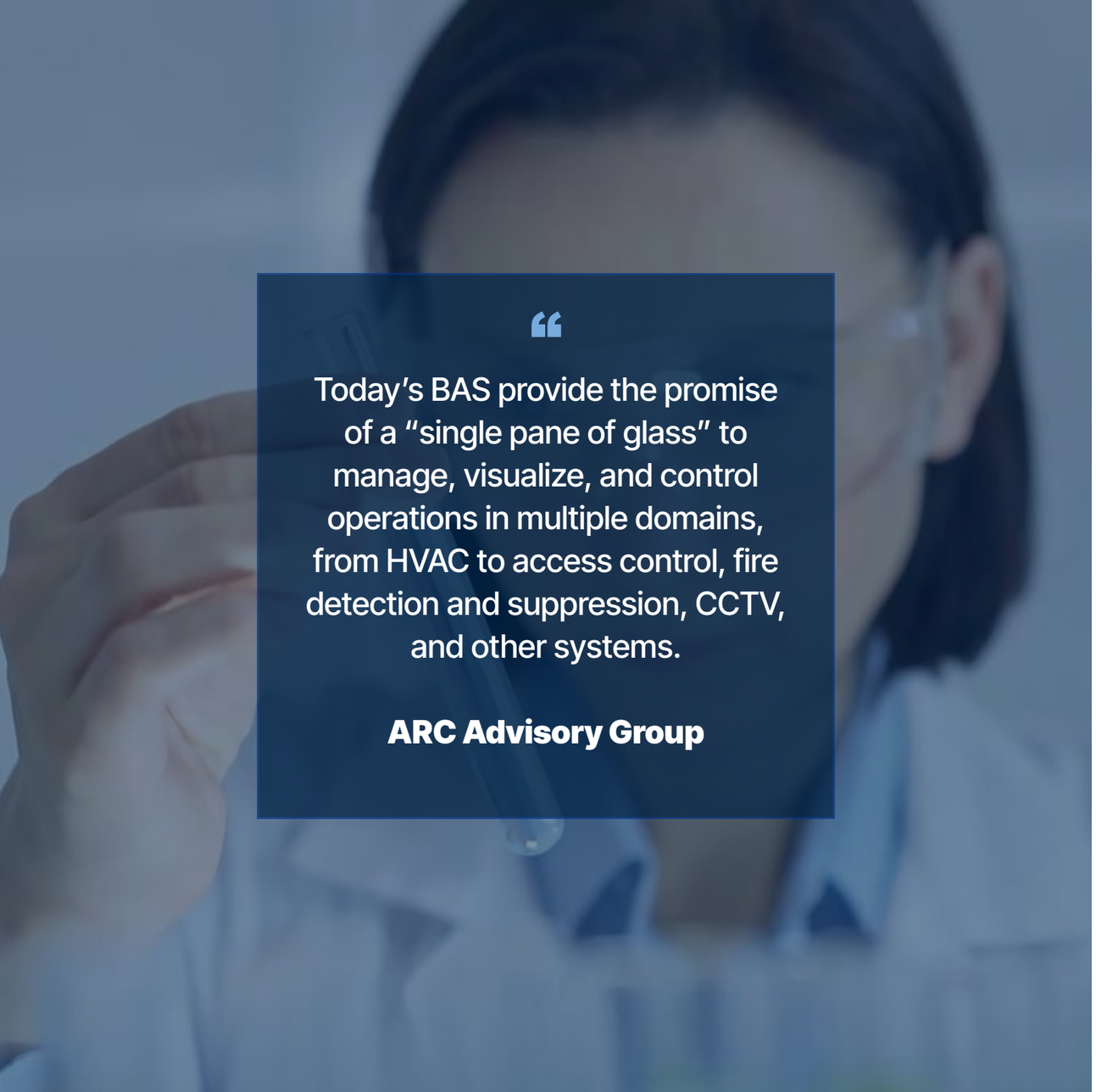
STRATEGY BRIEF

Smarter Facilities. Smarter Science.

The Role of Building Automation Systems in Life Sciences

inflexion point



> Today's BAS provide the promise of a "single pane of glass" to manage, visualize, and control operations in multiple domains, from HVAC to access control, fire detection and suppression, CCTV, and other systems.
>
> **ARC Advisory Group**

In Life Sciences
Precision is Everything

From pharmaceutical R&D to biomanufacturing, the environments where science happens must be just as advanced as the work itself.

This eBook explores how Building Automation Systems (BAS) support operational excellence, reduce risk, and drive innovation for life sciences companies. We hope you find it useful.

Kevin Hannigan
CEO
InflexionPoint

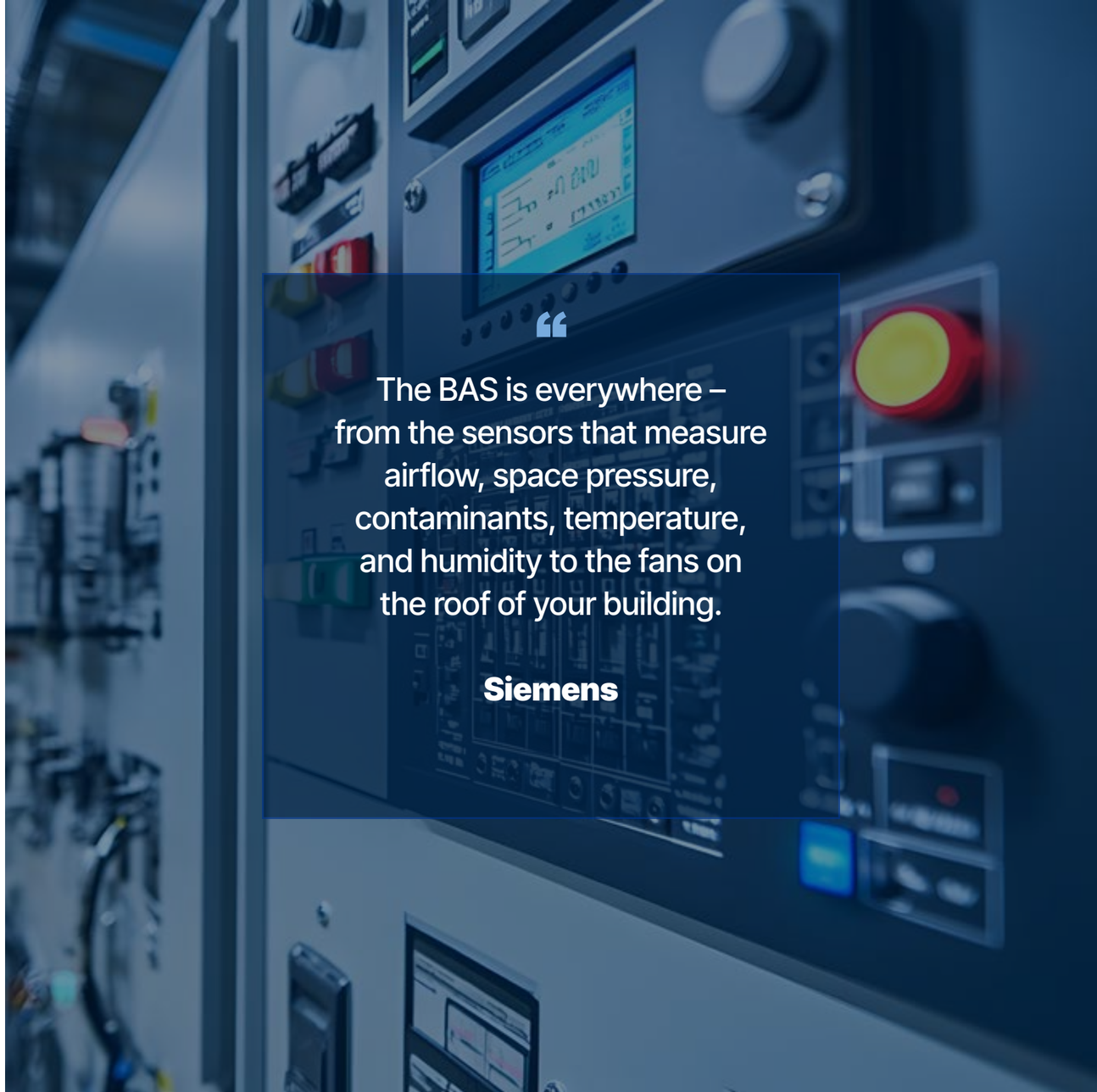
What is a Building Automation System?

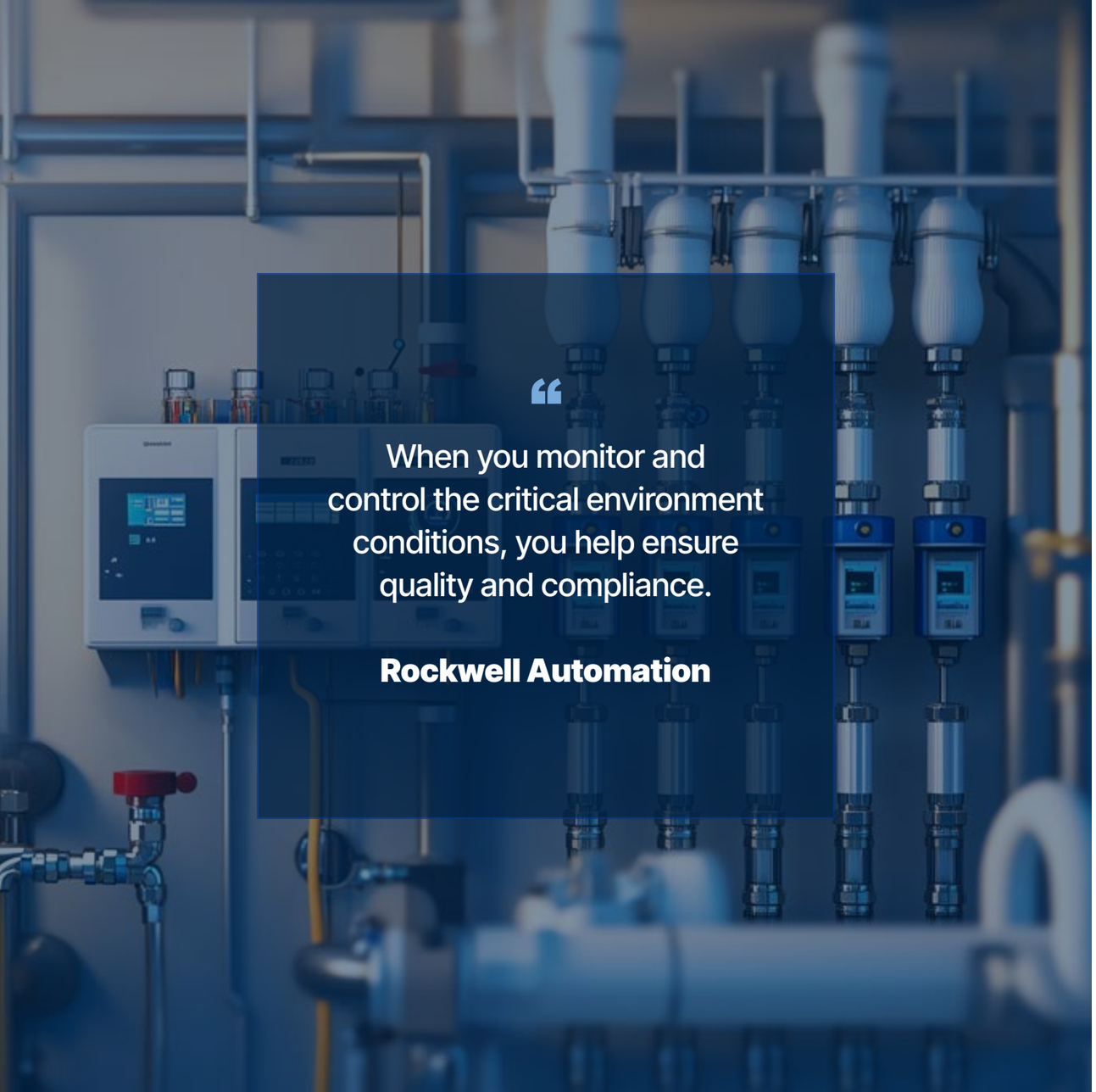
A Building Automation System (BAS) is a centralized platform that monitors, controls, and optimizes building functions such as HVAC, lighting, energy, security, and environmental conditions. For industries with complex operational demands—like biotech labs or pharmaceutical manufacturing—BAS offers a layer of intelligence and automation critical for efficiency and safety.

Why It Matters for Life Sciences

Life sciences environments often require high degrees of control and validation. BAS systems help meet these requirements through:

- Real-time monitoring and alerts: Immediate detection of temperature excursions or airflow changes.
- Standardized control: Consistency across multiple rooms or even facilities.
- Scalability: Easy integration of new labs, buildings, or system extensions.





Precision Control for Critical Environments

Temperature, Humidity, and Airflow

Maintaining stable conditions is non-negotiable. BAS ensures:

- Consistent temperature across cleanrooms and labs
- Regulated humidity to preserve sample integrity
- Optimal air changes per hour (ACH) for biosafety and ISO classification

Fluctuations in any of these metrics can compromise data integrity, research outcomes, or patient safety. BAS enables automated corrective actions, ensuring system failures don’t lead to catastrophic results.

Lighting and Equipment Monitoring

Automated lighting schedules reduce human error, conserve energy, and support shift-based lab work. Similarly, BAS-connected equipment like refrigerators or incubators are monitored for performance and faults.

Regulatory Compliance Made Easier

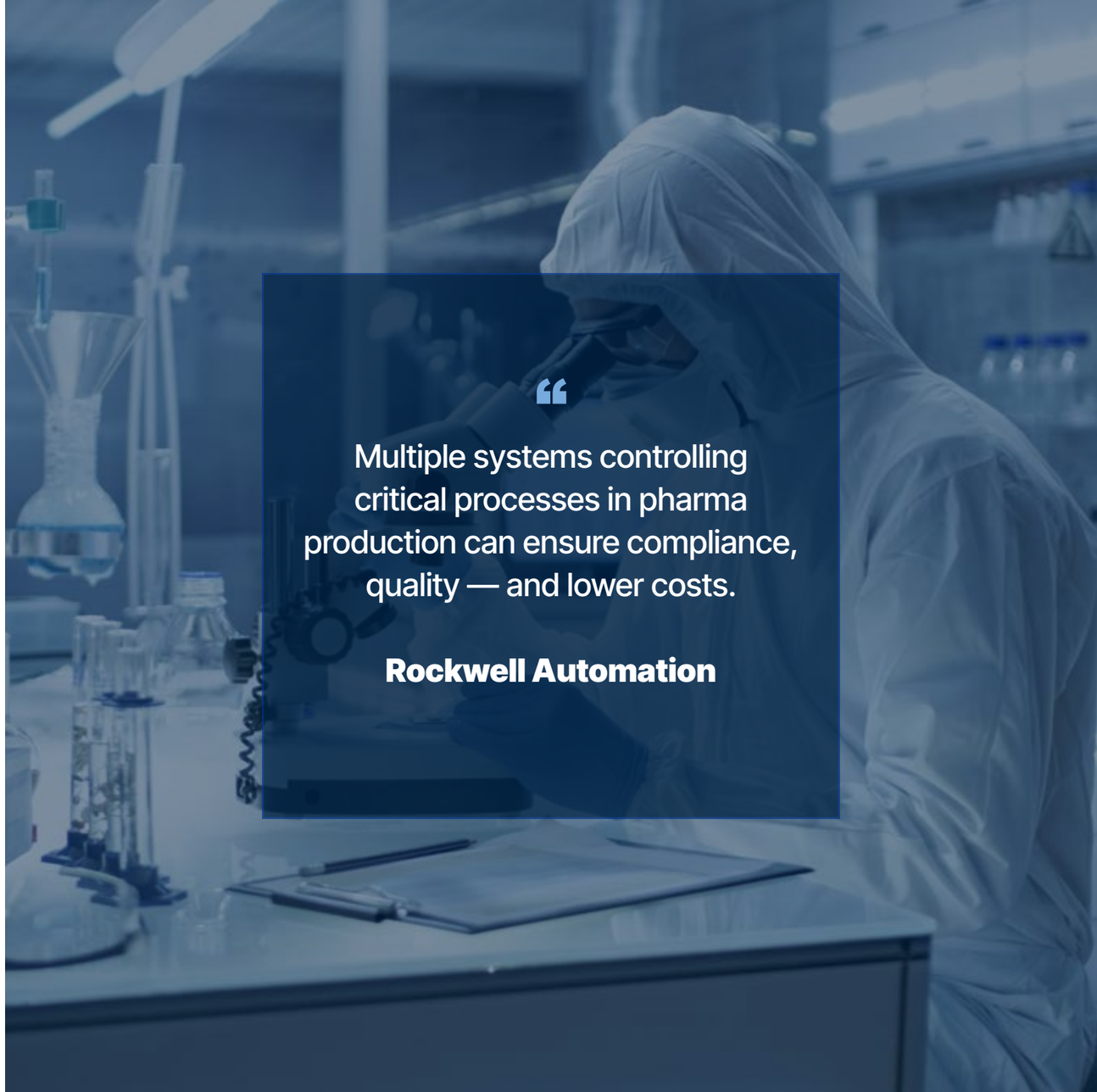
FDA, GxP, and ISO Requirements

For any facility governed by Good Manufacturing Practices (GMP), maintaining tight environmental controls and digital records is essential. BAS supports compliance by:

- Logging all environmental data automatically and continuously
- Allowing remote validation and audit-readiness
- Customizing alarm protocols for compliance-critical events

Audit Readiness

Audit preparation with BAS is streamlined—historical data, event logs, and system calibrations are instantly available and exportable.



> Multiple systems controlling critical processes in pharma production can ensure compliance, quality — and lower costs.
>
> **Rockwell Automation**

> New IoT-based architectures allow for just about any function in the built environment to be integrated into a single system, with common visualization, common reporting functions, a single engineering environment, and more.
>
> **ARC Advisory Group**

Reducing Energy Costs without Compromising Quality

Operational Efficiency

Life sciences facilities often run 24/7. BAS dynamically optimizes system performance based on real-time usage data—shutting off lights in unoccupied areas, adjusting airflow based on occupancy, and using predictive algorithms to manage heating and cooling.

Sustainability Goals

BAS helps meet sustainability goals and qualify for LEED or WELL certification by monitoring and reporting energy consumption, air quality, and emissions.

Data-Driven Decisions
with Building Automation Systems

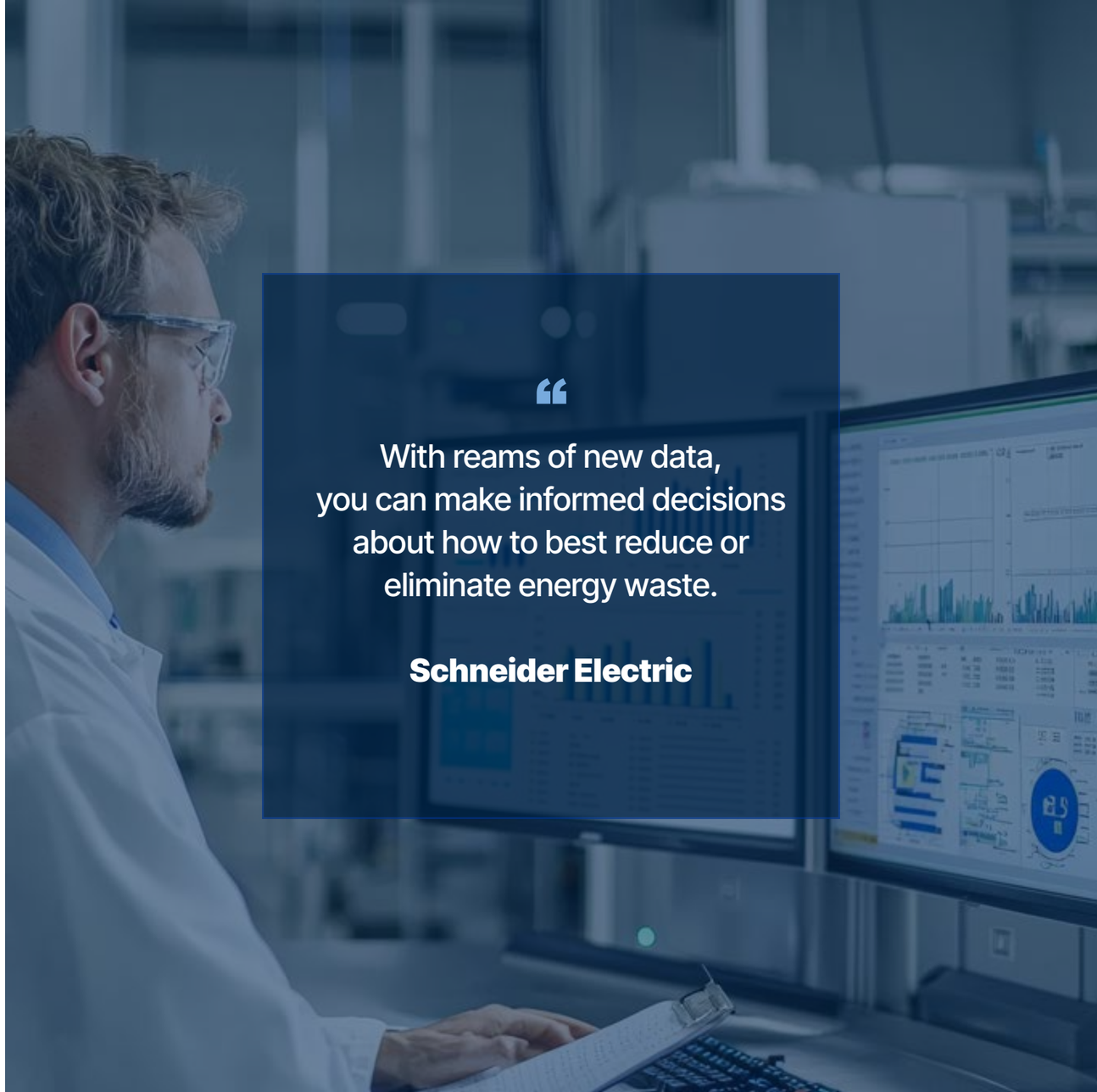
From Reactive to Proactive

Traditional building management reacts to alarms. BAS transforms this with predictive analytics, enabling teams to:

- Detect subtle performance anomalies
- Prevent equipment failures
- Optimize energy budgets

Facility Intelligence in Action

Real-time dashboards, historical trend analysis, and integration with Building Information Modeling (BIM) tools allow cross-departmental coordination.



The Positive Impact of Building Automation Systems

Real-World Results

We've helped leading life-sciences companies achieve more consistent success through BAS implementation. Here are a few examples.

BeiGene

- We provided control system design and implementation, instrumentation, installation / wiring / tubing, and startup for BAS and utility controls for a bioprocess manufacturing campus
- Six buildings including GMP operations, labs, warehouse, and offices

University of Pennsylvania

- Series of BAS projects focused on the control and monitoring of AHUs for medical school and lab buildings (including electron microscope lab)
- Control platform is Rockwell. Scope includes instruments, control system hardware and implementation, and installation / wiring services

Shire

- BMS system based on a complete Rockwell SCADA and PLC platform
- Monitoring and controls for (4) Air Handling Units and associated CV Box controls, (1) RTU, (4) Chillers with distribution loop and (1) Hot Water System with distribution loop

Emergent BioSolutions

- BAS Automation based on Rockwell platform for (2) fill / finish sites, including a total of (12) AHUs
- We also implemented the environmental monitoring system and process automation system

BAS Isn't Just a Facility Upgrade. It's a Strategic Investment.

For life sciences companies, BAS delivers the precision and insight needed to support smarter science. Which is why it might be one of the smartest investments you can make in your facility.

Ready to learn more?

Contact us today.

inflexion point

www.inflexionpoint.ai

cyber@inflexionpoint.ai