

Standardizing Operations with a Modular Command & Control Strategy

BACKGROUND

A global building materials manufacturer was expanding and modernizing its network of production facilities. With each new plant came additional data streams, new virtual systems, and increased operational complexity. The company needed to improve how its teams monitored, controlled, and visualized critical production environments across locations of different sizes.

CHALLENGE

The customer identified several structural challenges slowing modernization:

- Command centers differed significantly from plant to plant
- No repeatable template for new facilities or expansions
- Increasing shift from physical PCs to virtual environments
- Difficulties managing large visualization surfaces and multi-application workflows
- Operator training time and adoption concerns
- Fast growth creating pressure for consistent operational standards

From an enterprise perspective, the goal was not just to build a better control room — it was to define a scalable model that could be deployed globally with predictable results.

Why the Customer Selected Black Box

The manufacturer evaluated multiple solution providers. Black Box distinguished itself by approaching the engagement as a systems architecture initiative rather than a hardware procurement exercise. Three key factors influenced the customer's decision:

- **Mission-Critical Expertise:** Black Box brought decades of experience designing and deploying command-and-control environments for aviation, utilities, transportation, defense, and other high-reliability sectors where visibility, uptime, and operator efficiency are essential.
- **Repeatable Global Architecture:** Black Box proposed a modular blueprint that could scale up or down depending on plant size, eliminating bespoke engineering at each facility and ensuring uniform operator experience.
- **Support for Virtual Operations:** As the customer migrated to virtual machines, Black Box offered a proven workflow for combining physical and virtual access into a unified operator experience — something several traditional display and KVM vendors could not support natively.

SOLUTION

Working closely with operations, engineering, and IT/OT stakeholders, Black Box designed and deployed a modular command-and-control

environment including Emerald®, Central Command (Boxilla®), Emerald GE, and LCD Touch Panel Control (ControlBridge®) that provided:

- Standardized video wall modules sized per facility
- Unified operator workstations for multi-application workflows
- Virtual-first access to critical production systems
- Centralized management for simplified lifecycle and updates
- Touch-driven interaction to reduce cognitive load and training time

This design allows new facilities to be commissioned faster and existing facilities to be upgraded to a common standard.

RESULTS

The customer achieved measurable and strategic benefits:

- **Global Standardization:** Black Box was written into the customer's global specification, enabling uniform deployments across new and existing sites.
- **Scalable by Design:** Plants can add capacity without redesigning the control environment, reducing both engineering overhead and future technical debt.
- **Improved Operator Efficiency:** Operators can view and control multiple applications through a unified workspace, improving situational awareness and decision-making.
- **Simplified Management:** Centralized management and virtual workflows reduce hardware dependency, streamline support, and extend system lifecycle.
- **Future-Ready Architecture:** The solution supports the customer's long-term modernization roadmap, including continued virtualization, automation, and digital production initiatives.

Looking Ahead

With the initial deployment complete, the customer now possesses a repeatable command-center blueprint that is replicated across its global footprint. New-build facilities and modernization projects can adopt the same operational standard with reduced risk and faster time-to-value.

This engagement demonstrates how large enterprises increasingly select partners based on experience, execution capability, and lifecycle management — not individual hardware components. Black Box continues to support the customer as it expands its state-of-the-art production facilities worldwide.

Learn about [Control Room Solutions](#).

Explore [Emerald® Complete Control System](#).