Your Guild to Building the Next Generation Control Room



DATAPATH
EXCELLENCE BY DESIGN

A VITEC COMPANY

Helping organisations simplify for their needs

Control rooms are changing faster than ever before.

Across transportation, utilities, public safety, manufacturing, defence and critical infrastructure, operators are expected to manage growing volumes of information, respond to incidents more quickly and oversee increasingly complex operational environments.

At the same time, technologies that were once managed independently, including video walls, enterprise video, operational dashboards, AV-over-IP, security systems and communications platforms—are becoming increasingly connected.

This convergence presents enormous opportunities to improve operational performance, but it also creates new challenges.

This guide explores five practical actions organisations can take to simplify operations, improve situational awareness and build control rooms ready for the future.

Key Actions

1. Create a connected operational environment

Modern control rooms rarely operate around a single platform. Operators often manage CCTV, SCADA, GIS mapping, operational dashboards, communications systems, access control, incident management software and numerous other applications simultaneously. While each system may perform well independently, the combined operator experience is frequently fragmented.

As new technologies continue to be introduced, the operational challenge is no longer collecting information, it is presenting the right information to the right people at the right time. Control rooms that simplify this complexity consistently achieve faster response times, improved operator confidence and more efficient day-to-day operations.



Recommended Approach

Rather than asking whether another system needs to be added, organisations should first assess whether their existing systems are working together effectively.

Consider carrying out an operational workflow review by observing how operators respond to common incidents. Pay particular attention to:

- How many applications are opened during a typical incident.
- How often operators manually search for information.
- Where duplicate data is presented.
- Which routine tasks are repeated several times during every shift.
- How information moves between operators, supervisors and external teams.

This exercise often identifies small operational inefficiencies that collectively consume significant time throughout the day.

The objective should be to simplify the operator experience, not necessarily reduce the number of technologies in use. Where possible, information should be presented through consistent interfaces and repeatable workflows so operators spend less time managing systems and more time assessing situations.

2. Deliver Information Without Delay

During critical incidents, delays are rarely caused by a lack of information. Instead, delays often occur because information must first be located, verified and presented before decisions can be made.

As operational environments become more data-rich, reducing the time between detection and understanding becomes increasingly important.



Recommended Approach

Review how long it takes operators to access the information required for common incident scenarios.

Ask questions such as:

- Can critical information be displayed in seconds?
- Are layouts configured manually?
- Are operators required to remember where information is located?
- Do different teams follow different processes?

Where repeatable operational scenarios exist, they should be documented and standardised. Predefined operational views, common layouts and repeatable workflows help ensure that technology behaves consistently regardless of who is on shift.

Small improvements in standardisation often produce significant improvements in response times.



3. Design Around the Operator

Control room technology continues to evolve, but the operator remains the most important component of every operational environment.

Increasing numbers of data sources, longer shifts and greater operational complexity place growing cognitive demands on staff. When technology becomes difficult to manage, operator attention shifts away from the incident itself.

Improving operational performance therefore depends as much on simplifying the user experience as introducing new technology.



Recommended Approach

Regularly review the control room from the operator's perspective.

Ask:

- Which screens are genuinely useful?
- Which alerts are routinely ignored?
- Which manual tasks occur repeatedly?
- Which processes require unnecessary clicks or navigation?

Where possible:

- Remove unnecessary visual clutter.
- Present the most important information consistently.
- Reduce repetitive manual interaction.
- Standardise interfaces across operators.
- Design layouts around operational tasks rather than software limitations.

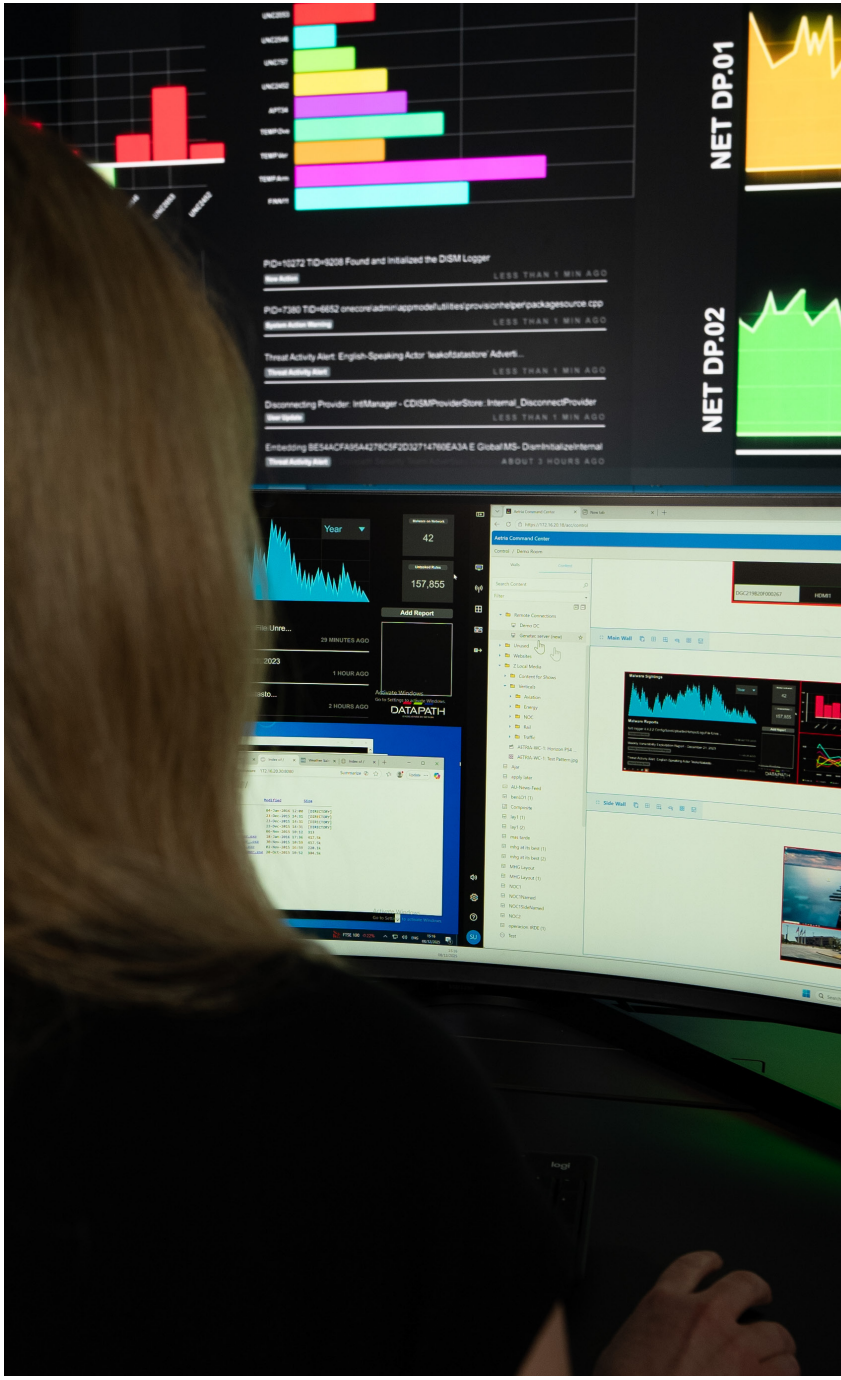
Technology should reduce mental effort rather than increase it.

4. Simplify System Management

As control rooms become increasingly connected, the operational burden placed on IT and support teams also grows.

Separate administration tools, inconsistent software updates and multiple configuration environments can increase maintenance effort while making troubleshooting more difficult.

The challenge is not simply maintaining technology, but maintaining confidence that the operational environment will perform when required.



Recommended Approach

Take time to map every system involved in delivering operational information.

Identify:

- Which systems require separate management.
- Which systems duplicate functionality.
- Which updates require manual intervention.
- Which failures affect multiple operational processes.

Where practical, look for opportunities to centralise monitoring, simplify administration and reduce the number of separate management interfaces.

The easier a system is to maintain, the easier it is to keep reliable over the long term.

5. Built for Continuous Evolution

Control rooms are constantly evolving. New operational platforms, AI-assisted technologies, cloud services and additional data sources continue to reshape operational environments.

Without careful planning, every new system introduces additional complexity that gradually makes the environment harder to manage.

Recommended Approach

When planning future projects, consider whether new technologies will simplify operations five years from now, not just solve today's immediate requirement.

Questions worth asking include:

- Will this integrate with future platforms?
- Can additional sites be added easily?
- Will operators require significant retraining?
- Can workflows remain consistent as the environment grows?
- Does this reduce complexity or add another layer?

The most resilient control rooms are designed around flexibility. Future growth should feel like extending an existing environment rather than rebuilding it.



The Datapath Perspective

Every control room is different, but the operational challenges facing organisations are becoming increasingly similar. Across transportation, utilities, public safety, energy, manufacturing and critical infrastructure, operators are managing more information, more systems and greater operational complexity than ever before.

Over many years of working alongside organisations designing, upgrading and operating mission-critical control rooms, we've seen and experienced that the greatest improvements rarely come from adding more technology. They come from making technology work together more effectively.

The recommendations within this guide are drawn from those real-world experiences and reflect the practical principles that consistently help organisations improve situational awareness, simplify operations and support better decision-making.

Whether planning a new control room or evolving an existing environment, organisations that focus on simplicity, consistency and operator-centred design will be better prepared for the operational demands of the future.

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