



Can an OR Integration System Work With Existing Medical Devices?

by Editorial Team

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When hospitals consider upgrading their operating rooms, one question comes up early:

“Do we need to replace our existing medical devices to implement OR integration?”

The short answer is **no, not necessarily.**

A modern OR integration system should be designed to work with the devices already present in the operating room, across different manufacturers and generations of technology. This is particularly important for hospitals that have made significant investments in surgical equipment and want to modernize their OR without starting from scratch.

The real value of OR integration is not replacing every device. It is **bringing the devices, information and workflows already present in the OR together into one connected environment.**

Why Existing Devices Matter

An operating room can contain equipment from several manufacturers:

- Surgical cameras
- Endoscopy systems
- Microscopes
- Ultrasound systems
- Surgical lights
- Patient monitors
- PACS workstations
- HIS terminals
- Recording systems
- Displays and monitors
- Medical-grade computers
- Video conferencing systems

These devices may have different interfaces, video formats, control mechanisms and connectivity options.

Replacing them simply to create an integrated OR can be expensive and disruptive.

That is why **interoperability** is one of the most important considerations when selecting an OR integration system.

What Does Vendor-Agnostic Integration Mean?

A vendor-agnostic OR integration system is designed to connect equipment from different manufacturers rather than being restricted to a single equipment ecosystem.

For a hospital, this means the integration layer can sit between existing medical devices and the digital OR environment.

Instead of:

Device A → Display A

Device B → Display B

Device C → Recording System C

the goal is to create a more connected workflow:

Multiple medical devices → OR Integration → Displays / Recording / Streaming / PACS / Documentation

This allows clinicians to access relevant information where and when they need it, without having to physically move between multiple systems.

Integration Does Not Mean Replacement

This is an important distinction.

An OR integration project should begin with an assessment of the hospital's **existing infrastructure and equipment**.

The question should not be:

“Which equipment do we need to replace?”

It should be:

“How can we make the equipment we already have work better together?”

Depending on the equipment and its interfaces, an integration system can connect existing video sources, displays, recording systems and hospital information systems into a common workflow.

Some older equipment may require additional interfaces, converters or integration hardware. In other cases, newer devices may offer direct digital connectivity.

The objective is to create the most practical integration architecture for the specific OR.

What Can Be Integrated?

The answer depends on the device, its available interfaces and the required workflow.

A well-designed OR integration system can potentially bring together multiple types of sources and destinations, including:

Video Sources

Surgical cameras, endoscopy systems, microscopes and other imaging sources can be routed to selected displays within the OR.

Displays

The same surgical image can be made available on different screens depending on the clinical requirement.

For example, the surgeon may need one view while another team member needs a different source.

Recording and Archiving

Surgical video and images can be captured and organized as part of the digital workflow, subject to the hospital's clinical, privacy and data-management requirements.

PACS and HIS

Integration with hospital information systems can help connect surgical media and information with the broader digital patient record environment.

Room Cameras and Communication

Room cameras and communication technologies can support remote consultation, teaching, collaboration and other workflows.

The exact integration possibilities depend on the equipment, interfaces and hospital IT environment.

Why Interoperability Is Important for Hospitals

Hospitals rarely upgrade every piece of equipment at the same time.

A surgical department may have a new endoscopy system in one OR, an older microscope in another and equipment from different manufacturers across the hospital.

A rigid integration platform can make this difficult.

A flexible platform allows hospitals to modernize progressively.

This can provide several advantages.

1. Protect Existing Investments

Hospitals can continue using equipment that is clinically effective rather than replacing it simply because a new integration platform is being introduced.

2. Reduce Unnecessary Capital Expenditure

Integration can help hospitals avoid treating every digital transformation project as an equipment replacement project.

3. Modernize in Phases

Hospitals can start with one OR or one set of workflows and expand the integration architecture over time.

4. Simplify the Clinical Workflow

Instead of operating multiple independent systems, clinicians can access connected sources and workflows from a more unified environment.

5. Create a Scalable OR

As new devices are added, the integration architecture can evolve with the OR rather than becoming obsolete every time the equipment mix changes.

But Can Every Device Be Integrated?

This is where hospitals need to look beyond the word **“integration.”**

Not every medical device will offer the same level of connectivity.

Before implementing an OR integration system, hospitals should evaluate:

- **What interfaces does the device support?**
- **What video formats does it output?**
- **Can the device communicate with external systems?**
- **Does it support digital control?**
- **Does it provide an appropriate network interface?**

- **Can its data be routed, recorded or shared safely?**
- **Does integration affect the device's intended clinical use or certification requirements?**

These questions should be addressed during the technical assessment and OR design stage.

A good integration partner should therefore evaluate the complete equipment ecosystem before proposing the final architecture.

The Role of the Integration Platform

Think of the OR integration system as the **connective layer** of the operating room.

The integration platform helps connect them into the larger digital workflow.

For example:

Endoscopy System



OR Integration Platform



Surgeon's Display | Wall Display | Recording | Streaming | PACS

This approach allows the hospital to make better use of its existing technology while creating a foundation for future digital capabilities.

Integration Should Be Designed Around the OR, Not the Other Way Around

For hospitals evaluating OR integration, the starting point should be an assessment of the existing equipment, infrastructure and clinical workflow before deciding what needs to be added, upgraded or replaced.

Esbee Dynamed specialises in OR integration and connected surgical instrument tracking solutions. To learn how we can support your operating theatre, contact our team.

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