

What to consider in infrastructure planning for a new operation theatre

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A practical guide for hospital owners, biomedical heads, IT/project managers, and consultants

An integrated operation theatre is far more than a collection of medical equipment. It's a unified environment where surgical video, data, communication, etc. work together smoothly. The best integration makes it easy for surgeons, nurses, and technicians to focus on patient care, not on managing cumbersome technology.

As covered in our previous blog ([*What is an Integrated Operating Room?*](#)), integration isn't just for high-end hospitals; it's rapidly becoming the standard for any forward-looking facility.

Physical layout, workflow & design

- **Ergonomic Positioning:** Place monitors for optimal line of sight for surgeons.
- **Patch Panel Planning:** Mount patch panels for input connections conveniently, preventing cable clutter on the floor.

- **Monitor Viewing Distance:** Choose monitor sizes based on appropriate viewing distances for surgeons.
- **Space Utilisation:** Allocate space for rack mounting or in-wall systems. Opt for flush-mounted systems to save valuable OT space.
- **Redundant Cabling:** Plan for backup cabling to ensure faults can be fixed without disrupting operations.
- **Future-Ready Cabling:** Invest in infrastructure that will support advancements in video technologies and resolutions for the next 8–10 years.

Technology & system requirements

- **Imaging & Display:** Use high-definition (FHD/4K) displays, surgical cameras, and image capture systems as the backbone of your OT.
- **Recording:** Select platforms that provide reliable, secure, and scalable surgical video recording and documentation.
- **Storage:** Implement a data storage strategy that's scalable and enables fast, user-friendly retrieval.
- **Data Connectivity:** Ensure seamless integration with HIS, PACS, and EMR systems for comprehensive data exchange.

Data network best practices

- Plan for a dedicated 10 Gbps data network for video transmission and management.
- Keep video and data traffic on separate networks to prevent congestion and ensure reliability.
- Remember, future upgrades will be easier if you choose modular and software-based platforms.

Building for today and tomorrow

Thoughtful infrastructure planning is the foundation for a smart, efficient operation theatre. By focusing on integration-ready design, robust connectivity, future-proof cabling, and scalable digital solutions, you create an OT that supports clinical excellence today and adapts easily to the demands of tomorrow. Smart planning

now ensures safer surgeries, streamlined workflows, and a lasting return on your hospital's investment.

If you need tailored advice or want to explore digital OT solutions like CREA, our team is here to help—every step of the way.

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

Write to us at info@esbeedynamed.com for more info.