



TECHNOLOGY

SNAPSHOTS

Building Better Healthcare: The Vital Role of Clinical Engineering in Hospital Construction

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Hospital Construction: A Complex Endeavor

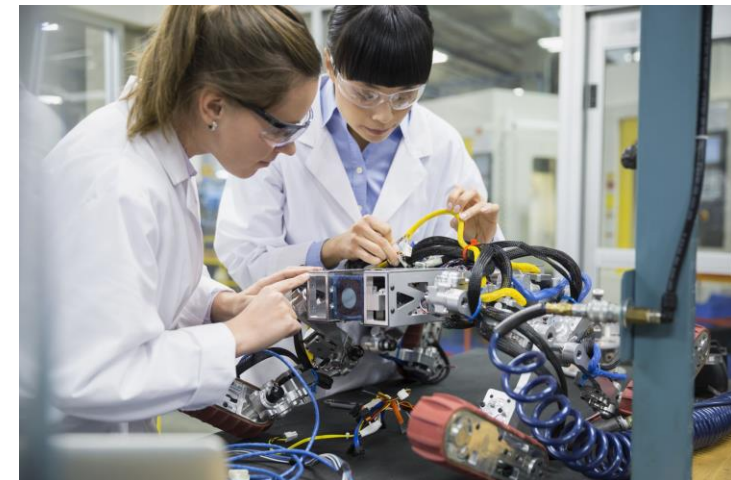
“If you want to look far ahead first look far back. And then be aware that you are designing for the present but also designing for the future which is unknown. (Norman Foster, Architect)”

- *Importance of Construction*
- *Complexity of Hospital Construction*
- *Role of Various Stakeholders*

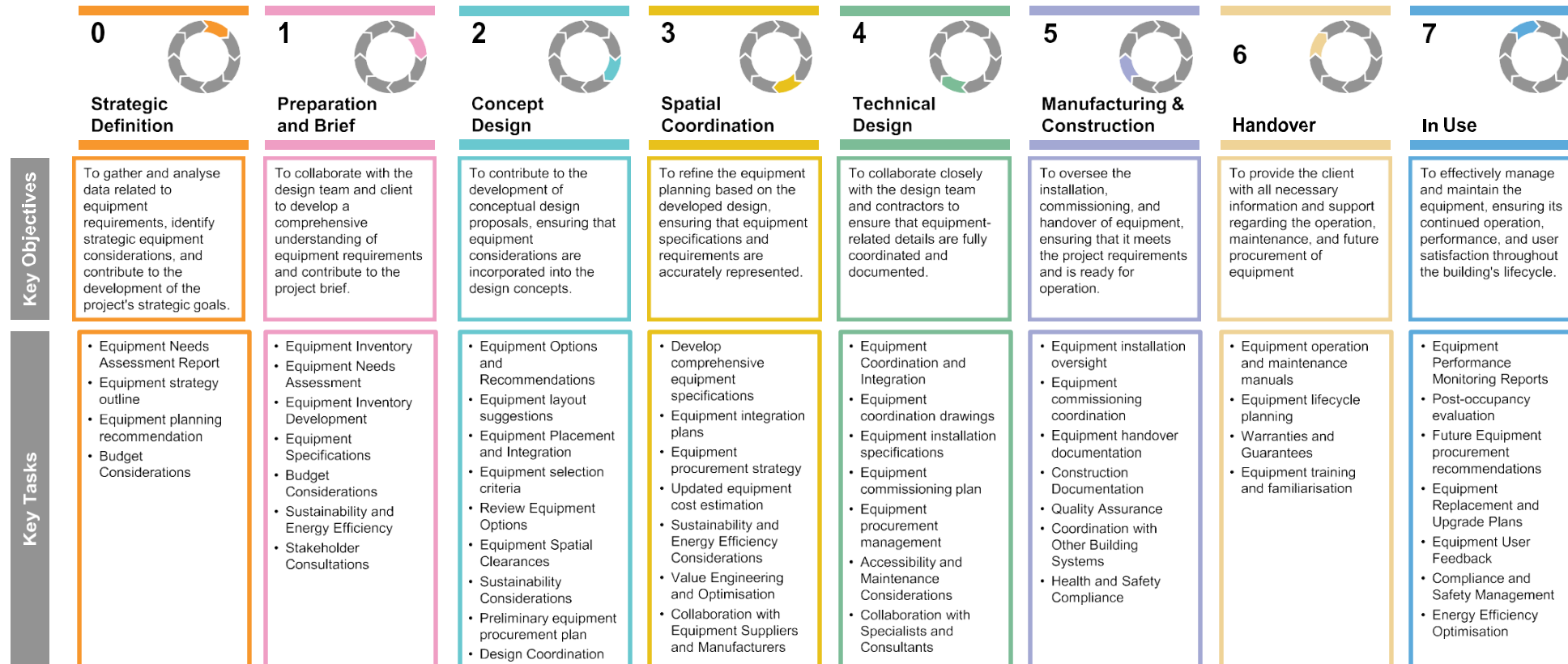


Integrating Clinical Engineering in Hospital Construction

- *Definition and Scope*
- *Key responsibilities*
- *Importance of Early Involvement*
- *Collaboration with Architects, Engineers and Design team*
- *Ensuring Compliance with Regulatory Standards and Guild lines*



Role of Equipping in the Build Cycle



Scope and Equipment

Grouping of Equipment



Group 1

Equipment and fittings built into the fabric of the building.

Examples: Sinks, cabinetry, terminal outlets

Contractor *(supplied and fixed)*



Group 2

Equipment that requires fixing to the fabric of the building.

Examples: MRIs, equipment fixings, whiteboards, dispensers

Client *(supplied)* Contractor *(fixed)*



Group 3

Free standing equipment such as IT equipment & medical devices.

Examples: Beds, trollies, bins, pumps, computers, telephones

Client *(supplied and fixed)*



Group 4

Small items, such as consumables, with an impact on space or engineering services.

Examples: Surgical, diagnostic instruments

Client *(supplied)*

Supply and Fitting

Medical Equipment

Diagnostic equipment (e.g., MRI machines, X-ray, CT)

Treatment equipment (e.g., surgical instruments, anesthesia machines)

Patient monitoring systems (e.g., vital sign monitors, telemetry units)

Rehabilitation equipment (e.g., mobility aids)

Furniture and Furnishings

Hospital beds, bedside tables, and chairs

Examination tables and treatment carts

Waiting room furniture and seating arrangements

Office furniture for administrative and clinical staff

IT and Communication Systems

Communication devices (e.g., nurse call systems, intercoms)

Telemedicine equipment for remote consultations and diagnosis

Networking infrastructure and IT hardware for data storage and transmission

Safety and Security Equipment

Fire detection and suppression systems

Security cameras and access control systems

Emergency response equipment (e.g., defibrillators, first aid kits)

Environmental and Facility Management Systems

Heating, ventilation, and air conditioning (HVAC) systems

Lighting fixtures and controls

Plumbing fixtures (e.g., sinks, faucets, toilets)

Waste management systems

Operational Efficiency

Integration of technology and automation streamlines workflows, reduces manual errors, and enhances productivity.

Interoperable systems facilitate seamless communication and data exchange between different departments, improving coordination and collaboration.

Quality Assurance

Needs assessments and standardised protocols help ensure that only high-quality and reliable equipment is acquired.

Compliance with regulatory standards and industry best practices is prioritised, reducing the risk of equipment failure or malfunctions.

Cost Efficiency

Standardisation of equipment selection and procurement processes can lead to bulk purchasing discounts and reduced administrative costs.

Strategic planning ensures that resources are allocated effectively, minimising wastage and unnecessary spending.

Flexibility and Adaptability

Regular monitoring and evaluation allow for ongoing adjustments to equipping strategies based on evolving needs, technological advancements, and changing regulatory requirements.

The centralised approach ensures that the hospital remains agile and responsive to emerging challenges and opportunities in healthcare delivery.

Sustainability

Consideration of sustainability criteria in equipment selection promotes energy efficiency, resource conservation, and environmental responsibility.

Lifecycle management strategies prolong the useful life of equipment, reducing the frequency of replacements and minimising environmental impact.



Anticipation of Emerging Needs

- Horizon scanning involves identifying and monitoring trends, innovations, and emerging technologies in healthcare.
- By staying informed about advancements in medical equipment and technology, healthcare facilities can anticipate future needs and plan their equipping strategies accordingly.
- This proactive approach enables hospitals to stay ahead of the curve and adopt cutting-edge technologies that enhance patient care and improve clinical outcomes.



Strategic Planning

- Future technology assessment allows healthcare facilities to assess the potential impact of emerging technologies on their operations and patient care delivery.
- By integrating insights from horizon scanning into strategic planning processes, hospitals can prioritise investments in equipment and infrastructure that align with future trends and healthcare needs.
- This ensures that equipping efforts are forward-thinking and adaptable to evolving healthcare landscapes, thereby



Innovation Adoption

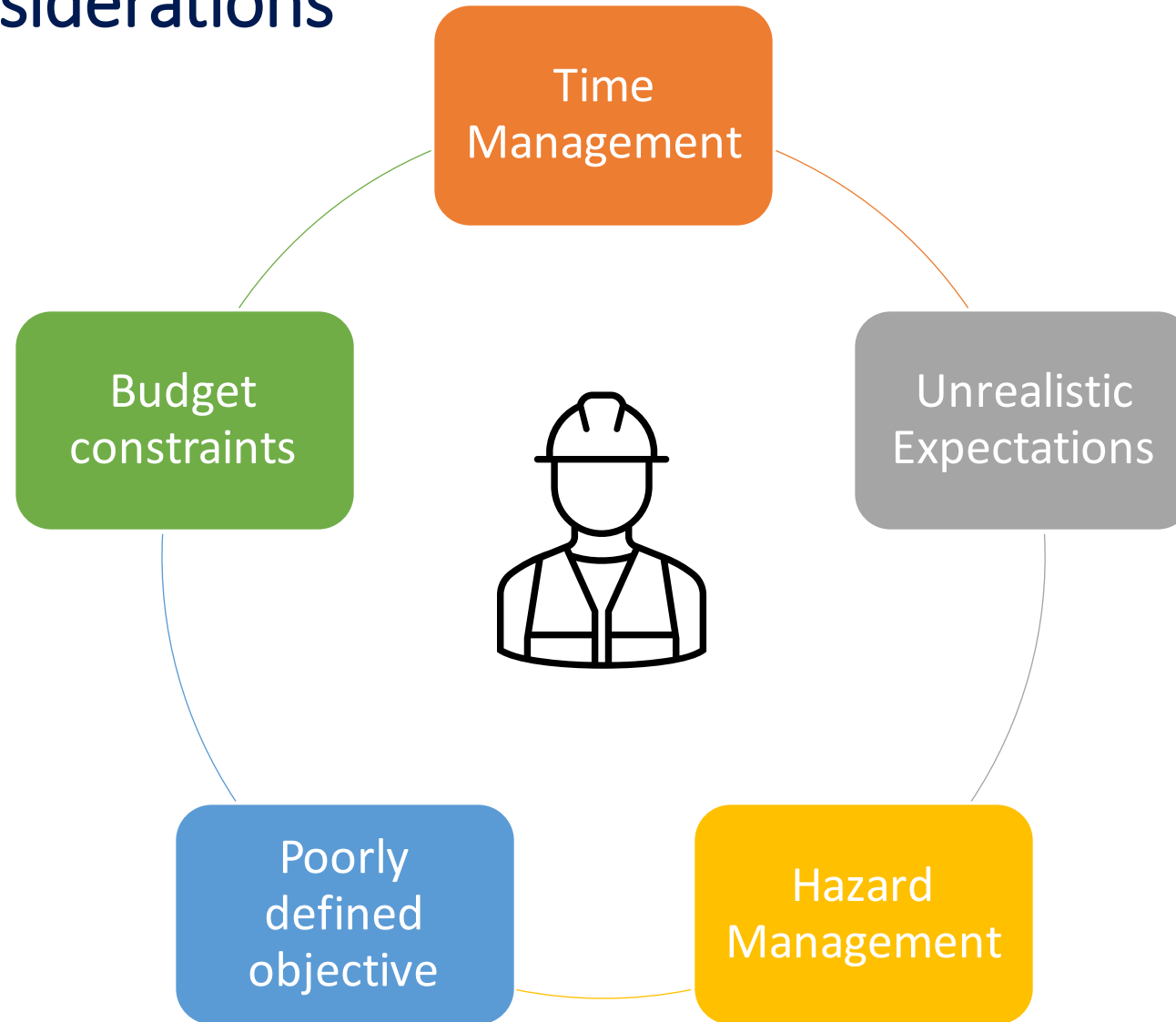
- Horizon scanning helps healthcare facilities identify innovative technologies and solutions that have the potential to revolutionise healthcare delivery.
- By actively seeking out and evaluating emerging technologies, hospitals can make informed decisions about adopting new equipment and implementing transformative initiatives.
- This fosters a culture of innovation within healthcare facilities and enables them to harness the benefits of cutting-edge technologies to improve patient outcomes, enhance operational efficiency, and drive continuous improvement.



Collaboration and Partnerships

- Horizon scanning often involves collaboration with industry partners, research institutions, and technology developers to stay abreast of the latest advancements.
- By forging strategic partnerships with technology vendors and other stakeholders, healthcare facilities can access expertise, resources, and opportunities for co-innovation.
- This collaborative approach facilitates the seamless integration of future technologies into equipping strategies

Challenges and Considerations

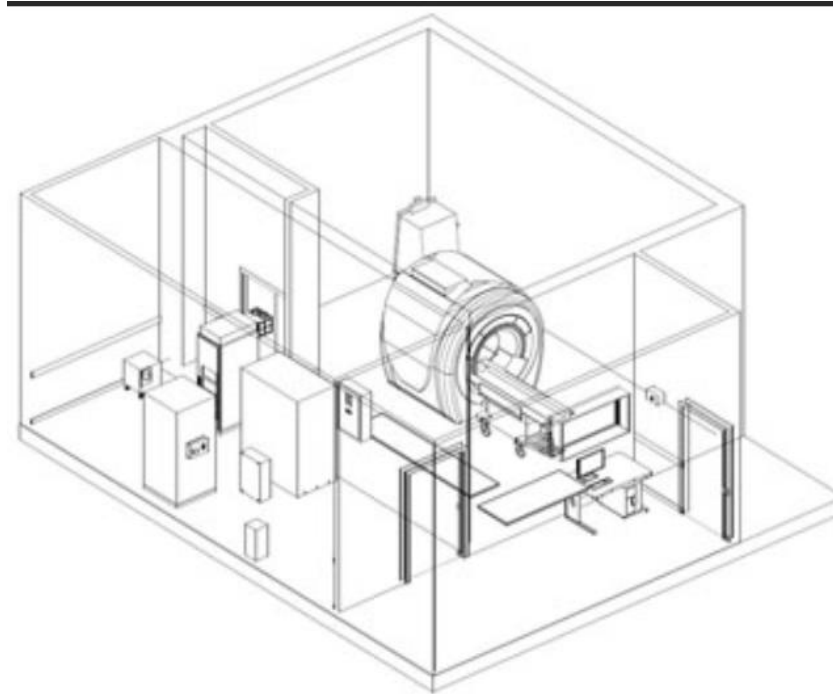


Examples and Case studies

- Integration of Advanced Imaging Equipment in a Radiology Department
- Implementation of Telehealth Technology for Remote Patient Monitoring
- Surgical Suites with Robotic Surgery Systems
- Building a Hybrid Operating Room for Minimally Invasive Procedures
- Implementing Smart Hospital Technologies for Patient-Centered Care
- Designing Sustainable Healthcare Facilities with Energy-Efficient Systems
- Implementation of Automated Medication Dispensing Systems
- Implementation of Silent Hospital Solution

Integration of Advanced Imaging Equipment in a Radiology Department

- Equipment Selection and Procurement
- Infrastructure Planning and Site Preparation
- Integration with Existing Systems
- Installation and Commissioning
- Staff Training and Education
- Quality Assurance and Compliance
- Technical Support and Service
- Continuous Improvement and Optimisation



Silent Hospital Solution

- Evaluation and Selection of Noise Reduction Technologies
- Integration with Medical Equipment
- Staff Training and Support
- Data Monitoring and Analysis





Thank you!

