



Integrated Healthcare Facilities Infrastructure

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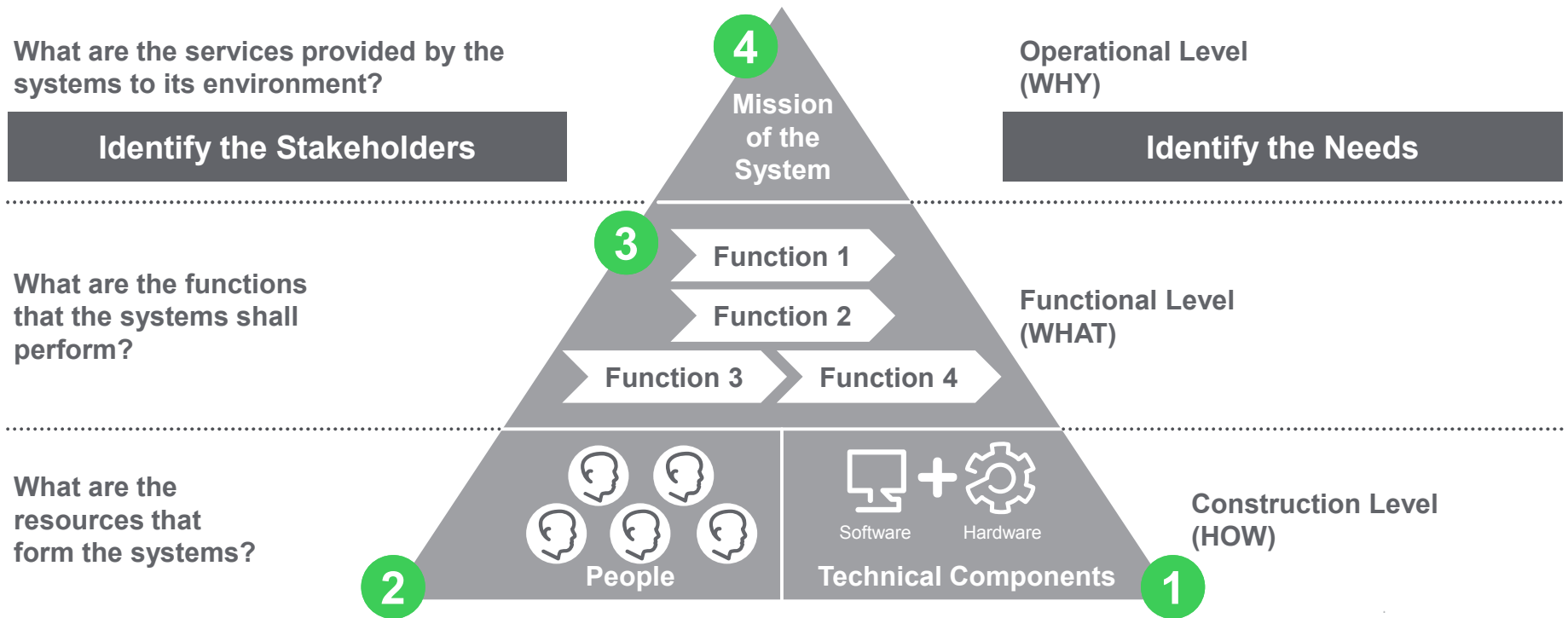
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Solution-Based Design Process

Solutions-Based Design Process



Health System Priorities

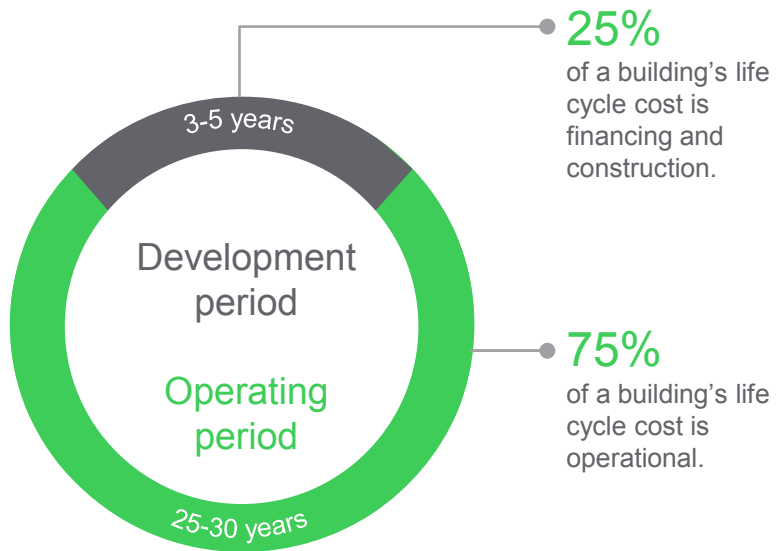




Lifecycle Considerations



Lifecycle Cost Consideration



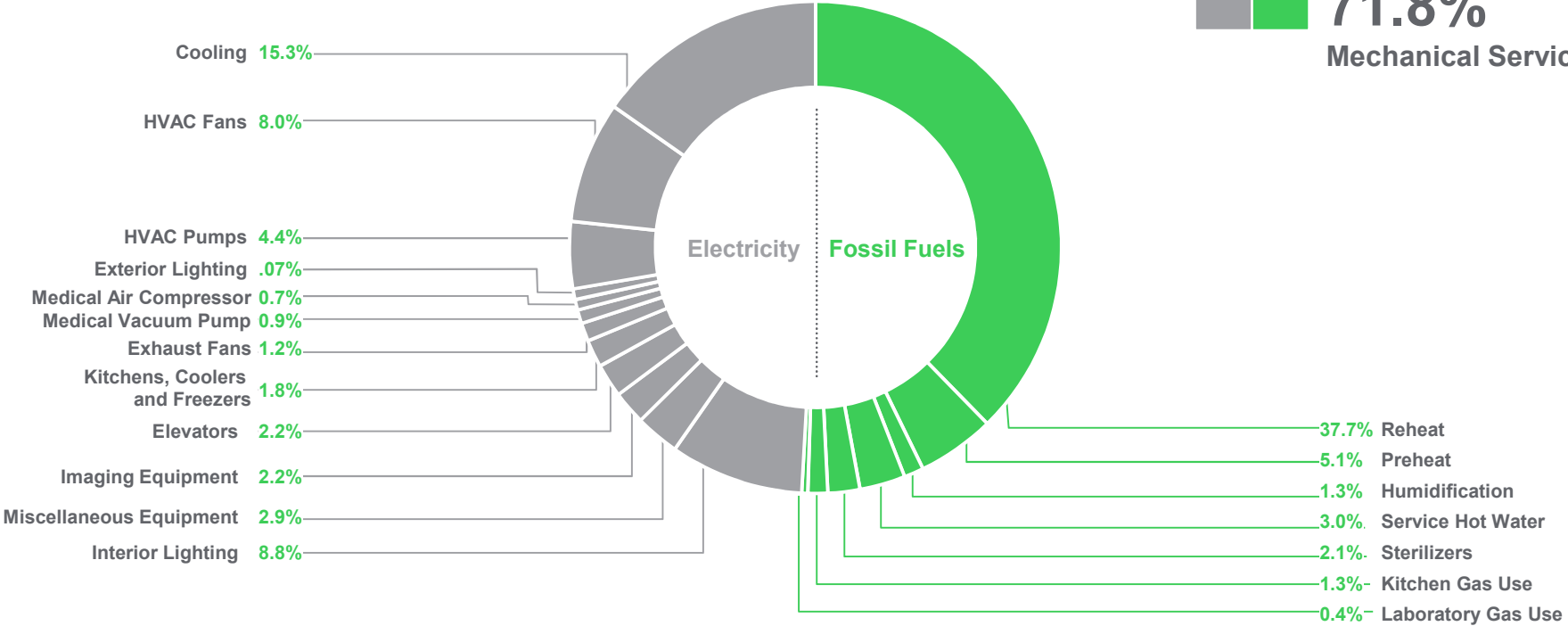
Infrastructure investment criteria:

- IT technologies have a 36-month to 5-year life-cycle
- Clinical technologies have an 18-month to 3-year life-cycle
- Infrastructure technologies have a 15 to 30-year life-cycle

CABA building life cycle costs are based on U.S. data.

Energy Use in Hospitals

71.8%
Mechanical Services



IoT – a System of Systems



Connected, smart products

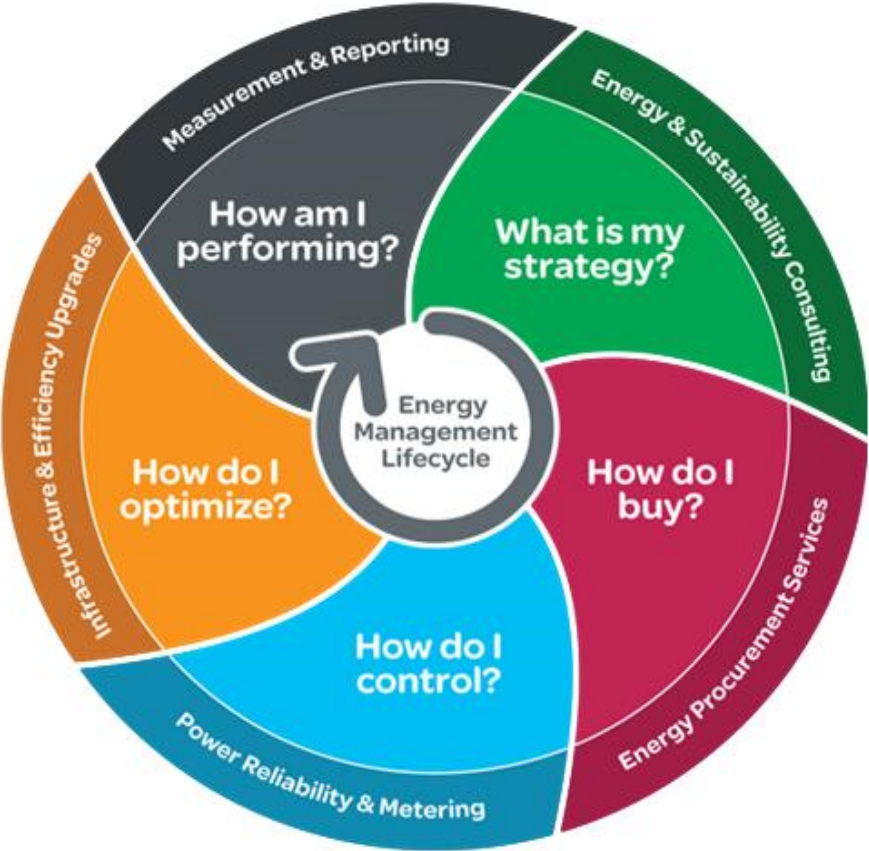


Connected systems



A system of systems

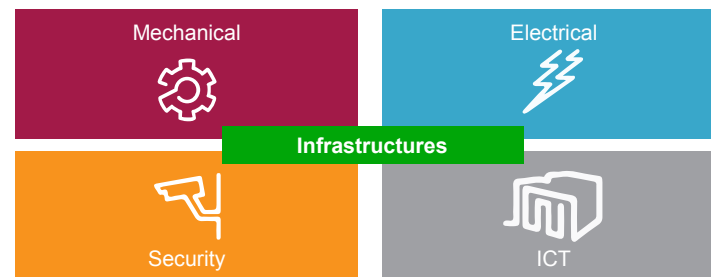
Energy Management Lifecycle



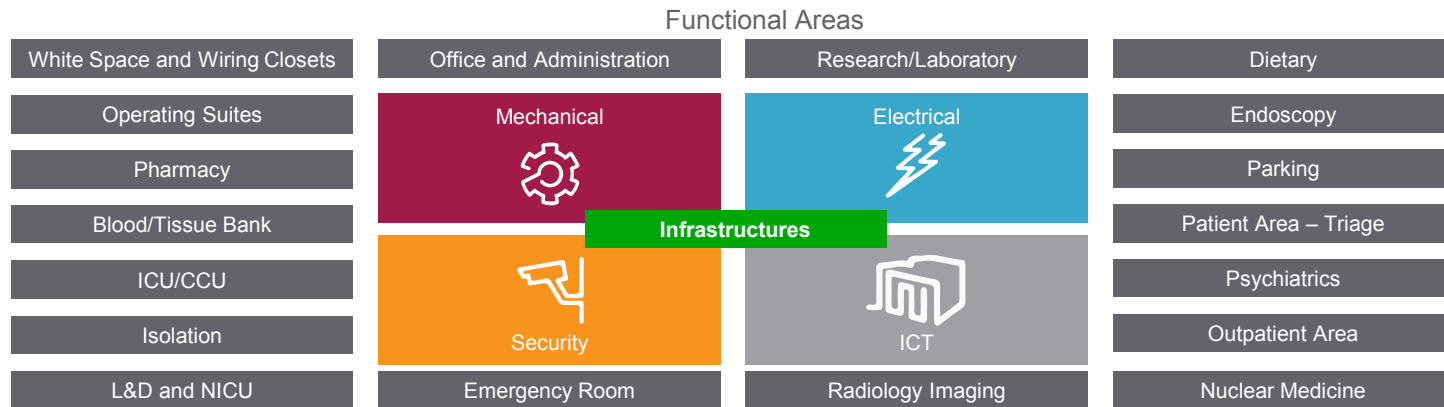


Intelligent Infrastructures

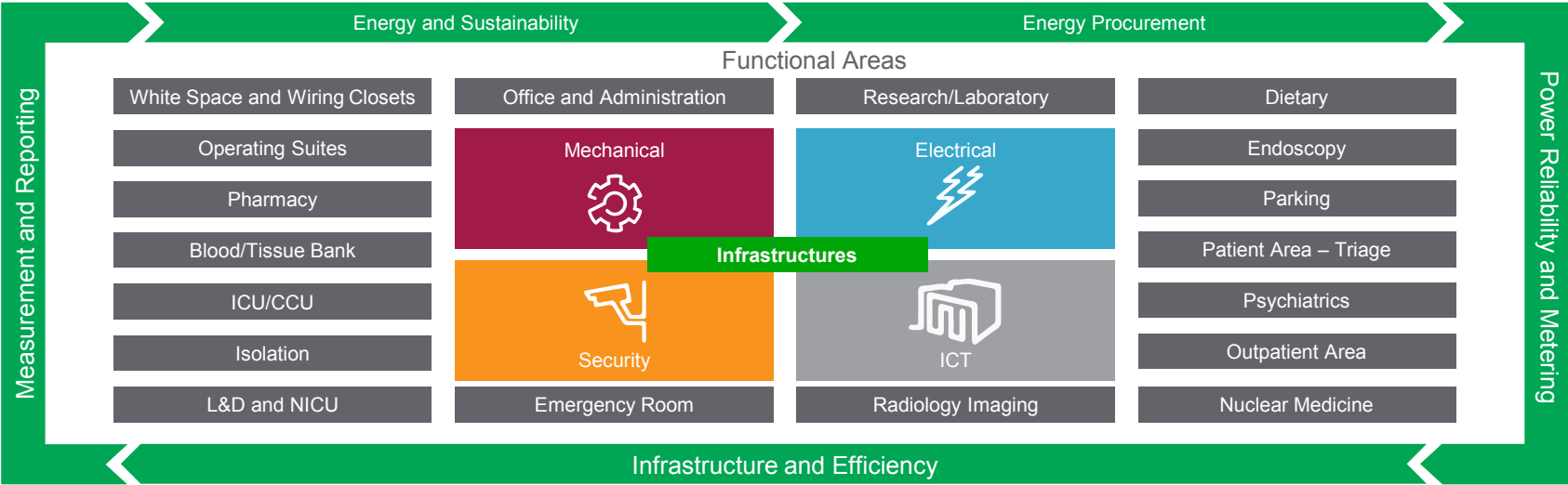
Intelligent Infrastructures



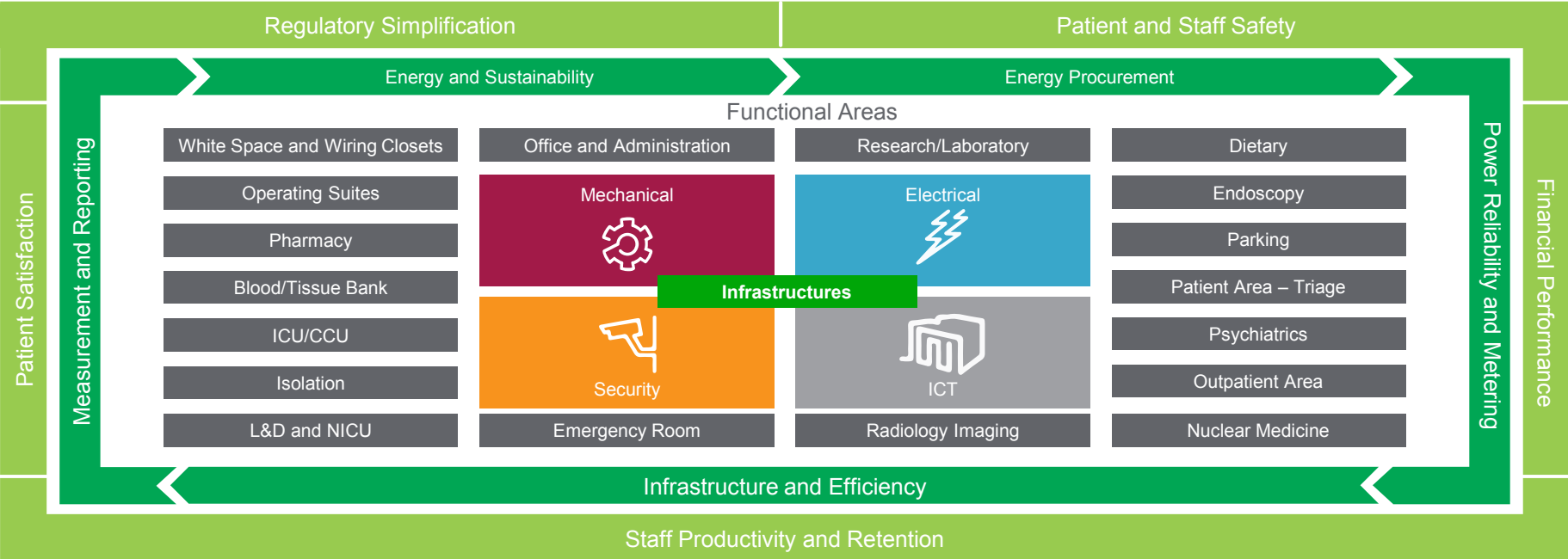
Functional Areas Impacted



Energy Management Lifecycle



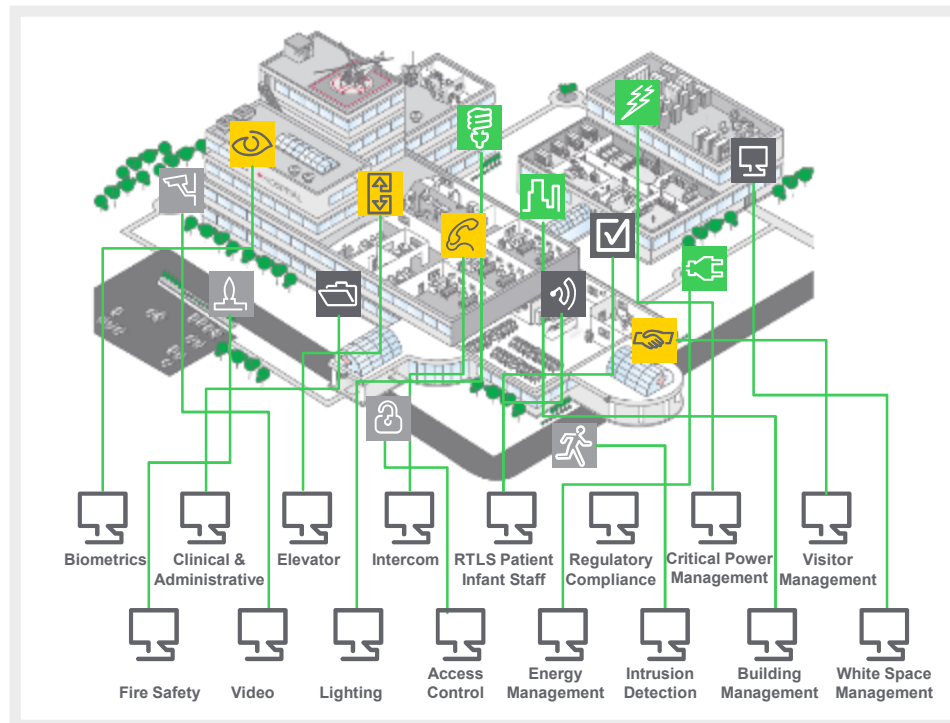
Impact on Business Priorities





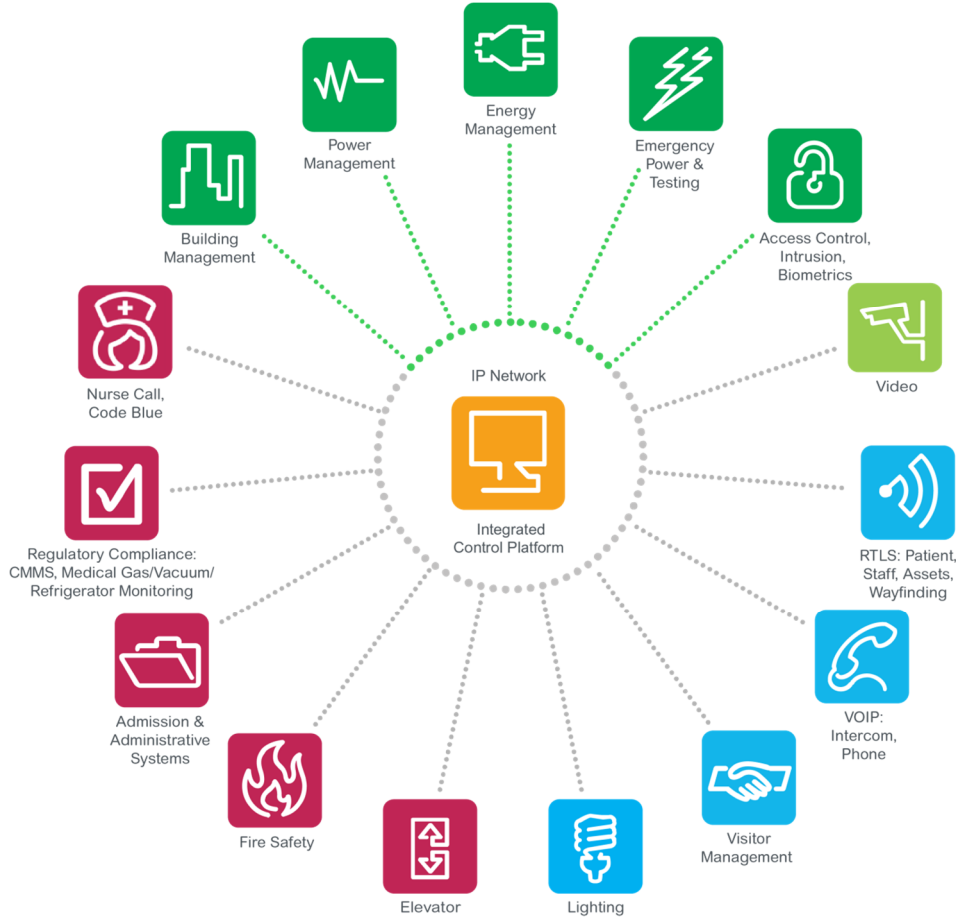
Integrated Control Platform

Traditional Facilities Design



- Multiple networks from different vendors
- Too many systems to learn
- Complex troubleshooting
- Higher capital and operational expenditures
- Obstacles to achieving energy efficiency
- Data not shared between systems
- Limits analytic possibilities

Integrated Control Platform



- > **Reduce CapEx**
 - Lowered equipment, software & installation costs
 - Common footprint
- > **Lower OpEx**
 - Maintain design KPI's
 - Faster training deployment
 - Minimized maintenance cost
 - Continuous commissioning
- > **Delivers**
 - Improved patient care
 - Improved patient/staff safety
 - Increase staff efficiency
 - Low energy cost
 - Improve financial performance

- Core ICP Software Systems
- Core Integrated Systems
- Corporate Alliances
- Customer / CM Driven

Enterprise-Level Monitoring and Reporting

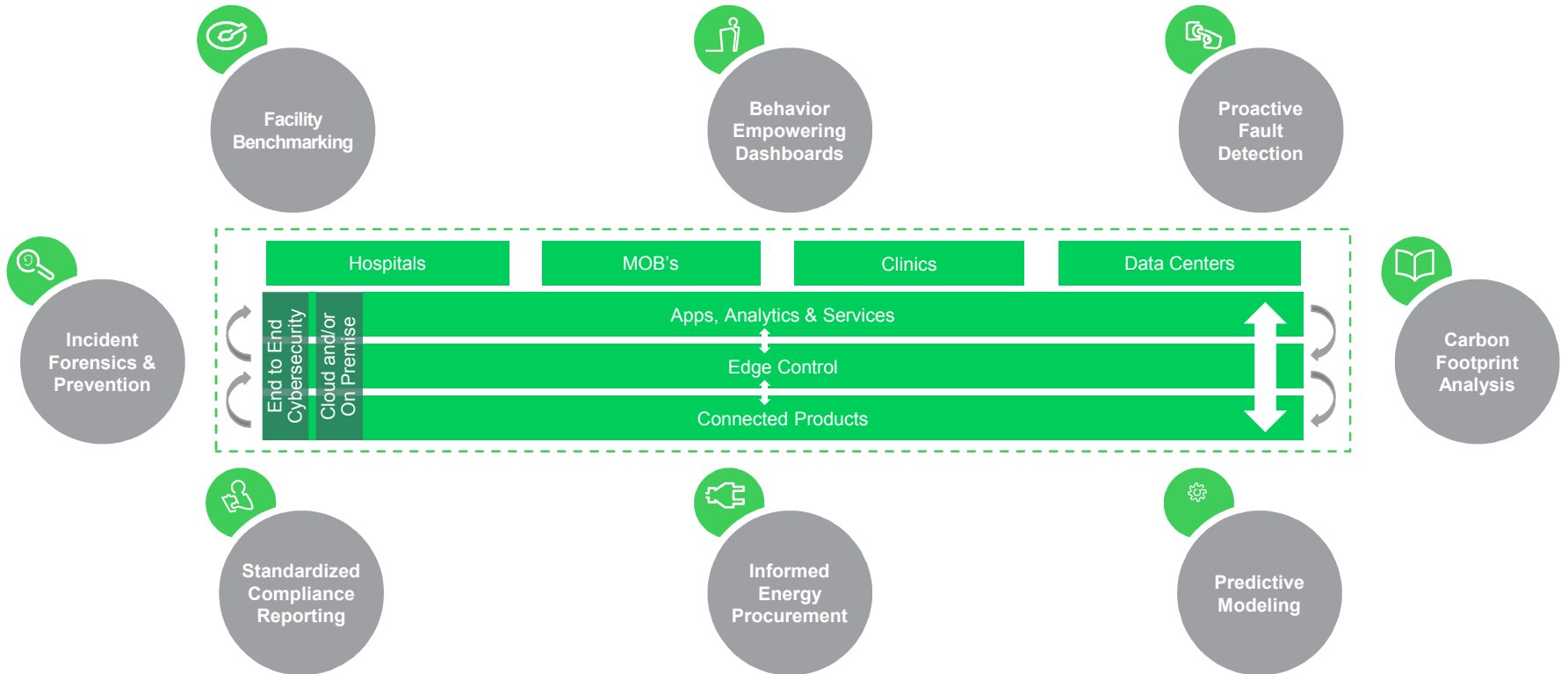


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Making Sense of Big Data



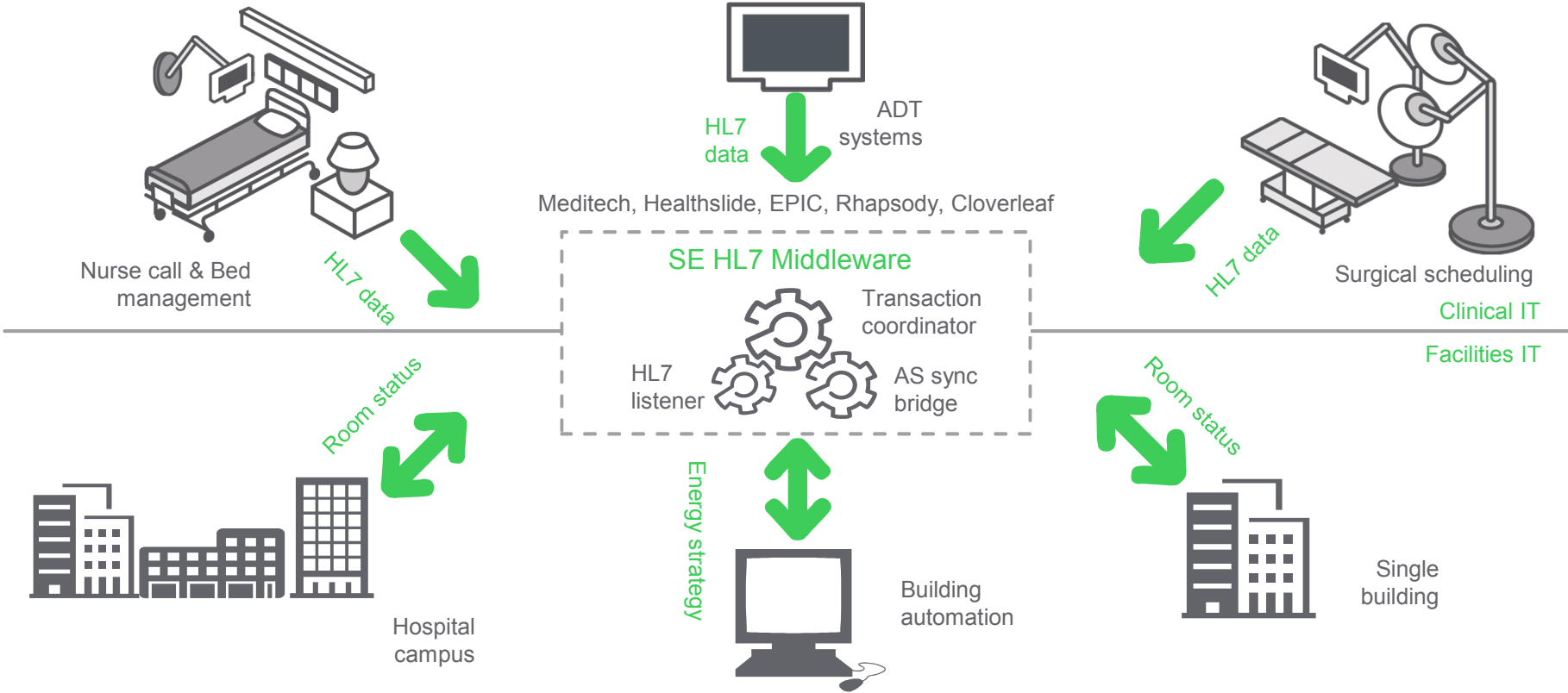


Use Cases

Value of a Use Case (Why, What, How)



Integration with Clinical Systems



Mechanical

5.1.2 Functional Areas, Key Use Cases – Mechanical

As described in the previous sections, the Integrated Control Platform yields efficiency and business value by simplifying operation in normally complex areas of a hospital. This section will cover several key areas of specialized function and use cases for integration as applied to the mechanical infrastructure in a facility.

- **Patient Room Control** – Patient satisfaction, as it relates to the financial performance of a hospital, cannot be understated. Patient experience and environmental comfort are two key components of patient satisfaction. The Integrated Control Platform draws on a number of technologies inherent to each patient room to focus on delivering those elements of satisfaction, while also increasing the efficiency of the staff, and reducing the energy consumption of each space. The Integrated Control Platform performs as the hub of integration for a variety of interfaces available to provide patients control of their own micro-climate, including temperature control, room and task lighting, and mechanical window shading. This may be done through a pillow speaker, integral or boom-mounted bedside terminal, or integration to the Patient Entertainment System and room control system.
- **Patient Area Setback** – Setback control and energy saving algorithms can be implemented in the healthcare environment through the Integrated Control Platform and the Admission, Discharge, Transfer (ADT) systems via Health Level Seven (HL7) protocols in the patient rooms. By understanding the bed configuration of each patient unit and tracking when patients are admitted, transferred or discharged, major temperature and air exchange adjustments occurs real-time when a complete room is unoccupied. Further integration with Nurse Call and Bed Management systems delivers additional savings by minor temperature adjustments when patients are scheduled out of the room for therapy or testing. All changes are tracked in the Integrated Control Platform for compliance and can be overridden in case a need arises. It is also possible to have integration with the Nurse Call system for this override process. Additional integration with the Nurse Call system allows the air exchange rate and pressurization of a room to be altered based on scheduling requirements. Rooms designed with this functionality are also capable of immediate triage configuration should a crisis or pandemic situation develop in the community.

environment by incorporating a number of infrastructure elements. A touch screen display in the operating theater provides staff visual indication of the occupancy state, environmental conditions and alarm statuses, and can also incorporate medical gas and isolated power systems. Occupancy of the operating theater is established with facilities and clinical staff and an adjustable schedule is created in the Integrated Control Platform. During unoccupied periods, the air-changes per hour and space temperature are setback to the allowable code levels. The room pressure monitor validates that the theater maintains positive pressurization relative to its adjacent spaces. Airflow monitoring devices in the supply, return, exhaust and outside air streams validate that air-changes per hour and ventilation rates stay within code boundaries as well. The schedule returns the theater to an occupied state, unless the state is overridden within the system, through the hospital's patient information system or at the Operating Theater touch screen. The Integrated Control Platform monitors, records, and archives all pertinent regulatory information for each operating theater, and reports are constructed outlining the information for the hospital's accrediting organization.

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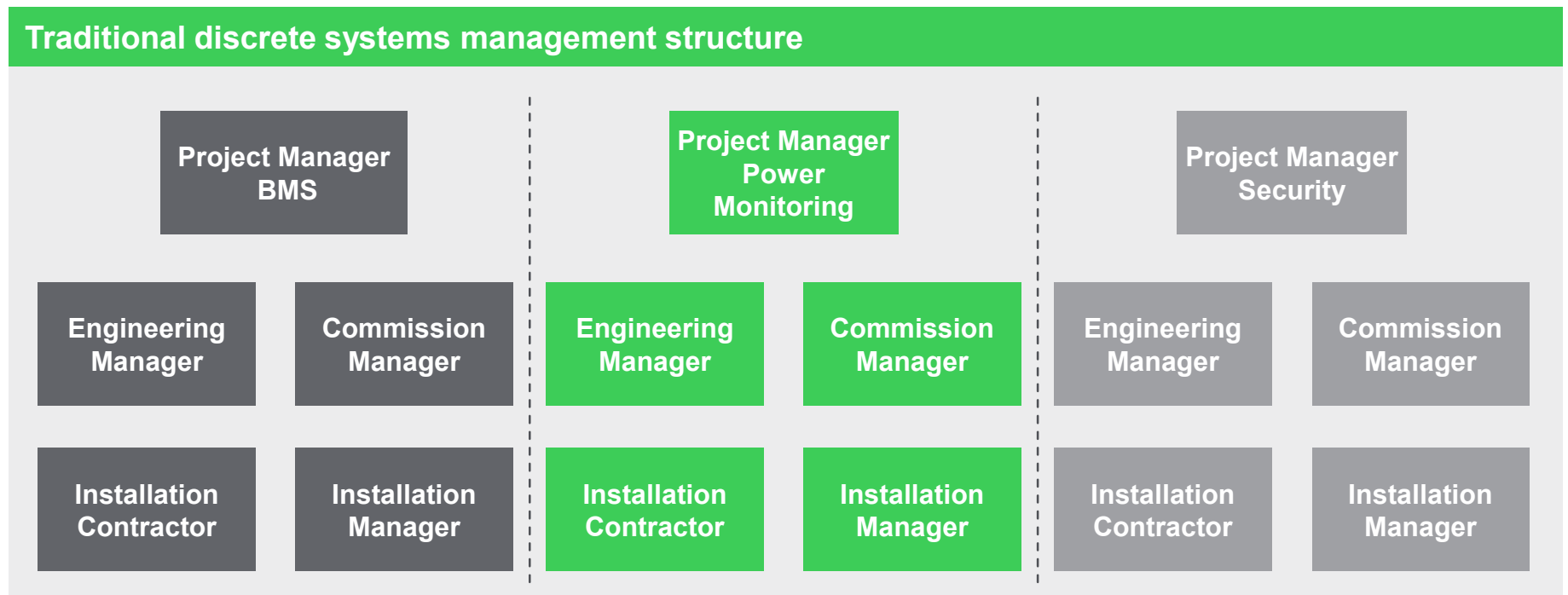
IHFI Design Drawings



A photograph of three business professionals in a meeting. A woman in a white shirt is pointing at a laptop screen, while a man in a light blue shirt and another woman in a light blue shirt look on. The scene is set in a bright office with a desk, papers, and a laptop. A green horizontal bar is overlaid across the middle of the image.

Implementation

Traditional Project Approach



Plus 15 to 20 More Potential Low Voltage Vendors

Solution-Based Approach

Technology Integration Partner

1
Project Manager

2
Engineering
Manager ICP

3
Engineering
Manager Electrical
Distribution

4
Installation
Manager

Integration
Engineer

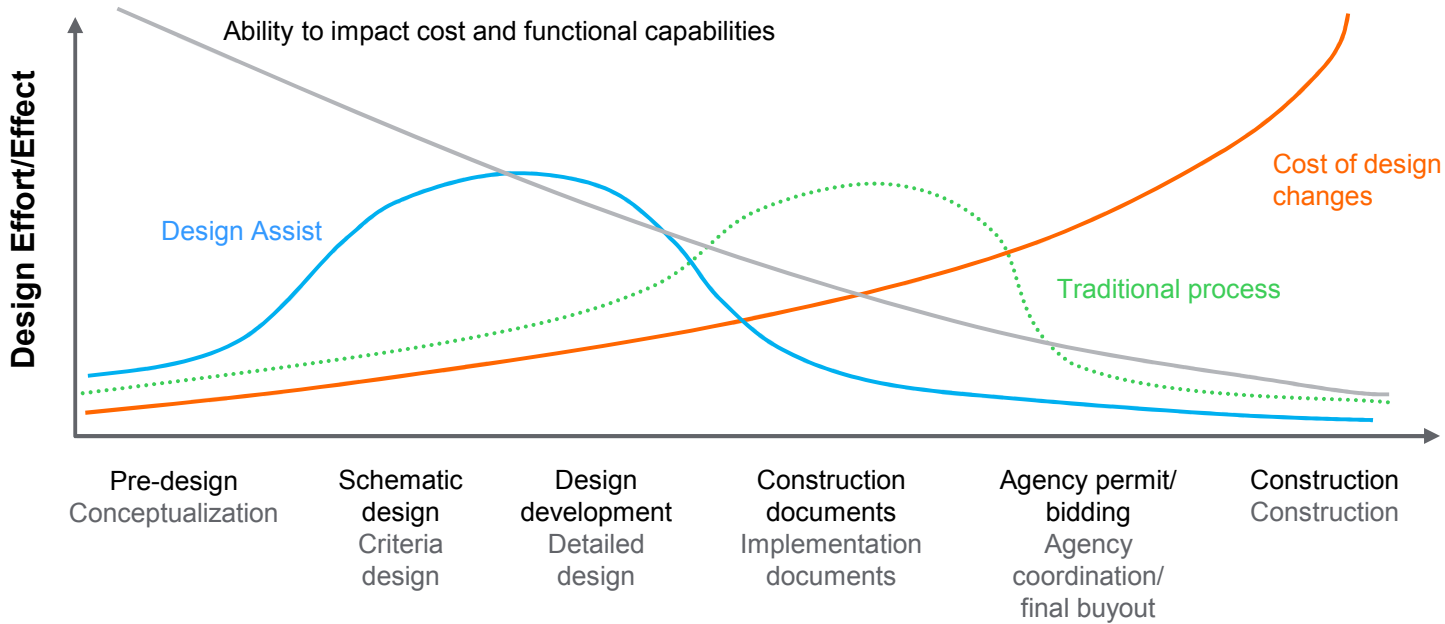
Commissioning
Manager

Commissioning
Engineer

Electrical
Installer

1. Site based with full decision making authority
2. Progressing intelligent systems design through the installation phase
3. Progressing the critical power and electrical distribution design through the installation phase
4. Management and site supervision of common electrical installer

Benefits of Design Assist



Engage a specialist early to reduce waste and risk!

Integrated Approach Costs 12–15% Less!



Less hardware



Less installation



Less structured cabling



Project management efficiencies



Contractual efficiencies



Site efficiencies

Contracting Methodology?



Typically:

- Individual systems are bid through different RFP's late in contracting process

Best Case:

- Provide deduct based on savings, if awarded multiple systems
- Document Use-Cases that will be provided at no additional cost, if awarded multiple systems
- You've already missed the savings created during Design Assist, since packages like Power Distribution have already been ordered and may be on-site.

A Better Contracting Methodology!

Instead, do this

- Bring Schneider Electric in as your **Technology Integration Partner** at the conceptual design phase
- Use the **Division 25 Specification to define integration via Use Cases**
- **Procure your Power package** to include the specific equipment and installation efficiencies designed into Integrated Control Platform detailed by the Division 25 Specification
- **Procure Fire package** with BACnet option
- **Procure ONE package** with low voltage as one specification (BMS, security, CCTV, nurse call, lighting control, power metering, networking)

Consider multi-year, multi-discipline maintenance agreement

- Evaluate **true cost** of ownership
- **Bundled service agreements** for multiple systems to gain cost savings

Cost plus/guaranteed maximum price

Questions?



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