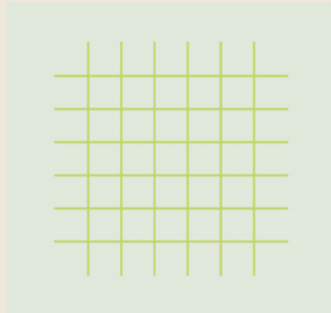
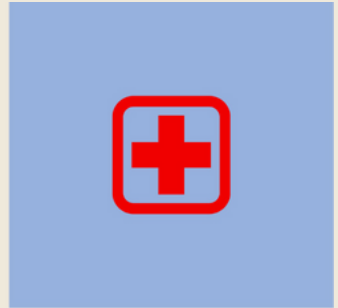


IoT for Intelligent Healthcare Operations

Connecting facility, energy, and equipment data for predictive, automated healthcare operations.



RADIX[®] 

The Challenge:

Siloed systems and disconnected data keep hospitals from seeing, predicting, and responding in real time.

Hospitals are under growing pressure to modernize facilities that were never designed for the demands of digital, connected, always-on care. Most still depend on fragmented infrastructure - separate control systems for HVAC, power, water, and environmental monitoring that cannot communicate or scale. This lack of visibility drives inefficiency and risk. The healthcare facilities management market now exceeds \$560 billion globally and is growing by nearly 10 percent each year, yet much of that investment still goes toward reactive repair, wasted energy, and labor-intensive oversight. As automation, predictive maintenance, and AI begin reshaping how hospitals operate, the need for unified, reliable data has become the defining challenge of modern healthcare operations.

- **Disconnected Systems and Data Silos**

Most healthcare organizations manage multiple campuses using a mix of legacy systems, BMS platforms, and standalone tools. Over 70 percent of hospitals operate across sites that lack integration, creating operational blind spots and delayed response times.

- **Reactive Maintenance Culture**

The majority of facilities still rely on scheduled or corrective maintenance. Reactive repairs can cost three to five times more than preventive strategies and increase the likelihood of downtime that directly affects patient care.

- **Inefficient Energy Use**

Hospitals are among the most energy-intensive building types, and inefficiencies in unmonitored systems waste an estimated 20 to 30 percent of total consumption. With energy costs rising globally, this inefficiency has a major financial and environmental impact.

- **Labor Shortages and Skill Gaps**

Aging workforces and nationwide technician shortages are reducing institutional knowledge. Teams are stretched thin and often forced to manage complex, digital infrastructure without unified tools or analytics support.

- **Compliance and ESG Pressures**

Hospitals face escalating requirements for infection control, emissions tracking, emergency power readiness, and sustainability reporting. Fragmented systems and manual data collection make meeting these standards costly and error-prone.

- **Unrealized Potential of AI and Automation**

Artificial intelligence is being introduced for predictive maintenance, anomaly detection, and energy optimization, but without a clean and connected data foundation, these technologies cannot reach scale or deliver accurate insight.

The Solution: mango

Mango turns fragmented healthcare infrastructure into a unified operational intelligence platform. By connecting HVAC, lighting, energy, equipment, safety, and compliance systems into one cohesive view, Mango eliminates blind spots and restores real-time visibility across every site. Hospitals gain a complete understanding of how critical systems perform, where inefficiencies occur, and how to act before issues disrupt care. It transforms facility data into a single, reliable foundation that enables predictive maintenance, automation, and AI-driven insight.

Built for interoperability and scalability, Mango bridges the gap between traditional SCADA systems and modern cloud platforms. It sits above existing infrastructure without requiring costly replacements, translating incompatible data sources into one shared language. This makes it possible for multi-site hospital networks to standardize visibility, benchmark performance, and plan upgrades strategically. By removing the data silos that cause inefficiency and risk, Mango empowers facility teams to shift from reactive maintenance to proactive management grounded in accurate, contextual data.

As healthcare operations move toward intelligent and connected frameworks, Mango provides the data integrity and resilience that advanced analytics depend on. Its open, vendor-neutral architecture ensures reliable and secure data flow across buildings, systems, and vendors. Whether used to optimize energy use, meet ESG reporting standards, or train AI-driven maintenance models, Mango delivers the clarity, automation, and control hospitals need to operate safer, cleaner, and more efficiently today and in the future.

- **Unified Data Layer**

Connects building automation, energy, metering, safety, and compliance systems into one secure, vendor-neutral platform without replacing existing infrastructure.

- **Predictive Operations**

Enables proactive maintenance, equipment optimization, and fault detection by transforming raw data into structured, actionable intelligence.

- **AI and Analytics Ready**

Provides the data consistency and visibility required for AI-driven insights, automation workflows, and performance benchmarking across sites.

- **Portfolio Oversight**

Standardizes visibility across multi-site hospital networks, allowing teams to measure efficiency, compare performance, and plan strategically.

- **Portfolio Oversight**

Centralizes live and historical data to simplify audits, automate sustainability reporting, and ensure full transparency.



mango For Healthcare Operations

Mango installs flexibly across any healthcare environment, from on-site servers managing critical systems to cloud deployments overseeing multi-hospital networks. It serves as the intelligent backbone for healthcare infrastructure, connecting HVAC, power, lighting, water, energy storage, and life-safety systems into one cohesive platform. Supporting more than 40 communication protocols including Modbus, SNMP, MQTT, BACnet, OPC UA, and REST/GRPC APIs, Mango normalizes telemetry from legacy BMS, generators, UPS units, and IoT sensors into a unified data layer. Acting as a single pane of glass, it converts fragmented inputs into structured, reliable information that teams can use for maintenance, energy optimization, and compliance oversight.

Unlike newer platforms built in response to the growing demand for automation and AI, Mango was engineered from the start to operate this way. Its architecture was designed for openness, interoperability, and real-time analytics long before those became industry priorities. From its earliest deployments, Mango unified complex, distributed systems into one intelligent, data-driven foundation. That foresight now positions it as the infrastructure layer healthcare operations depend on to support predictive maintenance, advanced automation, and AI adoption without disruption.

Built to solve challenges.

Mango transforms disconnected facility data into a secure, interoperable foundation for intelligent operations. It captures and contextualizes data from HVAC, emergency power, sterilization systems, and critical environments, ensuring that insights once hidden in isolated systems are now visible and actionable. This unified layer supports predictive maintenance, automated fault detection, and compliance reporting with greater accuracy and consistency.

Facility teams can benchmark performance across campuses, identify anomalies in real time, and securely share validated data with any platform, from analytics dashboards to AI and digital twin models. Its open API framework simplifies integration across people, systems, and processes without costly replacements. Over time, Mango becomes the connective layer linking every operational system in a hospital, enabling proactive, data-driven environments where reliability, sustainability, and patient safety are continuously improved.

The Unified Data Layer for Modern Healthcare Operations



From Fragmented Systems to Unified Data

Mango connects every layer of hospital infrastructure, from legacy BMS and SCADA systems to modern IoT devices and cloud applications. Supporting more than 40 protocols including BACnet, Modbus, SNMP, MQTT, OPC UA, and REST APIs, Mango normalizes data from HVAC, power, lighting, generators, and medical facility systems into one real-time environment. It transforms disconnected systems into a unified, trustworthy data layer ready for automation, compliance, and analytics.



Built to Manage Complexity at Scale

Hospitals operate across multiple buildings, departments, and networks of critical systems. Mango creates consistency across decades of infrastructure growth, vendor changes, and technology upgrades. It standardizes visibility, benchmarks performance, and scales operations across all facilities. By connecting legacy infrastructure to modern cloud and AI technologies, Mango enables healthcare organizations to manage expanding portfolios without costly overhauls.



Operational Intelligence, Anywhere

Mango provides complete oversight from any location through a secure, web-based interface that centralizes data and control. Facilities teams can identify issues, manage alerts, and diagnose root causes with speed and accuracy. Real-time analytics allow energy, HVAC, and environmental data to feed directly into AI systems, giving hospitals continuous insight into uptime, performance, and patient-safety conditions.



Turning Data into Decisions

Mango correlates signals across systems, time, and location to surface what matters most. It filters noise, prioritizes alerts, and presents information in clear, actionable context. This helps hospitals shift from reactive troubleshooting to predictive, coordinated action. Operators spend less time chasing alarms and more time optimizing performance, guided by reliable data that supports AI-driven learning and continuous improvement.



Fast Implementation, Long-Term Value

Mango is lightweight, modular, and built to integrate seamlessly with existing healthcare systems. It deploys quickly, minimizes IT burden, and scales across on-premise and cloud environments with ease. By unifying data at the source, Mango accelerates time to insight while delivering lasting improvements in efficiency, compliance readiness, and operational cost control.

mango Quantifiable ROI

46% Reduction in Unplanned Equipment Downtime

Mango's unified, real-time data connects HVAC, power, and environmental systems across all facilities, giving maintenance teams early visibility into anomalies and asset degradation. By detecting problems before they escalate, hospitals can prevent system failures that disrupt patient environments, lower emergency repair costs, and safeguard continuous care.

37% Increase in Preventive vs. Reactive Maintenance Actions

By normalizing data across every system and site, Mango allows teams to plan maintenance proactively instead of reacting to failures. Predictive analytics identify emerging trends, streamline scheduling, and improve asset longevity, helping hospitals transition to a more efficient and cost-effective maintenance model.

18% Reduction in Total Energy and Utility Costs

Mango's real-time monitoring of HVAC, metering, and energy systems helps hospitals reduce waste, optimize load balancing, and improve efficiency across campuses. Unified data enables better demand management and energy reporting, cutting unnecessary consumption while supporting sustainability and ESG goals.

29% Improvement in Environmental Stability Across Care Areas

Mango ensures that critical environments such as operating rooms, labs, and isolation areas maintain precise conditions for temperature, humidity, and air quality. Reliable data visibility helps teams respond faster to deviations and maintain compliance with infection control standards, improving both safety and patient comfort.

41% Improvement in ESG and Compliance Reporting Efficiency

Mango automatically structures and archives performance, energy, and environmental data into auditable reports. Compliance and sustainability teams can produce accurate documentation faster, with fewer errors and greater confidence. This improves readiness for accreditation, ESG disclosures, and internal audits across large hospital networks.





mango Driving ROI

After implementing Mango by Radix IoT, a regional healthcare provider overseeing four hospitals and twelve outpatient centers completely redefined how it monitored and maintained its infrastructure. Previously, each facility operated separate building management systems for HVAC, power, and environmental controls, leaving teams without a unified view of performance or risk. Engineers relied on reactive maintenance, manual inspections, and disconnected spreadsheets to identify issues, often after they had already impacted patient comfort or compliance. With Mango in place, the organization unified its facility data into one contextual platform that links mechanical, electrical, and environmental systems in real time. Maintenance teams now receive early alerts for equipment degradation, energy use is continuously optimized, and compliance data is automatically archived. Within the first year, the provider reduced unplanned downtime by nearly half, cut emergency repair costs, and improved overall operational visibility across every care site.

Measurable System Gains

- **Unified Data Structure and Visibility**
- **Predictive Maintenance Enablement**
- **Multi-Site and Multi-Vendor Integration**
- **Reliable Monitoring Across HVAC, Power, and Life-Safety Systems**
- **Faster Root-Cause Identification and Response**
- **Automated Compliance and ESG Oversight**

In another case, a university medical center facing strict sustainability mandates and aging infrastructure used Mango to unify its facility operations. The platform normalized data from HVAC, power, sterilization, and metering systems across five campuses, allowing the organization to benchmark performance and meet reporting standards. Predictive analytics identified equipment risks before failure, and automated compliance tools simplified ESG and audit reporting. Within the first year, the medical center reduced unplanned downtime by 45 percent, improved preventive maintenance ratios by 38 percent, and lowered energy costs by 18 percent while achieving full visibility across its expanding healthcare portfolio. The solution has since become the backbone of the center's energy and reliability strategy, supporting both operational excellence and long-term sustainability goals.

The Data Foundation for Intelligent Property Operations

*Unlock the insight, automation, and AI
potential of every building you manage.*



Ready to streamline your operations? Discover how Mango
by Radix IoT can boost uptime, cut costs, and scale your
portfolio - contact us for a demo today.



sales@radixiot.com
radixiot.com

RADIX[®] 