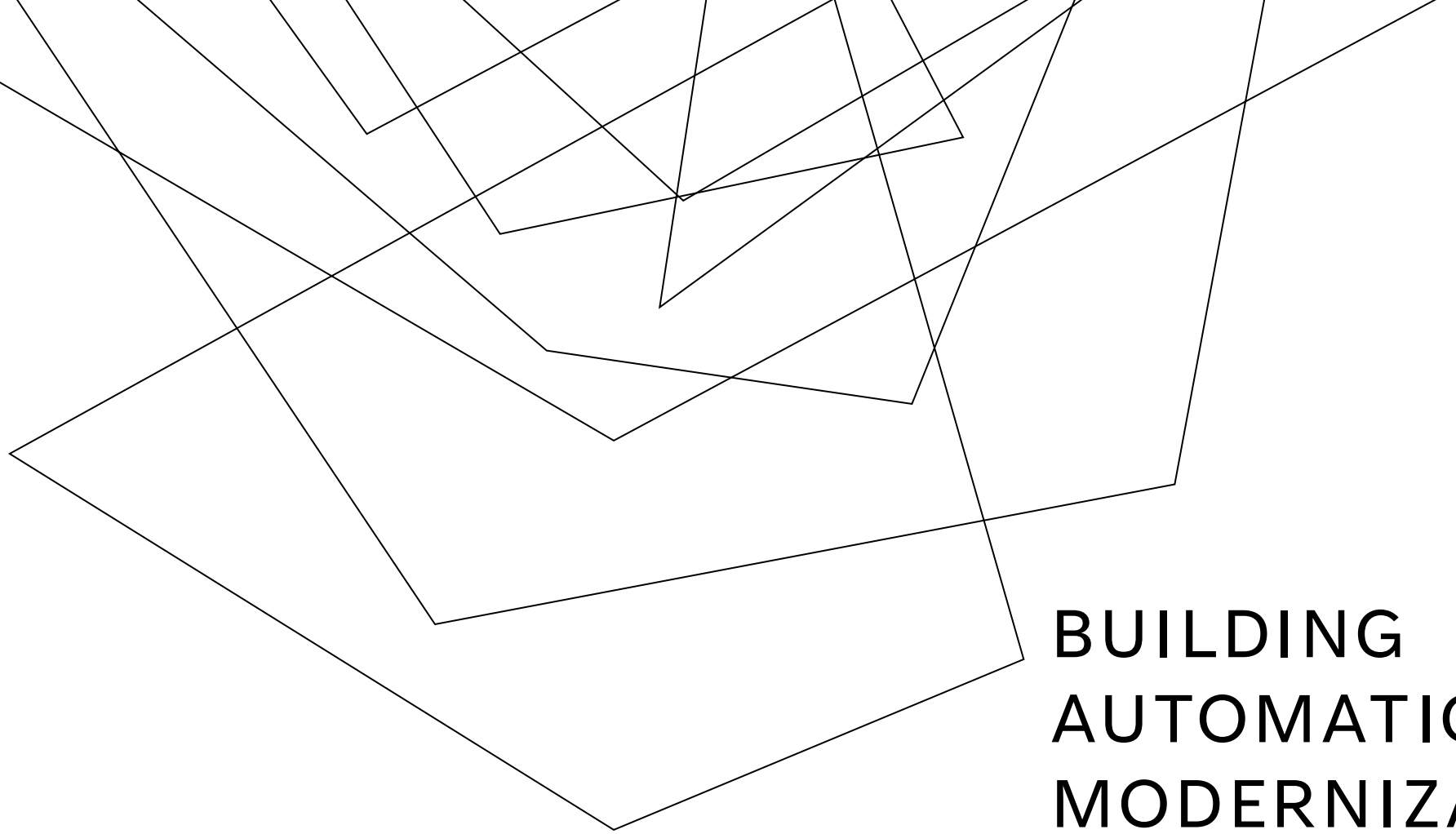
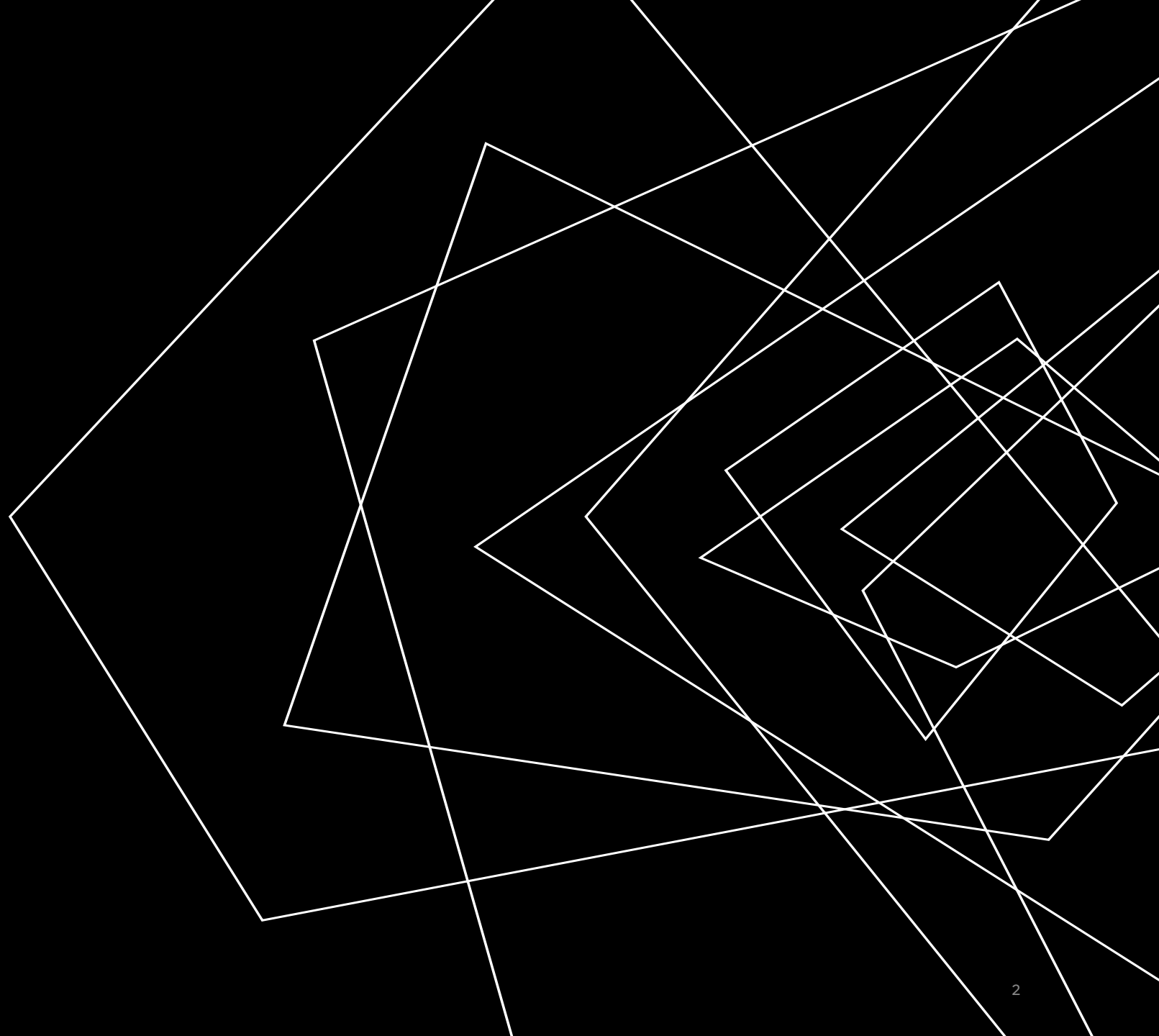


# BUILDING AUTOMATION MODERNIZATION & DIGITAL READINESS IN HEALTHCARE FACILITIES

PATRICK
RITCHIE

ROSS
NELSON



# THE END GOAL: A MODERNIZED + DIGITALLY READY BAS

# A MODERNIZED AND DIGITALLY READY BAS IS:

**Open and Interoperable**

**Data-Driven and Cloud Enabled**

https://www.ga4gh.org/news_item/ga4gh-announces-new-interoperability-standards-for-genomic-data-sharing/
https://www.cardinalpath.com/blog/data-driven-marketing-revisited

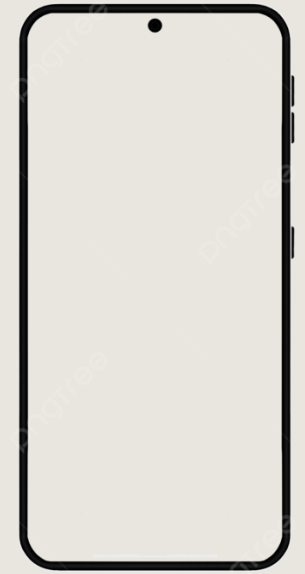
# CYBERSECURE + RESILIENT

https://insidetelecom.com/a-strive-toward-cyber-resilient-nations-a-cybersecurity-ecosystem/

# A MODERNIZED AND DIGITALLY READY BAS IS:

**Scalable + Future Proof**

**User Friendly + Mobile**

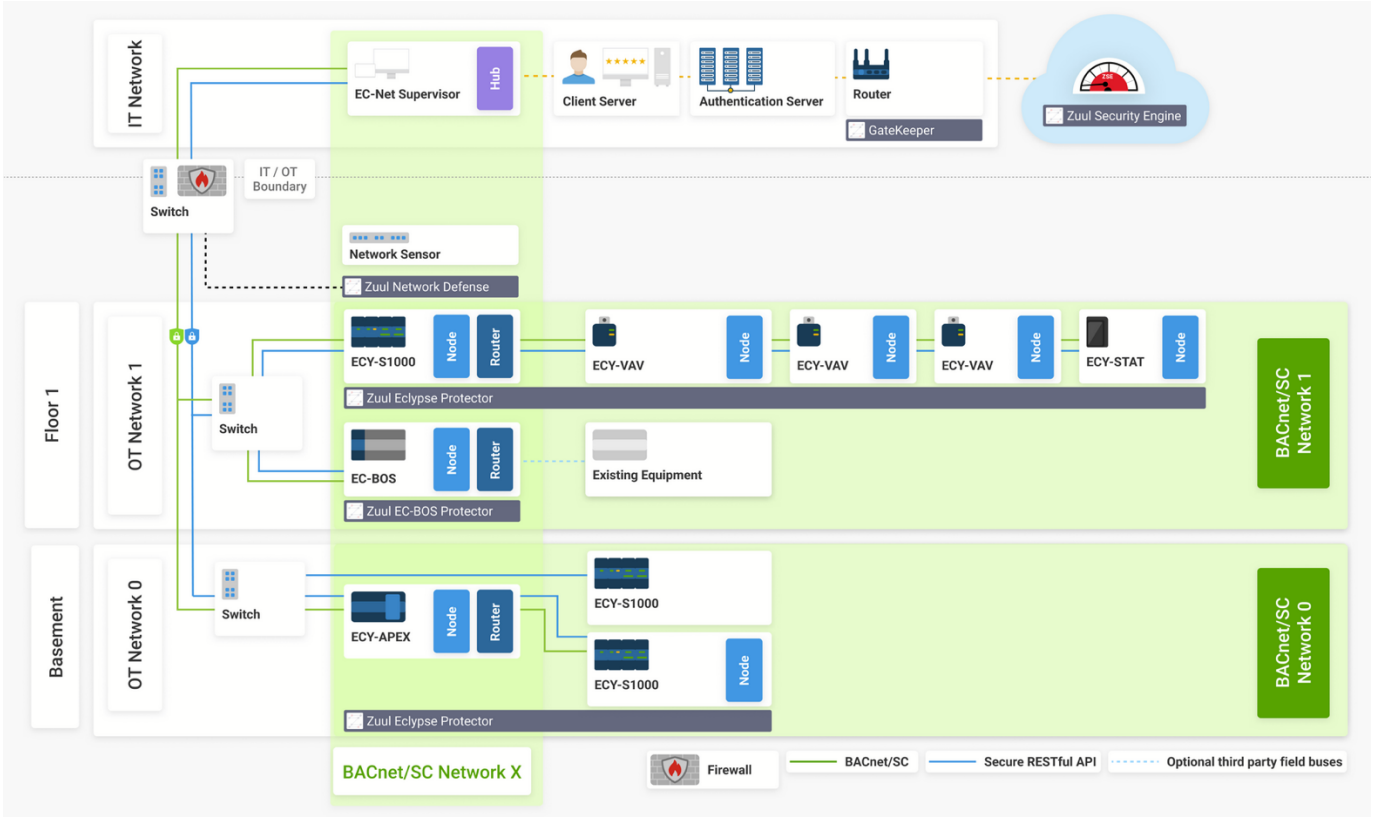


https://www.driveworks.co.uk/blog/making-digital-transformation-scalable-future-proof/
https://png.pngtree.com/png-clipart/20230514/original/pngtree-black-mobile-phone-transparent-png-image_9161005.png

# BUILDING YOUR ROADMAP

Assess Your Current State –

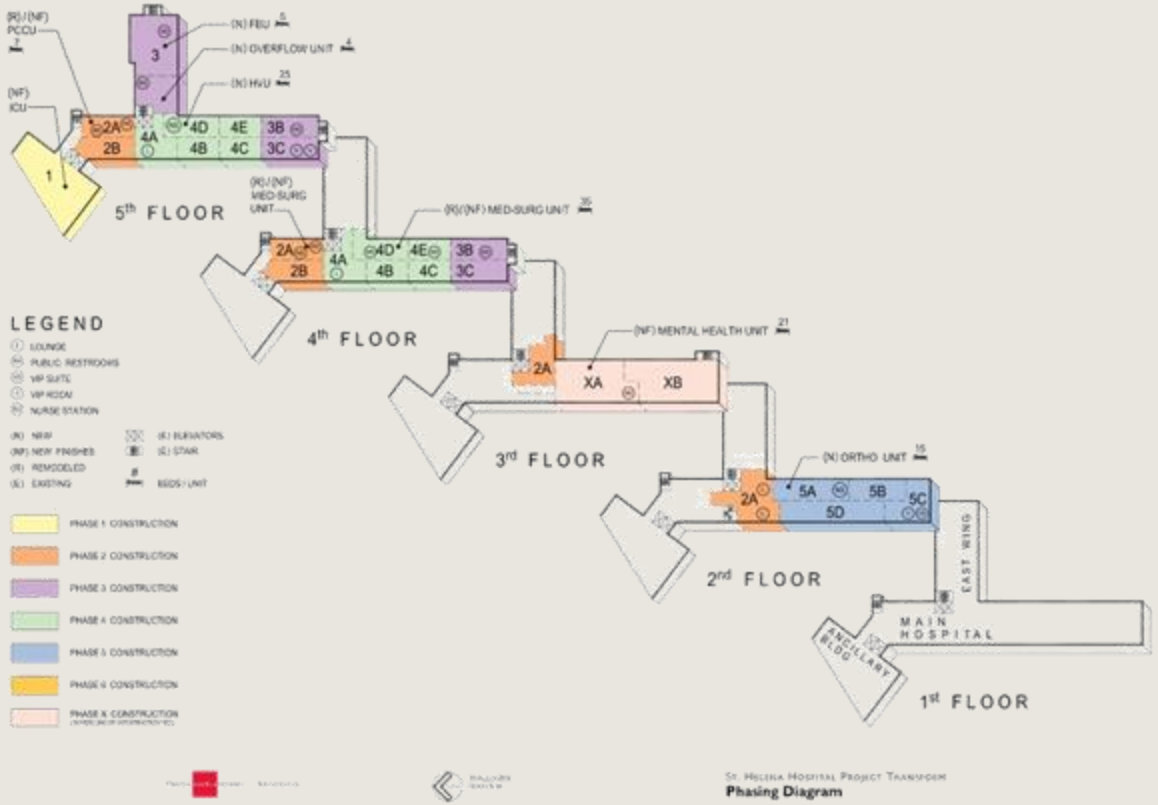
1. Current Architecture
2. Points of Obsolescence
3. Proprietary or Non-Proprietary
    1. Distribution
    2. Protocol
    3. Programming Tool
4. Competitive Serviceability




https://www.distech-controls.com/-/media/abl/distechcontrols/images/solutions/data-centers/cyber-secure-arch.png

# BUILDING YOUR ROADMAP

1. Phasing Plan
    1. Prioritization
        1. ROI – on comfort, energy, serviceability
    2. Leverage the 3 Funding Components:
        1. Modernization Project
        2. Other Capital Projects – Remodeling, expansions, equipment replacement
        3. Maintenance – Not like for like, but like for better




https://www.dreyfussblackford.com/wp-content/uploads/2014/10/120910_Phasing-Diagram_colored-1024x731.jpg

# BUILD YOUR TEAM

**Purchasing**

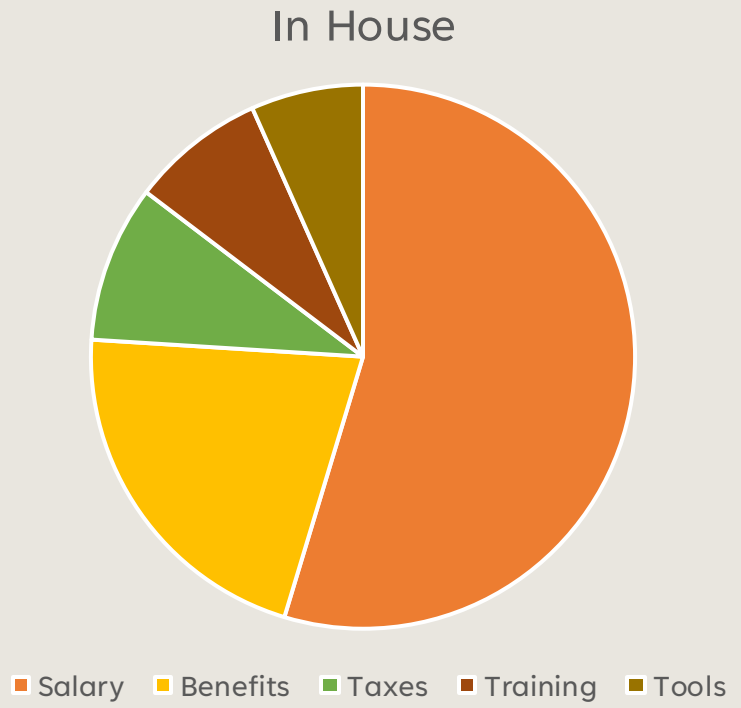
- Identify a broader organization-wide procurement strategy for BAS rather than a siloed approach for each facility
- Consider service costs, life cycle costs, and serviceability

**IT Team**

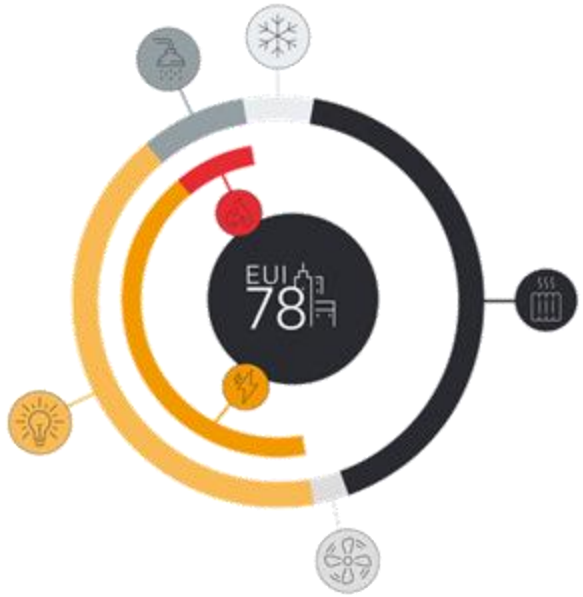
- Hardware and software compliance
- Funding for ongoing software maintenance agreement, patches, network security
- Network architecture and approach
- Cloud vs. On-Premises

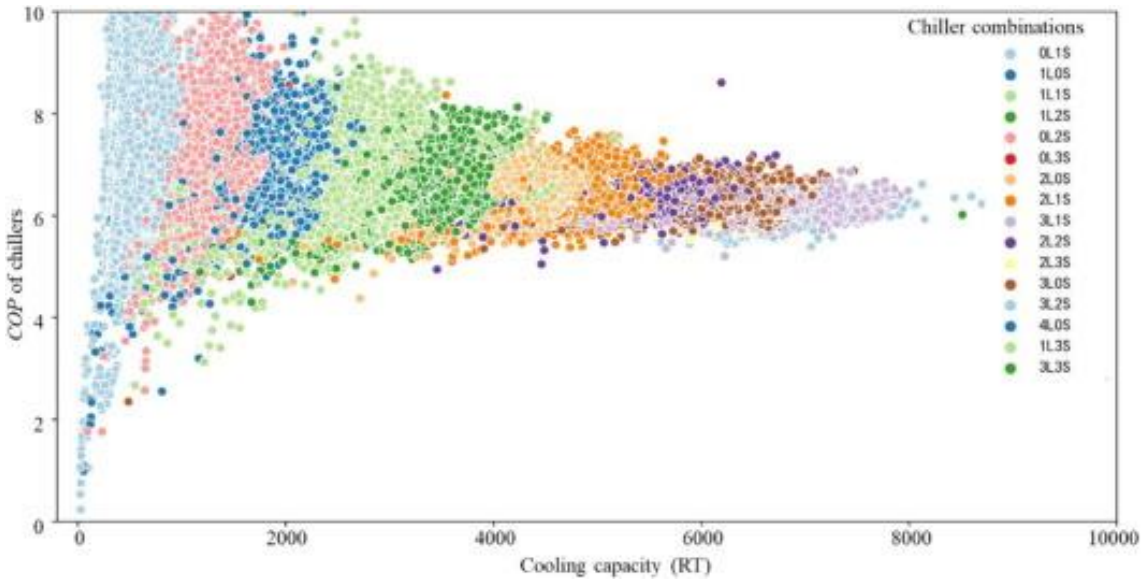
https://mediashower.com/img/8473B0A6-E83F-11E6-A544-E51735D8A96C/bigstock--144085925_600x.jpg

# ALIGN WITH ENTERPRISE STRATEGIES: STAFFING




# ALIGN WITH ENTERPRISE STRATEGIES: KEY PERFORMANCE INDICATORS




https://brainboxai.com/en/articles/energy-use-intensity-eui-the-measure-of-a-buildings-efficiency
https://ars.els-cdn.com/content/image/1-s2.0-S0378778823001469-gr11.jpg

# IMPROVE YOUR ROI: OPTIMIZE ENERGY + OPERATIONAL COSTS

Approach as Recommissioning

Leverage Rebates

Improve and Implement current programs

https://www.rsacx.com/wp-content/uploads/2012/10/re-commissioning-rooftop.jpg

# PREPARING FOR DIGITAL READINESS

**Enable the Cloud**

A BAS of today requires:

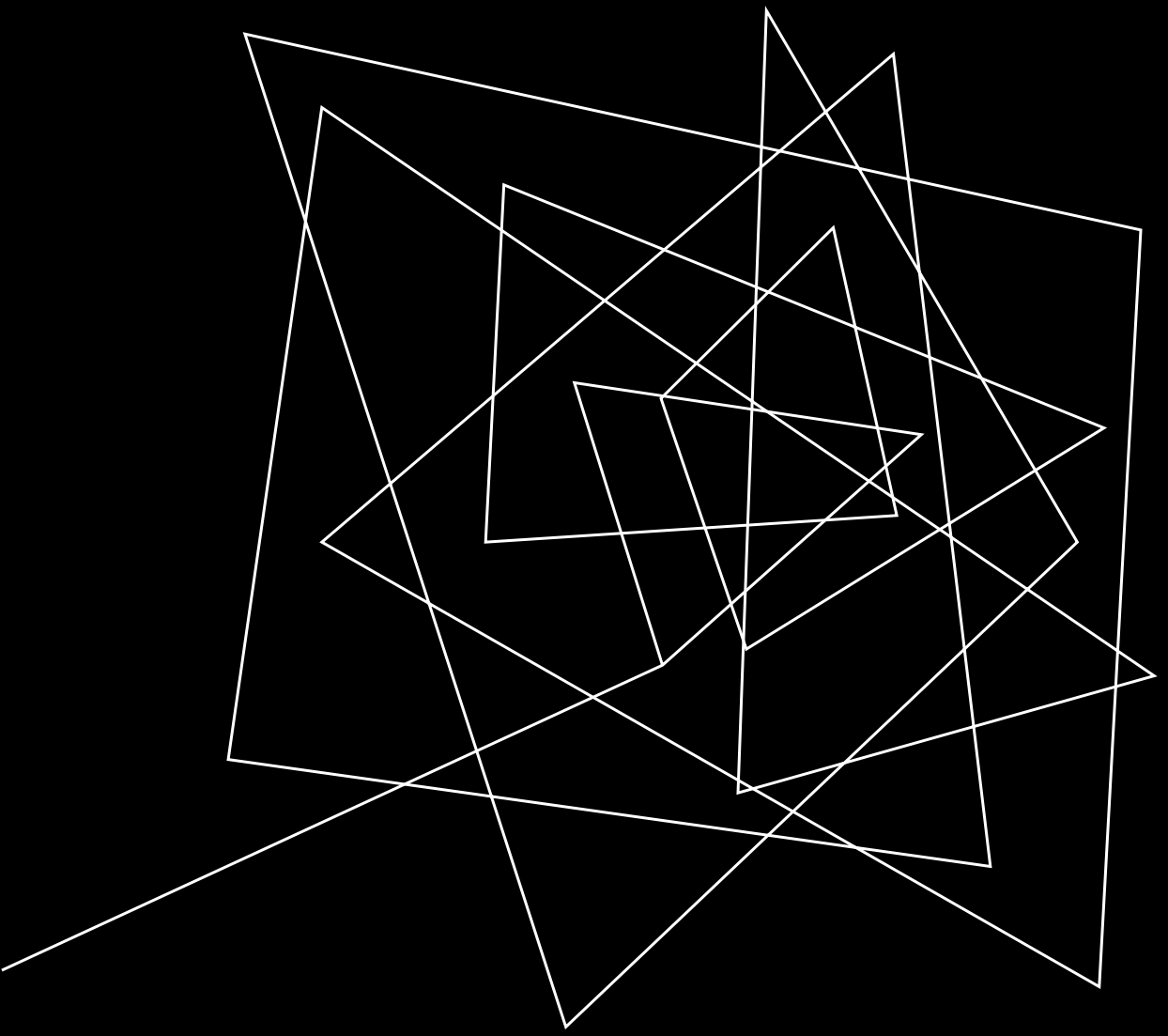
- Remote Access + Serviceability
- A strong cloud and on-premises strategy
- A BAS network architecture capable of supporting analytics platforms

**Cybersecurity**

This is not simply an IT responsibility.

- Windows Server Support
- Reduce Whitelisted components
- Maintain high standards – testing components, FIPS 140-2 or 140-3

https://cdn-icons-png.flaticon.com/512/10961/10961311.png
https://www.flaticon.com/free-icon/cloud_4208361



# DIGITAL READINESS

# LEVERAGING DATA TO IMPROVE OPERATIONS AND PATIENT OUTCOMES


**Further KPI's**

1. Energy – EUI, kW/Ton, ACH
2. Usage – Occupancy, space utilization
3. Maintenance – Hot/cold calls/sqft/month
4. Equipment – downtime, runtime, capacity monitoring

**Compliance and Reporting**

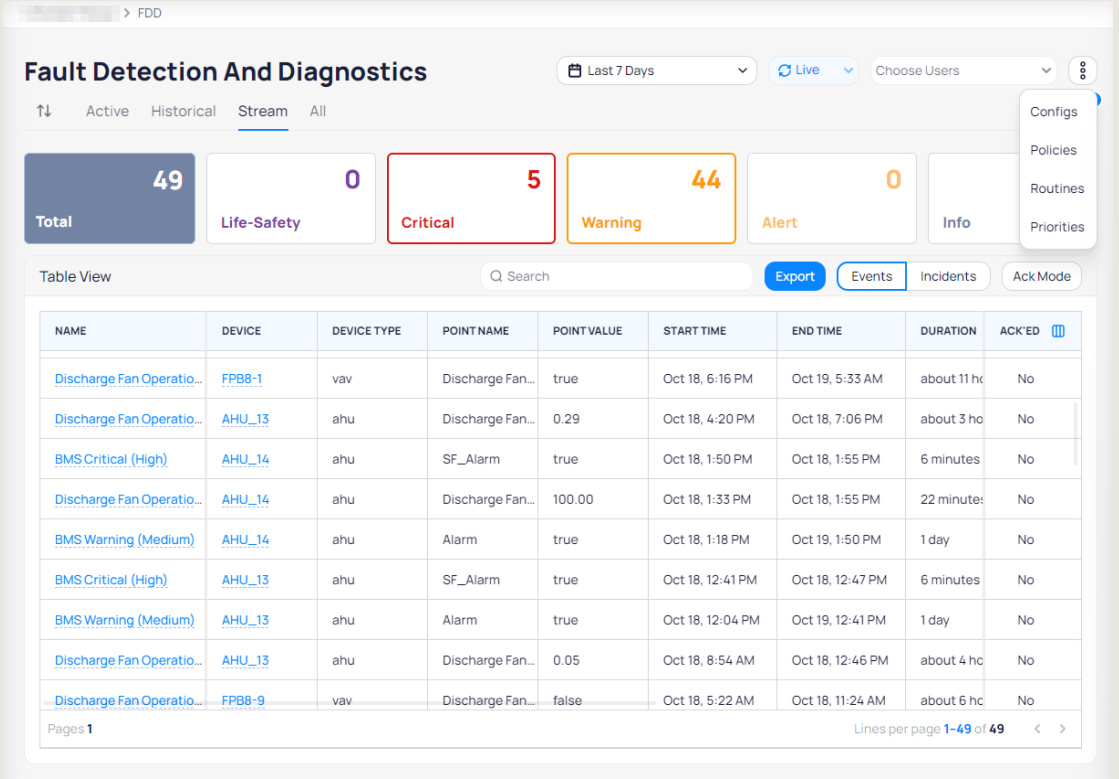
1. Critical Space Monitoring – ACH, pressure, temperature, humidity
2. Critical System Monitoring – Generators, AHU, Boilers, Chillers, Freezers
3. Joint Commission
4. Compliance Reports – local Energy reporting

https://share.google/images/t02PXhL4guLMU5p68
https://share.google/images/W35iESHTSIuIQcZYK

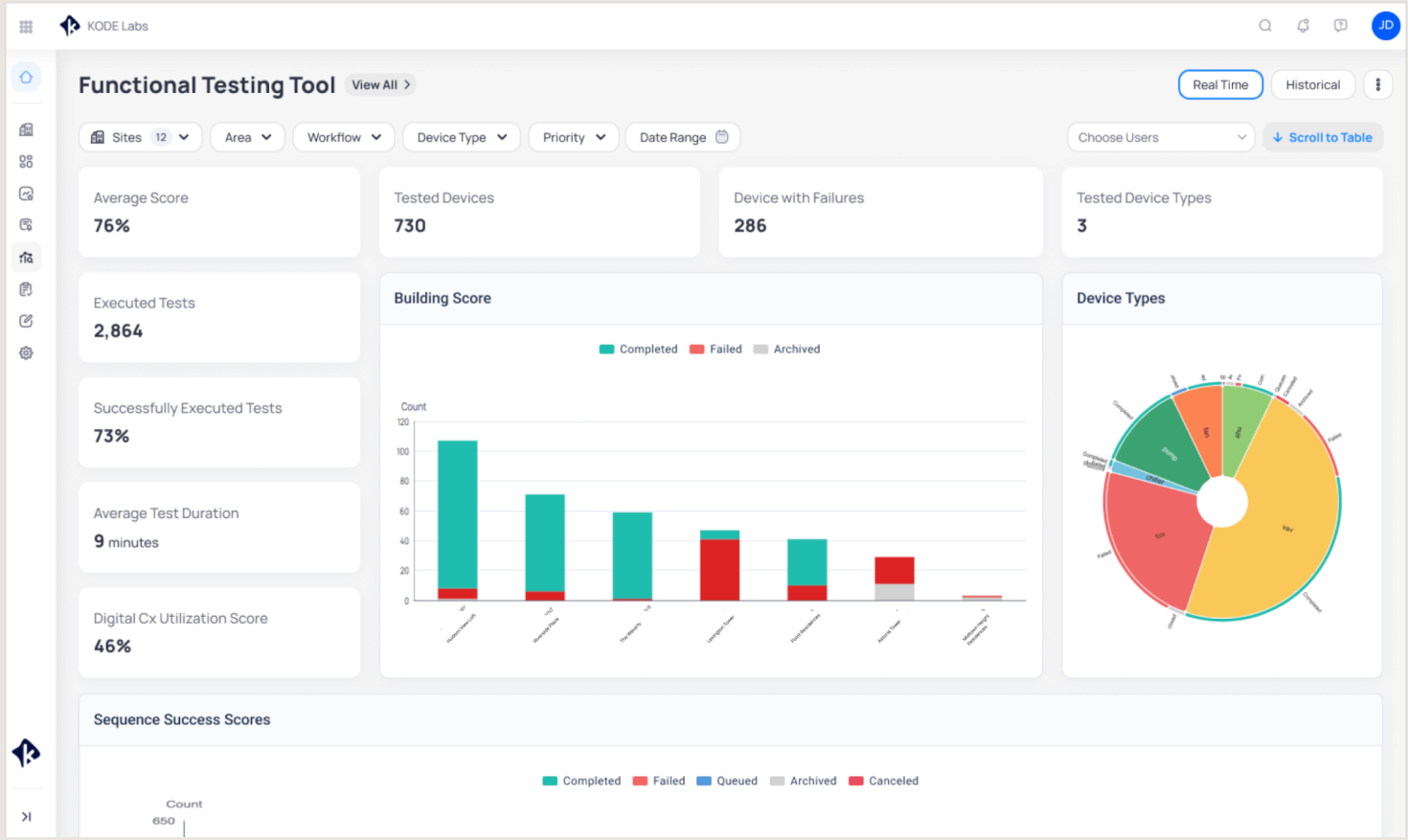
# FDD

**Fault Detection + Diagnostics (FDD)**

- Leverages rules to assess operational deficiencies
- Value is in operationalizing the results – Fault to WO to Fix
- Allows Data Driven decision making instead of subjective
- A Digital Building Engineer who helps you get ahead of issues



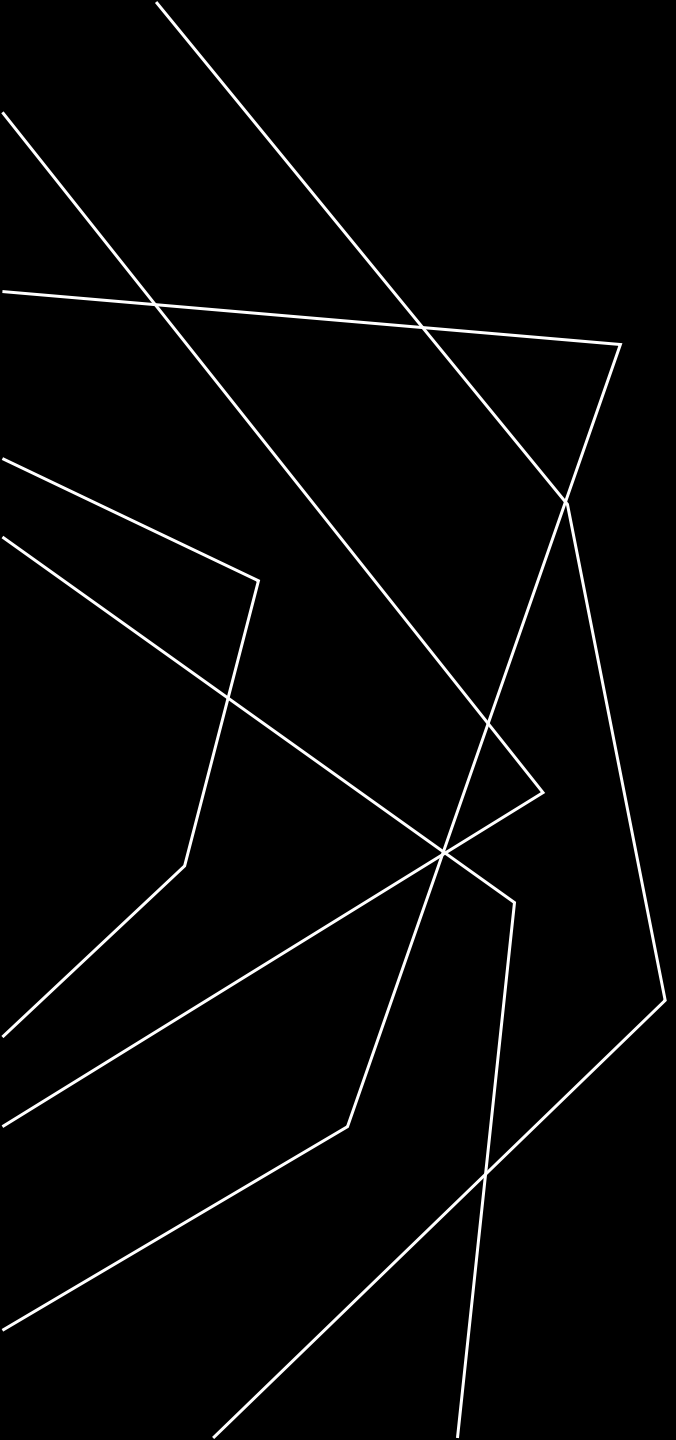
# FTT




https://kodelabs.com/wp-content/uploads/2025/01/HERO-Digital-Maintenance.png

**Functional Testing Tool**

- Provides proactive, continuous commissioning of all AHU, RTU, VAV, etc
- Executes ongoing point to point and sequence testing
- Low/no intrusiveness – no ICRA risks!
- Can be scheduled, run on low/no occupancy, or initiated by user



# THANK YOU