ASHB

Association for Smarter Homes & Buildings

Intelligent Buildings Council (IBC) Webinar
Webinar/Meeting will commence 12:05pm ET

Tuesday, November 21, 2023 | 12 NOON – 1:30 PM (ET)

IBC Chair: Bob Allan (NAVCO Inc.)

Vice-Chair: Harsha Chandrashekar (Honeywell International Inc.)

Vice-Chair: Robert Lane (Robert H. Lane and Associates Inc.)

Vice-Chair: Chris Larry (exp US Services Inc.)

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1. Agenda
2. Call to Order, Welcome, Introductions, About IBC
3. Administrative
4. Research Update
5. Keynote: **Analytics as a Core Offering** - Leon Wurfel (Bueno)
6. ASHB Podcast
7. ASHB Journal
8. ASHB Whitepapers
9. New Business
10. Announcements
11. Adjournment

IBC Chair
Bob Allan
Bob Allan
Vice President of Sales
East Region
NAVCO, Inc.

IBC Vice-Chair
Harsha Chandrashekar
Product Approvals &
Regulatory Leader
Honeywell International
Inc

IBC Vice-Chair
Robert Lane
President & Managing
Partner
Robert H. Lane and
Associates Inc.

IBC Vice-Chair
Chris Larry
Director of Energy
Engineering
Exp US Services Inc.

The ASHB Intelligent Buildings Council works to strengthen the large building automation industry through innovative technology-driven research projects. The Council was established in 2001 by ASHB to specifically review opportunities, take strategic action and monitor initiatives that relate to integrated systems and automation in the large building sector. The Council's projects promote the next generation of intelligent building technologies and incorporate a holistic approach that optimizes building performance and savings. www.ashb.com/ibc

Motion to approve past IBC Minutes August 21, 2023

www.ashb.com/ibc

2023 IBC Landmark Research
Intelligent Building Technology & Market Trends

Annual BACS Market Sizing North America

Analytics as a Core Offering

Service businesses can leverage operationalised analytics solutions to scale their impact on operational efficiency and decarbonisation

Leon Wurfel
Founder

bueno

Bueno @ AHSB

Analytics as a Core Offering

Agenda

Headwinds for services/contracting businesses

Goals for services/contracting businesses

A temperature test on the adoption of analytics

Analytics embedded into services organizations

The challenges to making it all work

Headwinds for services businesses (SI's, Mechanical, MSI's)

New construction is slowing down

Downwards OPEX pressure

Talent pool pressure

Tailwinds

ESG

AI

OPEX reductions

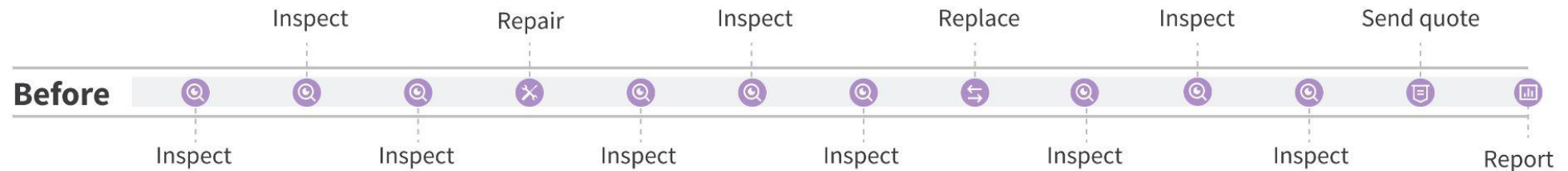# Goals for services businesses (SI's, Mechanical, MSI's)

- Differentiate construction bids

- Protect existing service revenues

- Grow additional service revenues

- Retain good people

- Get more out of existing labor force

Goals for services businesses (SI's, Mechanical, MSI's)

Monthly rotational checks

Technicians role

		Inspect		Repair		Inspect		Replace		Inspect		Send quote	

Before

Inspect		Inspect		Inspect		Inspect		Inspect		Inspect			Report

The FDD solution
Technicians role

24/7 monitoring (Monitor - Check - Prioritise Critical Defects - Record)

After

	Repair		Replace		Send quote		Report
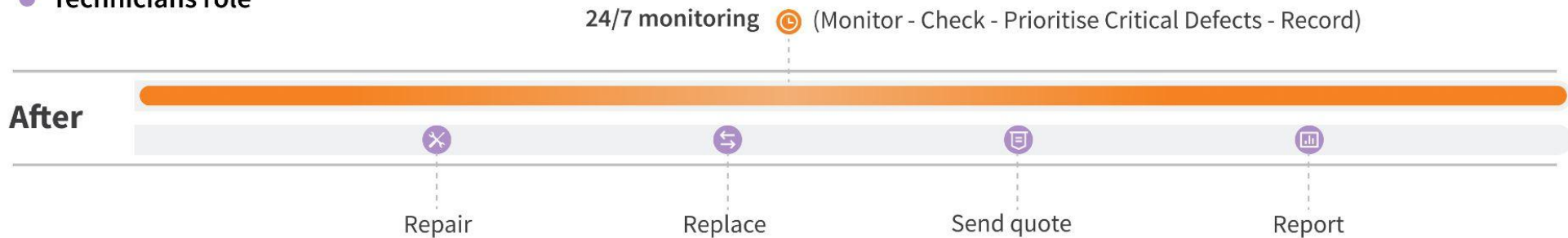
How can analytics help

Construction

- Differentiate construction bids

- Enhanced punch sheet/warranty management

- Reduce commissioning labor

How can analytics help

Service

- Protect existing service revenues

- Grow additional service revenues (upsell to energy efficiency based services)

- Deploy more remote labor from centralised, remote services team

- Pull through
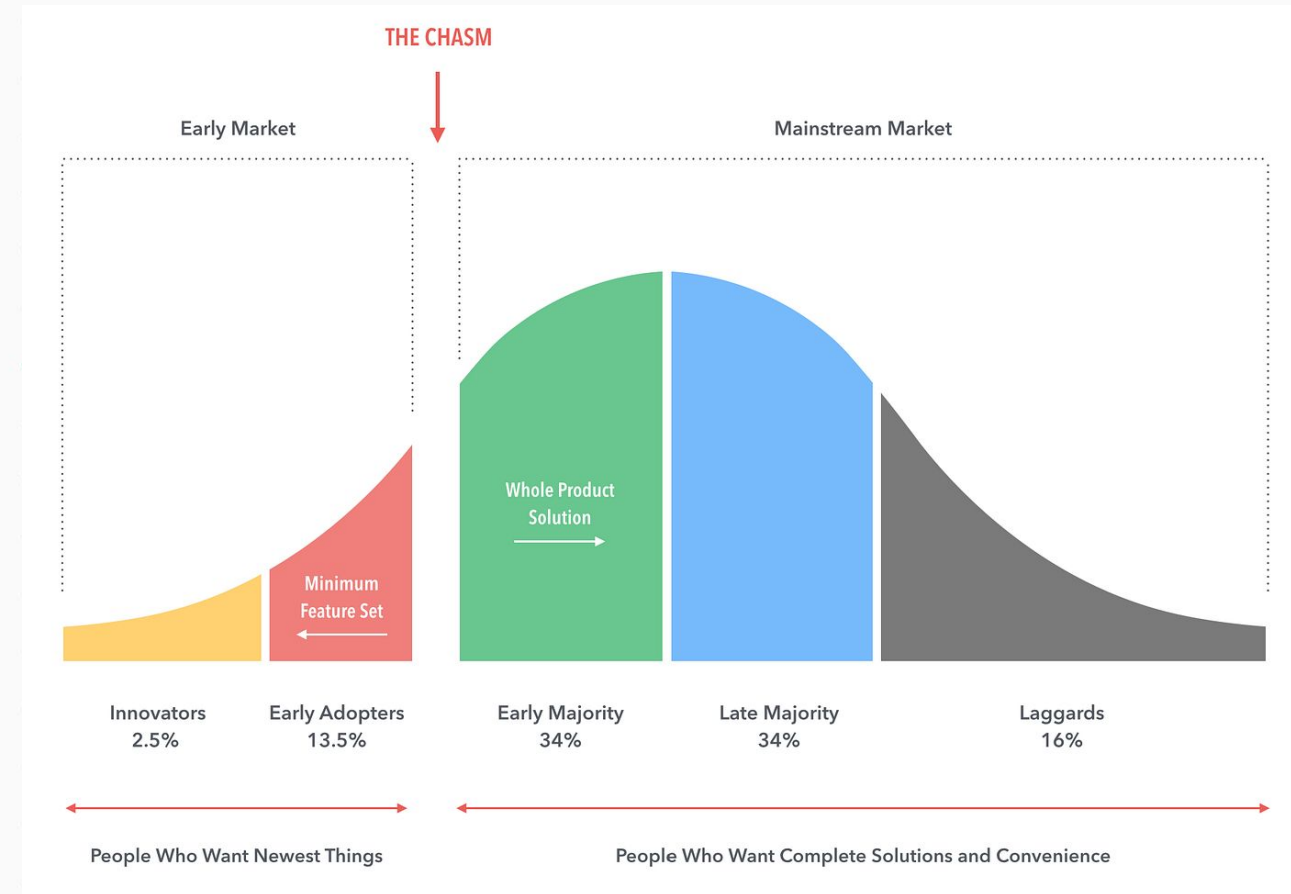
How can analytics help

People

- Retain good people

- Automate work that is not seen as value adding by the technician workforce

- Get more out of existing labor force (can do 15-20% more service contracts with the same team size)

Analytics temperature test

- So far only adopted by 10-15% of the addressable market for analytics

- It's not a new solution, has been around in one way or another for 15 years

- Why isn't it more widely adopted?

- Will the thematics of ESG, talent pool pressure and drive towards OPEX savings make this time different?

THE CHASM

Early Market | Mainstream Market

Minimum Feature Set

Whole Product Solution

| Innovators 2.5% | Early Adopters 13.5% | Early Majority 34% | Late Majority 34% | Laggards 16% |

People Who Want Newest Things | People Who Want Complete Solutions and Convenience
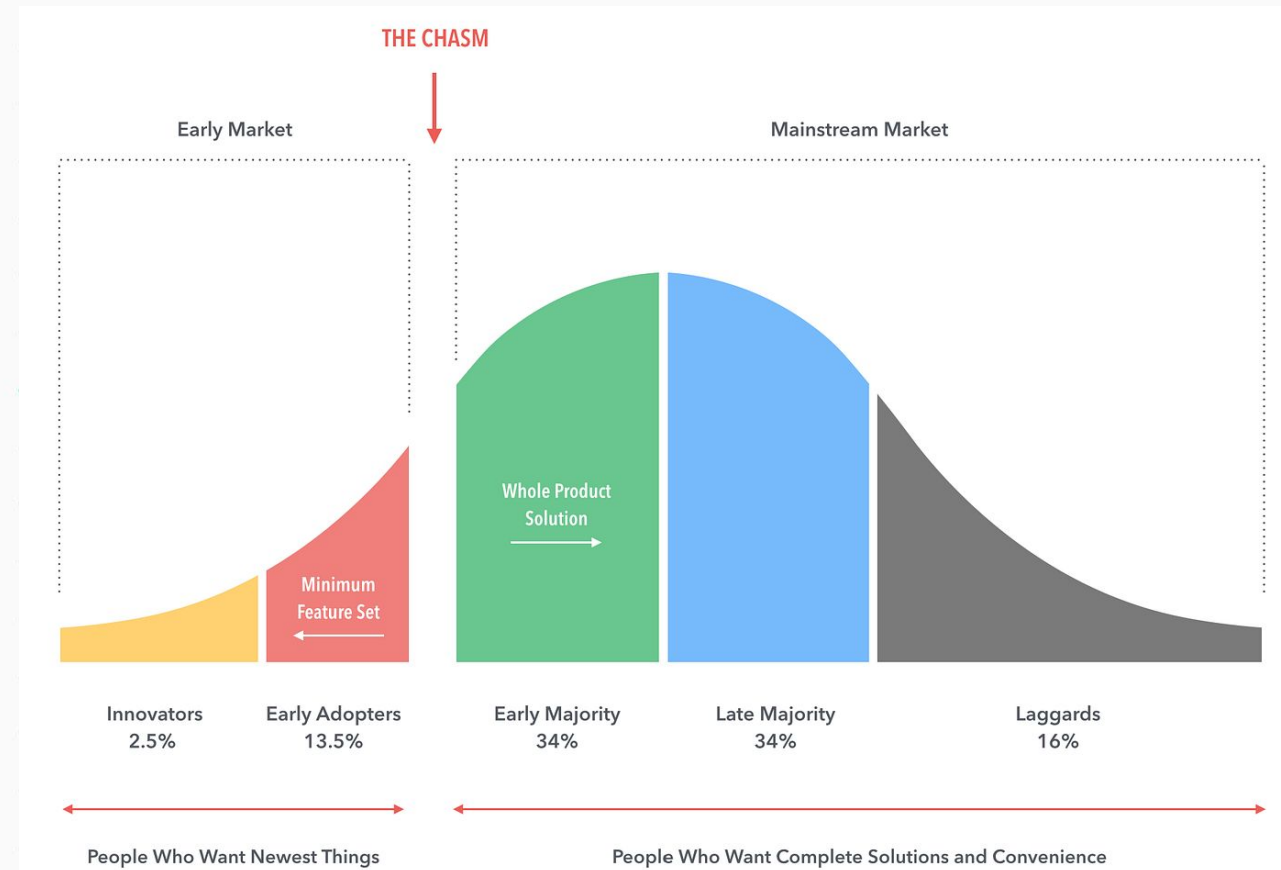
Challenges to embedding analytics in the service business model

- Data acquisition strategy

- Data integrity / data decay

- Centralisation of resources

- Prioritisation of use cases

THE CHASM

Early Market   Mainstream Market

Whole Product Solution

Minimum Feature Set

Innovators 2.5%   Early Adopters 13.5%   Early Majority 34%   Late Majority 34%   Laggards 16%

People Who Want Newest Things   People Who Want Complete Solutions and Convenience

Each of the above have been barriers to mainstream adoption of analytics

For analytics to cross the chasm the industry needs to figure out a way to build it into core business and make money via a win-win-win

Data acquisition strategy - TL:DR

Historically analytics deployments have taken ~4-8 weeks to complete - this is too long and too costly

As an integrated solution provider SI's/MSI's have more control over the standards used in deploying their OT

Between being strategic about integration choices and applying engineering standards the deployment time can be reduced to days

Setup costs for analytics is a huge barrier to including analytics "as standard" in service contracts

Data integrity - why is it important?

The rule of 10: rectifying an issue with a data problem requires 10 times the effort of an issue with good data.

Machine learning / advanced analytics requires good quality data.

50% — the amount of time that knowledge workers waste hunting in hidden data silos, finding and correcting errors, and searching for confirmatory sources for data they don't trust.

Data integrity - a case study

The client - one of the top 20 biggest retailers in the world.

Bueno deployment - 1,084 sites, ~1.5M data points, completed in 2019.

The journey with data integrity - Very problematic to manage at scale, sites/equipment altered, false positives trigger, rectification works are expensive.

Without intervention data integrity decays at 7% per year. This is not acceptable for an operationalised solution responsible for tens of $Mns of savings each year.

Data integrity - how to solve

- Phase 1: Measurement - report on data integrity and bring it into the conversation with stakeholders

- Phase 2: Automated gap analysis - toolset to identify new points/equipment, removed points/equipment, name changes.

- Phase 3: Automated rectification - automate rectification of removed points (easy), name changes (harder), new points/equipment (hardest).

Automated data integrity management can solve 77% of data decay issues

Centralised resources

The anatomy of an analytics based maintenance contract

Same GM, same sell price to client

Organisations need to build remote services capability to make it work
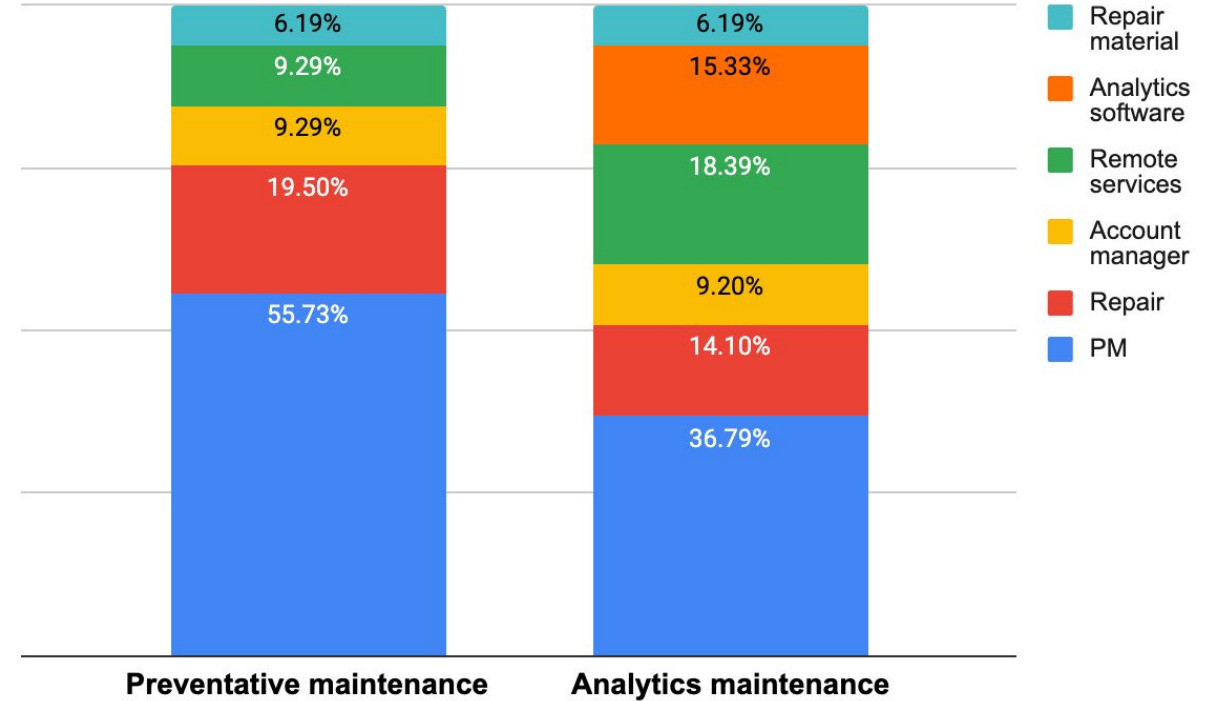
Service orgs can do 15% more maintenance contracts with the same workforce

Clients get better outcomes from analytics based maintenance

Challenges: Prioritization of use cases

- Coil and tray inspection (preventative maintenance)

- Energy slip (MBCx / EPC)

- Case icing (predictive maintenance - refrigeration)

Analytics should not be looked at as "another" technology to sell on top of a BMS

Analytics is a business process automation tool for services businesses

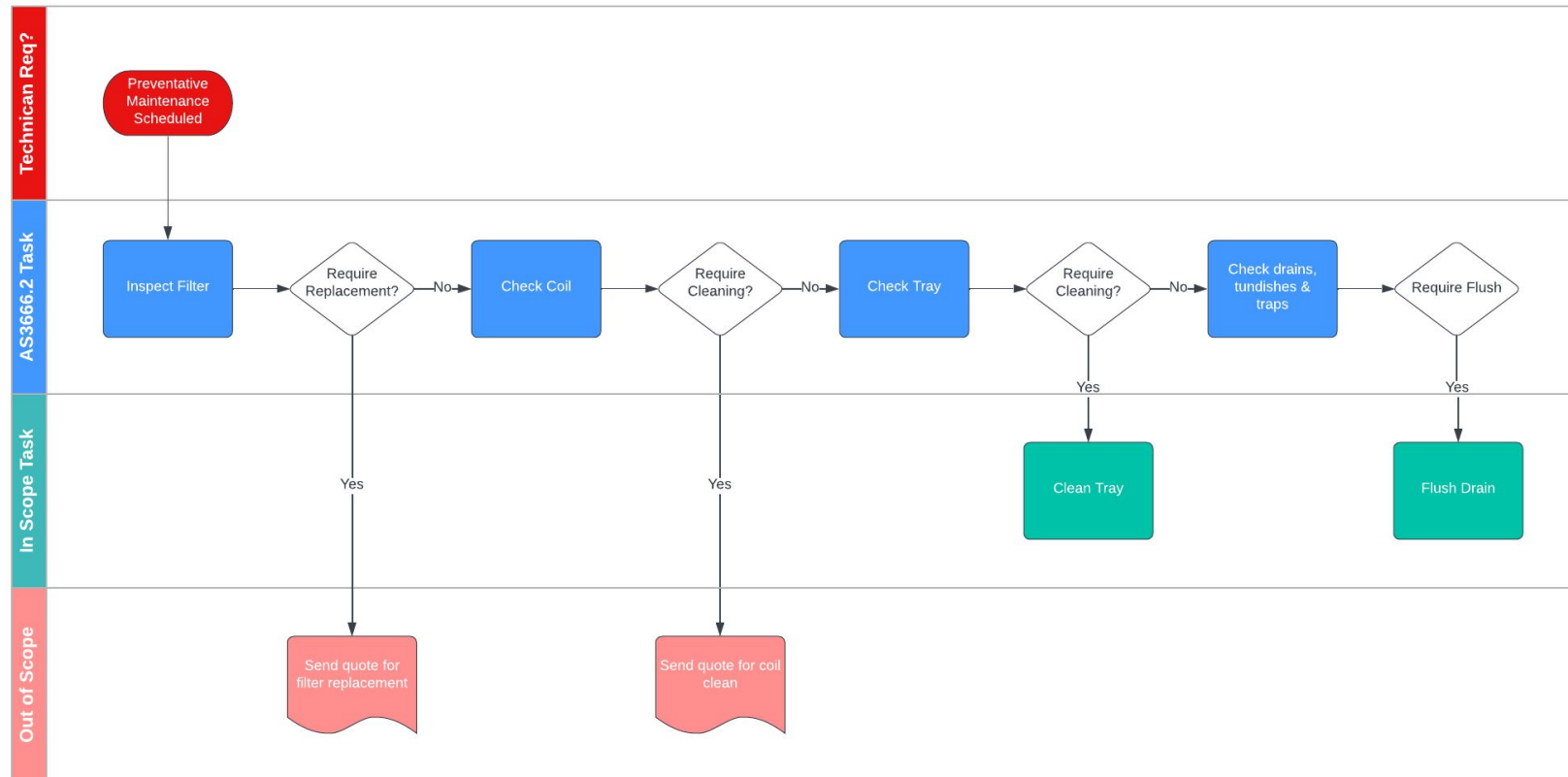Find the processes that you want to automate and go from there

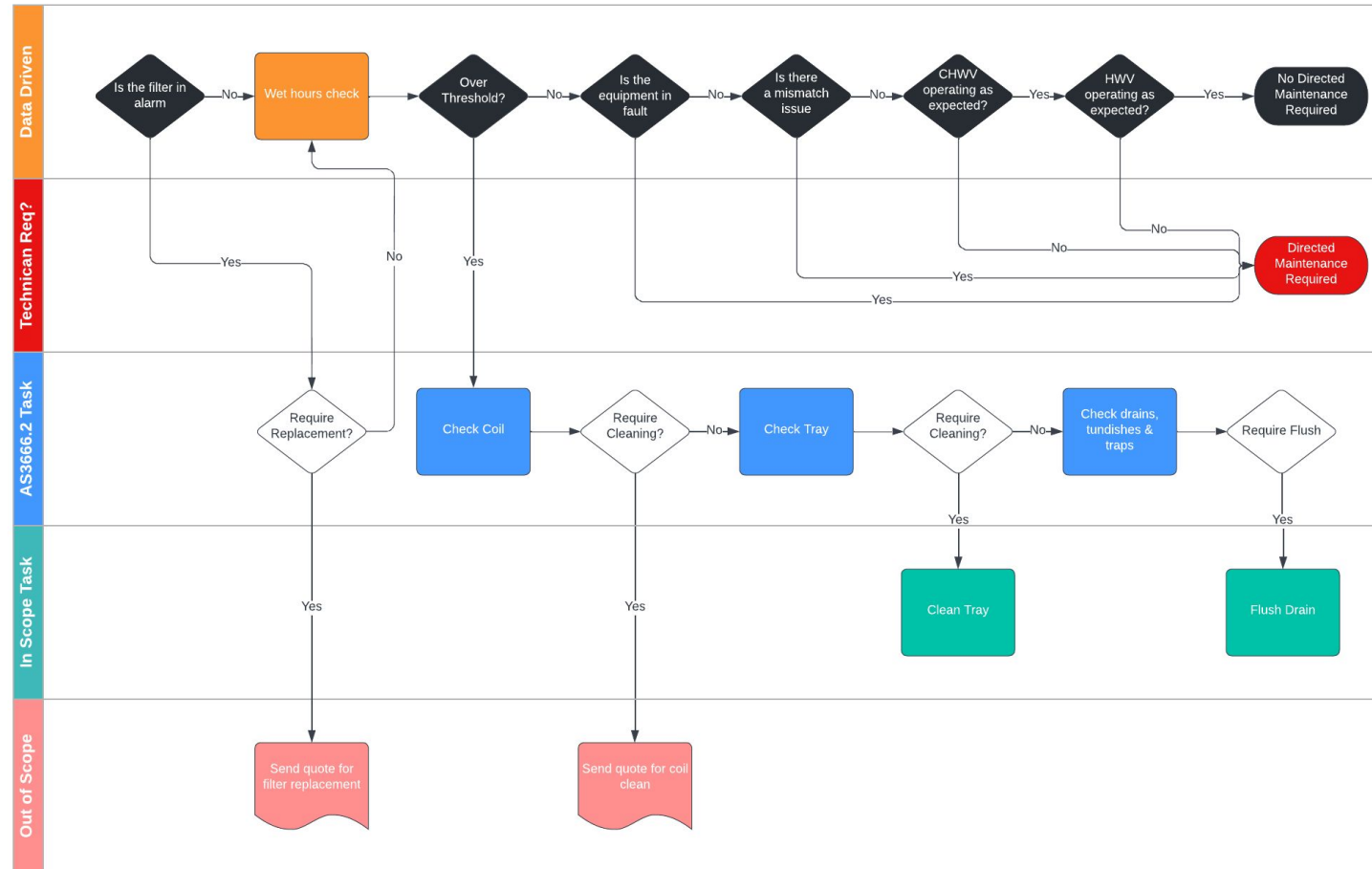# Challenges: Prioritization of use cases - tray & coil inspection

Coil and tray inspections:

- $7M / labour costs / year for one contracting client
- $650k / year for one casino client

Challenges: Prioritization of use cases - tray & coil inspection


An analytics driven process is a 65% reduction in required PM labor

Challenges: Prioritization of use cases - energy slip

For MCBx / EPC providers:

- Weekly report of weather normalized energy use outside of expected modeled use

- Users will flag sites with changes to be excluded for next week's report

- Insurance against Energy Slip

(HVAC optimised 2022-01-01)
Daily consumption vs avg temperature
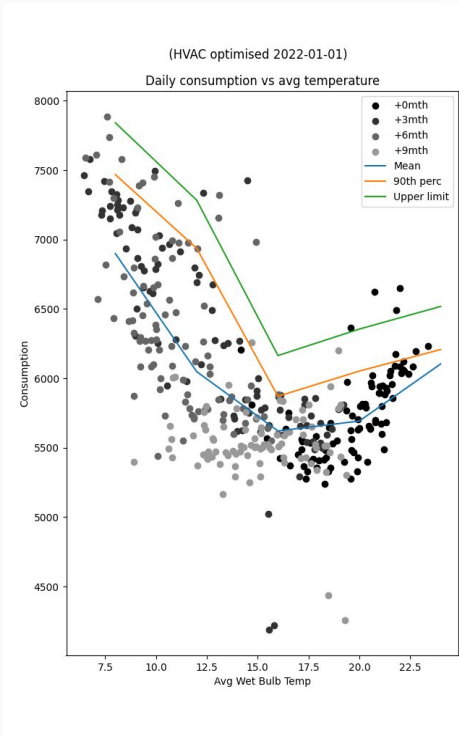
WEEKLY ENERGY SLIP REPORT VS 365 DAY ROLLING BASELINE

Sites with highest energy slip

for
02 JULY 2023 - 09 JULY 2023

Here are the top 10 highest priority sites to investigate based on the severity of energy slip over the past 7 days:
2 Jul 23 - 9 Jul 23

An energy slip *hit* occurs when the total daily consumption at main meter level is too high based on the daily average wet bulb temp, compared to the 12 month rolling baseline period of that store.

Ranked by Hit Count

Site	Hits	Consumption (kWh)	Above limit (kWh)	% above limit	Link
	6	39037	3617	10%	
	6	24610	2603	12%	
	6	33598	7289	28%	

Challenges: Prioritization of use cases - refrigerant leak detection

Early identification of refrigerant leaks

- **Predictive.** Our "Liquid level cycling" rule predicts refrigerant leaks by spotting specific changes in the behaviour of the liquid level switch.

- **Validated.** This rule has been continuously improved with direct feedback from field teams over hundreds of work orders to the point where it is 72.2% accurate. Some clients now have greenlit the automatic creation of work orders from this rule.

- **Operational savings.** For clients with significant refrigeration deployed across their properties this rule alone delivers hundreds of thousands of dollars of evergreen savings every year (for grocery an average of $4k / store / year) as well as the environmental benefit of avoiding the lost refrigerant.
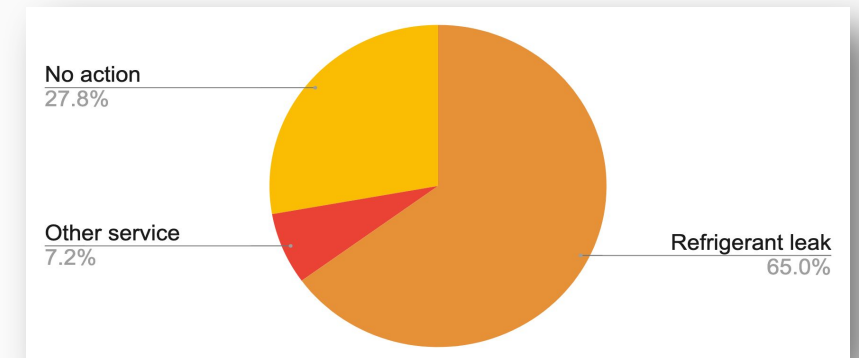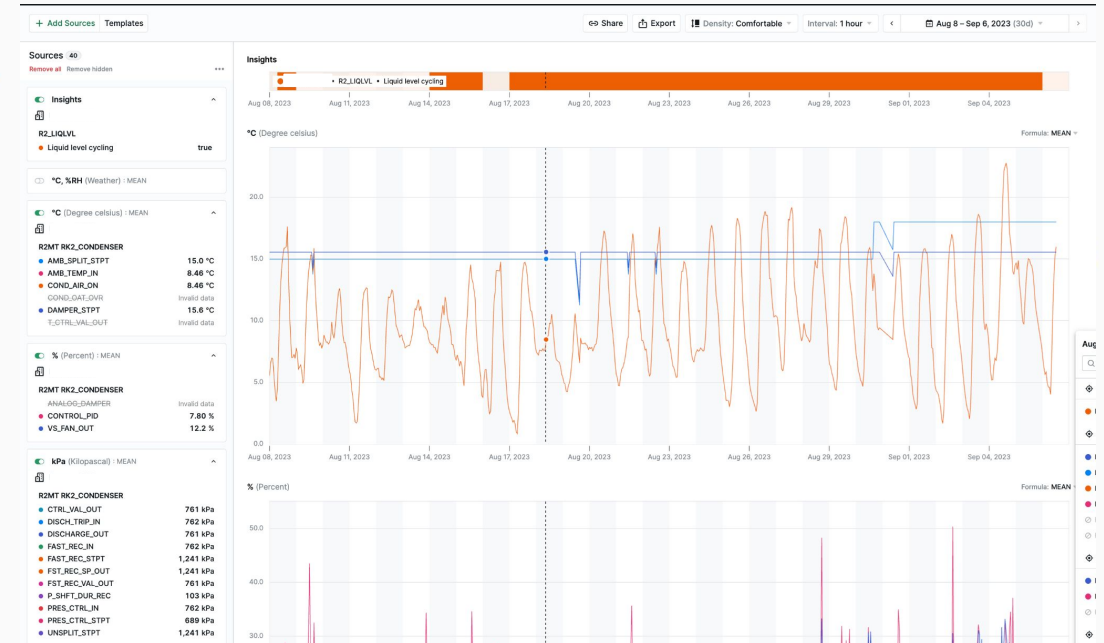
Challenges: Prioritization of use cases - case icing prediction

Prediction of case icing

- **Predictive.** Our "Case temperature sensor deviation" rule predicts case icing through ML analysis of case temp sensor behaviour by spotting specific changes in the behaviour of the liquid level switch.

- **Operational savings:**
  - Unplanned truck rolls are the highest opex for a refrigeration system
  - 40% of refrigeration callouts are for high temp alarms
  - 50% of these callouts happen after hours
  - Savings for addressing this use case across a grocery fleet are in the range of $2-$5M / year

- **Validated.** On average our rule predictively identifies this maintenance issue 5 days in advance.
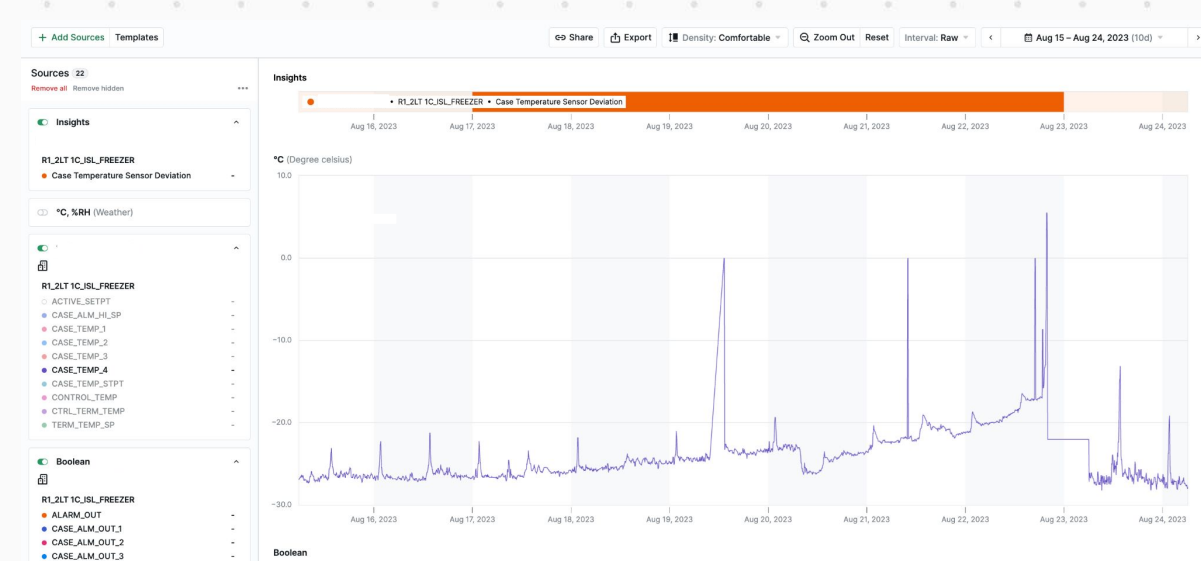
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Thank You!

Questions?

Join industry experts and leaders from around the globe as they discuss everything smart home and intelligent buildings.

ASHB is looking for guests and hosts for future pre-recorded episodes. Contact admin@ashb.com for more information.
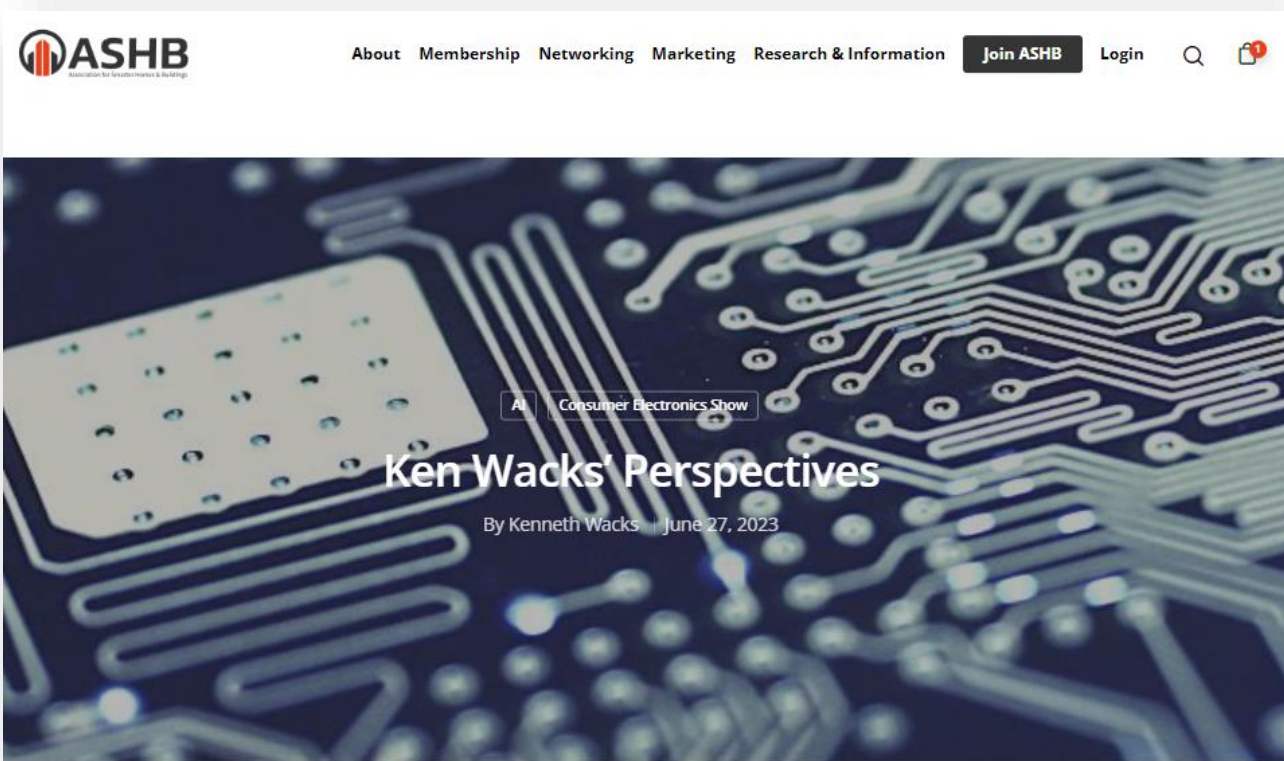
Recent Recordings:
- Business Drivers for Smart Buildings
- Smart Buildings: New Builds or Transformations Require Solid Footing
- Optimizing Your Environment: The Building Performance Blueprint

The ASHB Journal aims to educate and inform the ASHB membership and industry at large on emerging research, issues, challenges, and opportunities in the intelligent buildings and/or connected home sectors.

New articles are posted to the ASHB website, included in the weekly NewsBrief, and circulated on Twitter and LinkedIn.

Send proposals to admin@ashb.com

Recent posts:
- **Ken Wacks Perspectives: CES 2023: A Sampling of Product Diversity**
- **Ken Wacks Perspectives: Cybersecurity Provided by the HES Gateway**
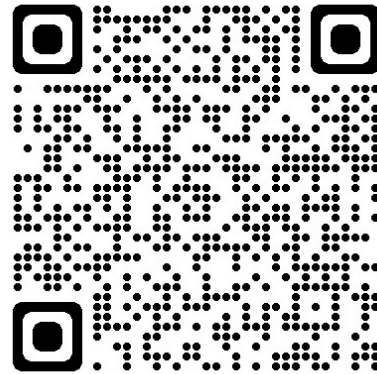- **Facilio: The Relevance of Decarbonizing Goals During the Downturn**

Published IBC White Papers can be downloaded at:
www.ashb.com/whitepapers

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ASHB
Research Program

Recently Published

Fire Alarm Systems in Smart Buildings: Primer on Fire and Life Safety Systems

This groundbreaking primer sheds light on the origins, evolution, and potential of fire prevention and life safety systems in modern intelligent structures. The paper emphasizes the importance of integrating improved fire and life safety measures into existing buildings and new construction. Utilizing wired, wireless, cloud-based, and app-based systems, smart buildings leverage initiating devices like heat, smoke, and CO detectors to automatically trigger emergency responses, drastically improving fire and life safety outcomes. The paper offers invaluable insights. From the fascinating evolution of fire prevention and life safety systems to valuable lessons learned, readers gain a comprehensive understanding of cutting-edge technologies aimed to advance life safety outcomes in smart buildings.
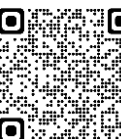
New IBC Business?

Upcoming Events

The Buildings Show
November 29-December 1 | Toronto, ON

AHR Expo
January 22-24 | Chicago, IL

BICSI Winter Conference
January 28-February 1 | Orlando, FL

Buildex Vancouver
February 14-15 | Vancouver, BC

Next IBC Meeting: February 2024

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