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
2. Call to Order, Welcome, Introductions, About the IBC
Bob Allan (NAVCO, 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](http://www.ashb.com/ibc)
Motion to approve past IBC Minutes August 21, 2023

www.ashb.com/ibc
4. Research Update
Robert Lane (Robert H. Lane and Associates Inc.)

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.
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

Before

- Inspect
- Inspect
- Inspect
- Inspect
- Inspect
- Inspect
- Inspect
- Report

The FDD solution

- 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

- 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?
Challenges to embedding analytics in the service business model

- Data acquisition strategy
- Data integrity / data decay
- Centralisation of resources
- Prioritisation of use cases

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

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.

<table>
<thead>
<tr>
<th>Site</th>
<th>Hits</th>
<th>Consumption (kWh)</th>
<th>Above limit (kWh)</th>
<th>% above limit</th>
<th>Link</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td>39037</td>
<td>3617</td>
<td>10%</td>
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<tr>
<td>6</td>
<td>24610</td>
<td>2803</td>
<td>12%</td>
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<tr>
<td>6</td>
<td>33598</td>
<td>7280</td>
<td>28%</td>
<td></td>
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</tr>
</tbody>
</table>
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.
Thank You!

Questions?
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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?
10. Announcements
Robert Lane (Robert H. Lane & Associates Inc.)

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
11. Adjournment
Bob Allan (NAVCO, Inc.)

Next IBC Meeting: February 2024

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