ifcs

Maximize valuable buildings. Reduce footprint.

About IFCS

- **Headquartered in Quebec, CANADA**
  - Founded in 1993
  - Y-Y Growth
  - Fortune 500 Clients

- **Experienced Leadership Team**
  - Arrow Electronics, Cisco Systems, Avaya (Nortel), Telstra (Australia), Bell Northern Research, Veolia Environment
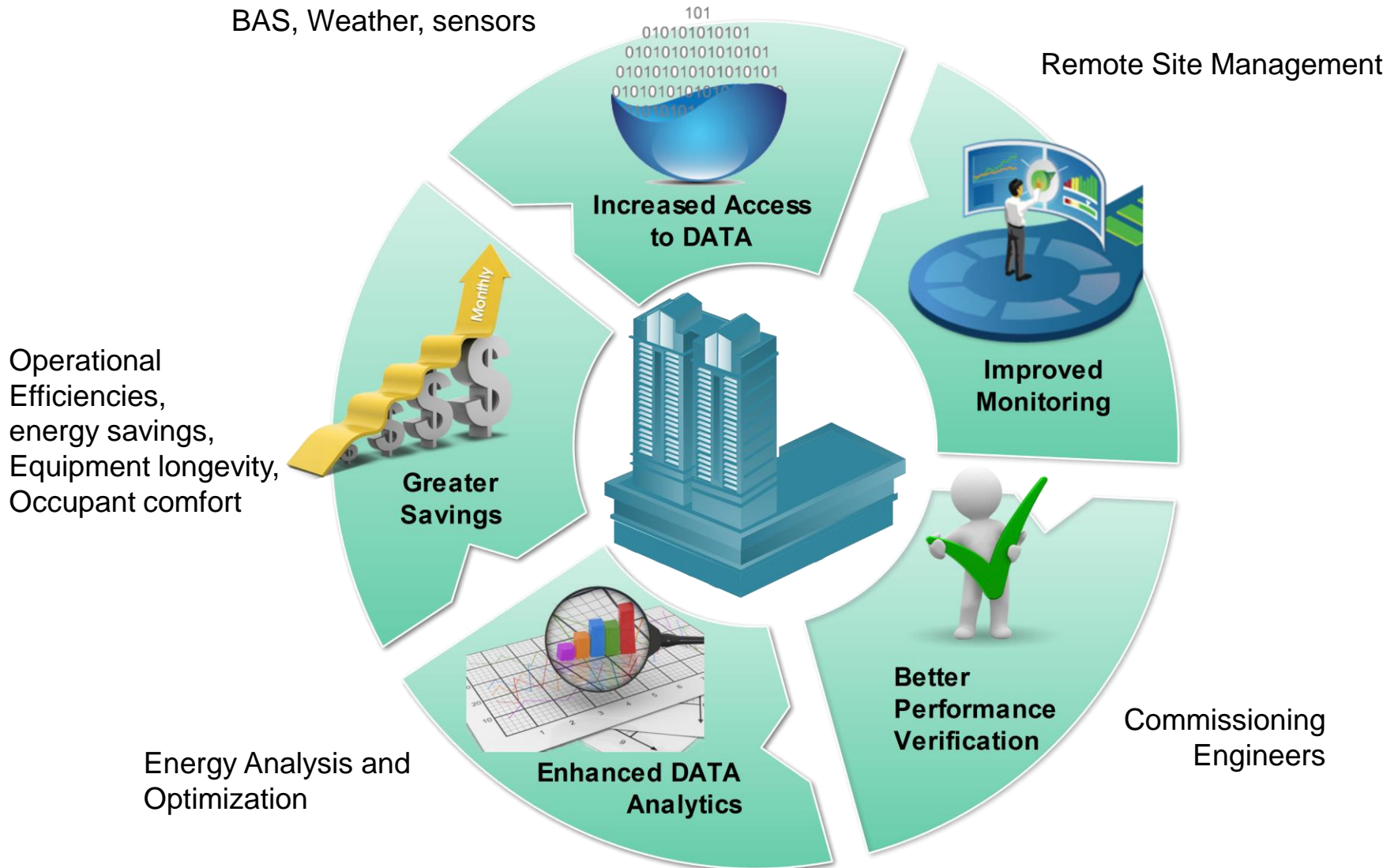
- **Software**
  - IFCS develops and markets software focused on asset management for institutional, industrial, commercial and other niche market.

  - IFCS offers solutions to today's energy and maintenance management challenges for the facility managers, building owners and energy consultants.

- **Enterprise Customer/Partner Base**
  - IFCS software has been implemented at more than 400 customers sites over 4 continents (North America, Europe, Asia, Africa).
  - Multiple Vertical Markets

    (Financial, Oil & Gas, Healthcare, Hospitality, Hi-Tech, Higher Ed)

Our technologies in cloud services, asset, building performance and energy management are initiatives designed to help enterprises build smart, lower operational costs and leverage cloud services.

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BAS, Weather, sensors

Remote Site Management

Operational Efficiencies, energy savings, Equipment longevity, Occupant comfort

Commissioning Engineers

Energy Analysis and Optimization

Increased Access to DATA

Improved Monitoring

Greater Savings

Better Performance Verification

Enhanced DATA Analytics

IFCS - Turning BIG data into Green Savings

Fault Detection and Diagnostics - FDD

Fault detection and diagnostics (FDD) is a manual process used by analysts who trend equipment conditions or interpret data from operation and system tests.

These process are:

- Time consuming
- Often very expensive
- Requires multiple experts
- Requires Alarms from Building Automation Systems
- Limited trending information from Building Automation Systems

Although the manual FDD is widely used, there are limitations with savings calculations and it does not provide the continuous detection and diagnostics.

Automated Fault Detection and Diagnostic system.

Some of their features include:

- Rules based analysis every hour
- Key Performance Indices benchmarked weekly, monthly, quarterly
- Provides causes and suggested solutions
- Energy Consumption Monitoring
- Provides a range of performance reports
- Comprehensive historical trending and system performance data
- Helps buildings with LEED points
- An Ongoing Commissioning Tool

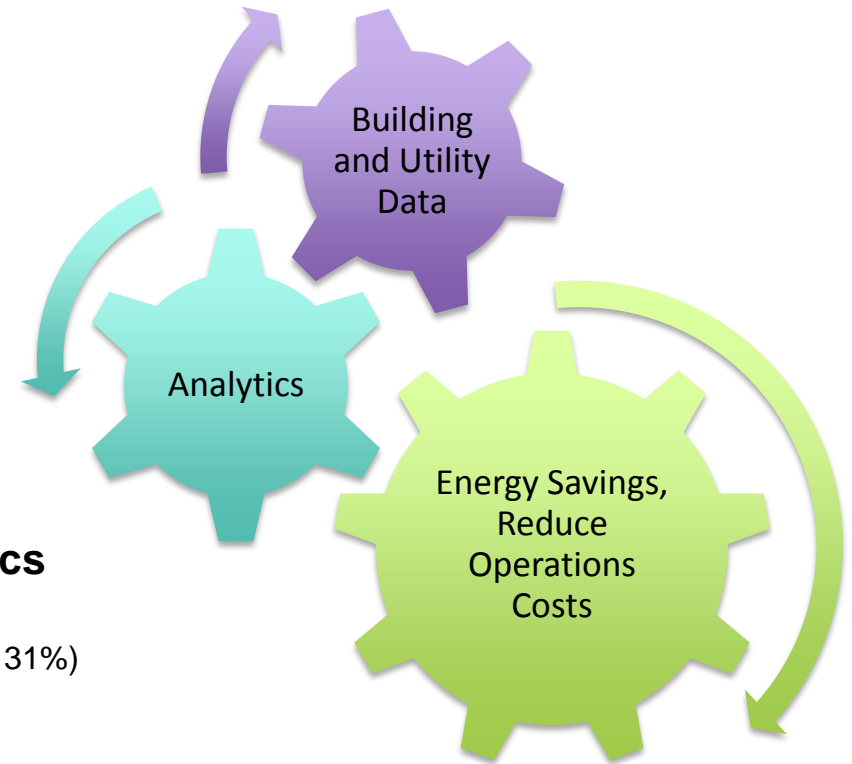*A HIGH-PERFORMANCE OPERATIONAL MANAGEMENT TOOL FOR BUILDINGS*

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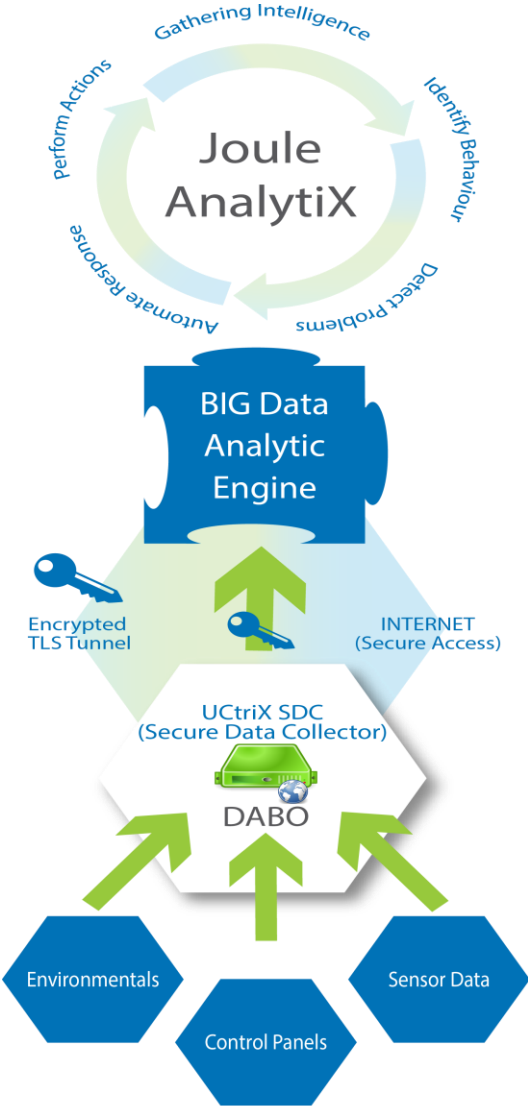
Joule AnalytiX™

▸ **Unifies disparate functions into a single environment**

- ◦ Monitoring of control data
- ◦ Fault detection and Diagnostics
- ◦ Multi-vector correlation for continuous optimization
- ◦ Dashboards and reports
- ◦ Big Data Analytics

▸ **Reduces cost & provides advanced analytics**

- ◦ Energy efficiency and operational cost reduction
- ◦ Average ROI in less that 18 months (saving between 7 to 31%)
- ◦ Greening credit (LEED)
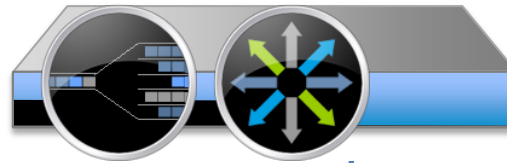- ◦ Increase Building value and occupant comfort

Building and Utility Data

Analytics

Energy Savings, Reduce Operations Costs

Joule AnalytiX management framework

Gather Intelligence Identify Behaviors Automated Response Perform Actions

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Joule AnalytiX management framework

Gather Intelligence → Identify Behaviors → Automated Response → Perform Actions

Unified Collector

◦ Syslog Events/SNMP

◦ Diagnostic Agent for Building Operations

◦ Performance Data

◦ System Health Data

◦ Feedback from BMS

　◦ Johnson Controls

　◦ Delta Controls

　◦ Trane

　◦ Siemens

　◦ Honeywell

　◦ Contemporary Controls

◦ BACnet/BACnet IP

◦ OPC server

◦ ODBC connection

◦ Flat Files

◦ Trending information

◦ Outdoor conditions

Joule AnalytiX

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Joule AnalytiX management framework

Gather Intelligence → **Identify Behaviors** → Automated Response → Perform Actions

Real-time Correlation

- Performance problems
- Defective devices
- Availability disruptions
- Set points and sequence of operation
- Custom rules
- Calculated PI (performance index) values
- Trending information
- Outdoor conditions
- Characteristics of the building
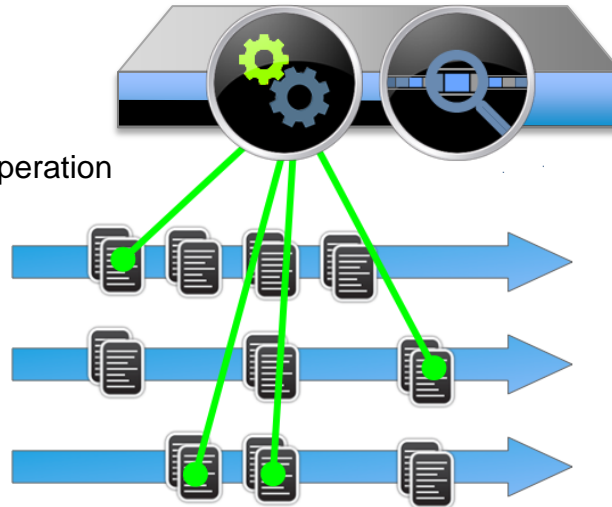
- Over 800 rules for continuous analysis of individual components

- 275 performance indicators for global analysis of system

Proceedings of the 13th International Conference for Enhanced Building Operations, Montreal, Quebec, October 8-11, 2013

Response Automation

Joule AnalytiX management framework

Gather Intelligence → **Identify Behaviors** → **Automated Response** → **Perform Actions**
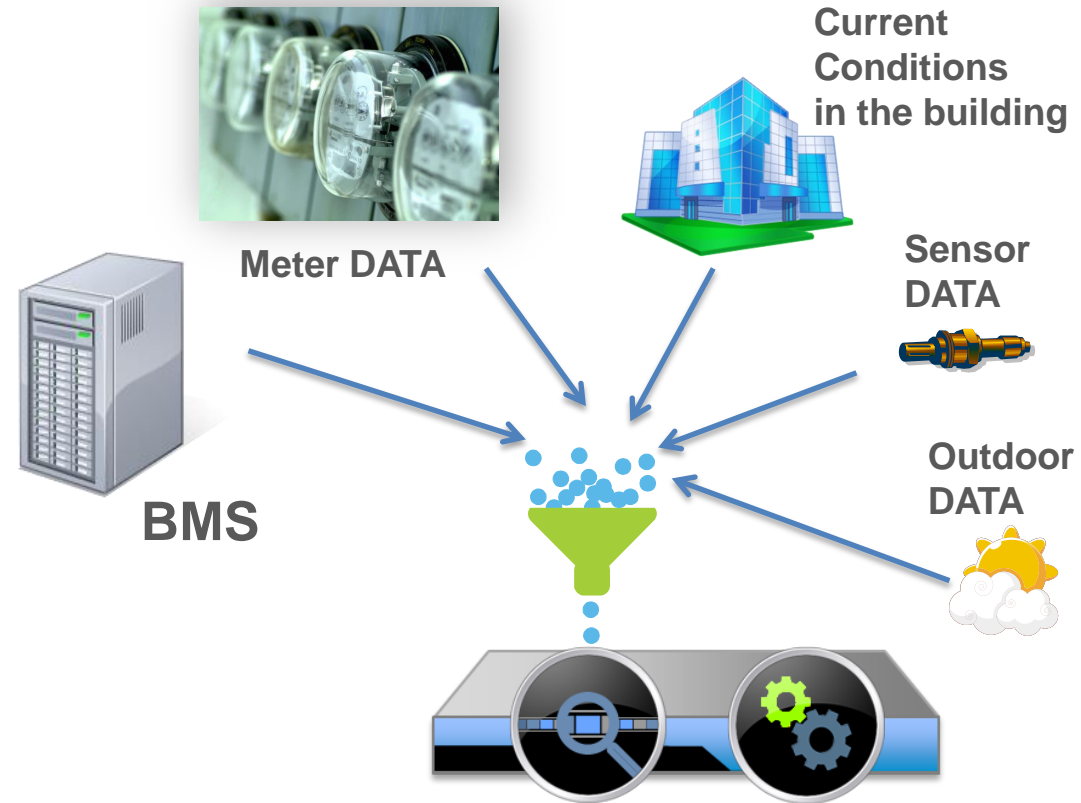
Automated Response System

◦ Automates Notification (email, SMS, Trouble Ticket, etc.) to the building engineer

◦ Manages Escalation (notification chains, schedules, etc.)

◦ Integrates with Senergy EAM / CMMS
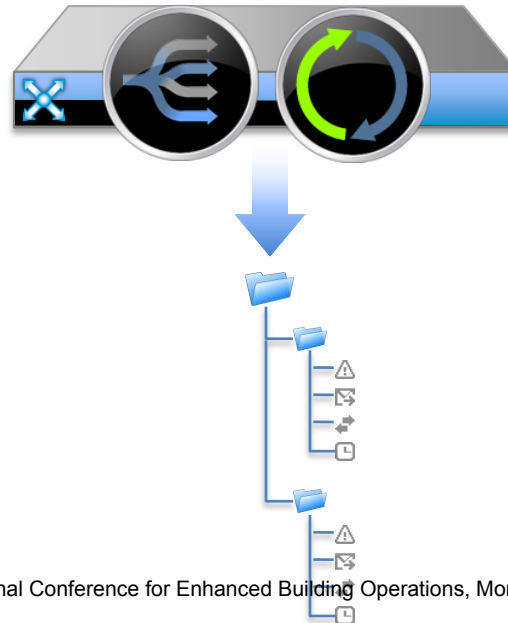
Integrated Action Library

◦ 3rd party maintenance systems

◦ Scripted Actions (Perl, Expect)

◦ User Defined Actions (Command Builder)

  ◦ Modify Set-point(s)

  ◦ Create report

  ◦ Trigger the calculation of custom performance indexes for the building

More relevant DATA, better optimization

- ◦ Comparing the data to the design intent.

- ◦ Link between the Design team and the operation team

- ◦ Understanding the building and all the links to help for deciding on the future projects.

- ◦ Deregulation of the settings through the years. Eventually, no comfort problems, and no intervention.

- ◦ Nobody does all the tests that need to be done to see if a system is working properly 24hr/7days.

- ◦ Giving more try-out to solve a problem (weekly M&V)

Meter DATA

Current Conditions in the building

Sensor DATA

Outdoor DATA

BMS

Real-time big data analytics

By using a combination of Joule AnalytiX
big DATA analytics and AFDD engine,
we could achieve

- Energy and Water real on time M&V

- Active Commissioning

- Maximize maintenance and asset management through AFDD

- Helping to link the operation aspect of optimization with the management aspect
of a building

Active Cx (Active Commissioning)

- Via iterative algorithms, continuously optimize Supply Air Set-Point
- Auto-Balance the system in a Cx or Re-Cx approach

Joule AnalytiX Platform as an automated FDD

- **Calculated Performance Index(s) for the AHU (Air Handling Unit) and Control Zones**
- **Environmental Variables coming from the outdoor conditions.**
- **Trending information**

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Perform M&V via the correlation engine in Joule AnalytiX:

- **Option A/B /C/D M&V (IPMVP) in a building :** establish real time targets to be able to see how a building is performing on a weekly basis from the first year.**.**
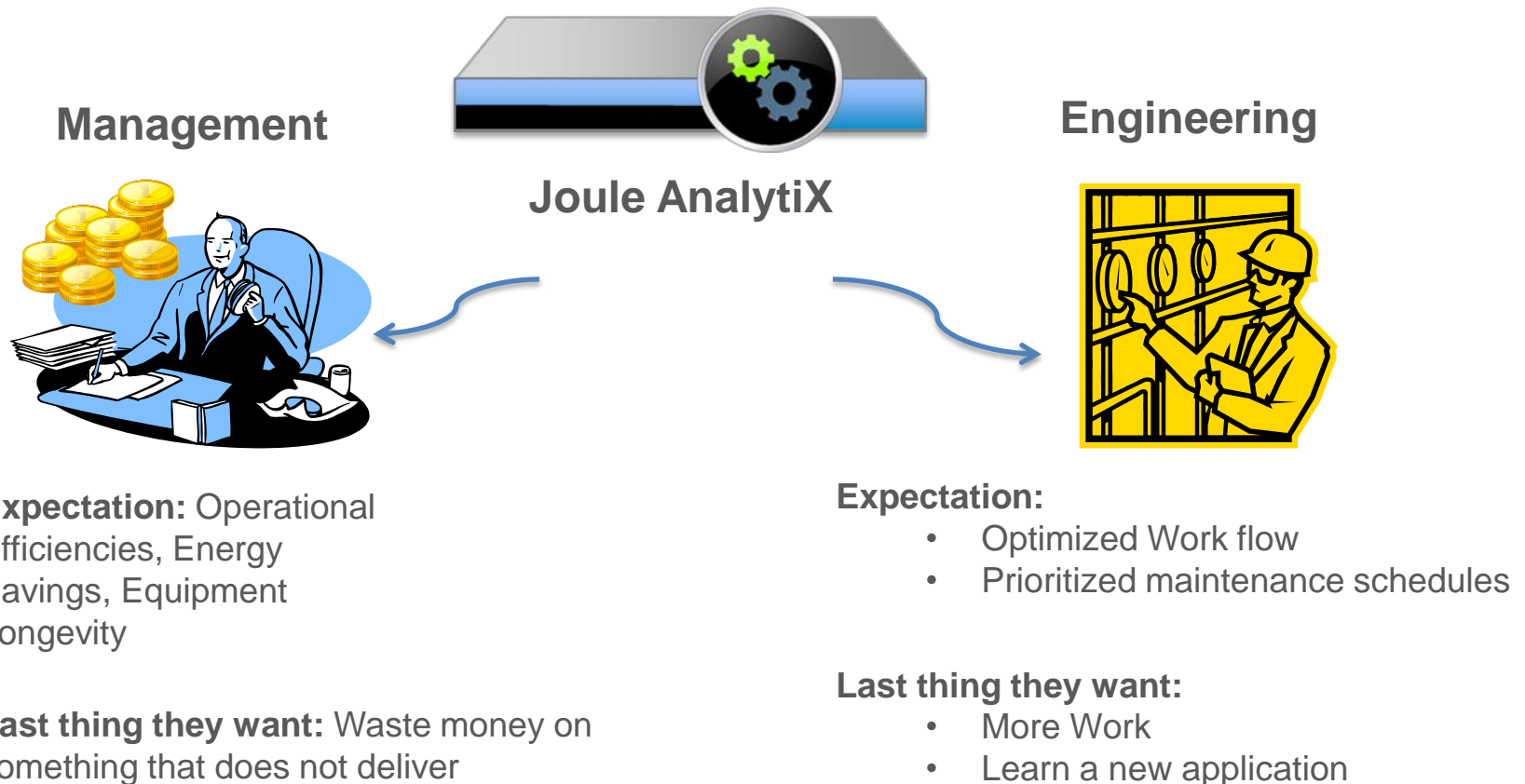
Helps the engineering team to conduct more effective predictive analysis after every action/change in the building.
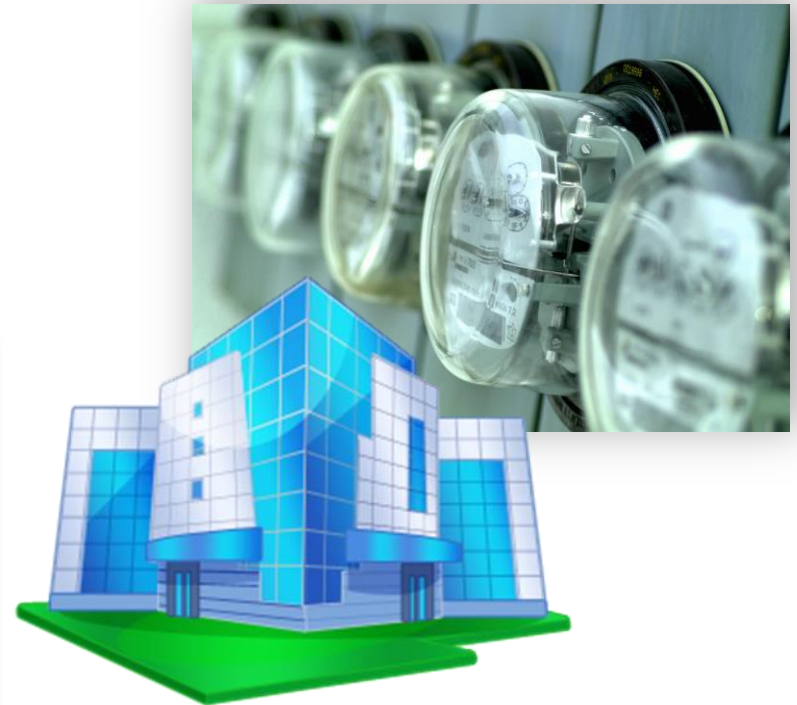
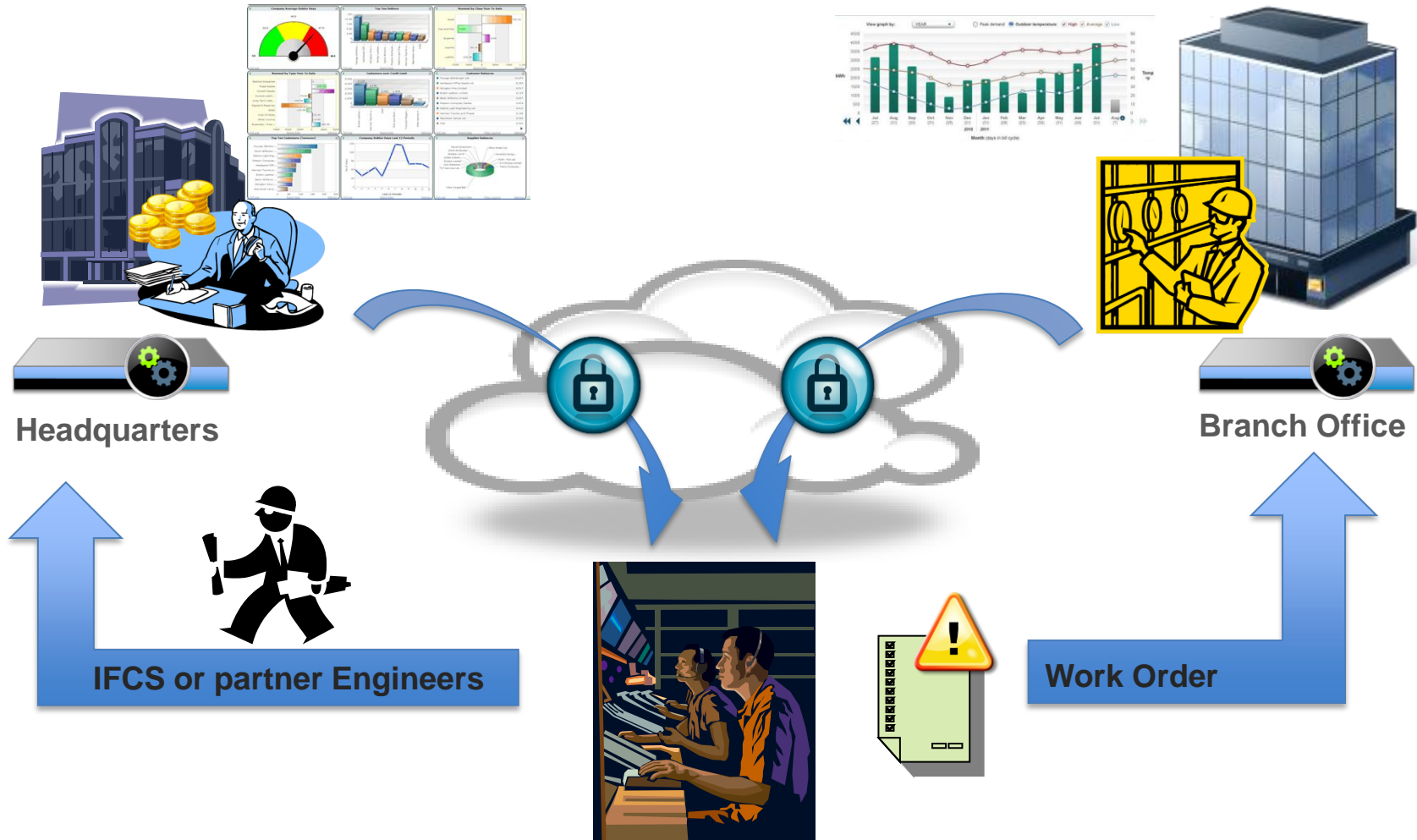**Providing methods to forecast energy and water consumption!**

What it takes to do AFDD…

An AFDD project cannot be a one-time effort and then you're done!
It requires commitment from multiple levels to meet expectations and in many cases exceed it.

Management

Joule AnalytiX

Engineering

Expectation: Operational Efficiencies, Energy Savings, Equipment Longevity

Last thing they want: Waste money on something that does not deliver

Expectation:
- Optimized Work flow
- Prioritized maintenance schedules

Last thing they want:
- More Work
- Learn a new application

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We can assist you where you lack resources:

Headquarters

IFCS or partner Engineers

Branch Office

Work Order

Remote Site Management

Best Practices for a successful implementation of AFDD

Some golden rules, based on our past experiences:

- The level and type of responsibilities in the organization should be well defined.

- Detailed design information should be available from the beginning of deployment.

- Access to the BAS needs to be available.

- Frequent meetings with the customer throughout the implementation of the solution.

- Constant ongoing training sessions with the customer.

- Set a feasible roadmap on fixing the ongoing issues in the building based on customer priority.

- Make sure customer understands what to expect from the software.

- **Most importantly, customers should trust the AFDD tool!**
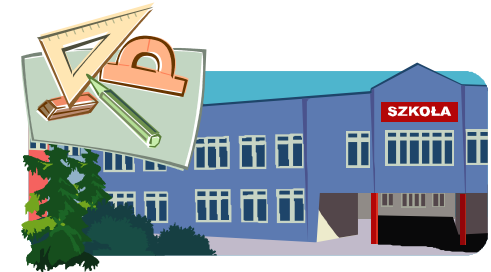
Target Profile for Joule AnalytiX

- Office buildings
- Institutions
- Commercial centers
- Hotels
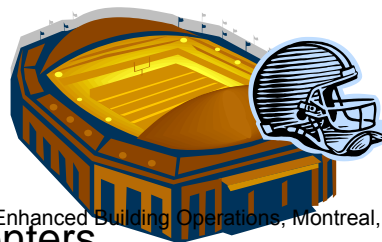- Specific industries

- Hotels
- Specific industries

- Hospitals
- Laboratories

- Universities
- Schools

Airports

Sports Centers

We are open to teaming with Universities, Research Institutes and other not for profit organizations to show continued support to the industry and our planet.

Discover the power of Joule AnalytiX.

Let's reduce the carbon footprint one building at a time