Building Management System/BMS: Insight
Applying Business Intelligence/BI Best Practices to Multi-site Retail

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BMS Insights: Macro Technology Trends Affecting Multi-site Retail

- Proliferation of new dash-boarding/UI tools
- Proliferation of new analytics tools (device/enterprise)
- Growth of IP-enabled devices (IoT)
- All things data: security, quantity, complexity, access, value, etc.
- Information-on-demand via smart devices (mobility)
- Continued adoption of cloud-based solutions: PaaS/IaaS/SaaS
- BAS (data) integration with business decision-support systems
- Device/system connectivity and interoperability
- Availability of lower-cost hardware, e.g., sensors
- Proliferation and standardization of wireless technologies/protocols
“To effectively convert rapidly expanding and disparate data sources into visually insightful, prescriptive, actionable and value-adding graphical interfaces ... across multiple stakeholder departments with a diverse range of user/persona types.”
BMS Insight: The Solution
Enabling Intelligent Apps With Effective Use of Data

Modern Data Architecture
Modern data architecture delivers access to a wide variety of data at high velocity and scale. It supports data access for all applications whenever any data is needed. Complements existing data architecture by including a Data Lake and Hybrid Cloud strategies.

Advanced Analytics
Advanced analytics is the science of using a wide variety of data to understand factors that impact customer experience. It’s the use of machine learning for prescriptive guidance that enables automated decisions and actions.

Smart Devices
Expanding business by establishing an IoT business model with the right set of devices, connectivity, security and cloud adoption – all packaged in a deployable and profitable solution.

The Real-time Business
Happens when data in motion from IoT devices is combined with other enterprise and cloud ambient data and injected with embedded machine learning to personalize customer engagement (cross-sell and upsell), improve field workforce impact, and create new products and services.
BMS Insight: Added Intelligence Evolve From Static to Dynamic Apps

**Apps today:**
- Focus on foundational data visibility (line of business apps)
- Foundational transactions enabled
- Data is delivered with high latency (remains static)

**Intelligent apps:**
- Consume a wide variety and volume of data to ID patterns
  - Data and insights are delivered with low latency along with static data
- Use advanced analytics for predicting and prescription
- Automate decision and understand the “right actions”
- Leverage embedded machine learning
- Deliver powerful data visualizations
BMS Insight: IoT and Analytics Architecture Critical Success Factors

Device (Data)
- Operating system
- Sensors and readings
- Bluetooth stack
- AMQP or HTTPS stack

Communication
- Command and control
- Device identity
- Device registration
- Device management
- Telemetry ingestion

Transformation
- Telemetry, query and routing

Storage
- Relational
- Documents
- Blobs

Analytics
- Descriptive
- Diagnostic
- Predictive
- Prescriptive

Visualization
- Dashboards
- Wall boards
- Notifications
- Embedded insights in applications

Sensors and readings
- Operating system
- Bluetooth stack
- AMQP or HTTPS stack

Telemetry, query and routing
- Telemetry ingestion

Relational Documents
- Descriptive
- Diagnostic
- Predictive

Diagnostics
- Prescriptive

Notifications
- Embedded insights in applications

Telemetry
- Sensors and readings

System
- Operating system
- Bluetooth stack
- AMQP or HTTPS stack

Blobs
- Descriptive
- Diagnostic

Predictive
- Prescriptive

Wall boards
- Dashboards
- Notifications
- Embedded insights in applications
BMS Insight: The Solution — Effective Data Visualization

• Re-imagine visual design providing more context and enabling faster decision making
• Apply next-generation business intelligence/BI (analytics)
• Address ERP-level integration and workflow automation (decision support systems)
BMS Insight: The Solution — Multi-site Retail Practical Application

- Transparent access to data (with context)
- Persona-driven visualization(s)
- Embedded energy/refrigeration domain expertise (IP)
- Automation and intelligence for “continuous improvement” (operational efficiencies)
BMS Insight: The Solution — Multi-site Retail Practical Application(s)

- In-store visualizations (dashboards)
  - Kiosk (customer-facing/brand image)
  - Break-room TV (employee-facing/sustainability initiatives)
BMS Insight: Group Discussion
Your Motivators, Goals and Challenges

- Reporting vs. dash-boarding
- Help me get “ahead” of my enterprise!
- Fault detection and diagnostics?
- Mobile tools and applications?
- Just give me the answers!
- Does the 80:20 rule apply?
- What is Big Data in multi-site (grocery) retail?
- Single biggest adoption challenge?
- Make or buy?
- ...Just too hard...
- ...Real time or day +1...
Questions?

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