CABA™ Continental Automated Buildings Association

Monetization of Intelligent Buildings

Executive Summary Presentation

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About CABA

CABA (Continental Automated Buildings Association)

CABA
Connected Home Council

CABA
Intelligent Buildings Council

Vision

CABA advances the connected home and intelligent buildings sectors.

CABA Board of Directors

Research Goals

- The goal of this research is to examine the **impact that "Internet of Things" (IoT)** technologies and will have in the intelligent buildings market. This report will provide **actionable insights** as it relates to new and emerging monetization models and business strategies for intelligent buildings. Harbor Research has examined the opportunities provided by IoT for intelligent building stakeholders.
- To meet these goals, Harbor Research has conducted a detailed analysis about the **future state of the building marketplace**, including key trends, buying behaviors, technology challenges and opportunities. We identified **top case studies** of IoT technologies and applications and **the innovative players** driving successful solutions.
- Within each business case, we **develop go-to-market/channel requirements** to highlight the role of different stakeholders and make recommendations for how firms should structure their organization and offerings to capture new value from smart, connected offerings.

Project Work Path

1. Review Existing Intelligent Building and IoT Research
   - Analysis of existing research
   - Analysis of existing third-party data
2. Review Previous Harbor Research Analyses
   - Analysis of previous HRI research
3. Conduct Interviews with Thought Leaders
   - Conduct interviews with industry thought leaders and steering committee members
4. Create A Foundational Framework for Intelligent Building Monetization
   - Develop a framework from which the CABA steering committee and HRI can collaborate
5. Market Survey
   - 800 Tenants
   - 300 Decision Makers (eg. building owners and operators)
   - 300 Consumers
6. Identify the Current State of the Market
   - Uncover technical barriers, adoption challenges and opportunities, top use cases, stakeholder needs
7. In-Depth Expert Interviews
   - Conduct interviews with 30 stakeholders on evolution of technical requirements, user needs and monetization models.
   - Conduct additional (10-15) to test findings in a Delphi-style approach.
8. Forecasting the Opportunity
   - Size 2018 addressable market of connected devices shipped and installed, and relative annual service charge based on indices and metrics from market reports, industry data, company analysis, financial statements, earnings reports, subscription and licensing prices and primary research
9. Case Studies
   - Develop case studies to assess market direction and quantitative opportunity sizing

Report Covers 6 Key Verticals Within Commercial Buildings

Commercial

- Office Buildings
- Mixed Use

Retail & Hospitality

- Retail
- Hotels & Casinos
- Restaurants
- Banking

Public Venues

- Transport (Airports, Transit Facilities)
- Stadiums
- Other Public Venues

Medical

- Hospitals
- Clinics
- Care Facilities
- Labs

Institutional

- Educational Institutions (K-12; Higher Education)
- Government

Mission Critical

- Factories & Plants
- Warehouses
- Data Centers

Source: Harbor Research

Smart Systems Bring New Age of Value Creation and Data Monetization

- **Peer-to-peer information, social networking and pervasive computing** are combining to create new modes of collaboration and decision making, enabling the convergence of physical and virtual worlds. Social networking technologies are moving to the enterprise and will be embraced differently than in the consumer space. Network awareness will include pervasive **knowledge share between people and things.**

- The foundation of smart systems is based on **leveraging embedded computing, software and networking technology** to deliver smart, remotely monitored assets that will support entirely new modes of customer-device interaction and service delivery. The core platforms that inform smart systems combine new innovations in software and information architectures with data collection, aggregation, integration and management tools. These data technologies will work together in unprecedented ways to solve more complex business problems than previous generations of computing

- The three previous waves of technology each have had significant impacts on productivity and efficiencies; **mainframes standardized transactions, personal computing placed processing power into the hands of professionals, and networked systems enabled business process automation**. What is important about this next wave of smart systems is the **combined impact of these innovation cycles.**

Combination of Trends Influences Outcomes of Monetization Strategies

Competitor Trends/Forces: Unexpected partnerships and new business models drive landscape evolution

- Innovative startups are introducing new technologies and service models, spurring significant investment from established building technology providers
- Emerging data-centric business models are required as the building blocks for monetizing a new generation of intelligent building products and services
- 'Strange bedfellows' partnerships are creating new opportunities for packaged solutions and services that orchestrate data across historically disparate systems
- Incumbent intelligent building vendors are aiming to move towards more open systems, facilitating multi-vendor collaboration and new monetization opportunities

Technology Trends/Forces: New data architectures and AI are driving more powerful intelligent building products, software and services

- Reduced costs of smart sensors and devices are driving democratization of Smart Building data and new data-centric business models
- A broader range of high-performance, more reliable wireless networks is introducing new and cost-effective networking solutions into the market
- Access to real-time data is driving unprecedented visibility and control of building networks, enabling optimization and orchestration of disparate systems
- Adoption of advanced data management, AI and machine learning is integrating multiple data sources and more effectively automating building oversight

Socioeconomic Trends/Forces: Regulatory requirements, demographic shifts and geopolitics combine to impact the intelligent buildings market

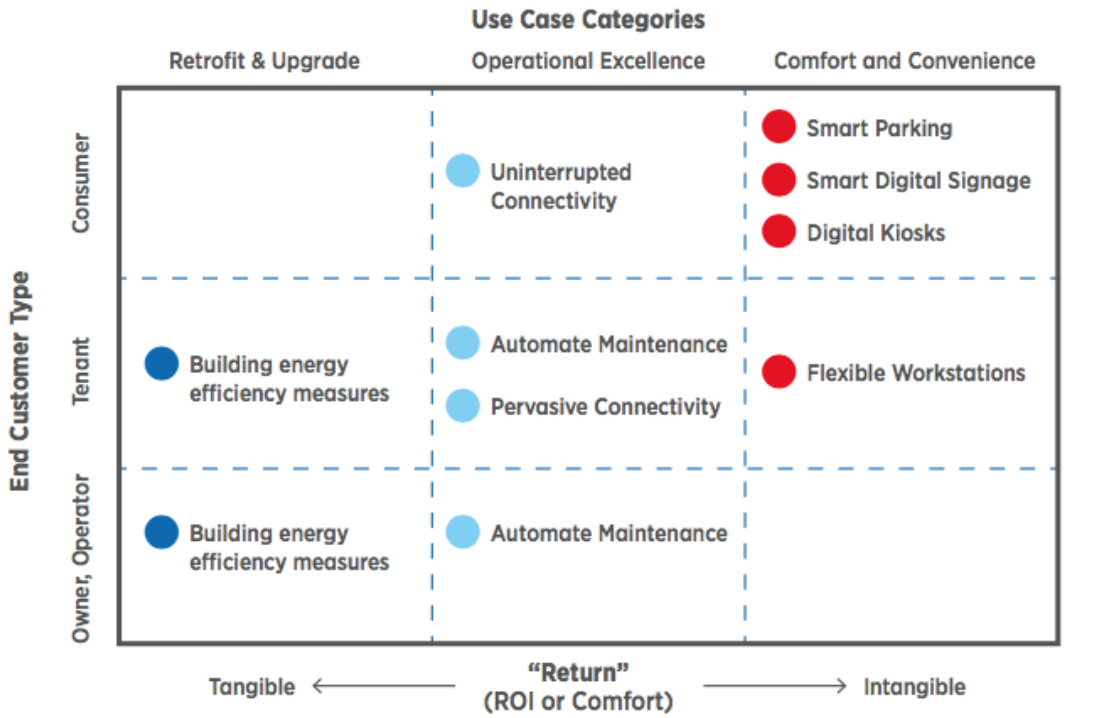
- Local and Federal regulations are driving building system upgrades leading to an increased integration of energy management systems and emphasis on efficiency
- Growing demand for Smart City systems is creating an opportunity for integration of intelligent building systems with other city infrastructure networks
- The generational turnover to increasingly tech-fluent occupants is creating a demand for connected, smart products and services to personalize building environments

Customer Trends/Forces: Rapid adoption of digital and IoT systems creates new needs and challenges

- Customers are demanding more value from building system and software providers, which will require collaborative ecosystem opportunities and 'strange bedfellows'
- Physical and cyber-security threats to building networks highlight the need for convergence of IT and facilities security
- Building occupant-centric solutions and services focused on maximizing occupant comfort and convenience is creating a new value-added services opportunity

Desired Use Case Categories by End-Users Impact Operator Decision-Making

- **Retrofit & Upgrade:** Use cases included in this category include those that are predominately energy management related and that have very tangible metrics for measuring the expected return on investment
- **Operational Excellence:** Use cases that still have quantifiable returns but are less tangible than retrofit and upgrade use cases.
- **Comfort and Convenience:** Use cases that don't have objective or clear measures of return for the stakeholder



Source: Harbor Research, Combined Survey Data

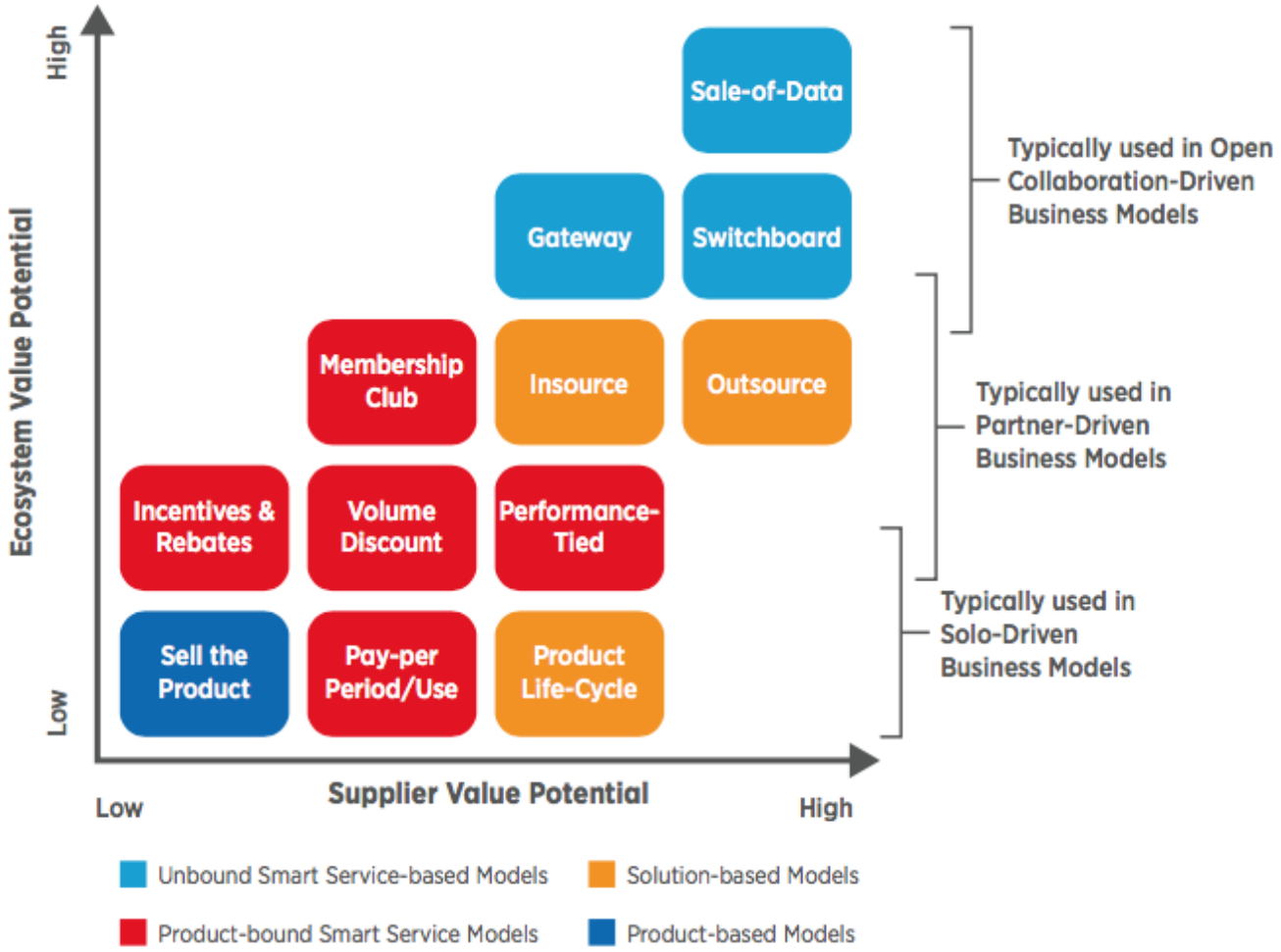
Example: *Retail store customers desire interactive digital signage to enhance their user experience, pushing retail store owners/operators to choose less tangible ROI solutions in hopes that ROI is made up in customer loyalty or other qualitative metrics*

New Value Props Are Changing How Commercial Building Owners Monetize

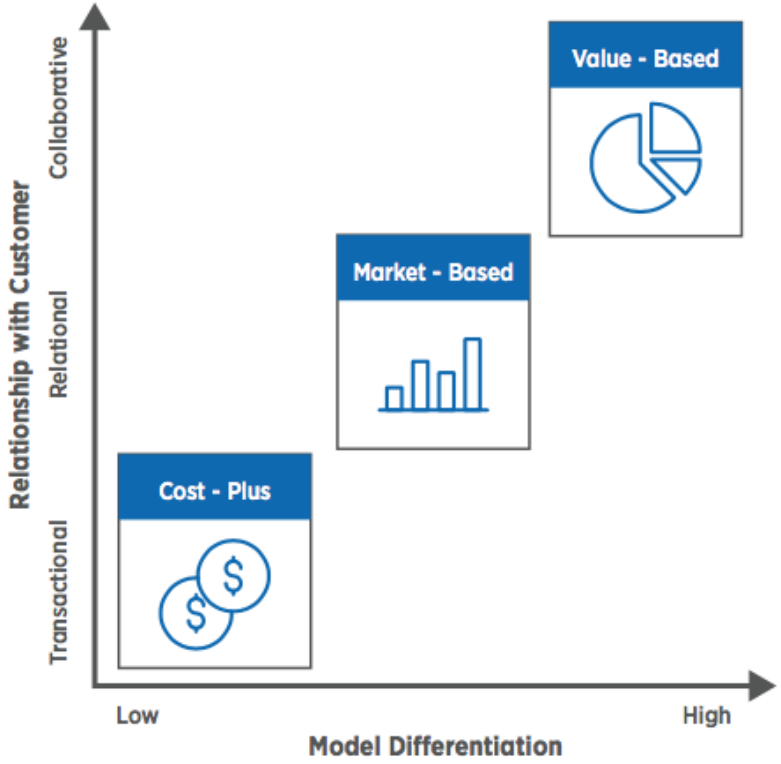
Source: Harbor Research

- **Service and Support Delivery Efficiencies and Cost Savings**:
  - As devices send home better information about required maintenance, inventory, the need for software updates or the replenishment of supplies
- **Service Delivery Enhancements**:
  - Connected products enable the manufacturer to increase the level of extrinsic service the company provides to the customer, as well as the enhanced services positive impacts on customer loyalty
- **New Services and Sources of Value and Revenues**:
  - New customer facing network-based services and values, as well as cross-vendor services such as data brokering, new analytics capabilities and other non-traditional values created by data.

Monetization Models Correlate With Solution Delivery Mechanisms



Pricing Model Considerations



Source: Harbor Research

Cost-Plus Pricing

- The cost to deliver an offering to the market, multiplied by a desired and customer-acceptable margin, and set a price.

Market-Based

- Customer and competitor-based pricing, adjusted on customer elasticity to buy at a certain price or competitive offerings offering a different price point

Value-Based

- Pricing an offering based on the value it gives the end-customer. Flexibility of metrics applied to “value,” including; dollars saved, dollars earned, or less tangible ROI

Use Case Categories Drive Customer ROI and Willingness to Pay

Retro-Fit & Upgrade

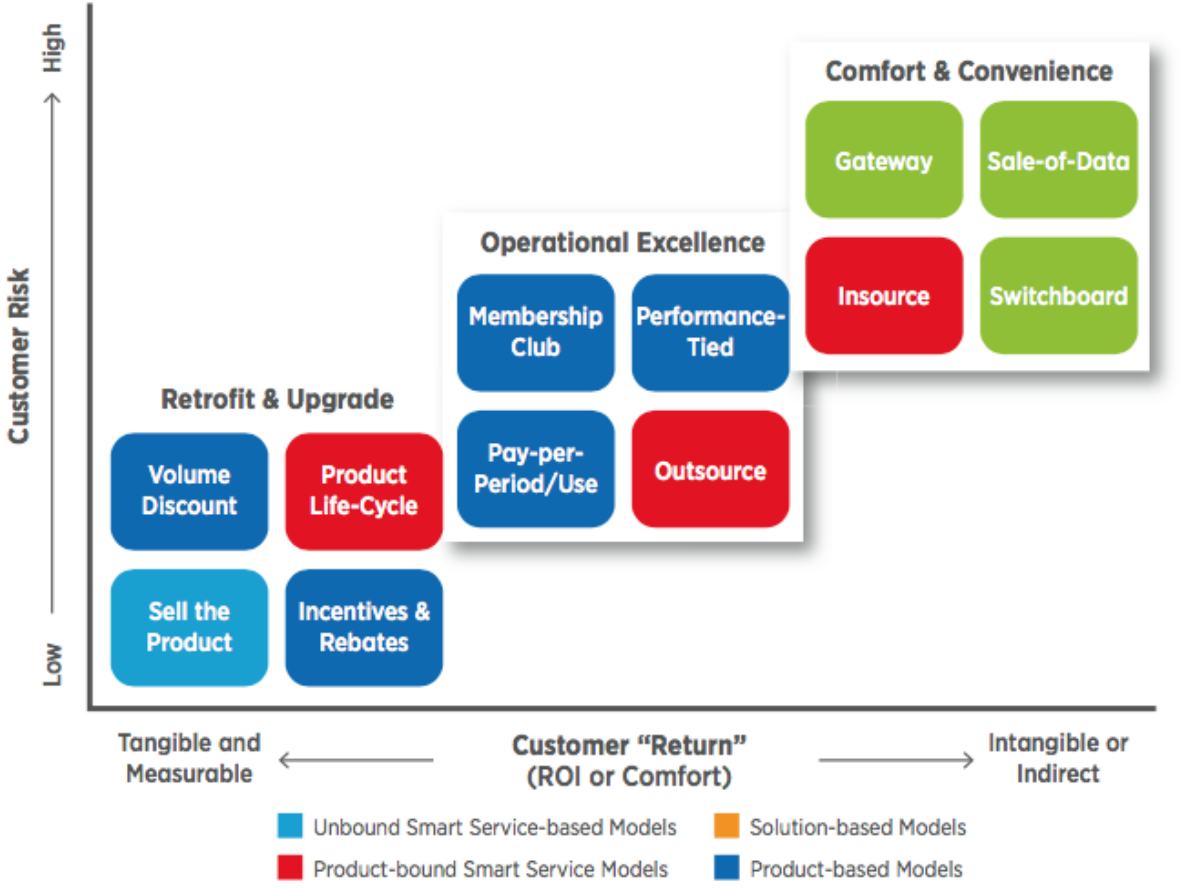
- ROI is tangible (money saved, etc.)
- Value achieved by purchaser
- Payment for proven ROI in 12-18 months typically takes place upfront

Operational Excellence

- ROI is less tangible
- Requires more complex, partner-driven business models
- Payment is tied to value that solutions creates though adjacent or new revenue streams

Comfort & Convenience

- Least tangible ROI (tenant comfort)
- Use cases require a subscription or value based model
- Given intangible ROI purchasers less likely to pay up front for solution



Source: Harbor Research