IoT Data: Adding Value to the Connected Product Lifecycle
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Agenda-- IoT Data: Adding Value to the Connected Product Lifecycle

- Introductions
- The connected product landscape
- Consumer attitudes toward data sharing
- What IoT and data mean to manufacturers and how they are used
- Developing a data analytics strategy
- Using data throughout the product life cycle
- Customer case study
- Q&A with Ayla and Mnubo
Smart Home Devices in 20% of Households

Among All U.S. Broadband Households

<table>
<thead>
<tr>
<th>Quarter</th>
<th>% Owning a Smart Home Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1/2014</td>
<td>12% (n=7,202, ±1.15%)</td>
</tr>
<tr>
<td>Q2/2014</td>
<td>13% (N=10,000, ±0.98%)</td>
</tr>
<tr>
<td>Q3/2014</td>
<td>16% (N=10,000, ±0.98%)</td>
</tr>
<tr>
<td>Q2/2015</td>
<td>18% (N=10,000, ±0.98%)</td>
</tr>
<tr>
<td>Q3/2015</td>
<td>19% (n=5,010, ±1.38%)</td>
</tr>
<tr>
<td>Q4/2015</td>
<td>19% (N=10,000, ±0.98%)</td>
</tr>
</tbody>
</table>

"Q2600. Can anything in your home... be turned on/off or controlled using a smartphone, tablet, or computer, or... send you automated alerts by email, text message, or through a smartphone app, or be monitored from outside your home using a smartphone, tablet, or computer?"

Source: Multiple Surveys: American Broadband Households and Their Technologies © 2016 Parks Associates
User data translates into product improvement, differentiation, and higher revenues

**Product Improvement**
- Product Performance
- Feature Enhancement
- Warranty/Support/Service

**Product Differentiation**
- Personalized features
- Deeper engagement
- User experience

**Revenue Enhancement**
- Increased value
- Up-sell opportunities
- Lower average cost of customer acquisition

Manufacturer -> Consumer

For More Information — 972.490.1113 | info@parksassociates.com | www.parksassociates.com
Roughly one-half of consumers would permit utility control of appliances in exchange for a product rebate.

The amount of the rebate notably has no influence on willingness to participate.

<table>
<thead>
<tr>
<th>Product</th>
<th>$50 rebate</th>
<th>$100 rebate</th>
<th>$150 rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermostat</td>
<td>46%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>Water heater</td>
<td>45%</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>43%</td>
<td>48%</td>
<td>46%</td>
</tr>
<tr>
<td>Clothes dryer</td>
<td>50%</td>
<td>50%</td>
<td>47%</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>49%</td>
<td>54%</td>
<td>51%</td>
</tr>
</tbody>
</table>

*“Q7550. Some energy programs provide a rebate or an upfront discount on smart home products, if you allow the utility to control the products during periods when energy demand is high. Would you allow your energy provider to control the following products in exchange for an incentive rebate?”

Source: American Broadband Households and Their Technologies Q4 2015 | N=10,000, ±0.98% | © 2016 Parks Associates
One-third to one-half of connected fitness device owners would share data from these devices in order to identify and resolve device problems.

Fewer are willing to share data for other potential benefits such as purchasing related products and services or the development of better products.

Willingness to Share Data From Fitness Devices by Fitness Device Owned (Q4/14)
Among Respondents Owning Specified Devices

- Smart watch (n=272, ±5.94%)
- Sleep quality monitor (n=134, ±8.47%)
- GPS watch (n=342, ±5.3%)
- Digital pedometer (n=423, ±4.76%)
- Exercise equipment (n=671, ±3.78%)

"Q2820(d). Would you share the data from the following devices…
-Fitness trackers, sleep monitors, exercise equipment, and similar fitness devices"

Source: American Broadband Households and Their Technologies Q4 2014 | N=10,000, ±0.98% | © 2015 Parks Associates
Roughly one-third of those owning a connected health device that tracks vital signs would share data in exchange for a health insurance discount.

Discounts on other services are less likely to entice sharing.
Data Analytics Strategy in Today’s IoT

Connected Device Manufacturers

Josh Pederson -- Sr Product Manager, Ayla Networks
Jean-François Martin -- Head of Products, mnubo
Understanding Connected Products

• Internet of Things (IoT) is happening now!

• Connectivity, security, data management and analysis not the core expertise for most manufacturers

• The true value of IoT is in the data: the goal is to provide manufacturers with a feedback loop to learn faster and adapt

Structuring the feedback loop is one more challenge for connected device manufacturers
What IoT and Data Means to Manufacturers

**Build Better, Smarter Products**
R&D focus and real-time usage feedback

**Improve Operational Efficiency**
Proactive service, reduce operational costs

**Deliver Insights Across the Value Chain**
Dealers, Service Companies, Enterprises, etc.

**Boost Revenues**
Improve product sales
Product upsell and after-market service monetization
Everybody Wants Access to the Data

DATA-CENTRIC BUSINESS MODELS
C-LEVEL

CONTEXTUAL, ENRICHED, AUTONOMOUS PRODUCTS
PRODUCT + R&D

ANALYTICAL-BASED CUSTOMER PROFILING
MARKETING

NEW SERVICE OFFERINGS & OPTIMIZED PACKAGES
PRODUCT + SALES

CUSTOMER EXPERIENCE - RETENTION & ENGAGEMENT
SALES & MARKETING

LOWER COST OF OPERATIONS
OPS
How Can Manufacturers Set a Strategy?

Make Data Meaningful

- Build Better, Smarter Products
- Improve Operational Efficiency
- Deliver Insights Across the Value Chain
- Boost Revenues

Make Data Available

- Product
- C-Level
- Marketing
- Ops
- Sales

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Traditional Product Lifecycle

Development
(get it working to spec)

Field Trials
(verify it works to spec | prepare for production)

Production
(maintain | identify improvements)

Question: Hypothesis-based iteration

Minimal visibility

No feedback loop

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IoT-Driven Product Lifecycle + Analytics

**Development** (agile requirements, building better products)

**Field Trials** (proactive planning, deliver the experience)

**Production** (adapt and focus the business – marketing, services etc.)

**DATA-CENTRIC DESIGN & ITERATION**

**PRODUCT USAGE INSIGHTS**

**QUALITY**

**EXPERIENCE**

**FEEDBACK**

**CONTINUOUS IMPROVEMENT & FEEDBACK**
Analytics KPIs

• How are the products performing/behaving?
• How many faults/errors, when and why?
• What data are the products sending and when?
• Is the data well structured?
• Assess the product performance, any abnormalities?

For Whom?

• Product Management
• R&D
Product Lifecycle: Development

TROUBLE EVENT ANALYSIS

PRODUCT PERFORMANCE

ANOMALY DETECTION
Analytics KPIs

- How often is each feature being used?
- What features tend to be used by the same users?
- Which features are your engaged users using most?
- Are there trends/profiles that can be used for predicting future revenue and usage?

For Whom?

- Product Management
- Sales & Marketing
Product Lifecycle: Field Trials

PRODUCT PACKAGE CLUSTERING

Field Trials
Product Lifecycle: Production

Analytics KPIs

- How many products are active/inactive, where & why?
- When do users disengage with the product?
- Track product life states from unconnected states (e.g. manufactured, shipped, purchased, etc.) to connected states (e.g. registered, activated, operated, etc.)
- Analyze consumption/usage to derive states for warranty/replenishment service
- Deviations from recommended product handling?

For whom?

- C-level
- Product Management/Operations
- Marketing & Sales
Product Lifecycle: Production

BATTERY LEVELS ACROSS HOMES

GEO ANALYSIS

PRODUCT DISTRIBUTION & ACTIVITY ANALYSIS
Enriching IoT Data

3^{rd} PARTY SERVICES
DEMOGRAPHIC, WEATHER FEED

BUSINESS SYSTEMS
SALESFORCE, SAP

IN-HOUSE DATA
FINANCIAL, WARRANTY

IoT SENSOR DATA

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Icontrol Networks - IoT Analytics Case Study - mnubo

- Leading provider of smart home solutions
- Broad suite of applications – security, automation, monitoring etc.

• Improve Customer Experience
• Data-driven service offerings
• Improve Operation Efficiency

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Summary

• Making data meaningful and available in the organization are key goals of an analytics strategy
• Each phase of the product lifecycle requires specific analytics targeted toward specific groups in the organization
• Account for 3\textsuperscript{rd} party data in strategy to greatly extend meaning of device data
Questions?

Hosted by:

Ayla Networks
Josh Pederson
Senior Product Manager

mnubo
Jean-François Martin
Head of Products

Parks Associates
Stuart Sikes
President
CONNECTIONS™: The Premier Connected Home Conference focuses on innovative technology and business solutions for the connected consumer and strategies to monetize the connected home and Internet of Things.

Keynote Speakers

Matt Eyring
Chief Strategy and Innovation Officer
Vivint Smart Home

David Isbitski
Chief Evangelist Alexa and Echo
Amazon

Daniel Herscovici
SVP & GM, Xfinity Home
Comcast Cable

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