Harnessing The Internet of Things with SAP Connected Trade Assets

Run Connected Like Never Before

Nikhil Monghia
SAP
SAP’s Vision for the Internet of Things

Smart House  Smart Vending  Smart Logistics  Smart Automobile  Smart Equipment  Smart Cities

REQUIRES

SAP Mobiliser  Big Data  HANA Cloud  SAP Analytics
SAP’s Vision for the Internet of Things

Connected Assets

- Availability and traceability

Transparency

- Optimized processes in production and logistics

Flexibility

- Self-managing systems

Personalization

- Stronger Customer Focus

From Products to Services

- New business models
Maturity Model for Internet of Things

- **Networking and Simple Reporting**
- **Controllable Devices and Assets**
- **Condition-Based Monitoring**
- **Analytics and Predictions**
- **Integration into the Corporate Processes**
- **New Service & Business Models**

**Added Value for the Company**
- Basic
- Intermediate
- Advanced
- Experienced
- Expert
- Leader

**Knowledge Based Society**
- Source: Accenture

**Supporting Technologies:**
- Big Data
- Cloud
- Mobile
- Analytics
- Integration
### Foundation of Connected Trade Assets: Efficient Operations Enable Consumer Interaction

<table>
<thead>
<tr>
<th>More Efficient Operations</th>
<th>Better Consumer Interaction</th>
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<tbody>
<tr>
<td>- Consumable Replenishment and Inventory Tracking (coolers, freezers, other vending equipment)</td>
<td>- Interactive Displays on both Vending and Signage</td>
</tr>
<tr>
<td>- Remote Service Management</td>
<td>- Real-time 1:1 Targeting, Price Changes, Shopping Cart</td>
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<tr>
<td>- Predictive Operations (Prospecting, Planogram, Maintenance)</td>
<td>- Advanced Analytics and Segmentation</td>
</tr>
<tr>
<td>- Coolers, Fridges, Bunkers, Fountains, Taps</td>
<td>- Display Content Management</td>
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<tr>
<td>- Vending Machine Telemetry Retrofit</td>
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</table>

- Interactive Digital Signage
- Interactive Vending Machines
Vision of Connected Trade Assets

Intelligent Marketing
- 1:1 customer targeting
- Detailed market segmentation
- Portfolio optimization

Optimized Operation
- Fleet Analytics
- Demand based pricing
- Predictive Planogram Optimization
- Forward-looking analytics

Supply Chain Management
- Real Time Inventory
- Dynamic truck routing
- Customized product mix by location
- Machine-initiated inventory replenishment

Customer Experience
- Cashless payments
- Viral features enable growth
- Real-time behavior capture
- Audience Analytics

Asset Management
- Event-driven maintenance
- Remote control and campaign initiation
- Real-time analytics at single asset level

What SAP Connected Retail Offers
Humble Beginnings in SAP’s Parking Garage
2nd Generation Smart Vending Machine

46” Touch Screen
Wifi, LAN, GSM, LTE
Camera (Intel AIM), Proximity Sensor, Speaker
Interactive Touch Screen Fit for popular Vending Machines Types
1D / 2D Bar Code Laser
Payment Options: RFID / NFC Reader, CC Reader, Cash

Powerful yet easy CMS for Custom, scheduled UI (Vending Ads, Games) Product and Planogram Management
Service UI on Touchscreen
Handheld Bar Code Laser
TRS Dex Connector
SAP Integration on Inventory, Payment and Sales

3rd Generation In Development
40 SAP Vending Machines deployed permanently in SAP Offices worldwide, all connected to a single HANA Instance

Ongoing Employee Badge Vending Projects:
- Boxed Lunches and Snacks
- IT Equipment
- SAP Merchandize
Enable New Channel between ecommerce and Brick and mortar

- **Optimize Operations**
  - Real-time data on all vending machines
  - Automatic service ticket creation and maintenance
  - Real-time inventory & streamlined replenishment

- **Real-Time Analytics**
  - Up to date revenue and location analysis
  - Interpret and predict purchase patterns
  - Understand sales down to the individual consumer level

- **Expand Market Reach & Channel Utilization**
  - Create new revenue streams
  - Reach new market segments and locations faster

- **A Direct Channel to Consumers**
  - Create a superior mobile experience
  - Create a real-time, personalized, consumer experience
  - Create network effects between groups of individuals
Vending Use Cases (Personas)

Bill Smith – “THE DISTRIBUTOR”

Sara Jones – “THE SALES MANAGER”

Jack Klein – “THE CONSUMER”

Tim Jones – “THE SERVICE OPERATOR”
Jack Klein – “THE CONSUMER”

Psychographics/Needs
- Loyal to Brands
- Online shopper
- Explorer and willing to adopt new products

Jack’s Goal: Wants to make a quick purchase at the lowest price

1. Jack approaches a vending machine with the desire to buy a Coke
2. The vending machine remembers Jack, and personalizes the system with offers based on preferences
3. Jack selects his soda, and is informed about discount options and bundles
4. Jack explores bundles, and considers new products due to machine interaction
5. Jack pauses on a bundle, and receives a new offer in real time
6. Jack replaces his original order with the bundle, increasing his basket size
7. Jack pays using his mobile wallet*
8. The vending machine processes his order and sends a personalized Thank You to Jack
Personalized Consumer Engagement - Promotions

**Mobile Wallet**
- Embedded Vending
- Drives User Adoption

**Personalization**
- 1:1 Offers
- Increased Offer Conversion

**Mobile Payment**
- Remote Payments
- Personalized Messaging

**Remarketing**
- Push to Social
- Increased Awareness
Personalized Consumer Engagement - Advertising

- **Brand Reinforcement**
  - Deliver repeated messaging or offer personalization around brand awareness

- **Product Sampling & Testing**
  - Operator can drive product promotions to success and measure promotion effectiveness

- **Data Capture**
  - Mobile phone number
    - Join an SMS marketing program
  - Email address
  - Remarketing Tools for a brand, location or operator

- **Mobile becomes “Second Screen”**
  - Email / Text Messaging
  - Continue Campaign on Mobile
  - Nurture beyond Machine Borders
Personalized Consumer Engagement - Upselling

- **Bundling**
  - Discount for buying two+ items in one transaction
  - Value to employee
  - Keep staff in the office instead of going to the corner store
  - Upselling/cross-selling
  - Sales lift
  - Reduce CC fees
  - Suggestive

- **In-Vending Ads**
  - Trials for New Brand, Products!
Personalized Consumer Engagement – Pre/Post Vending

Gifting
- Social Gifting
- Real Goods, not virtual
- Anonymous Gifting
- Email arrives with redemption code and Google map to nearest machine

Social Media Integration
- Facebook
- Twitter
- Instant sign-up to mobile wallet
- Ties machine into social scene of users
Sara Jones – “THE SALES MANAGER”

Roles
- Sales planning
- Offer Management
- Analytics

Sara’s Goal: Increase Sales thru Product Mix Optimization and Offer Management

Revenue
- Real-time
- At the Individual Machine Level

Location
- Performance vs Expected
- Demographic Analysis

Consumer Trends
- Capture trends as they happen
- 1:1 Consumer Analysis

Campaign Effectiveness
- Behavior Change Analysis
- Coupon and gifting redemption
Sales, Revenue, Margin by Kiosk, Route, Region etc.
Product Popularity by Kiosk
Insight into Consumer Trends

Total Sales: 785,943 USD

Number of Purchases by Time of Day:
- 12AM-1AM: 500
- 6AM-7AM: 1,000
- 8AM-9AM: 1,500
- 10AM-11AM: 900
- 12PM-1PM: 1,400
- 2PM-3PM: 1,000

Top 10 Purchased Product Categories:

<table>
<thead>
<tr>
<th>Product Name</th>
<th>%</th>
<th>% Change</th>
<th>Trend</th>
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<tbody>
<tr>
<td>Candy Bars</td>
<td>18.79%</td>
<td>2.33%</td>
<td>▲</td>
</tr>
<tr>
<td>Chips</td>
<td>12.11%</td>
<td>1.21%</td>
<td></td>
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<tr>
<td>Peanuts</td>
<td>11.54%</td>
<td>2.33%</td>
<td>▲</td>
</tr>
<tr>
<td>Gum</td>
<td>10.33%</td>
<td>0.78%</td>
<td>▼</td>
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<tr>
<td>Chocolates</td>
<td>6.12%</td>
<td>0.36%</td>
<td>▲</td>
</tr>
<tr>
<td>Cookies</td>
<td>5.61%</td>
<td>1.34%</td>
<td>▲</td>
</tr>
<tr>
<td>Dried Fruit</td>
<td>3.98%</td>
<td>3.55%</td>
<td>▼</td>
</tr>
<tr>
<td>Pretzels</td>
<td>3.22%</td>
<td>1.28%</td>
<td>▲</td>
</tr>
<tr>
<td>Popcorns</td>
<td>2.91%</td>
<td>0.33%</td>
<td>▲</td>
</tr>
<tr>
<td>Dried Peas</td>
<td>2.96%</td>
<td>0.75%</td>
<td>▼</td>
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</tbody>
</table>

Sales by Locations:
- New York: 2.4 Million Sales
- Boston: 2.4 Million Sales

Number of Purchs by Gender:
- Male: 63.9%
- Female: 36.1%

Freq of Repeat Purchase & Total Spend by Age Groups:

- Frequency of Repeat Purchase:
  - < 20: 600
  - 20-30: 550
  - 30-40: 500
  - 40-50: 450
  - > 50: 400

- Total Spend:
  - $00k
  - $30k
  - $60k
  - $90k
Bill Smith – “THE DISTRIBUTOR”

Roles

- Plan and manage inventory to avoid stock outs
- Optimize truck loading and reduce unnecessary product moves to avoid product damages

Bill’s Goal: Wants to keep the kiosk replenished.

1. Bill loads his truck based on auto-generated kiosk replenishment schedule and loading plan.
2. Bill drives his route and replenishes the kiosk.
3. While en route, Bill receives mobile alert of a stock out at one of the kiosks along his route.
4. Bill uses extra inventory to replenish the stock-out.
Understand Inventory and Outage

Sales, Overstock, Stock out by Location
Tim Jones – “THE SERVICE OPERATOR”

Roles
- Plan & manage service activities
- Remote control
- Reduce unnecessary visits
- Remote diagnostics & service

Tim’s Goal: Keep kiosks in a state of good repair

1. Cooler X records a sudden spike in temperature at 10:15 AM jeopardizing the inventory.
2. Tim receives an alert on his mobile device of the temperature anomaly.
3. Once notified, Tim services the kiosk and records his maintenance efforts and resumes normally scheduled maintenance plan.
Mobile Work Orders
Vending Process Optimization

Remote Asset Diagnostics
- Temperature
- Inventory level and status
- Electrical Draw

Maintenance Alerts
- Automatic Service Tickets
- Mobile Push Notifications
- Machine-driven Replenishment

Operational Analytics
- Consumer Usage
- Replenishment Time
- Attempted Theft
End to End Architecture

✓ Monitor
✓ Connect
✓ Collect
✓ Consolidate
✓ Automate
✓ Visualize
✓ Analyze
✓ Optimize
✓ Execute
✓ Plan
✓ Transform

SAP IoT Vending
Hardware partners
Intel, ILS, VE, Grassfish

SAP Backend
Machine Cloud (SAP)
SMP
Consumer Edition
HANA Cloud Integration
HANA Big Data Platform

Predictive Maintenance and Service
SMP Consumer Edition
HANA Cloud Platform

Device Data Collection
Configuration & Customization
User Defined Alerts
Analytics

Device Data Collection
Asset Alerts
Work Orders, etc.

GSM, LTE, Wifi, LAN
Status, Sales and consumer data streams

"Mobile" payments, loyalty and couponing App

NFC, RFID, QR Code

Consumers

Vending Machine

Work Manager
CRM Service Manager
Rounds Manager
Retail Execution
SAP Connected Trade Assets combines efficient operations and consumer engagement in vending

- Partnerships with leading vendors
- Streamlined, End to End Vending
- Connect to Consumers Directly
- Analyze Consumer Behavior

One Stop Shop
- Higher revenue with less outages and lower maintenance costs
- Increase loyalty and upsell opportunities
- Make strategic product decisions
Co-Innovation Approach
Co-innovating on the Internet of Things

Use case workshop

End-to-end concept playback

Prototype development

In-market pilot

6 weeks
Thank You!

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SAP Connected Retail Starter Pack

Turnkey Solution
- IoT Ready Assets
- Minimal Setup and Customer Development
- Cloud-hosted, lightweight Hardware

Consumer Focused
- 1:1 Consumer Marketing
- Integrated Mobile Wallet and Vending
- Designed to Drive Consumer Engagement

Optimizes Operations
- Real-time data capture and analytics
- Automated Maintenance
- Machine-driven inventory management

Competitive Advantages
- Real-time campaign rollouts
- Fast entry into new business models
- On-the-fly Process Adaptation