Digital Malls:
The Next Generation of Self-Service Shopping

Joanne Bethlahmy, Howard Lock, Matt Maddox, Sharon Finke

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Executive Summary

- Retail ecosystem faces challenges: grow returns, enhance customer experiences, optimize urban formats, and differentiate brands

- Three emerging, technology-enabled trends—innovative vending machines, micro-markets, and virtual stores—show promise, but pursued alone, are not enough to combat retail challenges

- Combined, these three components could create Digital Malls: engaging, self-service shopping destinations in densely populated venues, with lower labor, real estate, and construction costs

- Digital Malls will offer a broad range of venue-appropriate merchandise, services, and entertainment, and could be stationary or mobile installations

- Cisco forecast: $7 billion U.S. opportunity with quick payout periods

- A single technology infrastructure for Digital Malls will provide a holistic consumer experience and cost sharing

Source: Cisco IBSG, 2012
Background and Challenges
Retail Challenges: Urbanization, Growth, Customer Experience

Changing Demographics, Economics, and Technology

- Continuing urbanization
- Unemployment, economic uncertainty
- Growth of e-commerce and mobile showrooming
- Millennials’ digital shopping expectations

Challenges for Developers, Retailers, Vending Operators, and CPG Manufacturers

- Reverse slowing returns from U.S. mall, store, and vending assets
- Create enhanced customer experiences
- Reduce labor and construction costs
- Deepen brand differentiation
- Optimize small urban formats
- Justify investment in equipment innovation

Sources: U.S. Census Bureau; Reuters, 2012; comScore, 2012; Vending Times Census of the Industry, 2011
Beginning of an Opportunity: Three Trends in Self-Service Retailing

Three trends are reinvigorating unattended retailing, creating a new retail opportunity:

1. **Innovative Vending**
   a. Technology enabling a more convenient, engaging vending experience
   b. Consumers willing to buy higher-priced goods and services from machines and remote experts
   c. Vending becoming a point-of-purchase marketing opportunity as well as a sales channel

2. **Micro-markets** expanding sales in the workplace

3. Retailers piloting **virtual stores** without any inventory

Sources: Vending Times Census of the Industry, 2011; Automatic Merchandiser, 2011; Cisco IBSG interviews, 2012
First, a Few Definitions of Terms

- **Innovative vending**: networked vending machines offering an array of consumer experiences and/or back-end efficiencies

- **Micro-markets**: unattended small stores with open shelves of products, plus vending machines, coolers, and freezers. Today, offer food and beverages in workplaces

- **Virtual stores**: today, glass walls or e-paper containing pictures of products plus QR codes so that consumers can order via mobile for delivery

**Digital Malls**: vision of a new shopping mall combining innovative vending, next-generation micro-markets, and/or next-generation virtual stores for a highly engaging, lower-cost shopping experience

Source: Cisco IBSG, 2012
## Trend #1: Innovative Vending Creating More Engaging Consumer Experiences

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Improved User Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashless</td>
<td>Enables 33% of population without exact change</td>
</tr>
<tr>
<td>Touchscreen interactivity / video / gesture</td>
<td>Provides product information, entertainment, marketing</td>
</tr>
<tr>
<td>Networked location data</td>
<td>Creates site-specific assortment, preloaded trucks, and dynamic routing</td>
</tr>
<tr>
<td>Mobile and social</td>
<td>Connects people and machines for promotions, loyalty programs, advance / multiple purchases</td>
</tr>
<tr>
<td>Facial recognition</td>
<td>Recognizes consumer segments for insight, offering, and marketing customization</td>
</tr>
<tr>
<td>Remote expert</td>
<td>Supports high-information, high-touch goods and services categories</td>
</tr>
</tbody>
</table>

Moving beyond “dumb” analog devices, the $40B–$50B vending industry is now at technology and sales tipping point

Source: Cisco IBSG, 2012
## Consumers Buying Higher-Priced Goods from Machines, Remote Experts

<table>
<thead>
<tr>
<th>Wider Range</th>
<th>Higher Price Point</th>
<th>Better Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumers willing to buy a wider range of goods and services from machines or remote experts, including</td>
<td>Higher price points allow higher ROI on more expensive, innovative machines</td>
<td>Machines selling luxury or information-intensive goods require more sophisticated shopper experience</td>
</tr>
<tr>
<td>- Electronics</td>
<td>- Should be located in high-traffic, demographically appropriate locations</td>
<td>- Cashless payments</td>
</tr>
<tr>
<td>- Apparel &amp; Beauty</td>
<td></td>
<td>- Video and interactive media</td>
</tr>
<tr>
<td>- Dry Cleaning</td>
<td></td>
<td>- Remote experts</td>
</tr>
<tr>
<td>- Pharmaceuticals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Banking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: NAMA study, 2011; Cisco IBSG, 2012
Unattended or Remote Retail Spans Many Product and Service Categories

- Best Buy Express Electronics
- Kroger Grocery, GM
- 24-Hour Flowers Fresh Flowers
- U*tique Fashion
- Art-o-Mat Small Artworks
- Gold-to-Go Gold Bars
- PharmaTrust Pharmaceuticals
- Chase Banking

Source: Cisco IBSG, 2012
Vending Becoming Point-of-Purchase Marketing Opportunity

- Technology-enabled vending machines provide opportunities for CPG and retail marketers
  - Create **targeted advertising impressions**
  - Introduce consumers to **other brands**, conduct **trials of new products**
  - Control **brand messaging** at the point of purchase
  - Integrate **digital marketing campaigns** across web, social, mobile, vending
  - Enable **variable pricing** based on sales, promotions, even weather
  - Gather **consumer insight** into purchasers, purchase journey

- Marketing-oriented machines have special requirements due to their high cost and often lower revenues
  - Target **high-traffic, prestige locations**
  - Require marketing / innovation funding plus **marketing and sales ROI metrics**

Source: Cisco IBSG, 2012
CPG Marketing-Oriented Vending Examples: Sodas, Snacks, Beauty

Pepsi Be Social
- Beverage gifting
- Social, mobile, video

Kraft Temptations
- New product sampling
- Interactive, mobile, facial recognition

P&G Beauty Bar
- Cross-brand trial, mall distribution
- Video, remote experts

Coca-Cola Hug Machine
- Open happiness campaign
- Gesture technology

Marketing-oriented machines incorporate interactive video, games, mobile, social media, remote experts, and gesture technology

Source: Cisco IBSG interviews, 2012
Benefits Include Sales, Productivity, and Branding

Innovative Vending Benefits

- Increased market penetration
- Low labor sales
- Higher price points
- Bigger basket size
- Improved assortment
- Supply chain efficiency
- Consumer insight
- Point of purchase, controlled messaging
- Integrated digital campaigns
- Advertising effectiveness
- Variable pricing

Source: Cisco IBSG, 2012
Innovative Vending Is Expanding with More Affordable Pricing

- Prices declining with participation of traditional manufacturers and industry innovators
- Prices for cashless, networking, and video capabilities in traditional food/beverage range from $300 legacy retrofit to $5,000 new, plus connectivity, payment, and analytical services

Examples:

**Crane New Snack Machine**
- Graphic display with touchscreen
- Credit card, connected
- Analytic software
- ~$4,400 with shipping

**VendScreen Machine Upgrade**
- Small screen for legacy machines
- Video, mobile coupons, problem reports
- Camera tracking
- $300, plus 2.75% of sales

Source: Cisco IBSG interviews, 2012
Trend #2: Unattended Micro-Markets Driving Growth in Workplaces

- Micro-markets are **unattended, small convenience stores** in workplace locations
  - Open shelves of snacks plus coolers and freezers for cold drinks, fresh food, and frozen treats
  - Self-service kiosks enabled by cashless, product scanning, video technology, and camera security
  - Networked for logistics efficiency and consumer data analysis
- 1,000-1,500 installed today by vending operators, typically in workplaces with 250+ employees
- Cisco forecasts possible 70K workplace locations, 9.3% 5-year CAGR (vs. 3.2% for traditional vending)

Source: Cisco IBSG, 2012
## Micro-Markets Provide Significant Consumer, Retailer, Operator Benefits

### Micro-Market Benefits

<table>
<thead>
<tr>
<th>Employees &amp; Company</th>
<th>More choice, no labor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Wider, potentially healthier variety of products than vending, without cafeteria labor</td>
</tr>
<tr>
<td></td>
<td>• No need for exact change</td>
</tr>
<tr>
<td></td>
<td>• Nutritional information via video meets FDA requirements, HR preferences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operators, CPG, Retail</th>
<th>Higher sales &amp; profit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Increased consumer penetration: from ~10% to 20-30%</td>
</tr>
<tr>
<td></td>
<td>• More SKUs: from ~45 to 272 average</td>
</tr>
<tr>
<td></td>
<td>• Higher prices, ability to collect sales tax</td>
</tr>
<tr>
<td></td>
<td>• Reduced commissions</td>
</tr>
<tr>
<td></td>
<td>• Ability to collect data for consumer insight and marketing</td>
</tr>
</tbody>
</table>

Source: Cisco IBSG interviews, 2012; Canteen Vending Services
Trend #3: Completely Virtual Stores With No Inventory

- Pilots of virtual stores without inventory enabled by confluence of e-commerce operations, high-resolution and interactive screens or e-paper, mobile QR codes, and gesture technology
- Consumers click and purchase goods for later delivery
- Virtual stores can be stationary or mobile, permanent or pop-up

Tesco
Gatwick Airport

@PG Mobile with Walmart.com
New York, Chicago

Pão de Açúcar
São Paulo, Brazil

Source: Cisco IBSG, 2012
Pilots Meet Needs for Convenience, Endless Aisle, and Impulse Purchases

- Virtual store benefits: **convenience** (shopping while waiting), **endless aisle** (access to items not in stock), and **impulse delights** with no or minimal labor

- Typically seen in high-traffic areas, ideally where shoppers have time to browse, such as airports/transit, stadiums, amusement parks, and malls

**Sears/Kmart Toys**  
Airports

**Glamour Apothecary**  
NYC Street

**Adidas Virtual Footwear**  
Retail Flagship

Source: Cisco IBSG, 2012
However, These Trends Alone Are Not Enough To Combat Retail Challenges

- Innovative vending, micro-markets, and virtual stores standing alone are insufficient to tackle challenges facing retail ecosystem

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Why Trends Insufficient Alone</th>
</tr>
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<tbody>
<tr>
<td>Slowing Returns, Urbanization</td>
<td>- Individual innovative vending machines, virtual stores, and micro-markets fragment retail</td>
</tr>
<tr>
<td></td>
<td>- Customers still need retail destinations in order for digital innovations to create return traffic, sustainable excitement</td>
</tr>
<tr>
<td>Costs: SGA, Real Estate, Vending Innovation</td>
<td>- Stand-alone components do not build the manufacturing, technology, maintenance, or service fee scale necessary to lower costs</td>
</tr>
<tr>
<td>Enhanced Experiences, Branding Differentiation</td>
<td>- None of three trends provides both immediate purchase gratification and the assortment/convenience of endless aisle</td>
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<tr>
<td></td>
<td>- Today, none provides leading-edge technologies like augmented reality, remote expert, or 3D becoming more prevalent in retail</td>
</tr>
<tr>
<td></td>
<td>- Micro-markets today are unknown brands or workplace white-labeled</td>
</tr>
</tbody>
</table>

Source: Cisco IBSG, 2012
Cisco Vision: Digital Malls
Cisco Vision: Combine Trends into Sophisticated Self-Service Digital Malls

- **Digital Malls**: Highly interactive, graphically exciting, self-service shopping environments. Combine innovative vending, next-generation virtual stores, and/or next-generation micro-markets to create **digital retail destinations**, with dramatic improvements in labor, real estate, construction, and technology costs.

- **Where**: High-traffic venues—both secure and public, indoor and outdoor—such as large workplaces, residences, hotels/resorts, stadiums, amusement parks, shopping malls, airports, transit, frequent-flyer clubs, festivals, and events.

- **What**: Broad range of venue-appropriate retailers, consumer goods, remote-expert services, and entertainment; stationary or temporary installations.

- **Retail Ecosystem**: Mall developers, vending operators, retailers, consumer manufacturers, consumer services, entertainment companies, technology partners.

Source: Cisco IBSG, 2012
Resort Hotel Digital Mall with Virtual Stores, Innovative Vending, Micro-Market

Source: Cisco IBSG, 2012
Public Transit Digital Mall with Innovative Vending, Virtual Stores

Source: Cisco IBSG, 2012
Expanding the Micro-Market Concept

- **New locations:** Large apartment/condo buildings, small hotels

- **Products & services beyond food and beverage:** General merchandise, travel necessities, consumer electronics plus services such as remote banking, dry cleaning, pharmacy, e-commerce lockers

- **Branding:** Small-format or licensing opportunity for major retailers or vend operators, depending on location demographics

- **Additional consumer technology:** For higher-traffic and secure locations, could include:
  - Additional video screens or video walls displaying advertising and lifestyle images, enhanced by augmented reality
  - Screen/kiosk connections to e-commerce
  - Remote experts or avatars for banking, health, concierge, travel, beauty
  - Personalized offerings based on consumer identification

Source: Cisco IBSG interviews, 2012
Next-Gen Virtual Stores: Multiple Retailers, Latest Consumer Technology

Virtual Store to Digital Destination

- **Today’s virtual stores:**
  - Primarily single retail or CPG brand stores
  - Simply enabled with high-definition, interactive touchscreens and QR codes

- **Tomorrow’s next-generation virtual stores:**
  - Multiple retailers
  - Marketing or entertainment video
  - Mobile / social promotions
  - Interactive information, games, or entertainment
  - 3D, gesture technology or augmented reality for immersive experiences
  - Remote experts to handle questions, services

Source: Cisco IBSG, 2012
Examples: Apparel and Accessories
Shopping in Next-Gen Virtual Stores

- Augmented-reality and gesture-recognition technology enable customer to try on clothes, sunglasses, jewelry, and other accessories—virtually

Source: Facecake.com; RayBan; Cisco IBSG, 2012
Examples: Immersive Entertainment in Next-Gen Virtual Stores

- Augmented-reality and 3D technology can create interactive images for immersive entertainment experiences or special promotions

Source: designcognition.com; National Geographic YouTube; poparbooks.com; Cisco IBSG, 2012
Digital Malls combine high consumer experience, including assortment and engagement, with the no- or low-labor models of automated retailing.

Source: Cisco IBSG, 2012
### Digital Mall Benefits

**Consumer**
- Convenience, self-discovery of vending and e-commerce in physical space
- Larger product and service assortment than vending
- Fun and entertainment, expanded access to experts

**Retailer & Manufacturer Marketing**
- Controlled, personalized brand messaging
- Outlet for sampling and trial of new products or brands
- Expanded channel distribution, opportunity to capture new consumers
- Sales and consumer data for business analytics
- Enhanced financial justification for equipment innovation

**Mall, Retail & Vending Operations**
- Expanded footprint into urban / densely populated areas at lower cost
- Increased sales from additional locations, better assortment, higher price points, traffic to physical malls
- Modified assortment at lower cost, including “temporary tenants”
- Improved margins from higher price points, lower costs

Source: Cisco IBSG, 2012
Combining Three Retail Trends Helps Solve Retail Ecosystem Challenges

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Why Digital Malls Can Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slowing Returns, Urbanization</td>
<td>- Creates retail destination to drive sales, return trips, and excitement</td>
</tr>
<tr>
<td>Costs: SGA, Real Estate, Vending</td>
<td>- Lowers labor through self-service or shared-service remote experts</td>
</tr>
<tr>
<td>Innovation</td>
<td>- Substitutes screen and kiosk costs for real estate/construction</td>
</tr>
<tr>
<td></td>
<td>- Combines similar networked technology, security, maintenance, checkout, connectivity/payment fees to lower cost base of each component</td>
</tr>
<tr>
<td></td>
<td>- Scale encourages participation of traditional operators and vending manufacturers, lowering costs vs. specialty providers</td>
</tr>
<tr>
<td>Enhanced Experiences, Branding</td>
<td>- Provides leading-edge technologies like augmented reality, remote expert, or 3D for immersive, differentiated experiences</td>
</tr>
<tr>
<td>Differentiation</td>
<td>- Presents venue branding opportunities for mall developers, retailers, CPG, large vending operators, site owners</td>
</tr>
</tbody>
</table>

Source: Cisco IBSG, 2012
Digital Malls: Many Solution Combinations Depending on Location

Innovative vending, next-gen micro-markets, and next-gen virtual stores could be combined in many creative ways, depending on location, traffic, prestige marketing opportunities, demographics, and security.

Source: Cisco IBSG, 2012
For Simplicity, We Have Grouped Digital Mall Combinations into Three Scenarios

**Secure:** secure, non-prestige locations
- Large workplaces, residential complexes, smaller hotels
- Need for immediate consumption, basic shopping plus services
- Opportunity for expanded, next-gen micro-markets

**Prestige:** high-traffic, high-profile, non-secure locations
- Large transit/airports, shopping malls, universities, stadiums, amusement parks, festivals/events
- Need for immediate consumption, but also impulse shopping, entertainment, and services
- Opportunity for innovative vending and virtual stores

**Luxury:** secure and prestige locations
- Large luxury hotels and resorts, frequent-flyer clubs
- Needs for immediate consumption, shopping, and entertainment
- Opportunity for expanded micro-markets, innovative vending, and virtual stores

Source: Cisco IBSG, 2012
Secure: Large Workplaces, Large Residences, or Small Hotels

- **Scenario:** Secure, non-prestige locations
- **Where:** Large workplaces or apartments/condos, smaller hotels
- **Who:** Employees, residents, and guests who don’t want to leave premises for meals, errands, and service needs
- **Solution:** Next-gen micro-markets with expanded convenience items and services to replace current vending machines, sundry shop, or honor bar
- **Possible leaders/partners:** Vending operators, retailers

Source: Cisco IBSG, 2012
Secure: Branded Workplace Example

**PRODUCTS**
- Fresh-food court
- Drug store and travel necessities
- Electronic accessories, magazines, and media

**SERVICES**
- General merchandise vending
- Tide Dry Cleaning
- Shared e-commerce lockers
- Remote banking
- Prescription vending
- Tickets

**COMPONENTS**
- Next-generation micro-market
- Branded skin design

Source: Cisco IBSG, 2012
Prestige: Large Transit, Universities, Malls, Stadiums, Amusement Parks

- **Scenario:** High-traffic, prestige, non-secure locations
- **Where:** Large airports, transit, universities, stadiums, shopping malls, amusement parks, festivals/events
- **Who:** Passengers, students and guests with time and desire for impulse/extended aisle shopping and entertainment plus immediate convenience items
- **Solution:** Innovative vending banks and next-gen virtual stores offering appropriate selection of food, apparel, local goods, entertainment, tickets. Mobile digital malls for festivals and events
- **Possible leaders/partners:** Vending operators, park and mall developers

Source: Cisco IBSG, 2012
Prestige: Branded University Example

PRODUCTS
- Food & beverage
- Drugstore, grocery, beauty, and dorm necessities
- Electronic accessories, games
- Apparel

SERVICES
- Virtual shopping wall with delivery
- Interactive entertainment, ticket ordering
- Video connections to other schools

COMPONENTS
- Innovative vending
- Next-gen virtual stores
- Branded skin design

Source: Cisco IBSG, 2012
Luxury: Large Hotels, Resorts, and Frequent-Flyer Clubs

- **Scenario:** Secure, prestige locations
- **Where:** Large hotels and resorts, frequent-flyer clubs in top markets
- **Who:** Frequent travelers and families seeking upscale vacations
- **Solution:** Next-gen micro-markets, innovative vending, and next-gen virtual stores offering sundries, higher-end vacation necessities, gifts, and souvenirs to be shipped home
- **Possible leaders/partners:** Major hotel chains with integrated resort and convention experience, major airlines

Source: Cisco IBSG, 2012
Luxury: Branded Resort Example

**PRODUCTS**
- Fresh-food court
- Immediate vacation necessities
- Kid toys, treats
- Additional souvenirs and luxury goods to be shipped home

**SERVICES**
- Remote concierge
- Interactive entertainment

**COMPONENTS**
- Next-gen micro market
- Innovative vending
- Next-generation virtual stores
- Branded skin design

Source: Cisco IBSG, 2012
The Road Forward
U.S. Market Could Total $7 Billion in Annual Revenue

- Thousands of possible locations across three scenarios
- Market size estimated at $7 billion: 17% of vending, 0.2% of retail
- Reasonable payout periods from 12-34 months, most <2 years

**Secure**
- Large workplaces and residential complexes, smaller hotels
- 94K locations, $5B annually
- $54K per location
- Payout only 12-15 months

**Prestige**
- Large airports, transit, shopping malls, universities, stadiums, amusement parks, festivals/events
- 3K locations, $1.9B
- $602K per location
- Payout 16-34 months

**Luxury**
- Large luxury hotels and resorts, top frequent-flyer clubs
- 260 locations, $130M
- $504K per location
- Payout 15-28 months

Source: Cisco IBSG, 2012
Vision Could Be Enabled by a “Digital Mall in a Box” Solution

High-Level Technology Required To Support Digital Mall

**Immersive Experiences**
- Interactive surfaces, engaging content, capabilities
- CRM, personalization
- Video conferencing
- Mobile, PC apps

**Secure Connectivity & Payments**
- Indoor and outdoor Internet, WAN, Wi-Fi
- Advanced POS
- Physical and online security

**Business Intelligence**
- People counting, shrinkage, campaign effectiveness, shopper insights
- Vending, virtual stores, micro-markets

**Back-End Systems & Support**
- Business systems and catalog integration
- Dashboards
- Remote technical and call center support
- Content and advertising management

Source: Cisco IBSG, 2012
Digital Mall Effectiveness and Cost Savings Require Technology Architecture

Digital Malls Capability Map

New Location
- Innovative Vending Endpoints
  - Camera Recognition
  - Sensors
  - Weight
  - Motion
  - Tags
  - Advanced POS
    - Barcode
    - Magnetic Card
    - Smart POS
  - Shelves
  - Stations
  - Doors
- Immersive Videoconferencing Endpoints
  - Ambassador
  - Expert
  - Interactive Surfaces
    - Flat Panel
    - Touch Panel
    - Projection
  - Contactless Gesture
  - Video Call
  - Avatar
  - Augmented Reality
  - HD Video
  - Interactive Apps
  - Ads
  - Other Rich Media
  - Personalization
- In-Store Order Tablet
  - Card
  - NFC
- Customer Wi-Fi
  - Captive Portal
  - ID by Device
  - Targeted Massage Push
- Location Services
  - Outdoor
  - Indoor
- Machine Wi-Fi
- Internet & WAN Connectivity
  - Advanced Fault Tolerance
  - QoS
  - Femtocell
  - Cellular Failover & Load Balancing
- Enterprise Partners
  - Secure Connectivity
  - CRM & Experience
  - Partner Specific Content Management
  - Apps
  - Advertising
  - Personalized
  - Hyperlocal
  - General

Service Provider
- BI & Reporting
- Video Archival & Analytics
- Advertising Management
- Immersive Videoconferencing Service
- Operations Dashboard & Billing
  - Exception Reporting
  - Signage Management
  - Video Surveillance Viewing & Control
- Support Services
  - Remote technical / machine support

Public Cloud / 3rd Party Services
- Signage Content
- Business Systems SaaS
  - Payroll
  - API/IL
  - Others
- Social Networks
- Payment Networks
- Web Services

Central
- Contact Center
  - Remote Expert Routing
  - Security Monitoring & Response
  - CRM
  - Customer Support
- Mobile Apps
  - Mobile / Social Marketing
  - Development Services
  - Templates
- Unified Content Management & Interactive Application Services
  - Marketing & Product Catalog
  - Inventory & Supply Chain

Source: Cisco IBSG, 2012
What It Will Take To Succeed: Visionary Orchestrator and Successful Pilots

- **Consolidator/orchestrator** who will:
  - Paint a vision of what is possible
  - Build business model and plan per venue
  - Sell the concept to prospective venues
  - Bring relevant brands and design/technology partners to each venue
  - Overcome technology, culture hurdles

- **Viable pilots** to prove the business model and business case

- **Scalable business model and solution** for one or more venues
  - Business plan and replicable technology
  - ROIs appropriate for retailers, vending operators, and marketing-oriented CPG

Source: Cisco IBSG, 2012
How Cisco Can Help

Business Strategy and Co-Innovation

- Develop Digital Mall vision and strategy
- Conduct “big idea” brainstorming
- Identify Digital Mall opportunities in a particular sector or geography
- Create pilot business plan
  - Locations
  - Product and service assortments
  - Consumer experience and success factors
  - Market sizing, economic models
  - Business architecture

Architecture and Technology

- Create technology architecture
- Identify right components and partners for pilot “Digital Mall in a Box” solution
- Lead proof-of-concept/pilots

Source: Cisco IBSG, 2012
First Steps To Take Now

- Create the vision for your industry or venues of expertise
- Test concept with a few potential business partners, retailers, or venues
- Construct a business model for a solution in each venue
  - Target consumers, positioning, and branding
  - Appropriate products and services
  - Revenue models and forecasts, profit & loss
  - Operational plans
  - Roles and responsibilities
- Define and cost-out configurable solution

Source: Cisco IBSG, 2012
Appendix
### Digital Malls Addressable Market: $7B or 17% of Vending Industry

<table>
<thead>
<tr>
<th>Scenario (location category)</th>
<th>Solution</th>
<th># of locations</th>
<th>Annual revenue opportunity (US$ M)</th>
<th>% of vending industry</th>
<th>% of retail industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1: Secure</td>
<td>Micro-Market Plus solution</td>
<td>93,662</td>
<td>5,055</td>
<td>12.0%</td>
<td>0.132%</td>
</tr>
<tr>
<td>Scenario 2: Prestige</td>
<td>Innovative Vending + Virtual Shelves</td>
<td>3,128</td>
<td>1,882</td>
<td>4.5%</td>
<td>0.049%</td>
</tr>
<tr>
<td>Scenario 3: Luxury</td>
<td>Micro-Market Plus + Innovative Vending + Virtual Shelves</td>
<td>260</td>
<td>131</td>
<td>0.3%</td>
<td>0.003%</td>
</tr>
<tr>
<td>Total Digital Malls</td>
<td></td>
<td>97,050</td>
<td>US$7,068M</td>
<td>16.7%</td>
<td>0.184%</td>
</tr>
</tbody>
</table>

Source: IBSG, 2012
## Scenario 1: Secure Locations Represent $5B, Two-Thirds Market

<table>
<thead>
<tr>
<th></th>
<th>Minimum threshold for eligibility</th>
<th># of establish.</th>
<th># of locations</th>
<th>Digital Mall locations per establish. (Avg.)</th>
<th># of people visiting each location (Daily avg.)</th>
<th>Assumption: Customer adoption rate</th>
<th>Annual vending revenues (US$M)</th>
<th>Threshold level*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workplaces</strong></td>
<td>&gt;250 employees per establish.</td>
<td>44,984</td>
<td>71,037</td>
<td>1.6</td>
<td>375</td>
<td>25%</td>
<td>3,831</td>
<td>256 employees per establish.</td>
</tr>
<tr>
<td><strong>Apartments</strong></td>
<td>&gt;250 residents per apart. building</td>
<td>19,529</td>
<td>19,529</td>
<td>1.0</td>
<td>250</td>
<td>25%</td>
<td>1,022</td>
<td>176 residents per apart. building (68 apart. units)</td>
</tr>
<tr>
<td><strong>Mid-sized hotels</strong></td>
<td>250-999 rooms per hotel</td>
<td>2,968</td>
<td>2,968</td>
<td>1.0</td>
<td>310</td>
<td>25%</td>
<td>193</td>
<td>191 rooms per hotel</td>
</tr>
<tr>
<td><strong>Condo hotels</strong></td>
<td>100 condo hotels in the U.S.</td>
<td>100</td>
<td>100</td>
<td>1.0</td>
<td>344</td>
<td>25%</td>
<td>7</td>
<td>118 units per condo hotel</td>
</tr>
<tr>
<td><strong>Luxury fitness centers</strong></td>
<td>Area &gt;30,000 sq ft for high-end fitness centre</td>
<td>27</td>
<td>27</td>
<td>1.0</td>
<td>315</td>
<td>25%</td>
<td>2</td>
<td>700 members per fitness club</td>
</tr>
<tr>
<td><strong>Total - Micro-Market Plus solution</strong></td>
<td></td>
<td>67,608</td>
<td>93,662</td>
<td></td>
<td></td>
<td>US$ 5,055M $54K/venue</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: IBSG, 2012

*Minimum size of location to recover costs in 24 months.*
## Scenario 2: Prestige $2B, from Shopping Malls, Stadiums, Universities & Airports

<table>
<thead>
<tr>
<th>Location</th>
<th>Minimum threshold for eligibility</th>
<th># of establish.</th>
<th># of locations</th>
<th>Digital Mall locations per establish. (Avg.)</th>
<th># of people visiting each location (Daily avg.)</th>
<th>Assumption: Customer adoption rate</th>
<th>Annual vending revenues (US$M)</th>
<th>Threshold level*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airports</strong></td>
<td>&gt;8m annual pax (top 46 U.S. airports)</td>
<td>46</td>
<td>316</td>
<td>6.9</td>
<td>10,520</td>
<td>4.5%</td>
<td>186</td>
<td>3.5m annual pax</td>
</tr>
<tr>
<td><strong>Public transit</strong></td>
<td>&gt;9m annual ridership (top 5 U.S. subway systems)</td>
<td>41</td>
<td>56</td>
<td>1.4</td>
<td>34,219</td>
<td>1.1%</td>
<td>27</td>
<td>14.1m annual ridership</td>
</tr>
<tr>
<td><strong>Universities</strong></td>
<td>&gt;12,000 enrollments</td>
<td>320</td>
<td>640</td>
<td>2.0</td>
<td>7,873</td>
<td>7.5%</td>
<td>323</td>
<td>11,300 enrollments</td>
</tr>
<tr>
<td><strong>Shopping malls</strong></td>
<td>&gt;850,000 sq ft GLA</td>
<td>812</td>
<td>1,624</td>
<td>2.0</td>
<td>11,941</td>
<td>4.5%</td>
<td>1,084</td>
<td>3.5m annual visitors</td>
</tr>
<tr>
<td><strong>Stadiums</strong></td>
<td>&gt;25,000 seating capacity</td>
<td>219</td>
<td>454</td>
<td>2.1</td>
<td>21,576</td>
<td>7.5%</td>
<td>241</td>
<td>29,430 seating capacity</td>
</tr>
<tr>
<td><strong>Amusement parks</strong></td>
<td>&gt;2.5m annual visitors</td>
<td>19</td>
<td>32</td>
<td>1.7</td>
<td>10,603</td>
<td>4.5%</td>
<td>19</td>
<td>3.5m annual visitors</td>
</tr>
<tr>
<td><strong>Fairs &amp; festivals</strong></td>
<td>&gt;0.5m visitors</td>
<td>32</td>
<td>6</td>
<td>2**</td>
<td>29,827</td>
<td>2.3%</td>
<td>3</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>1,489</td>
<td>3,128</td>
<td></td>
<td></td>
<td><strong>Minimum size of location to recover costs in 24 months.</strong></td>
<td><strong>US$1,882M $602K/venue</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** IBSG, 2012

Machines shared across fairs & events. We have assumed 2 vending locations in each fair or event.
<table>
<thead>
<tr>
<th>Scenario 3: Luxury, Fueled by Captive Customer Base, High Adoption Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum threshold for eligibility</strong></td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Large hotels</td>
</tr>
<tr>
<td>Frequent fliers clubs</td>
</tr>
<tr>
<td>Total - Micro-Market Plus + Innovative Vending + Virtual Shelves</td>
</tr>
</tbody>
</table>

| **Source:** IBSG, 2012 |

*Minimum size of location to recover costs in 24 months.*
## Component and Assortment Assumptions by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Open shelf</th>
<th>GM vend</th>
<th>Dry clean</th>
<th>Food</th>
<th>Beverage</th>
<th>GM vend</th>
<th>Cons. Electro.</th>
<th>Fashion</th>
<th>Service</th>
<th>Virtual shelves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplaces</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartments</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid-sized hotels</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condo hotels</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luxury fitness centers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airports</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Public transit</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Shopping malls</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stadiums</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Amusement parks</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fairs &amp; festivals</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Large hotels</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent fliers clubs</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: IBSG, 2012

Micro-Market Plus | Innovative Vending | Virtual storefront
### Assumptions for Average Transaction Values and EBITDA

<table>
<thead>
<tr>
<th></th>
<th>Open shelf</th>
<th>GM vend</th>
<th>Dry clean</th>
<th>Food</th>
<th>Beverage</th>
<th>GM vend</th>
<th>Cons. Elect.</th>
<th>Fashion</th>
<th>Service</th>
<th>Virtual shelves</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average transaction value</strong></td>
<td>$2.0</td>
<td>$3.5</td>
<td>$5.0</td>
<td>$1.3</td>
<td>$1.3</td>
<td>$3.5</td>
<td>$30.0</td>
<td>$30.0</td>
<td>$1.0</td>
<td>$30.0</td>
</tr>
<tr>
<td><strong>EBITDA margin</strong></td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Present value of annual recurring costs for 5 years calculated to estimate Cisco TAM. Discount rate of 12% is assumed.*
## Solution Cost Assumptions

<table>
<thead>
<tr>
<th>Scenario</th>
<th>One-time Cost</th>
<th>Annual Recurring Cost</th>
<th>Solution OPEX*</th>
<th>Leasing costs on vending machines**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solution CAPEX</strong>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 1: Secure</td>
<td>US$12,490</td>
<td>-</td>
<td>US$1,718</td>
<td>-</td>
</tr>
<tr>
<td>Scenario 2: Prestige</td>
<td>US$56,220</td>
<td>US$17,600</td>
<td>US$10,583</td>
<td>US$13,316</td>
</tr>
</tbody>
</table>

*Fixed cost of deploying Digital Malls is shared between number of vending locations owned by each operator (400 and 30 locations per operator assumed for Scenario 2 and 3, respectively).

**Consumer electronics and fashion vending machines are leased at a 12% discount rate (upfront cost of US$24,000 each)

Source: IBSG, 2012
Digital Mall Investments Payout in Most Venues in Less than 2 Years

- Secure locations (Scenario 1) are well-suited to Digital Malls due to their captive customer base, high profitability, and relative low capex commitment. Payback within 12 months.

- Prestige (Scenario 2) and Luxury (Scenario 3) locations have payback period in the 15-28 months range due to high capex commitment and need to deploy multiple vending locations in non-secure location.

- Customer traffic potential and days of operation holds the key for decision to deploy Digital Malls.

Source: IBSG, 2012

*Payback period is less than 12 months for location categories without a bar.