

## Digital Malls: The Next Generation of Self-Service Shopping

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### Introduction

All the players in the U.S. retail ecosystem today—mall developers, retailers, vending operators, and consumer product manufacturers—are facing key demographic, economic, and technological changes: consumers are moving to urban areas at 12 percent annually<sup>1</sup>; high unemployment continues to depress consumer spending; 8 percent of retail sales has moved to e-commerce channels;<sup>2</sup> mobile phones have become the new retail showrooms; and the Millennial generation expects an engaging, personalized digital shopping experience.

This “new normal” world of retailing is challenging retail players to reverse vacancy rates and sales declines, create enhanced customer experiences, reduce labor and construction costs, deepen brand differentiation, optimize small urban formats, and justify investment in innovation.

In the midst of these challenges, three emerging, technology-enabled, self-service retail trends offer the glimmer of a new opportunity. Innovative vending machines, micro-markets, and virtual stores are developing on separate tracks today, but combined, they could create a completely new retail business model—interactive, low-labor, destination “Digital Malls” in densely populated venues such as airports, universities, stadiums, resorts, large workplaces, or residences.

Based on research conducted by the Cisco® Internet Business Solutions Group (IBSG), this paper describes a \$7 billion vision for developers, retailers, vending operators, and consumer product manufacturers to extend the excitement and revenue of shopping malls to wherever consumers have the time or inclination to shop.

### Beginning of an Opportunity: Three Trends in Unattended Retailing

Three trends in unattended retailing have the potential to inject innovation and new growth into a struggling retail market. Separately, they create some interesting growth potential for vending operators and retailers. Together, they could be the beginning of a much larger retail opportunity.

#### Trend #1: Innovative Vending

The \$40 billion to \$50 billion vending industry has faced slowing sales since 2007, hit hard by the impact of the recession on workplace traffic and consumer spending. Traditionally, vending machines have been “dumb” analog devices: put in a dollar, get a soda. However, vending is now at a technology and sales tipping point as machines become smart, networked devices. Innovative vending is changing the consumer experience in three important ways:

1. **Technology is enabling more convenient, engaging interactions.** Suddenly, all the consumer retail technologies that are commonplace in-store or online are possible in vending, including:

- Cashless payment
  - Networked location data
  - Video and touchscreen communication
  - Mobile and facial recognition
  - Remote experts
2. **Consumers are now buying higher-priced goods from vending.** Consumers are showing a willingness to buy a wide range of goods and services from vending machines or remotely attended retail, including general merchandise, electronics, fashion, beauty, flowers, gifts, prescriptions, investments, even gold bars and kitchens. Millennial generation shoppers, in particular, are often more comfortable buying from machines than from humans, who may be perceived as slower and less accurate.<sup>3</sup>
  3. **Vending is becoming a point-of-purchase marketing opportunity.** Networked machines are providing opportunities for marketers to connect with consumers at the point of purchase and to control brand messaging in a way not possible at a typical retail shelf. LCD screens and glass doors enabled by video, mobile, social media, and augmented reality can offer product information, advertising, promotions, games, and samples to bring brands and new products to life.

**Figure 1.** With New Innovations in Vending Technology, Consumers Can (from Left) Buy a Drink and Give a Drink to a Friend; Purchase Higher-Priced and Non-Traditional Items such as Artwork; and Try Free Samples of New Products.



Source: Cisco IBSG, 2012

These innovative vending trends offer sales and branding benefits, while also promising better operator efficiencies. Benefits include:

- Increased vending market penetration
- Higher price points
- Multiple purchases/bigger basket size
- Improved assortment
- Point-of-purchase marketing

- Targeted advertising impressions
- Consumer insight
- Integrated digital campaigns
- Variable pricing
- Low-labor sales
- Supply chain efficiency

Innovative, networked vending machines are also coming down in price, which will speed market adoption. The first innovative machines were created by specialty manufacturers and could be 4 to 10 times the cost of a standard soda or snack machine. However, traditional vending machine manufacturers as well as industry innovators are now participating in this new market, and consequently, prices are declining.

Prices for adding cashless payments, video, and networked data to food and beverage machines now range from only \$300 for retrofits to \$5,000 for new machines, plus fees for connectivity, payments, and analytic services. And more forward-looking consumer companies are starting to evaluate innovative vending investments based on marketing metrics as well as standard sales ROI.

### **Trend #2: Micro-Markets**

The second trend reinvigorating self-service retailing is micro-markets, which are driving growth in large workplaces. Micro-markets are essentially unattended, networked convenience stores with open shelves for snacks, coolers for drinks and fresh foods, and freezers. Consumers select, scan, and pay for their own purchases at video-enabled kiosks with cash, payment cards, or mobile devices. Micro-market shrinkage is managed by security cameras and placement in venues with a known or controlled population.

In today's first incarnation, micro-markets are being installed by vending operators in workplaces with 250 or more employees, replacing vending machine banks. Micro-markets are proving very popular with company human resources departments because they provide a wider, healthier variety of products than vending machines, without the cost of cafeteria labor.

Cisco IBSG estimates a possible addressable U.S. workplace market of 70,000 locations, and industry experts forecast that today's 1,000 to 1,500 micro-markets will experience a 9.3 percent compound annual growth rate (CAGR) over the next five years.<sup>4</sup> Micro-markets provide higher sales and profit than vending machines from broader employee use, more SKUs, higher price points, and better data-driven assortment and logistics planning.

### **Trend #3: Virtual Stores**

Virtual stores are the final emerging retail trend supporting the development of Digital Malls. Following Tesco's innovation in the Seoul subway in 2010, there are numerous virtual store pilots around the world today where consumers click on product pictures using touchscreen or mobile technology and place orders for later home delivery. The confluence of e-commerce operations, high-resolution and interactive surfaces, mobile QR codes, and even gesture technology has created shopper convenience, stores without inventory or sales labor costs, and tremendous branding buzz.

Recent virtual store pilots include Peapod, Chicago, and Peapod by Giant, Philadelphia; Procter & Gamble, Prague, and with Walmart.com in Chicago and New York; Pão de Açúcar, São Paulo; Sears/Kmart, airport lounges; *Glamour* magazine's Apothecary Wall, New York; and a PayPal store in Singapore.

## These Trends Alone Not Enough To Combat Retail Challenges

As exciting as innovative vending, micro-markets, and virtual stores are, independently they are not enough to tackle the challenges facing the retail ecosystem.

First, consumers still need retail destinations with an array of merchandise, food, and entertainment experiences to inspire repeat visits. Individual, innovative vending machines, micro-markets, and virtual stores will not create the power or mass necessary to stimulate return visits and sustainable shopping excitement.

Second, stand-alone or one-off innovative vending machines or virtual stores, or a few micro-markets, will not build the scale necessary to lower costs and justify investment in innovation. The promise of reduced labor, construction, and real estate costs will not materialize unless the industry can create dozens of destinations that generate high traffic as well as share technology, security, manufacturing, maintenance, and service fees.

Third, none of these three components standing alone provides a complete consumer experience and branding opportunity. None alone offers both immediate gratification (innovative vending, micro-markets) and the extended assortment and convenience of e-commerce (virtual stores). Few provide leading-edge technologies, such as augmented reality, 3D, or remote experts, which are becoming more prevalent online and in-store. And finally, micro-markets today are either provided by unknown foodservice brands or are white-labeled by their workplace owners, so there is no opportunity to generate retail or CPG brand loyalty and excitement.

## Cisco IBSG Vision:

### Combine Trends To Create Sophisticated, Self-Service Digital Malls

Cisco IBSG believes that these three trends—innovative vending machines, next-generation micro-markets, and next-generation virtual stores—could be combined to create Digital Malls: highly engaging, interactive, self-service shopping environments placed in densely populated venues where consumers have the time, need, and enthusiasm to shop.

Digital Malls would offer shoppers immediate-gratification physical goods (through innovative vending and next-generation micro-markets), along with remote-expert services and a broader assortment of items for convenient home delivery (via next-generation virtual stores and innovative vending) in a fun, highly graphic, branded environment. For mall developers, vending operators, retailers, and consumer companies, Digital Malls would provide access to shoppers in additional distribution channels and urban environments, with no or low labor costs. Digital Malls could be indoor or outdoor, stationary or mobile—an always available shopping area or an exciting temporary installation at a major event.

## Next-Generation Micro-Markets

For one component of Digital Malls, Cisco envisions a next generation of micro-markets that expands beyond workplace breakrooms to include additional secure venues; broader assortments; greater branding; and new consumer technology experiences. Next-generation micro-markets could provide high-quality, convenient products and services to secure venues such as large apartments or condominium buildings and small hotels. Employees, residents, and guests could buy not only food and beverages, but also other immediate-need items such as general merchandise, small electronics, and travel necessities. They could access e-commerce delivery lockers as well as services such as banking, dry cleaning, pharmacy, or travel assistance provided by innovative vending and remote experts.

Next-generation micro-markets also offer major mass-merchandisers and grocery retailers the opportunity for small-store formats in new rural, suburban, or urban locations. Retailers could expand without large-store investments by offering their prepared foods, groceries, and general merchandise in workplaces, large residences, and hotels, either on their own or in partnership with vending operators. And, additional video screens or walls could offer retailers, apartment/condo owners, or hoteliers opportunities for brand imagery and advertising.

**Figure 2.** Next-Generation Micro-Markets Go Beyond Open-Shelf Food and Beverage To Offer Immediate-Need General Merchandise and Remote Services Such as Dry Cleaning, E-Commerce Delivery Lockers, and Banking, as Well as Innovative Vending.



Source: Cisco IBSG, 2012

## Next-Generation Virtual Stores

As another component of Digital Malls, the next generation of virtual stores would go beyond the one-retailer, QR code experience of today. Digital Malls can become digital destinations by offering not just a Tesco or a Procter & Gamble, but an array of mass-merchandise, specialty, and local retailers—appropriate for the location—that could deliver either to the venue, or to the shopper's home. For example, a luxury Hawaiian resort could include virtual stores from Neiman Marcus, Tommy Bahama, Michael Kors, and a local island jeweler or art gallery. A Digital Mall at a NASCAR raceway, where enthusiasts camp for several days, could offer a mass-merchandise for everyday needs (via innovative vending and/or a virtual store) as well as a virtual Cabela's, Nike, and NASCAR accessories store.



Next-generation Digital Malls would offer enhanced consumer technologies already found in retail stores or online to create an immersive shopping experience. These new technologies could include:

- Touchscreen or gesture technology
- Interactive information, games, entertainment, and video
- Mobile and social promotions
- 3D or augmented reality for immersive experiences
- Remote experts to handle questions and services

**Figure 3.** Next-Generation Virtual Stores Will Enable Shoppers To Virtually Try On and Select a Wide Variety of Goods for Later Home Delivery, and Could Even Provide Immersive Augmented-Reality Games and Entertainment.



Source: Cisco IBSG, 2012

### Combine Components Based on Location's Traffic, Prestige, and Security

The three components of a Digital Mall could be combined in numerous creative ways, depending on the location. A venue's traffic, marketing prestige, and security would determine the appropriate components.

A high-traffic and prestige location would warrant a larger investment in vending innovation and virtual store technology, while a more secure location could include a micro-market's open shelves. All variations could include graphic design wrapping, branding, and merchandise that matched the venue atmosphere or location.

Figure 4. Innovative Vending, Next-Generation Micro-Markets, and Virtual Stores Could Be Combined in Numerous Creative Ways, Depending on Location, Traffic, Prestige Marketing Opportunities, Demographics, and Security.



Source: Cisco IBSG, 2012

### Three Scenarios

For simplicity, we have created three sample location scenarios to demonstrate the range of Digital Mall possibilities.

1. **Secure:** Controlled, non-prestige locations such as large workplaces, residential complexes, and smaller hotels. In these venues, there is a need for immediate consumption and convenience shopping, plus basic services. Target consumers are employees, residents, and guests who don't want to leave the premises for light meals, errands, and service needs.

Current vending machines, sundry shops, or honor bars could be replaced by the next generation of micro-markets, plus innovative vending with food and beverage, health and beauty, travel necessities, magazines, dry cleaning, and electronic accessories, as well as remote-expert services such as banking or hotel concierges. Spaces could be branded by major retailers or hoteliers (for example, "Walmart Workplace"), providing new distribution and small-format opportunities.

2. **Prestige:** High-traffic, non-secure locations such as large transit, universities, stadiums, amusement parks, shopping malls, and festivals/events. These venues offer a large number of passengers, guests, and students with the time and desire for impulse shopping and entertainment, plus the need for immediate convenience items.

Current vending machines and shops could be supplemented with the addition of innovative vending banks and next-generation virtual stores, offering a site-appropriate selection of food and beverage, apparel, electronics, games, and tickets. Spaces could be branded (such as "Pepsi Place") or white-labeled ("Seattle Mariner Mall").



3. **Luxury:** Secure and prestige locations such as large luxury hotels/resorts and frequent-flyer clubs. These venues offer the best of both worlds—large, high-spending, prestige traffic in a secure shopping environment. Guests have a need for immediate convenience items, light meals, and services, as well as gifts and souvenirs to be shipped home.

Current sundry shops, honor bars, and boutiques could be supplemented or replaced by a designated Digital Mall area with virtual stores, innovative vending banks, and a next-generation micro-market food court. Given the exclusive nature of these surroundings, Digital Malls in luxury hotels, resorts, and frequent-flyer clubs will probably be white-labeled, branded by the resident hotel chain or airline.

**Figure 5.** A Secure, Prestige Location, such as This Hawaiian Resort Hotel, Is an Ideal Place To Combine All the Elements of Digital Malls—Innovative Vending, Next-Generation Micro-Markets, and Next-Generation Virtual Stores.



Source: Cisco IBSG, 2012

## Many Consumer, Marketing, and Operational Benefits

Digital Malls provide many benefits for the entire retail ecosystem—consumers, mall developers, retailers, vending operators, and consumer manufacturers. The consumer gains more convenience, a greater assortment of goods, an engaging experience, and expanded access to experts.

The operator—whether a mall developer, vending operator, hotelier, or retailer—gains an expanded, often urban retail footprint at lower labor and real estate costs; increased sales from new locations; better assortment and higher price points; assortment change flexibility; space for “temporary tenants” who cannot afford physical mall rents; greater margins from higher vending price points; and additional potential revenue from advertising space.

Consumer and retail marketers gain expanded distribution points, opportunities to capture new consumers, outlets for sampling or testing new products/brands, controlled and personalized brand messaging, and data for business analytics.

## U.S. Digital Mall Market Could Reach \$7 Billion in Revenue

Cisco IBSG estimates a potential U.S. revenue opportunity from all three Digital Mall scenarios of \$7 billion, based on the number of possible venues, venue traffic, a range of adoption rates, and appropriate product and service offerings.

- 1. Secure Scenario:** Next-generation micro-markets in controlled, non-prestige venues are the largest market, at \$5 billion, driven by the possible 94,000 U.S. workplaces and residences with 250 or more people.<sup>5</sup> These locations offer the benefit of many new distribution points, carrying both medium risk and moderate annual revenue of \$54,000 per location. We have assumed an adoption rate in line with current micro-market installations, with an expanded offering of food and beverage, general merchandise vending machines, and a dry-cleaning service. These capital investments should pay back within only 12 to 15 months at current prices and margins.
- 2. Prestige Scenario:** Banks of innovative vending machines and next-generation virtual stores in high-traffic, non-secure venues are the second-largest opportunity, at \$1.9 billion. These locations promise the highest revenue per location, at \$602,000. In this scenario, we have included the 3,128 largest airports, public transit stations, universities, shopping malls, stadiums, amusement parks, fairs, and festivals. Even with low assumed adoption rates of 1 percent to 7.5 percent, the sheer number of people visiting these venues could drive thousands of transactions. For these venues, we have assumed an innovative vending bank of six product and service machines plus virtual shelves crossing multiple categories. At current innovative vending machine costs and lease arrangements, we believe that the high traffic in these locations will lead to payback in 16 to 34 months.
- 3. Luxury Scenario:** The full trifecta of innovative vending banks, next-generation virtual stores, and micro-markets in prestige, secure locations are the third-largest opportunity, at \$130 million. For the 260 largest hotels, resorts, and frequent-flyer clubs, this solution offers the most comprehensive shopping mall experience, unlimited design possibilities, a lucrative \$504,000 a year per location, and a payback period of only 15 to 28 months. Today, this scenario is limited by the need for a secure open-shelf environment. If tomorrow's technology can create unmanned, open-shelf security in more public environments, the market for this scenario will grow exponentially.

## Technology Solution: Digital Mall in a Box

This vision of the next self-service shopping experience could be enabled by a "Digital Mall in a Box" solution that would include the incremental equipment, networking, and applications from a variety of partners required to implement a pilot.

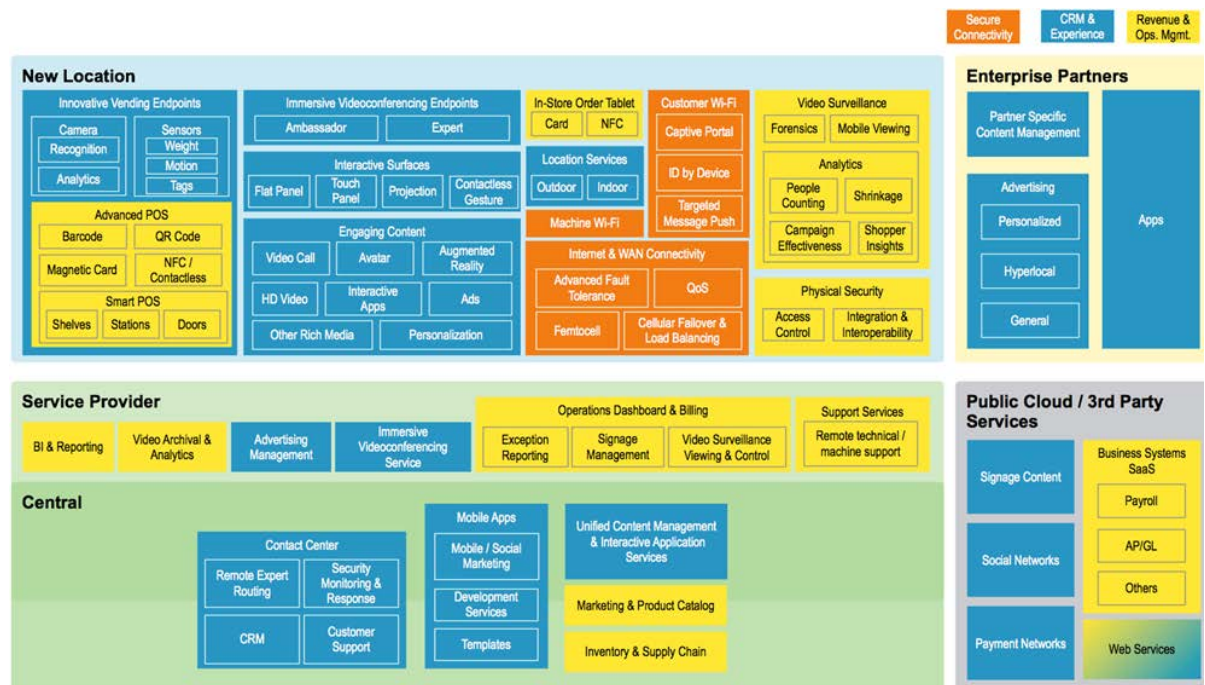
Many of the largest technology investments are usually already in place for a retailer or mall operator (for example, back-end business or content management systems). Generally, the incremental investments will be in the physical screens, innovative vending, immersive experiences, and physical security.

There are four general technology areas needed to support a Digital Mall:

- **Immersive experiences:** This area includes the devices, surfaces, applications, and content needed to draw in consumers and keep them enthralled, such as interactivity, touchscreens, augmented reality, video conferencing, remote experts, CRM / personalization, and mobile and computer apps.
- **Secure connectivity and payments:** Digital Malls need all the online and physical connections and security of regular retail and e-commerce, including indoor and outdoor Internet, wide area network (WAN), and Wi-Fi; advanced POS; cameras and video analytics; and PCI compliance.
- **Business intelligence:** The networked nature of Digital Malls allows logistics, merchandising, marketing, and operations to benefit from video analytics and e-commerce-like data on traffic, sales, shrinkage, campaign effectiveness, and shopper insights.
- **Back-end systems and support:** The Digital Mall must eventually be integrated into current store, mall, CPG, or vending systems to truly live up to its potential. This would include integration into business systems and product catalogs, remote technical support, call centers, content and advertising management, and business dashboards.

Digital Mall effectiveness and cost savings depend on creating a holistic technology architecture that connects mall-specific capabilities with central systems, service provider and cloud services, and enterprise technology, advertising, and application partners.

Figure 6. Digital Mall Capabilities Map: Technology Architecture for Effectiveness and Cost Savings.



Source: Cisco IBSG, 2012

## What It Will Take to Succeed: Vision, Orchestrator, and Pilots

Like a physical shopping mall, a Digital Mall requires the vision and skills of a developer who knows how to pull together venues, retailers, services, and food/beverage vendors in a beautiful, exciting design. The first Digital Malls will require a consolidator/orchestrator who can paint a vision of what's possible; build a business model and operating plan for each venue; sell the concept to prospective venues, retailers, consumer brands, and design and technology partners; and have the patience to overcome initial technology and cultural hurdles.

As with any new retail concept, it will take a few viable pilots in various types of venues with different component scenarios to prove the business model. After the pilots succeed and learning is gained, developers will need to create scalable business models and solutions for one or more venues with ROIs appropriate for retailers, vending operators, and CPG companies.

## How Cisco Can Help

Cisco IBSG can aid mall developers, vending operators, retailers, and CPG companies with both the strategic planning and the underlying technology to pilot the first Digital Malls. Cisco IBSG could partner with business executives to develop their Digital Mall vision and strategy, including customer experience design, market sizing, and business architecture. After the business plan is in place, Cisco can help the industry create the technology architecture and components to create a "Digital Mall in a Box" solution and lead proof-of-concept pilots.

## The Way Forward

To be a pioneer in this new world of Digital Malls, companies need to:

- Create the vision for an industry or venue
- Test the concept with a few potential business partners, retailers, or venues
- Construct a business model for a venue solution, including target consumers, positioning/branding, appropriate products, and services; revenue and profit/loss forecasts; operational plans; and roles and responsibilities
- Define and cost-out a configurable technology solution

For further information on creating a Digital Mall, please contact:

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## Endnotes

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2. comScore, 2011.
3. National Automatic Merchandising Association (NAMA), 2011.
4. Cisco IBSG interviews, 2012.
5. Cisco IBSG analysis of data from U.S. Bureau of Labor Statistics, American Community Survey, and U.S. Census, 2012.

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### More Information

Cisco IBSG (Internet Business Solutions Group) drives market value creation for our customers by delivering industry-shaping thought leadership, CXO-level consulting services, and innovative solution design and incubation. By connecting strategy, process, and technology, Cisco IBSG acts as a trusted adviser to help customers make transformative decisions that turn great ideas into value realized.

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