New and Emerging Technologies Retailers Will Use to Market Their Brands and Products

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Agenda

1. Holiday Spending Overview
2. What’s on Retailers’ Minds?
3. Tech Trends
4. The Future
Holiday Spending Overview
Holiday Spending

• Thanksgiving
  – Thanksgiving total online sales increased 14.3%, with mobile sales up 25.4% (IBM)

• Black Friday
  – Black Friday sales increased 9.5% with mobile sales increasing 28.2% over last year (IBM)

• Cyber Monday
  – Desktop sales exceeded $2 billion for the first time ever, making it the heaviest US online spending day in history
  – Online sales were up 8.5% YoY (IBM), with mobile sales up 27.6%, making up a total of 22% of all online Cyber Monday sales (IBM)

• Holiday weekend overall
  – Online sales were up 12.6% YoY (IBM)
  – Mobile sales were up 27.2 % YoY (IBM)
Holiday Weekend Winners

• **Technology**
  - About 51.2 million or 45% of those out between Thanksgiving and Cyber Monday bought consumer technology
  - 37% of those buying consumer technology bought in the TV category, up 10% over last year

• **Walmart**
  - Walmart experienced its biggest day of online orders on Cyber Monday with, and offered 500 new promotions a day through Friday for what has been coined “Cyber Week”

• **Amazon**

• **Cyber Monday Has Spread Out to Cyber Week**
## Six-Year Holiday Spending

### NRF Holiday Forecast

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014e</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Black Friday Sales</strong></td>
<td>$41.2</td>
<td>$45.0</td>
<td>$52.4</td>
<td>$59.1</td>
<td>$57.4</td>
<td>$50.9</td>
</tr>
<tr>
<td>% y/y growth</td>
<td>0.5%</td>
<td>9.2%</td>
<td>16.4%</td>
<td>12.8%</td>
<td>(2.9%)</td>
<td>(11.3%)</td>
</tr>
<tr>
<td><strong>Post-Black Friday Holiday Sales</strong></td>
<td>$465.1</td>
<td>$488.1</td>
<td>$506.4</td>
<td>$515.8</td>
<td>$535.3</td>
<td>$566.0</td>
</tr>
<tr>
<td>% Growth</td>
<td>0.5%</td>
<td>4.9%</td>
<td>3.7%</td>
<td>1.9%</td>
<td>3.8%</td>
<td>5.7%</td>
</tr>
<tr>
<td><strong>Total Holiday Sales</strong></td>
<td>$506.3</td>
<td>$533.1</td>
<td>$558.8</td>
<td>$574.9</td>
<td>$592.7</td>
<td>$616.9</td>
</tr>
<tr>
<td>% Growth</td>
<td>0.5%</td>
<td>5.3%</td>
<td>4.8%</td>
<td>2.9%</td>
<td>3.1%</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

Source: NRF, Propser Insights & Analytics, Morgan Stanley Research
What’s on Retailers’ Minds?
The Impact of Lower Energy Prices: Consumers Get a Bonus

- Gas prices are down 40% since June and headed lower, a huge savings for consumers.
- Higher gasoline prices have been the largest single contributor to increased energy bills for all households over the past decade.

Sources: Energy Information Agency, US Department of Energy and the US Department of Labor
The Broader Impact of Lower Energy Costs

- Lower-income families spend more of their household budgets on energy and are more likely to spend any savings.

- Biggest category beneficiaries: Entertainment, restaurants, furniture and other home-related items and discount retailers.

Energy as Percent of After-tax Income

<table>
<thead>
<tr>
<th>Income Range</th>
<th>2001</th>
<th>2009</th>
<th>2014E</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $30K</td>
<td>15%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>$30K-$50K</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>&gt; $50K</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

% of Total Households: 30% 19% 51%

Sources: Energy Information Agency, US Department of Energy and the US Department of Labor
iWatch

• Top 3 Brands have 31% of market which is $64B
• Iwatch expected at $1.2 billion in the first year
Tech Trends
RFID Tags

• Li & Fung’s Catlook
  – Uses RFID tags to identify garments
  – Touch-screen interface similar to web page
  – Recommends complementary garments and accessories
  – Customer can place order online
  – Stock management and inventory control
  – Reduces customer wait time and frustration
What Do We Mean by “Big Data”

Companies that deal in big data are responsible for:

• Handling data sets too large to be processed by traditional applications

• Using statistics and non-linear systems to reveal relationships, dependencies, and make predictions of outcomes and behaviors

• Technology infrastructures limit companies’ ability to roll out new applications
  – Many systems designed before Big Data
  – Many retailers lack analytical skills
  – 60% of retailers cannot perform basic analysis and reporting (EKN)
How Big Data Companies Work

• Example

**Walmart** handles more than 1 million customer transactions every hour, which are imported into databases estimated to contain more than 2.5 petabytes (2560 terabytes) of data – the equivalent of 167 times the information contained in all the books in the US Library of Congress.
Big Data Companies

• Companies
  – RetailNext claims to be the market leader in Big Data solutions for brick-and-mortar applications. Its patented technology offers comprehensive, real-time analytics for worldwide retailers, shopping centers, and manufacturers to collect, analyze, and visualize in-store data.
  – Profitect leverages existing big data investments to identify, resolve, and measure opportunities for improvement by delivering Actionable Prescriptive Analytics to the right person at the right time.
The Opportunity for Big Data

• Market (IDC)
  – $16.1B this year
  – Growing 6x faster than overall IT market
  – Infrastructure is fastest-growing segment, with 50% CAGR in 2013-2017

Source: Heavy Reading
Brick & Mortar Investing in Tech

• B&M retailers using tech for
  – Delivery & pickup
  – Personalization
  – Inventory tracking
  – Beacons
  – Wearable tech

• More than 40% used a smartphone or tablet for Black Friday activities (NRF)
A Networked Society

• 57% of the U.S. population owns a smartphone (Pew Institute)
• Americans spend an average of two hours per day on their mobile devices (Pew Inst.)
• 91% of adult mobile phone owners in the U.S. have their devices within arm’s reach 24/7
• “74% of adult smartphone owners ages 18 and older say they use their phone to get directions or other information based on their current location.” (Pew Institute)
• Mobile devices are changing the way consumers interact with retailers
The Role of Social Media

• What does social media include?
  
  – Social media includes websites and applications that enable users to create and share content or to participate in social networking.

• Snapchat
• Vine
• Instagram
• Facebook
• Tumblr
• Twitter
Social Media Stratosphere

• The majority of social media experiences are on a mobile device
  – Social media is interactive
  – Most Consumers Start Shopping for Clothes online
Cyber Security Concerns

- Cyber security will defend us from critical attacks
- It helps us to browse the safe website
- Internet security process all the incoming and outgoing data on our computer
What is the Internet of Things (IoT)?

• The Internet of Things (IoT) connects devices such as everyday consumer objects and industrial equipment onto the network, enabling information gathering and management of these devices via software to increase efficiency, enable new services or achieve other health safety or environmental benefits.
  – Connects everyday devices onto the Internet
  – Enables information gathering through these devices
  – Manages the devices via software
  – Enables new benefits to the consumer
IoT—Examples

• There are 1.9B devices already connected (BI) including:
  – Smartphones
  – Tablets
  – TVs

• New devices are connected every day:
  – Webcams, baby monitors
  – Philips connected bulbs
  – Thermostats
  – Smart locks
IoT—Guiding the Future

• The Internet of Things (IoT) is enabling previously unimaginable solutions by bringing together previously unconnected objects onto the cloud.

Market (IDC):

Dollars: $1.33Tr in 2013 => $3.04Tr in 2020 (12.5% CAGR)

Units: 9.9B in 2013 => 30B in 2020 (16.8% CAGR)
Gamification

• For many, shopping has become an unpleasant experience, due to crowds, dimly lit stores, and the lack of trained salespeople.

• Gamification is the use of elements from computer and video games in real-world or other activities.

• These elements stimulate our psychological needs for desire, incentive, challenge, achievement and rewards, feedback, and mastery.
Minecraft Generation

• Playing Minecraft helps your child hone his mathematical, spatial, and analytical abilities

• Parents can help by pushing their kids to be even more creative inside the game
3D Printing

• What’s Hot
  – Autos and car parts
  – Airplane parts
  – Prosthetics

• Market disruptions
  – Changing product development cycles
  – Shifting sources of profits
  – Create new capabilities for fabrication
  – Changing the competitive landscape
3D Printing Market

- **Companies**
  - 3D Systems
  - ExOne
  - H-P
  - Materialise NV
  - Stratasys (bought Makerbot)
  - Voxeljet AG

- **Market**
  - $3.8B in 2014, growing at 45.7% CAGR through 2018 (Canalys)

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**Global 3D printing market**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td>$2.5b</td>
<td>$3.8b</td>
<td>$16.2b</td>
<td>45.7%</td>
</tr>
<tr>
<td>3D printers</td>
<td>$0.7b</td>
<td>$1.3b</td>
<td>$5.4b</td>
<td>50.1%</td>
</tr>
<tr>
<td>Services and materials</td>
<td>$1.8b</td>
<td>$2.5b</td>
<td>$10.8b</td>
<td>43.8%</td>
</tr>
</tbody>
</table>

Source: Canalys estimates and forecast, © Canalys 2014
# Payment Options: Bitcoin vs. Apple Pay vs. MCX

<table>
<thead>
<tr>
<th></th>
<th>Bitcoin</th>
<th>Apple Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Locations</strong></td>
<td>34 including: Macy’s,</td>
<td>58 including: 7-11, Best Buy,</td>
</tr>
<tr>
<td></td>
<td>McDonald’s, Radio Shack, Staples</td>
<td>Circle-K, CVS, Dunkin’ Donuts,</td>
</tr>
<tr>
<td></td>
<td>(to come), Starbuck’s (to come),</td>
<td>ExxonMobil, Kohl’s, Lowe’s, Rite</td>
</tr>
<tr>
<td></td>
<td>Subway, Whole Foods, Texaco,</td>
<td>Aid, Sears, Target, Walmart,</td>
</tr>
<tr>
<td></td>
<td>Walgreens (not exclusive)</td>
<td>Wendy’s (exclusive)</td>
</tr>
<tr>
<td><strong>Key Merchants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>NFC chip + fingerprint sensor</td>
<td>QR codes</td>
</tr>
<tr>
<td><strong>Ease of Use</strong></td>
<td>Tap and pay</td>
<td>Scan a QR code and enter a PIN</td>
</tr>
<tr>
<td><strong>Payment Method</strong></td>
<td>Credit and debit cards</td>
<td>Checking accounts and merchant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>accounts and gift wards</td>
</tr>
<tr>
<td><strong>Security Method</strong></td>
<td>Tokenization</td>
<td>Tokenization</td>
</tr>
<tr>
<td><strong>Current Status</strong></td>
<td>In operation</td>
<td>Pilot testing for 2015 launch</td>
</tr>
<tr>
<td><strong>Loyalty Programs</strong></td>
<td>Under development</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Bitcoin May Soon Go Mainstream

• Bitcoin market cap: $5.1B

• Now accepted by reputable merchants
  – Amazon
  – Dell
  – Expedia
  – Google
  – Intuit
  – Overstock.com
  – Subway
  – Target
  – Victoria’s Secret
Bitcoin May Soon Go Mainstream (Cont’d)

• In the last 24 hours
  – Price: $378.6
  – 3,600 BTC mined
  – 162K transactions
  – $61M transaction volume
Location-Based Services

• Beacons can flag a consumer from nearby transmitters

• 4.5M active beacons overall by year-end 2018, 3.5M in use by retailers (BI Intelligence)

• Half of the top 100 retailers in the U.S. are testing beacons this year

• Apps are increasingly smart, context-aware, and location-sensitive
Supply Chain Risk Management

• Companies
  – Icix provides supply-chain risk management in the cloud. Its applications and network help many of the world’s largest companies to effectively and efficiently manage risk across their global supply chains.
The Future
Start-ups:
Accelerators vs. Incubators

An accelerator takes small piece of equity in an externally developed idea in return for small amounts of capital and mentorship

- These are usually shorter 3-4 month programs, at the end of which the start up graduates to a new level of development
- Tech accelerators remove barriers to entry and provide access to capital for young companies

An incubator brings an external management team in to manage an idea that was developed internally

- These ideas gestate for longer periods of time, and require a much larger amount of equity investment by the incubator

The average successful startup raises $41 million and exits at $242.9 million (CrunchBase)
Accelerators and Incubators (Cont’d)

• Companies

– The Alchemist Accelerator is an accelerator exclusively for startups that focuses on enterprise customer development, sales, market validation, and a structured path to fundraising.

– Plug and Play Retail is a 12-week startup accelerator program based in Silicon Valley. Accepted startups use technology to solve the biggest problems that top brands, retailers, and industry players face today. Plug and Play also runs a Brand and Retail Center.
Optichannel

With letsLinc, the user simply connects his/her email address used for online shopping and allows Linc to use the “Current Location” to suggest places shopped at or snap a photo of a store receipt. The user can now ask a question or comment on an item just purchased, track online shipments, or set a return reminder through a new way of receiving customer service.
• TRIVVER has created a cookie-less technology that measures and defines a users engagements with branded content within Online Games and Apps.

• This unique aggregated data pushes our programmatic ad platform to ensure that relevant ads are being delivered to the consumer as they travel throughout the digital universe while delivering the highest possible ROI for advertisers.
Augmented Reality

• Opens up opportunities for user engagement

• Market
  – Mobile apps: $82M in 2012 => $5.2B in 2017 (Juniper Research)
  – Global market to grow at 132.% CAGR 2013-2018 (Research and Markets)

IKEA 2014 AR Catalog
• Silicon Valley Robotics (SVR) supports the innovation and commercialization of robotics technologies.
Robotics at Amazon

Kiva

Robostow
Thank You!

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Appendix
Other Cool Technologies

• Companies

  – **Featherlight** offers a performance-coaching system for the workplace with rich, real-time analytics

  – **HelloShowroom** is a shoppable video platform that activates content and turns viewers into customers at their most engaged