“Smart” Retail Payments Developments
Five Hot Spots to Watch

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Topics

• Examples of “Smart” Developments in Retail Payments to Watch
  • Smart Cards
  • Smart(er) Phones
  • Smart Marketing
  • Smart Wearables
  • Smart Security

• The technologies underlying them, the opportunities driving them, and the challenges in front of them.
Definition

“Smart”

“Equipped with electronic control mechanisms and capable of automated and seemingly intelligent operation.”

Source: Dictionary.com
## Smart Cards

| Technolog(ies) | - EMV standard integrated circuit chips  
| | ∙ 575 million chip cards by end of 2015  
| | ∙ One in two of U.S. payment cards will be chip-enabled. |
| Example(s) | See “chip card” and chip card reader images below. |
| Opportunit(ies) | Fraud reduction |
| Challenge(s) | Concerns about ROI, shifts in fraud from card-present to card-not-present transactions, consumer education and adoption |

Sources/Images: Business Wire, Smart Card Alliance, EMV Connection
# Smart(er) Phones

<table>
<thead>
<tr>
<th>Technolog(ies)</th>
<th>Mobile Wallet Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>· Most desired wallet item: <em>Everything!</em></td>
</tr>
</tbody>
</table>

| Example(s)     | PayPal, Google, Amazon, Passbook, Loop (pictured) |

| Opportunit(ies) | “Leave your bulky wallet behind.” (Eliminate plastic and cash) |

| Challenge(s)    | Chicken and Egg. |

Sources/Image: TSYS, PYMTS.com, LoopPay
Smart Phones: The Challenge

Despite awareness, digital wallet adoption rates are low

Source: Thrive Analytics Digital Wallet Usage Study 2014
Smart Phones: The Opportunity

Smart phone growth suggests upside

Source: KPCB Internet Trends Report 2014
## Smart Wearables

<table>
<thead>
<tr>
<th>Technolog(ies)</th>
<th>Multi-function devices with miniature computers</th>
</tr>
</thead>
</table>
| Example(s)           | Google Glass (pictured) and Eaze – “Wear your wallet”  
The Power Suit – “Off-the-cuff payments”  
Ring – “Turn your finger into a magic wand”  
MagicBand (pictured) – “Unlock the magic” |
| Opportunit(ies)      | Taking a mobile device to the next level – a smaller, fashionable version of a life necessity |
| Challenge(s)         | See previous slide on the challenge for smart phones and digital wallets. |

Image: Walt Disney World  
Image: ieee.org
Smart Wearables: Ring in Action

Image: Logbar inc.
Smart Wearables: Glass in Action

Image: Eaze
## Smart Marketing

<table>
<thead>
<tr>
<th>Technolog(ies)</th>
<th>Beacon technology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>· Low energy, Bluetooth-enabled, in-store marketing</td>
</tr>
<tr>
<td></td>
<td>· Offers hands-free payments</td>
</tr>
<tr>
<td>Example(s)</td>
<td>PayPal Beacon</td>
</tr>
<tr>
<td></td>
<td>iBeacon (Pictured)</td>
</tr>
<tr>
<td>Opportunit(ies)</td>
<td>Beacon + Big Data = <strong>Customized mass marketing in real time.</strong></td>
</tr>
<tr>
<td>Challenge(s)</td>
<td>Pestering and privacy concerns</td>
</tr>
</tbody>
</table>

Image: Estimote
# Smart Security

<table>
<thead>
<tr>
<th>Technolog(ies)</th>
<th>Sensors + Biometric and Behavioral Data Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>= <strong>A cognitive thumbprint for authenticating the online user</strong></td>
</tr>
<tr>
<td>Example(s)</td>
<td>BioCatch</td>
</tr>
<tr>
<td>Opportunit(ies)</td>
<td>Fraud protection, while minimizing customer obstacles to securing their own passwords and devices; gathering valuable data on fraudster behavior patterns, and deploying that data for fraud prevention</td>
</tr>
<tr>
<td>Challenge(s)</td>
<td>Creepy?</td>
</tr>
</tbody>
</table>

[Image of a thumb with text on it, illustrating the four categories: Device and Location, Physiological Traits, Cognitive Traits, Response Patterns].
Closing Comments

Federal Reserve Financial Services
End-to-End Strategic Focus

Safety and Security
- Maintain and enhance Federal Reserve Financial Services network security
- Enhance understanding of end-to-end security
- Collaborate and promote industry best practices

Speed
- Develop solutions to enhance payment speed
- Understand market demand for faster payments
- Continue migration of paper to electronic

Efficiency
- Develop solutions to promote efficiency
- Understand needs and barriers
- Promote standards adoption to improve efficiency

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