



# Mobile Wallets and Consumer Adoption

## Securing Growth Through Trust

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**JAVELIN**

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## FORWARD

This whitepaper, sponsored by Diebold, looks at how mobile payments and mobile wallets are evolving in the U.S., detailing key barriers to end user adoption and consumer preferences for mobile wallet providers.

The whitepaper was independently produced by JAVELIN. We maintain complete independence in its data collection, findings, and analysis. Views expressed in the XPRESSION SafeLoad by Diebold section of this report are those of Diebold, and do not necessarily represent those of JAVELIN.

## INTRODUCTION

It has probably not escaped your attention that mobile devices have become an integral part of our everyday lives. As the primary source of our entertainment, news, social lives, and voice communication, the smartphone is the Swiss Army knife of modern living.

The smartphone is becoming ever smarter and ever more integral to our daily lives. We have witnessed the smartphone absorb the capabilities of other accoutrements of 21<sup>st</sup>-century living: cameras, media players, and GPS navigators.

We are on the cusp of the next wave of metamorphosis: the wallet and its contents moving from a traditional leather form factor to one that resides within or is accessed from our smartphones. However, this will not be the swift displacement we have witnessed with other analog-to-digital transformations. Unlike converting from a book to an e-reader or from a CD to a downloaded track, consumers will be more reluctant to transfer their trust in traditional forms of payment to new service providers in uncharted waters. It is, after all, their money that is at stake here.

This paper provides an overview of the current state of mobile wallet adoption, including forecasted growth in mobile proximity payments at the point of sale (POS), the adoption of NFC payment technologies by retailers, and the current state of smartphone adoption. It also addresses current consumer perceptions of mobile wallet technologies and, fundamentally, who they perceive to be their preferred provider and why.

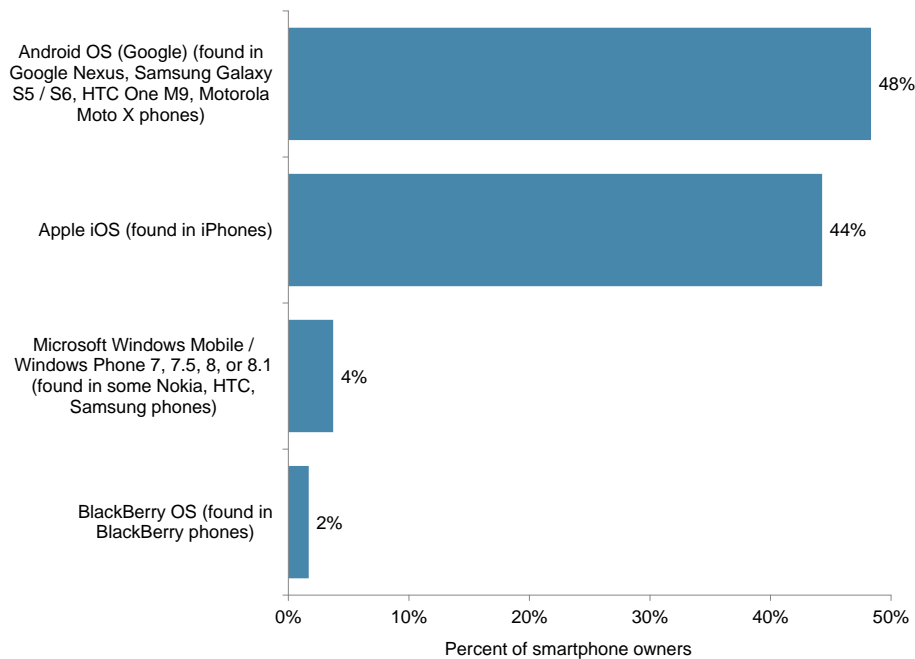
The smartphone is the Swiss Army knife of modern living.

## THE INCOMING TIDE OF U.S. MOBILE PAYMENTS

Every payment scenario requires two parties: consumer and merchant. It is this bipartite “chicken and egg” conundrum that is at the heart of whether many payment initiatives flourish or crash and burn. Until last year, the technology enabling contactless payments — near field communication (NFC) — was conspicuously absent from Apple handsets, curtailing adoption of NFC payments by nearly half of all smartphones in the United States. In October 2014, this changed with the launch of Apple Pay and the announcement of the iPhone 6 is NFC-ready.<sup>1</sup> While Apple currently restricts third-party access to NFC on its devices, it is also anticipated that this control will be relinquished as third-party NFC applications on other operating systems gain traction.

### Android Dominates the U.S. Smartphone OS Market

Figure 1: U.S. Smartphone Operating System Penetration 2015



<sup>1</sup> <https://www.apple.com/pr/library/2014/10/16Apple-Pay-Set-to-Transform-Mobile-Payments-Starting-October-20.html>, accessed Oct. 9, 2015.

With most Android devices already containing NFC technology and the September 2015 launch of Android Pay telegraphing that Google is also entering the mobile payments arena,<sup>2</sup> the stage is set for one side of the mobile payments chicken-and-egg conundrum to be addressed relatively quickly. Collectively, Apple and Android represent 92% of U.S. smartphones today, and Android has a significant market share lead outside of the U.S. — a duopoly that is not anticipated to change in the near term<sup>3</sup> (Figure 1). Combined with other contactless payment initiatives such as Samsung Pay, consumer awareness of mobile payments is set to grow significantly.

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<sup>2</sup> <http://officialandroid.blogspot.com/2015/09/tap-pay-done.html>, accessed Oct. 9, 2015.

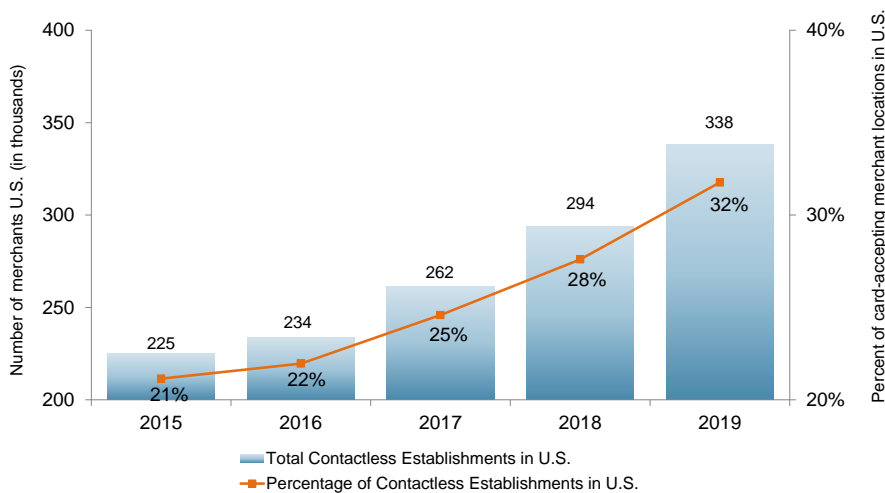
<sup>3</sup> In the U.S., the OS market is split nearly down the middle between iOS and Android, but it is worth noting that the U.S. market is not representative of the rest of the world. Globally, Android represents more than 80% of smartphones in the market, with iOS at just 13%. <http://www.idc.com/prodserv/smartphone-os-market-share.jsp>, accessed Oct. 15, 2015.

On the merchant side of the equation, there has already been some momentum toward the adoption of NFC terminals in retail locations. The first wave occurred in the early 2000s as card networks experimented with contactless payment cards, resulting in a number of large retail chains adopting NFC-compatible POS terminals.<sup>4</sup> A second wave of contactless adoption occurred in September 2011<sup>5</sup> with Google’s first foray into mobile payments and the Softcard consortium of mobile operators driving retailers to adopt contactless payments. These two waves of contactless initiatives have resulted in an existing installed base of about 225,000 retail establishments that accept NFC payments, representing 21% of retail locations.

In parallel to these specific contactless initiatives, the U.S. retail payment infrastructure is undergoing a transformation from magnetic-stripe payment cards to EMV chip cards. While this might not immediately seem that it would have an impact on the potential for mobile payments, the major manufacturers of EMV POS terminals have embedded an extra functionality in these devices: the ability to accept NFC contactless payments. Meaning, as a merchant, if you have upgraded your retail locations to accept EMV chip cards, you have future-proofed your investment with the ability to accept NFC transactions.

**A Third of Retailer Establishments will be Contactless by 2019**

Figure 2: U.S. EMV Chip Card and NFC Contactless Forecast 2015–2019



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<sup>4</sup> <http://www.smartcardalliance.org/publications-contactless-payments-faq/>, accessed Oct. 19, 2015.

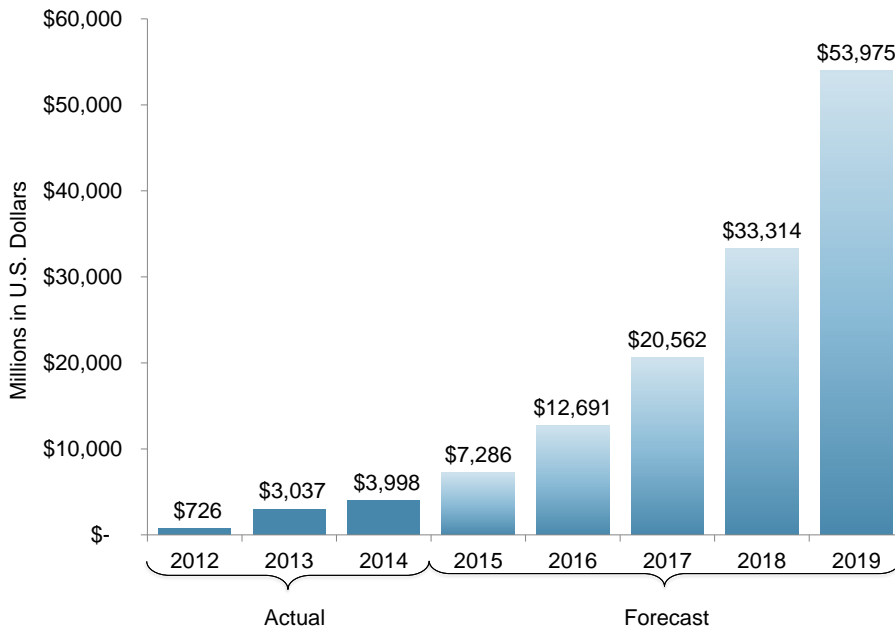
<sup>5</sup> <http://www.cnet.com/news/this-day-in-tech-google-wallet-launches/>, accessed Oct. 15, 2015.

Through this organic growth in the penetration of NFC-compatible POS hardware and the desire for merchants to be a part of initiatives such as Apple Pay and Android Pay, it is forecast that nearly a third of all U.S. retail establishments will be accepting NFC mobile payments by 2019 (Figure 2).

With the chicken-and-egg conundrum largely defeated by the adoption of NFC by Apple and Android devices and by the transformation of the POS landscape resulting from the shift to EMV chip cards, it is forecast that the mobile proximity payment market will grow from \$7.3 billion in 2015 to nearly \$54 billion in 2019 (Figure 3).

**Mobile Proximity Payments Set for Explosive Growth to 2019**

Figure 3: U.S. Mobile Proximity Payment Forecast, 2012–2019



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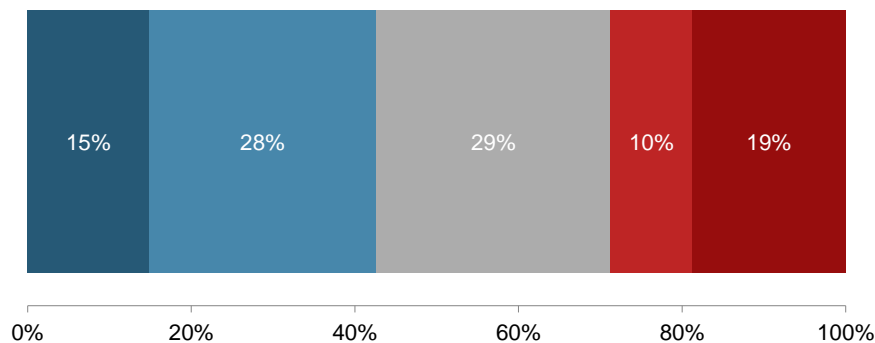
## CONSUMER ATTITUDES TOWARD MOBILE PAYMENTS

As the landscape enabling mobile payments to flourish is forming, there is still the issue of transitioning consumers with entrenched behaviors from well-established payment mechanisms to an entirely new way of transacting. In a June 2015 survey conducted by Javelin, 43% of smartphone owners said they would be likely to use contactless payments on their phone if the capability were available. While this is fairly good news in that most consumers currently have little to no experience with mobile payments, there is a wide band of “neutral” participants (29%) who would need further convincing to view mobile contactless payments in a positive light (Figure 4). Clearly there is work to be done in persuading the majority of smartphone owners to embrace mobile payments.

### Consumers Not Yet Convinced on Mobile Contactless Payments

Figure 4: Smartphone Owners’ Attitudes Toward Mobile Contactless Payment Adoption

■ 5 - Very likely ■ 4 - Somewhat likely ■ 3 - Neutral (neither unlikely nor likely) ■ 2 - Somewhat unlikely ■ 1 - Very unlikely



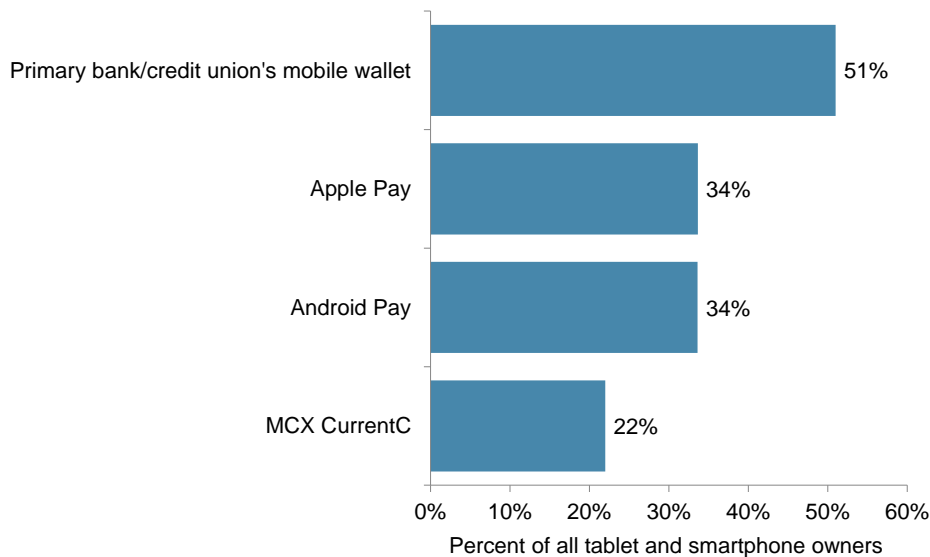
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In further analysis, smartphone and tablet owners were asked who they would choose as a mobile wallet provider: their primary bank or credit union, or one of today’s three major non-bank-branded mobile wallet initiatives (Apple Pay, Android Pay, or MCX). Ranking highest was the primary bank or credit union’s mobile wallet; 51% of respondents said this would be their preferred provider. Apple Pay and Android Pay each gained 34% support, and MCX CurrentC, despite being explained as a mobile wallet developed by a retailer consortium, ranked lowest, with 28% support. This information supports the argument that consumers, although embracing digital technology in many aspects of their life, are not ready to abandon established relationships with traditional financial service providers as trusted protectors of their money. This observation is expected to be increasingly important as the low-hanging fruit of early adopters of mobile payments dries up and uptake of less tech-savvy FI customers becomes an imperative for digital transactions to become a societal norm (Figure 5).

**Consumers Would Prefer Mobile Wallets from their Primary FI**

Figure 5: Smartphone and Tablet Owners’ Choice of Mobile Wallet Provider

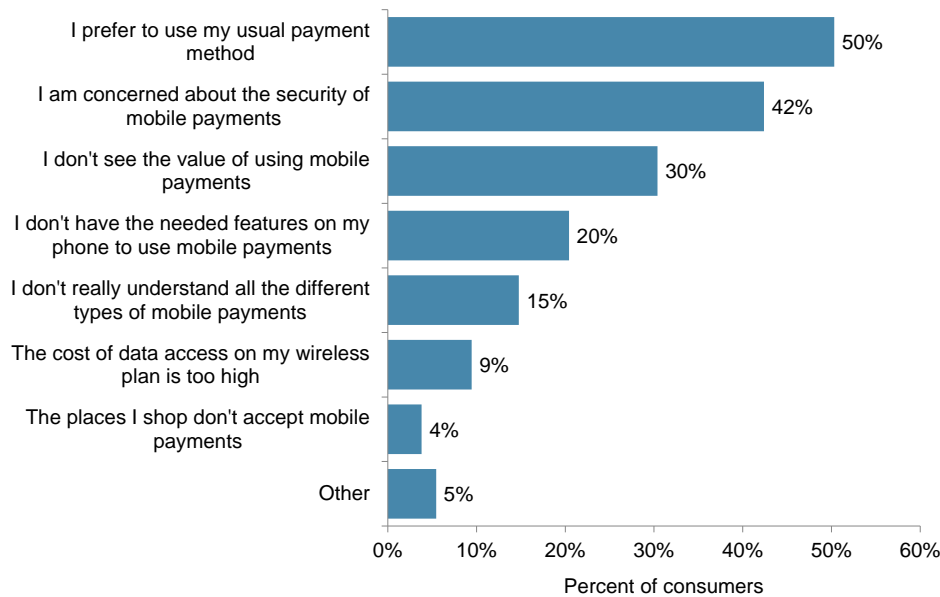


\*Note that MCX was explained to respondents

Further research into behavioral attitudes toward mobile payments probed the reasons why device owners may be hesitant to use their mobile devices. The results provide compelling evidence that in order for mobile payments to flourish, the value proposition of paying by phone needs to be well-articulated and perceived as secure. Otherwise old habits will die hard. In the top three categories, 50% of respondents said that they preferred to use their usual payment method, 42% expressed that they were concerned about the security of mobile payments, and 30% expressed that they don't see the value of using mobile payments. Other reasons cited include the perception — right or wrong —, that their current handset lacks the requisite features for mobile payments, lack of understanding of mobile payment types, data plan costs, and lack of merchant locations — all of which will be addressed by either the upgrade cycles of the handset and POS terminals to NFC readiness and ongoing public awareness of mobile payment initiatives (Figure 6).

**Inertia and Security Concerns Top Reasons for Not Using Mobile Payments**

Figure 6: Smartphone Owners' Reasons for Not Using Mobile Payments



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Consumer fears about mobile wallet security are not entirely unfounded. In January 2015, news broke of a vulnerability in Apple Pay that allowed stolen card credentials to be loaded into the mobile wallet. What was surprising was that despite implementation of best-in-class biometric authentication and industry-leading tokenization, Apple's system was flawed by card issuers not vetting the card credentials sufficiently when loading onto the handset, exploiting the "yellow path" of manual verification such as call centers. Despite cutting-edge technology, the system failed because of reverting to traditional analog channels that can be subject to plain old social engineering.<sup>6</sup>

The adage "a chain is only as strong as the weakest link" is apt here: Fraud mitigation for mobile wallets needs to be holistic. A particular point of vulnerability is the point of intersection of old worlds and new: provisioning authenticated credit and debit cards securely onto a mobile device. Building consumer trust in mobile payments created a foundation for success. Once this trust is established, the value proposition and use case above and beyond traditional payment methods can be further articulated to galvanize support and develop habitual usage.

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<sup>6</sup> <http://www.droplabs.co/?p=1204>, accessed Oct. 16, 2015.

## SUMMARY AND RECOMMENDATIONS

During the next few years, the classic chicken-and-egg problem of enabling mobile payments is likely to be mitigated as the majority of mobile devices are equipped with NFC capabilities and merchants continue to deploy the terminal infrastructure necessary to support contactless payments. It is clear, however, that work remains to be done in winning consumers' hearts and minds regarding mobile payments. First and foremost, they need to feel that their hard-earned cash is safe as they move from analog to digital payments.

Existing provisioning solutions have been highlighted as a weakness in mobile payments, with Apple Pay's "yellow path" vulnerability demonstrating that fraud can still occur despite having the most cutting-edge technological solutions. The research in this paper outlines that the perception of security needs to be improved in order to encourage uptake of mobile payments and that consumers would prefer their bank or credit union to be the provider of a mobile wallet over newcomers such as Apple, Google, and MCX.

Financial institutions could provide compelling safeguards for consumers who are reluctant to embrace mobile payments by taking advantage of existing and trusted channels for weak spots such as provisioning. By using bank infrastructure such as branches and ATMs, card credentials could be verified before mobile wallet entry. This would ease the nascent mobile payment user's concerns about the integrity of the service, as well as the very real fraud risk of onboarding through card-not-present methods. If financial institutions can integrate this capability into branded offerings and infrastructure that supports and extends their existing position of trust and security, they may find themselves in an enviable position as the fledgling market for mobile payments takes off.

The perception of security needs to be improved in order to encourage uptake of mobile payments.

Consumers would prefer their bank or credit union to be the provider of a mobile wallet over newcomers such as Apple, Google, and MCX.

## DIEBOLD XPRESSION™ SAFELOAD

Financial institutions play a role on both sides of the network equation--both enabling services for their cardholders and supporting them at the ATM network. Diebold, Incorporated has developed a unique solution, XPRESSION™ SafeLoad, which provides financial institutions' an opportunity to demonstrate their value and encourage consumers to begin utilizing mobile payments, and mobile cash access at the ATM, with a brand they trust to provide financial security. Unlike other mobile wallets that require consumers to take a picture of the card or manually enter the card information, XPRESSION SafeLoad allows a consumer to enroll in their trusted financial institution's mobile wallet through the security of ATM-based authentication. This ultimately reduces yellow path fraud for the financial institution while promoting the availability of the bank's branded wallet.

XPRESSION SafeLoad is the first card onboarding solution that blends mobile and self-service channels to deliver secure "card present" PIN-authenticated digital wallet card loading. XPRESSION SafeLoad reduces fraud by using the inherently secure architecture of the ATM network to onboard the user's card through the use of standard card present PIN-secured technology. Current pilots are using this new solution to safely load and instantly issue bank-branded mobile wallets in partnership with SimplyTapp, a mobile near field communications (NFC) payment and host card emulation (HCE) technology company.

To enroll in the solution, the consumer approaches the ATM, inserts their card and enters their PIN as normal, which is the most secure transaction type available today. On the ATM screen, they are given the option to enroll in their financial institution's mobile wallet. Once they choose this option, they enter their mobile phone number and receive a text message with a link to download the authenticated mobile wallet which is automatically linked to their payment information stored in the cloud via SimplyTapp's HCE solution. This allows the consumer to immediately use the mobile wallet at their participating financial institution ATM or anywhere contactless payments are accepted.

*"The ball is in the FI's court. Members inherently trust us and we need to make sure we remain the most trusted partner in their financial future"*

- America First Credit Union

The new solution is currently in live pilots with two global partner financial institutions—America First Credit Union and Banco Popular de Puerto Rico—to create a truly unique and secure mobile wallet application branded by the financial institution that is presented, delivered and provisioned through the ATM to minimize fraud and maximize consumer confidence.

*“We’re seeing it as a very useful mechanism to securely tie your identity to a mobile device that allows us to enable a lot of different transactions from the mobile phone”*

- Banco Popular de Puerto Rico

## METHODOLOGY

Most of the consumer data in this report is based on information gathered from multiple Javelin surveys conducted in 2014 and 2015. Data was gathered and weighted to reflect a representational sample of U.S. adult consumers.

- A random sample panel of 3,195 consumers in a July 2015 survey conducted Online. The margin of sampling error is  $\pm 1.73\%$  at the 95% confidence level.
- A random sample panel of 3,225 consumers in a July 2014 survey conducted Online. The margin of sampling error is  $\pm 1.73\%$  at the 95% confidence level.

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For quotes and product descriptions, executive interviews were also conducted via telephone with leaders at Banco Populaire and America First Credit Union.

## ABOUT JAVELIN

JAVELIN, a Greenwich Associates LLC company, provides strategic insights into customer transactions, increasing sustainable profits and creating efficiencies for financial institutions, government agencies, payments companies, merchants, and other technology providers. JAVELIN's independent insights result from a uniquely rigorous three-dimensional research process that assesses customers, providers, and the transactions ecosystem.

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## ABOUT DIEBOLD

Diebold, Incorporated (NYSE: DBD) provides the technology, software and services that connect people around the world with their money - bridging the physical and digital worlds of cash conveniently, securely and efficiently. Since its founding in 1859, Diebold has evolved to become a leading provider of exceptional self-service innovation, security and services to financial, commercial, retail and other markets.

Diebold has approximately 16,000 employees worldwide and is headquartered near Canton, Ohio, USA. Visit Diebold at [www.diebold.com](http://www.diebold.com) or on Twitter: <http://twitter.com/DieboldInc>.

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