MOBEY FORUM
Mobile Financial Services

The MPOS Breakthrough: How the Power of Mobile has Disrupted Payments

A Series of White Papers on Mobile Point of Sale (MPOS)

Part 1

MPOS Task Force

Published by Mobey Forum - May 2013

Copyright © 2013 Mobey Forum

www.mobeyforum

MPOS Task Force

Chair

Matt Calman	Bank of America

Contributors

Arif Ahmed	US Bank
Sverker Akselsson	Nordea
Blake Belchee	Bank of America
Laura Bondesen	Bank of America
Edward Boursalian	RBS
Patrick Di Ferdinando	Metaforic
Doug Diebert	Visa
Nicolas Dinh	MasterCard
Doug Fowler	Bank of America Merchant Services
Michael Hoffmann	Danske Bank
Zafar Kazmi	La Caixa
Matt Morrow	Bank of America Merchant Services
Seth Pelletier	Elavon
JD Penner	CIBC
Greg Rankin	Metaforic
Ranjit Sarai	CIBC
Ginger Schmeltzer	Fiserv
Jørgen Selfors	Nets
Prabhdeep Sidhu	CIBC
John Verdeschi	MasterCard

Keywords

acquirer banks, add-ons, applications, card acceptance, contactless, contact chip, customer, data, differentiation, distribution channel, financial institutions, hardware, Know Your Customer (KYC), magnetic stripe, merchants, merchant services, mobile financial services, mobile point of sale (MPOS), mobile wallet, near field communication (NFC), NFC payments, payment facilitator, point of sale (POS), POS cashier stations, POS terminals, POS management system, provider, services, smart phones, software, stakeholder, transactions, trusted execution environments (TEEs), TEE functionality, user experience, value added services, vendors.

Visit Mobey Forum Knowledge Centre at www.mobeyforum.org

Table of Contents

1. Introduction

In November 2012, Mobey Forum formed a task force to address the mobile point of sale (MPOS) revolution in North America and Europe. The MPOS Task Force will deliver a series of short white papers tackling key questions on the complexities of customer needs and expectations, risks and business models.

The current paper is the first one in a series of papers to be published in 2013:

- Paper 1: The MPOS Breakthrough: How the Power of Mobile has Disrupted Payments

- Paper 2: MPOS Business Model Analysis

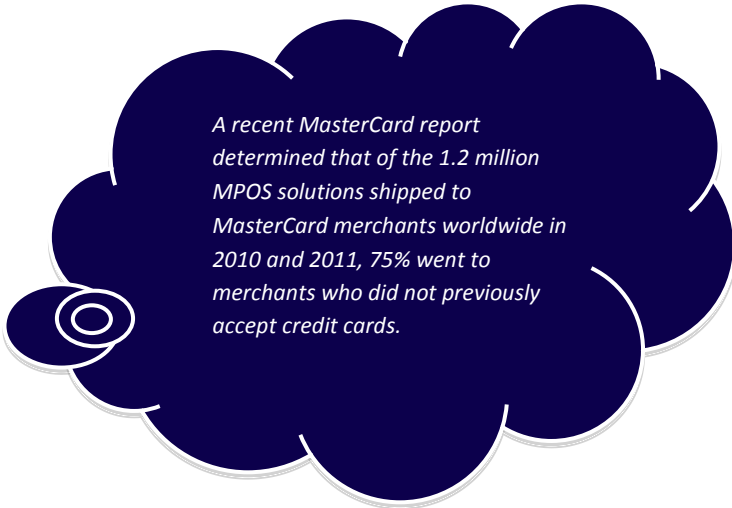- Paper 3: MPOS Go-To-Market Strategies

2. Background

Little more than three years after the December 2009 launch of Square[1], MPOS has redefined merchant card acceptance at the point of sale (POS), by both rewriting the rules on who can accept card payments and vastly simplifying their means to do so.

- Traditionally, merchants followed a lengthy process to enroll with a payment solutions provider to equip their store with proprietary terminal devices to read magstripe or chip cards. Once installed, these POS terminals remained in a fixed location at the merchant premises, typically at cashier stations. Software integration to the merchant's POS management system ranged from simple to complex.

- The initial outlay required to purchase a single-purpose payment terminal, combined with ongoing monthly maintenance fees, long-term agreements and complex pricing structures meant that traditionally, cost, too, was a major gating factor in keeping card acceptance out of reach for smaller merchants.

- MPOS, on the other hand, is characterized by a quick enrollment process, extremely low costs of acquiring the hardware, and the use of an app and a small hardware add-on to enable payment card acceptance with a common smartphone or tablet.

  - To support various card modalities (magnetic stripe, contact chip, near field communication (NFC) / contactless) these hardware add-ons take several forms, such as a dongle attached to an audio or docking port, a sleeve or cover, or a wireless card reader.

---

[1] *http://www.fastcompany.com/1475317/square-iphone-credit-card-reader-change-banking-game*

- From a software perspective, MPOS leverages a mobile payment app running on the mobile device, which provides both the merchant and customer user interface, and the connection to back end payment functions[2].

- Equally critical was the creation of a novel 'payment facilitator' role layered between the merchant and the acquirer. The payment facilitator owns the merchant relationship, fronts the payment acquiring services to its merchants and underwrites the risk for the merchants enrolled for its services. This allows for a remarkably frictionless merchant enrollment process that transforms this once arduous, multi-week process to one of only a few minutes.

A recent MasterCard report determined that of the 1.2 million MPOS solutions shipped to MasterCard merchants worldwide in 2010 and 2011, 75% went to merchants who did not previously accept credit cards.

Although any merchant can adopt MPOS solutions, the market has seen explosive growth since 2010 with small, low-ticket businesses, such as taxi drivers, market / street vendors and service providers now accepting payments on the go. These businesses were typically dependent on cash or check as tender, perhaps due to their mobility, but more likely due to the costs and criteria for enrollment in card acceptance.

Why did banks and traditional payment providers refrain from serving this demographic segment? A profitable prevailing fee structure, entrenched technology and strong assumptions of high risk and low profitability are the likely culprits. Complex, hardened, proprietary equipment had served the market well for decades. But when smartphones and the app ecosystem emerged in 2008 and 2009, entry barriers for technology fell dramatically and the small-merchant service gap proved ripe for non-traditional payments players such as Square, PayPal and Intuit to step in and create low-cost, low-friction, easy-start solutions.

These new entrants dismantled traditional merchant payment acceptance barriers with an innovative distribution strategy combining:

1) Low-cost commodity software (mobile apps)
2) Smartphones (which, in North America, are largely subsidized by mobile carriers)
3) Add-on hardware devices ('dongles,' sleeves, cases), sometimes for free
4) A streamlined all-digital on-boarding process
5) Easy add-on access to value added services, such as loyalty programs, offers and direct marketing.

---

[2] *http://www.mastercard.com/us/company/en/docs/MasterCard_Mobile_Point_Of_Sale_Best_Practices.pdf*

Simplified pricing removed yet another barrier to entry by delivering a fixed percentage pay-per-use model without long-term contracts or monthly minimums.

All these factors, together with an aggressive promotional program that took full advantage of Silicon Valley's 'celebrity cool factor' combined to give MPOS real momentum in the payments market. From this point on, it was clear that MPOS technology was here to stay.

3. Breaking Old Paradigms and Creating New Value

Disruptive actors, unconstrained by traditional thinking and conservative go-to-market processes, perceive customer needs with completely fresh eyes. Their innovations typically impact the market in two phases:

- Phase one – a land-grab, where a simple and low-feature, yet rule-busting (and sometimes unprofitable) solution gains rapid market share and momentum.

- Phase two – a steady march upwards along a value chain with more robust, profitable and mature solutions for adjacent needs.

In its explosive first phase, MPOS commoditized card acceptance and made it an attainable capability for the low-end of the market. New providers were successful in activating millions of merchants with flat rate percentage pricing, no monthly fees, trivial cost (or no-cost) hardware, and no ongoing maintenance fees – even the consumables cost of receipt paper was eliminated for many through digital e-receipts.

Today, providers are racing to the bottom with even lower-cost pricing schemes for low-volume merchants. For example, LevelUp has stretched the boundaries of pricing innovation with one plan offering 0% payment fees in exchange for mandatory marketing services[3]. It is likely, however, that extremely low pricing models will adapt over time and persist only for low-volume merchants or as teaser deals for new customers. Square is a case in point, and now offers two pricing models; a no-fee flat rate, or a fixed monthly-fee capped at a certain volume of transactions.[4]

The second phase is already well underway with major retailers. Apple made a high-profile push into MPOS in its retail stores by equipping its salespeople with MPOS terminals to accept low-dollar sales made using sleeved iPods / iPhones. Other notable developments include:

- Large national and multinational retailers such as Home Depot, Nordstrom and Gap incorporating MPOS to deliver enhanced customer sales experiences with in-aisle shopping, line-busting and a personal sales service.

- Value added services, which combine pre-sale and post-sale activities, such as digital offers and e-receipts, bringing more sophisticated marketing capabilities to small businesses.

- The emergence of tablet-based solutions as complete cashier stations, integrating MPOS technology with wireless encrypted accessories, such as cash drawers and receipt printers. Recent announcements from NCR[5], Clover[6] and Square[7] indicate that full-function POS cashier stations are now in the range of $300-$500, plus the cost of a smartphone or tablet and carrier service.

---

[3] https://www.thelevelup.com/merchant-terms
[4] https://squareup.com/pricing
[5] http://www.macworld.com/article/1167772/ncr_silver_joins_crowd_of_ios_based_sales_systems.html
[6] https://angel.co/clover

- Starbucks and Square have signed a wide-ranging agreement to enable 'Pay-with-Square' at 7,000 Starbucks outlets across the U.S., providing Square with the processing of all U.S. debit and credit transactions.[8] The two companies are now collaborating on a wholly new payment experience leveraging customers' smartphones as an on-premise identity component for a new spin on personalization and 'put it on my tab.'[9] Though still in development, the approach has earned wide attention as a modern, frictionless payment solution only possible through smartphones.

In terms of hardware, the coming generation of dedicated POS terminals may be the last. Terminal manufacturers, such as NCR, Ingenico and Verifone, will soon deliver app-based terminals built on managed services platforms. These specialized platforms are expected to take hold with some large retailer deployments and deliver benefits such as real-time offers, advertising and rapid software patching. U.S. merchants will likely be motivated to update their POS to accept EMV contact and contactless payments when network rule changes in the U.S. effective in 2015 / 2016 / 2017, shift liability for magstripe transaction fraud to the merchant. (Dates vary by region, device and network.) The Smart Card Alliance has published a detailed whitepaper for the U.S. payments roadmap with EMV,[10] which provides further information. Over time, the economics of specialized versus general-purpose hardware for POS solutions will be tested.

3.1. New Revenues for MPOS Providers

By adding capabilities and services adjacent to MPOS, providers create value for merchants and generate new, reliable revenue streams. In comparison to an estimated $15 billion in annual worldwide payment processing revenues, total U.S. digital advertising was $37 billion in 2012, and is expected to rise to 16.6% this year, with double-digit growth through 2014.[11] Small and medium sized businesses were forecast to spend $138 billion on information technology in 2012.[12] MPOS service providers recognize these opportunity fields and are working hard to expand their MPOS solutions to adjacent and upstream spaces. Platforms like NCR's Silver[13], Shopkeep[14] and Intuit Quickbooks[15] offer small business marketing, bookkeeping, and inventory and sales management features. LevelUp[16] focuses on loyalty programs and customer relationship development. Mobey Forum expects yet more providers to emerge with specialized plays over the next few years before a wave of contraction and consolidation hits.

---

[7] http://www.bloomberg.com/news/2013-02-20/square-unveils-all-in-one-point-of-sale-system-for-stores.html
[8] http://www.fastcompany.com/3000291/why-did-starbucks-choose-square
[9] http://gigaom.com/2012/08/07/starbucks-partners-with-square-will-accept-payments-from-pay-by-square/
[10] *Dates vary by region, device, and network, see http://www.smartcardalliance.org/pages/publications-card-payments-roadmap-in-the-us*
[11] http://www.emarketer.com/newsroom/index.php/digital-ad-spending-top-37-billion-2012-market-consolidates/
[12] http://www.idc.com/getdoc.jsp?containerId=prUS23423512
[13] http://ncrsilver.com/why-choose-ncr-silver.html
[14] http://www.shopkeep.com/
[15] http://pointofsale.intuit.com/barcode-inventory-software/
[16] https://www.thelevelup.com/campaigns

3.2. New Consumer Benefits

From the consumer's perspective, MPOS has created new value through convenience and payment protections from their card issuer relationship previously unavailable through cash or check payments. Adjacent benefits, such as loyalty program integration, location-based offers, and digital receipts enhance the customer-merchant relationship and provide deeper engagement. The combination of mobile wallets on customer handsets and MPOS solutions on merchant devices are emerging to create new shopping and buying experiences; Mobey Forum believes that several major retailers are about to reveal new wallets, payment 'cards' and POS interactions to further tighten customer loyalty, increase the speed at check-out and reduce payment friction[17].

3.3. What about Banks and Merchant Services firms?

From a bank's perspective MPOS provides opportunities in both distribution strategy and differentiation.

MPOS hardware and software can be distributed directly through existing bank channels to new and existing customers. The direct relationship between the merchant and the bank provides opportunities for bundling of value added business services such as accounting, payroll services and bill-pay; essentially, a 'business-in-a-box' turnkey solution. MPOS adds a compelling offering to merchants during on-boarding and business servicing with their bank.

An MPOS solution which brings together payment acceptance and business banking can provide merchants with real-time financial information as well as deeper data analytics. Financial products such as offering credit are unique value propositions that can be extended by a financial institution. As the book of record for the merchant, banks are uniquely positioned to reduce the liquidity cycle for quicker access to funds paid. Banks can also target micro-merchants by bundling together products such as prepaid cards with MPOS.

Trust in banks should not be undervalued. A recent study by Javelin Strategy & Research [18] - discussed at the October 2012 Mobey Forum member meeting - revealed that customers perceive bank brands as more trustworthy and attuned to privacy than high-tech brands, although simultaneously rated much lower on their degree of innovation.

Banks should move quickly, however, as new payment innovators, with a track record of successfully stretching regulatory and rule boundaries in providing financial services, are well aware of these value streams and will endeavor to create bank-like offerings. As newer brands develop a longer successful track record, banks' trust advantages may erode.

---

[17] http://news.cnet.com/8301-1023_3-57575484-93/walmart-expands-iphone-scan-go-app-to-200-stores/
[18] https://www.javelinstrategy.com/news/1318/92/Who-will-Lead-in-Mobile-Purchasing-Apple-Google-Facebook-Amazon-PayPal-or-your-Bank/d,pressRoomDetail

4. A User Experience Permanently Redefined

By taking card acceptance from traditional retailing to individuals and small merchants, MPOS has transformed user experiences for everyone, both buyers and sellers.

MPOS was initially positioned as a solution for 'micro-merchants,' with a strong focus placed on physical design, packaging and marketing. MPOS redefined the appearance and simplicity of 'business equipment.' Successful players such as PayPal, Square, Intuit and Bank of America Merchant Services ('BAMS'), made strong investments in their design elements in order to differentiate and protect themselves. Square embraced an elegantly simple design philosophy creating an iconic product with a delightful yet simple user experience. Its thinking paid off with early advantages in brand identity, appeal and consumer awareness. BAMS developed its Mobile Pay on Demand™ solution and addressed design goals such as ruggedness, stability of the card reader in the audio port and compatibility with a wide range of phone designs.

Sales cycle activities beyond payment can also be redefined by leveraging MPOS at the time of purchase with buyers' smartphones enabling pre-sales discovery, research and offers. For example, Square Wallet users can discover Square merchants within proximity and opt into first-visit offers being broadcasted by the Square merchant. After-sales dialogue between the consumer and merchant is made easier with email address gathering becoming the norm due to e-receipts. If future email use consent is given, it can be used to proactively send coupons and offers to encourage future visits.

For merchants, the quick turn-around of access to funds, as rapidly as 'near real time' through prepaid cards with some providers[19], is breakthrough. New entrants to the 'payments facilitator' role have developed innovative risk modeling and profiling, essential to delivering merchants' quick funding while also limiting fraud losses which could quickly bankrupt an MPOS solution provider. Additionally, as same-day FedACH becomes widely available in the U.S.[20], even more rapid access could be possible. Decoupled ACH debit plays, such as the Target RedCard Debit product[21], could gain competitive power with traditional credit and debit settlement cycles. Combination plays of new payment cards, merchant wallet apps and merchant MPOS for aisle buying could create unmatched customer experience and value.

---

[19] https://www.paypal.com/us/webapps/mpp/credit-card-reader?mid=sL53Iwj21;16717074248;paypal%20here;
[20] http://www.frbservices.org/serviceofferings/fedach/sameday_service.html
[21] http://www.target.com/redcard/main

5. Risk and Security Concerns

Does new value bring with it new threats? Concerns around security and risk management have been a hot topic since the birth of MPOS and the market has already seen several waves of data encryption and security improvements to hardware and software:

- End-to-end encryption standards have been enforced, closing the gaps seen in early MPOS magstripe devices. Payment network certification labs have worked at capacity levels to help compliant and safe solutions come to market.

- Risky behaviors, such as 'jail-breaking' or 'rooting' can compromise the security of a smartphone and are now detected to prevent unauthorized activity. Customer confusion between 'unlocking' (to open up a handset to multiple mobile carriers) versus 'jail-breaking' (allowing unsigned code to run on a handset) further complicates the customer education process.

At the same time, advanced researchers in security and digital payments have indicated that MPOS has strong advantages over legacy physical POS terminals, thanks to rapid software patching and locked-down environments built on 'trust chains' at the foundation of the smartphone / tablet operating systems. By providing a low-cost entry to payment card acceptance, MPOS may lift the overall security profile of the ecosystem by making older, used (and less secure) POS equipment less economically attractive to small merchants and thus substituting low-cost, but more secure MPOS technology.

Greatly streamlined and simplified merchant registration and on-boarding processes are MPOS hallmarks. New thinking in customer risk management and the definition of 'what is a merchant' has opened up new demographic segments to card acceptance. MPOS payments facilitators take on the responsibility to validate the identity and risk profile of the applicant. From a risk perspective, most notable is that small merchants do not need to complete long application forms, commit to a multi-year agreement, or sign a standard card acceptance merchant agreement. In fact, most solutions only require the merchant to respond to a few questions and the merchant is approved for payment processing within minutes.

Obviously this hassle-free approach makes acceptance more attractive to small businesses and individuals, but left unchecked can also be popular for fraudsters looking to exploit weak Know Your Customer (KYC) processes to gain access to legitimate card acceptance. For this reason, strong transaction monitoring and risk management after on-boarding are the norm. Acquirers looking to implement a MPOS solution are encouraged to develop a new approach to risk underwriting to accommodate these new market expectations.

From the customer's perspective, skimming and PIN harvesting is a familiar risk made more complex by MPOS. Due to the remote and mobile nature of the merchants with MPOS, fraudsters can pose as legitimate small merchants to capture card data and PINs. For this reason, cardholders must be vigilant and '*Know Your Merchant'* when providing payment credentials, especially in adverse scenarios such as door-to-door solicitations. Said another way, as minimum thresholds for merchant card acceptance have

decreased, customer care and diligence should increase to maintain a trustworthy payment environment. Payer and payee are approaching parity in their responsibilities…this is an open issue with complex dimensions for customer education and action to protect against fraud. Analysis in this space by the Mobey Forum MPOS Task Force will be reported in future white papers.

From a data security perspective, there are many challenges with using mobile devices for processing card payment transactions. Mobile devices are attractive to fraudsters and are susceptible to attacks from both digital and physical vectors. For example, firewalls are not generally available for mobile devices and anti-virus technology is not well matured, making compliance with PCI Data Security Standard (PCI DSS) a significant challenge for merchants and their acquirers. The keypad or screen of typical consumer smartphones and tablets are unacceptable for PIN entry since the keypad cannot comply with current PCI PIN Transaction Security requirements; although Commonwealth Bank in Australia has proven that a customized, locked-down version of a mobile device can comply[22].

For these reasons many MPOS solutions make use of point-to-point encryption (P2PE) technology which encrypts card data within the external card reader (or dongle) and decrypts card data on the MPOS provider's back end systems. By using P2PE, unencrypted card data from MPOS card and chip readers is never present inside the phone. PCI Security Standards Council recently issued guidance that recommends the use of P2PE technology to meet the underlying intentions of the PCI DSS[23].

While P2PE greatly improves security for MPOS solutions which directly read card and chip data, there are other modalities for account number entry employed by MPOS providers today that should not be considered secure and do not comply with accepted industry standards:

- Manual entry of card numbers for transactions

- Images of cards (analyzed with optical character recognition software)

- Contactless transactions using an integrated contactless radio and chipset built into the mobile device

- Other methods that circumvent direct access to the card and transaction data (e.g. alteration of transaction value on the fly, alteration of merchant identifiers to re-route transaction value to another merchant account etc.)

Direct attacks on MPOS apps may also be mitigated through self-defending software technologies which create a version of the mobile application capable of defending itself while concealing sensitive data items to protect against exfiltration and modification. There are also some promising technologies that may improve mobile device security in the future. One such technology is trusted execution environments (TEEs). TEE's may eventually provide a more secure foundation for mobile phone application development and for a secure keypad on the phone. TEE's provide a 'firewalled' section of the mobile phone operating

---

[22] http://www.commbank.com.au/about-us/news/media-releases/2012/docs/pi/albert-fact-sheet.pdf
[23] https://www.pcisecuritystandards.org/documents/pci_ptp_encryption.pdf

system with reliable secure storage of data, secure application execution, and trustworthy mobile device peripherals such as ports, keypad, display, NFC controller chip, etc. There are many potential payment use cases for TEEs, however there are currently no commercially available handsets or tablets available with this technology.

Enabling TEE functionality is a complex undertaking requiring the chip makers, handset / tablet manufacturers, mobile operators and secure operating system providers to all play a role in the process. Furthermore, the business model for TEE deployment is not clearly defined; although the technology is interesting and has many potential commercial uses, many handset / tablet makers and mobile operators do not have strong incentives to bring the technology to market thus far. ARM Holdings Co. (chip designer), Giesecke & Devrient and Gemalto (secure operating system providers) recently formed a joint venture called Trustonic to help proliferate their version of TEE technology called TrustZone[24].

---

[24] http://www.trustonic.com/

6. Limitations of Today's MPOS

Base offerings in MPOS are simple when compared to traditional POS system and although they are evolving quickly, they still face some technical challenges to overcome their limitations.

The most successful MPOS solutions so far have focused on capturing small businesses with low costs, featuring low-cost magstripe card readers – this trend has, in turn, impacted MPOS implementations for chip card solutions.

There are few fully certified EMV MPOS solutions and those that do exist, such as Ingenico's iSMP[25], are typically used by more traditional merchants because of the higher price point driven by contact hardware and an encrypted PIN pad. Other solutions aiming for lower price points in EMV markets either ignore the existence of chip technology altogether – as Square has with its entrance to Canada without Interac support[26] – or provide hybrid models without PIN entry – as iZettle[27] does with its 'Chip and Signature' solution. While the chip and PIN is likely to evolve over time, low-cost EMV compliant PIN entry is currently a challenge for MPOS solutions targetting the global market. Major payment brands have also expressed their views on this issue. While Visa Europe has recently stated that it will not accept chip and signature transactions, MasterCard changed its rules in October 2012, permitting small merchants to use chip solutions without the need of a PIN pad on a global basis.

Several players have addressed the chip and PIN requirements with new hardware:

- PayPal has a new offering of 'Here in Europe', replacing its magstripe dongle with a bluetooth-connected PIN pad [28]

- Dutch provider, Adyen also has a bluetooth PIN pad with its Shuttle[29] device

- Payleven is offering its version in the UK, Germany, Italy, the Netherlands and Poland[30]

- mPowa offers its EMV chip and PIN pad device and claims it is 'an eighth of the price, a fifth of the weight and a third of the cost' [31]

Bringing contact MPOS alternatives to market without protections equal to traditional POS may create pathways for fraud in markets where EMV has been successful in reducing fraud at traditional POS; from these multiple offerings, it's clear that next-generation device providers are aware of the threat.

---

[25] http://www.ingenico.com/en/products/payment-terminals/mobility/ismp/
[26] https://squareup.com/help/en-ca/article/5036-interac-cards
[27] https://www.izettle.com/
[28] http://www.mobilepaymentstoday.com/article/208765/PayPal-takes-Here-over-there?utm_source=NetWorld%20Alliance&utm_medium=email&utm_campaign=EMNAMPT02252013
[29] http://blogs.wsj.com/tech-europe/2012/12/04/adyen-offers-different-sort-of-mobile-payment-service/
[30] http://techcrunch.com/2013/02/08/payleven-the-samwer-square-clone-surmounts-visa-hurdle-with-chip-and-pin-reader-now-sold-in-europe/
[31] http://www.mpowa.com/index.html

This capability gap between dedicated POS and MPOS is further exhibited in the growing deployment of contactless technology, which MPOS solutions do not yet support adequately. Built-in NFC antennas on newer smartphones are not suitable for contactless payments for two reasons:

1) Smartphones equipped with NFC technology typically have an antenna range of one-two centimeters (cm) versus a payment standard requirement[32] of two-four cm.
2) Smartphones equipped with NFC technology typically do not have encryption between the NFC antenna and the smartphone's baseband processor.

As NFC payments become more widespread, smartphone manufacturers may address these shortcomings to make contactless MPOS possible without any accessories on NFC smartphones. Recent announcements signal that smartphone NFC payments are finally achieving real market presence; NXP announced its 2012 smartphone NFC chip shipments of 150 million units exceeded analyst expectations by 50%, and indicate that 15% of smartphones shipped worldwide came with NFC capabilities[33]. This compares to 40 million NFC chip units shipped in 2011.

One other impact MPOS merchants may overlook is increased wear and possible damage to the mobile device. While traditional POS terminals come with maintenance contracts and rapid turnaround of replacement units, MPOS users may find they have significant hidden costs if their device (sometimes their own, high-end, mobile phone) is dropped or damaged in the course of use as a POS.

---

[32] For examples, see https://technologypartner.visa.com/Library/Specifications.aspx , https://www.paypass.com/documentation.html , http://www.smartcardalliance.org/pages/publications-contactless-payments-faq
[33] http://nfctimes.com/news/nfc-smartphone-chip-shipments-2012-surge-past-projections

7. Where Has Novelty Been Rewarded and Where Has It Failed to Flourish?

Square, as the first mover, is the best example of an MPOS provider being rewarded for innovation. Its innovation was multi-faceted:

- The design of an ultra-low-cost, simple and elegant magstripe reader jacked into the audio port of smartphones allowed them to keep their hardware generic and give away millions of readers for free

- Its simple, easy-to-understand merchant pricing plan forever redefined the norms

- Rather than stay behind the scenes, Square leveraged social media star power and took to television to advertise and market its solution

First to the MPOS market, it defined the disruption and leveraged its strong connections to the Silicon Valley investment and social media sectors to fund, position and promote the service. Its model and approach was diametrically opposed to that of traditional providers.

Behaving like a classic startup, Square sought to bring a minimum viable product MVP) to market as quickly as possible. Its vision of an MVP was quite distinct from the traditional service providers who would have sought to meet certifications requirements prior to launch. In fact, Square's initial magstripe card reader lacked built-in encryption; data encryption within the service itself occurred some months after launch, followed by full end-to-end encryption. It seems unlikely that any organization operating with traditional business practices in the sector could have launched or grown as quickly as Square.

7.1. On the Other Hand

One solution that recently pulled back from the market is Verifone Sail[34]. Initially launched by Verifone for sale directly to merchants, it is now only available through its distributors. While a lack of sustainable revenue stream was a reason for the withdrawal of the product, it is likely that the threat to its existing business model was significant. Unlike Ingenico (with Roam Data), Verifone did not attempt to delineate its MPOS activities by offering them under a different brand; this approach may have inadvertently threatened distributors by cannibalizing sales of Verifone branded POS terminals.

Regulators, too, are taking a closer look at new entrants to the payments space. In early March 2013, Square is reported to have received a cease and desist order from the Illinois Department of Financial and Professional Regulation for violation of the Illinois Transmitters of Money Act[35]. In a related space, PayPal has been instructed to end person-to-person (P2P) payments in Singapore[36], though it will continue to

---

[34] http://allthingsd.com/20121215/should-verifones-exit-from-the-mobile-payments-space-worry-square/
[35] http://www.idfpr.com/dfi/CCD/Discipline/SquarePersonifiedCDOrder13CC208.pdf
[36] http://techcrunch.com/2013/02/18/paypal-stops-personal-payments-in-singapore/

support payments for goods and services. These news items indicate that regulators are increasing their analysis and scrutiny of new entrants and taking action where they see commerce extending unacceptably beyond established boundaries.

8. Conclusions

Card payment acceptance extended to the smartphone and tablet ecosystem is vibrant and prolific, blending new hardware, software, and business models. Mobey Forum seeks to share its observations of this complex, young environment with the global financial services community to raise awareness, encourage robust dialogue and drive increased adoption. Future papers in the series will explore business models and go-to-market strategies in MPOS - a marketplace less than two and a half years old.

For further information, please contact Ms. Sirpa Nordlund, Executive Director of MobeyForum at sirpa.nordlund@mobeyforum.org

9. Citations & References

- **Mobile Wallet - Definitions and Visions**. A Series of White Papers on Mobile Wallets, Part 1. Published by Mobey Forum, Mobile Wallet Task Force, November 2011. Download at www.mobeyforum.org

- **Control Points in Mobile Wallets**. A Series of White Papers on Mobile Wallets, Part 2. Published by Mobey Forum, Mobile Wallet Task Force, February 2012. Download at www.mobeyforum.org

- **Mobile Wallet: The Hidden Controls**. The unseen forces that will shape mobile wallet development. A Series of White Papers on Mobile Wallets, Part 3. Published by Mobey Forum, Mobile Wallet Task Force, July 2012. Download at www.mobeyforum.org

- **LevelUp**: Merchant Terms & Conditions at www.thelevelup.com/merchant-terms

- **Square**: Pricing at https://squareup.com/pricing

- **MacWorld**: "NCR Silver joins crowd of iOS-based sales systems" at www.macworld.com/article/1167772/ncr_silver_joins_crowd_of_ios_based_sales_systems.html

- **Clover**: Cloud-based point-of-sale platform at https://angel.co/clover

- **Bloomberg**: 'Square Unveils All-in-One Point-of-Sale System for Stores' at www.bloomberg.com/news/2013-02-20/square-unveils-all-in-one-point-of-sale-system-for-stores.html

- **Fast Company**: 'Why Did Starbucks Choose Square?' at www.fastcompany.com/3000291/why-did-starbucks-choose-square

- **Gigaom**: 'Starbucks teams up with Square, will accept Pay with Square' at http://gigaom.com/2012/08/07/starbucks-partners-with-square-will-accept-payments-from-pay-by-square/

- **eMarketer**: 'US Digital Ad Spending to Top $37 Billion in 2012 as Market Consolidates'. Read more at http://www.emarketer.com/newsroom/index.php/digital-ad-spending-top-37-billion-2012-market-consolidates/#UOq44dcct1V8elGM.99

- **IDC**: Press Release: 'Software and PCs Will Lead the Way in Record-Breaking Year for U.S. Small and Midsize Business IT Spending, According to IDC' at www.idc.com/getdoc.jsp?containerId=prUS23423512

- **NRC**: Silver at http://ncrsilver.com/why-choose-ncr-silver.html

- **ShopKeepPOS**: iPad Point of Sale at www.shopkeep.com/

- **Intuit**: POS software and hardware http://pointofsale.intuit.com/barcode-inventory-software/

- **The LevelUp**: For Business at www.thelevelup.com/campaigns