Smart Card Alliance

Accepting Contactless Payments:
A Merchant Guide

A Smart Card Alliance Contactless Payments Council White Paper

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The introduction of contactless payments technology into the mass market is an important development for both consumers and retailers. Contactless payments provide immediate benefits to both parties in the form of more consumer control and increased consumer and retailer convenience. And these benefits represent only the tip of the iceberg.

This guide assists any merchant who is considering deployment of contactless payments. Use the information in this guide to decide whether contactless payment is right for you and to plan for, implement, and roll out contactless payments successfully. Merchants will find this guide helpful, with information targeted to information technology personnel, marketing managers, business development analysts, and operations managers in the merchant organization.

1   Understanding Contactless Payments

Contactless payment is one application of contactless smart card technology. Smart cards include a secure microcontroller, memory, and an interface that connects to a reading device. In the case of a contactless smart card, the interface is small embedded antenna. The device can then communicate with a device reader using radio frequencies, without any requirement for physical contact between the device and the reader. Contactless smart card technology is currently used for a wide range of applications, from traditional credit and debit card payment to transit fare payment to electronic passports.

1.1   How Contactless Payments Work

When using contactless payments, consumers pay for purchases without needing to hand a payment card to a merchant or swipe a card through a reader. There is no physical contact between the consumer's payment device and the physical point-of-sale (POS) terminal.

The basic contactless transaction involves a contactless reader and a contactless credit or debit card. The transaction is initiated when the consumer holds the card in close proximity (less than 2–4 inches) to the merchant POS terminal. Payment account and security information is then sent wirelessly (via radio frequency (RF)) from the contactless payment card to the POS terminal. The POS system routes the transaction over the existing payment processing networks, authorizing the transaction through the existing issuer systems. In addition to cards, form factors such as key fobs, cell phones, wristbands, and mini-cards are available or being developed to support contactless payment transactions.

Contactless payments are currently supported by multiple card issuers and financial service providers. American Express, Discover Network, MasterCard, and Visa have all introduced contactless payment products (ExpressPay from American Express[®], Discover[®] Network Zip[SM], MasterCard[®] *PayPass*™ and Visa payWave™, respectively). These products rely on ISO/IEC 14443-based technology, ensuring payment solution compatibility regardless of brand or payment device when used with contactless readers that have been approved by the payment brands. Since contactless payments were launched in 2005, they have experienced the highest growth rate ever observed for a payment product, signaling the presence of unique market momentum.

1.2   Advantages of Contactless Payments

Even at this early stage, the evidence indicates that contactless payments have the strong potential for rapid adoption in the United States. They offer a new, safe way to pay with advantages for both consumers and merchants. They also open the door to new form factors and value-added applications. Contactless payments allow creativity and differentiation to flourish on the foundation of the mature card industry.

1.2.1   Merchant Advantages

Merchants who accept contactless payments realize advantages in several areas. First, contactless payments are faster and more convenient. Studies have shown that contactless payments reduce customer time at the POS by 30%–40%.[1] Contactless transactions are 63% faster than cash transactions, and 53% faster than traditional credit card transactions.[2] The most significant time savings are realized in the drive-through environment, where 12–18 seconds are saved off purchase times.

These increases in speed and convenience result in greater sales volumes and increased customer spending. Customers spend about 20%–30% more when using contactless payment devices than when they use cash.[3]

Customers not only spend more, costs decrease when merchants accept contactless payments. The use of contactless payments means fewer requirements to handle cash, improved operational efficiencies, and reduced maintenance costs. (Contactless readers require less maintenance than traditional magnetic stripe card readers.)

Contactless payments also present merchants with a tailor-made opportunity for clear differentiation. Being able to offer "the latest thing" puts merchants in an excellent position to offer closed-loop products (such as gift cards) that strengthen customer loyalties and increase brand awareness. The variety of form factors in which contactless payment devices can be available also supports differentiation. Merchants and issuers can collaborate on payment products that blend specific features and packaging (cards, tokens, mobile phones) and target different customer segments with very particular requirements for the shopping experience.

1.2.2   Consumer Advantages

Consumers also appreciate how fast and convenient contactless payments are. A recent study reported that 71% of consumers cited speed at checkout as their primary reason for using contactless payments.[4] Contactless payments are easy to use—consumers simply place the device in close proximity to the reader—leading to what 51% of respondents in a recent survey described as a "better customer experience." Consumers need not worry about having enough cash or fumbling for cash in a purse or wallet.

Another advantage for consumers is their control of the contactless payment device. The device never leaves the consumer's possession, reducing the possibility of leaving it somewhere accidentally and minimizing the potential for fraud. And like merchants, many consumers enjoy being "cool" and using cutting edge technology, especially when it is packaged in one of the many form factors available for contactless devices.

In fact, one study found that consumer behavior changes when consumers use contactless payment devices. Consumers who used MasterCard *PayPass* showed increased loyalty to merchants who accepted PayPass, and the consumers used their contactless cards more frequently than they did their traditional payment cards.[5]

1.2.3   Security for Merchants and Consumers

Both merchants and consumers can be confident that contactless payment is secure. The financial payment networks used to process contactless payments are the same networks that process millions of magnetic stripe transactions securely today. The primary difference is that the contactless payment device (card, fob or other form factor) uses RF technology to send payment account information to the merchant's POS terminal instead of requiring the payment card's

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[1] Source: Chase
[2] Source: American Express
[3] Source: Chase
[4] "Contactless Payments: Consumer Attitudes and Acceptance in the United States," Smart Card Alliance and Javelin Strategy & Research Report, November 2006
[5] Source: MasterCard

magnetic stripe to be physically read. Contactless payment devices are also designed to operate at very short ranges (less than 2-4 inches) with the POS, and can include additional security elements to further enhance security.

The financial payments industry has designed multiple layers of security throughout the traditional credit and debit payment systems to protect all parties involved in a payment transaction. Most of these protective measures are independent of the technology used to transfer the consumer payment account information from the payment card or device to the merchant POS terminal and are used for both magnetic stripe and contactless transactions. For example, for online authorizations, risk management and fraud detection systems are used to detect potential fraudulent activity for any credit or debit card payment transaction. Consumers are further protected by the liability protection programs offered by the various payment brands and their issuing banks for transactions that may have been made fraudulently using their credit or debit accounts.

2   Who Accepts Contactless Payments

Merchants in a wide variety of market sectors can benefit from accepting contactless payments. Initial adoption has been by merchants for whom speed of payment is an advantage, regardless of size. Market segments in which merchants have adopted contactless payment include pharmacies (CVS/pharmacy®, Duane Reade), quick service restaurants (Jack in the Box®, McDonald's®, Arby's® participating locations), convenience stores (7-Eleven, Sheetz, Wawa), theaters (United Artist and Regal theaters), sports venues and vending (Cadbury Schweppes Americas, Coca-Cola Enterprises, Inc.). Over 51,000 merchant locations worldwide currently accept contactless payment devices.[6]

3   Implementing Contactless Payments

Like any other change to the retail environment, implementing contactless payments requires planning. The selection of a project manager and a cross-functional team with the knowledge and skill sets required to complete the planning and implementation process are critical to successful deployment of contactless payments. It is also essential to work with certified processors and acquirers who understand contactless payments and can help you implement a complete solution. You can also consult with card payment companies, issuers, equipment vendors, and other industry resources.

Before starting, everyone involved should thoroughly understand the current retail infrastructure and environment, including the unique needs associated with each retail location if contactless payments will be deployed in multiple locations. This understanding is critical to successful implementation of contactless payments.

Planning requires identification of five different types of requirements:

1. Payment processing requirements
2. Physical requirements
3. Software and hardware development and certification requirements
4. Training requirements
5. Marketing requirements
6. Support requirements

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[6] Merchants accepting American Express ExpressPay, MasterCard PayPass and Visa payWave can be found at http://www.americanexpress.com/expresspay, http://www.mastercard.com/us/personal/en/aboutourcards/paypass/merchant_search.html and http://www.usa.visa.com/paywavemerchants/?it=c|/personal/cards/paywave/index.html|merchant%20directory, respectively.

3.1 Identify Payment Processing Requirements

Payment processing requirements associated with implementing contactless payments must be identified through an analysis of the type of payment transactions supported.

First, identify which current transactions will be accepted using contactless payment. Each transaction type can take a different processing path, so this information is needed to determine what hardware and software must be certified to process contactless payments. Candidate transaction types include the following:

- Credit transactions
- Debit transactions (signature, PIN, PIN suppression[7])
- Stored value transactions (gift or prepaid cards)

As part of this transaction analysis, identify when a transaction will not require a signature (for example, transactions under the card payment brand's floor limit). Be aware that rules about floor limits and transactions that do not require a signature may vary by payment brand.

Second, decide whether to process transactions online or offline. Online processing (the most common) requires that payments be authorized "live." For this reason, some merchants use offline processing. However, merchants may assume additional risk for fraudulent transactions or certain chargebacks if offline processing is used.

Third, define the data elements required by every transaction, including any data elements required by an acquirer, card payment company, processor, or all of the above. Acquirers and processors must be able to identify contactless payments for all transaction types.[8]

Next, confirm that your acquirer and/or processor support the contactless payment brands and transaction types accepted.

3.2 Identify Physical Requirements

Physical requirements depend on whether the implementation is a contactless payments upgrade or a new implementation. Survey every location at which contactless payments will be implemented. Use the site survey to assess the following requirements:

- The number of terminal and/or readers needed for each location, including backup equipment for support. Contactless payments can be implemented with a single POS terminal that handles both magnetic stripe and contactless transactions or with a contactless reader connected to an existing POS system.

- The electrical needs – power sources and wiring – for new equipment to be installed.

- Data connectivity for the new equipment, including cabling requirements. A high-speed connection is strongly recommended to reap the full benefits of contactless payment speed.

- Counterspace available for the customer-facing contactless reader or terminal.

- Permanent mounting for a contactless reader in the existing store environment, including how the mounting will avoid glare or any other impact on visibility.

- Locations for customer informational materials, including point-of-purchase (POP) materials for display near the register (or in other appropriate locations, such as a drive-in

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[7] PIN suppression means that a merchant's POS terminal is programmed not to ask for a PIN but instead force a PIN debit transaction to be processed as signature debit. PIN debit cards are still accepted at the POS; they are just processed as signature debit transactions.

[8] Note: ExpressPay from American Express transactions must include unedited Track 1 and/or Track 2 data as part of the authorization request. ExpressPay transactions must be submitted as swiped magnetic stripe transactions; no additional data elements are passed to the American Express processing system. In contrast, MasterCard PayPass does require changes to data elements 22 and 61. Contact the payment acquirer or processor for additional detail about the data elements required.

window). Such materials are helpful to inform customers that contactless payments are welcome, help customers recognize whether their payment devices are contactless devices, and illustrate how contactless payment devices are used.

3.3 Identify Software and Hardware Development and Certification Requirements

Software development requirements can differ depending on whether the implementation is a contactless system upgrade or a new implementation. In both cases, however, each step of the process that touches a contactless payment must be enabled to process that payment.

All terminals must be equipped with an appropriate application from the acquirer that allows the terminal to handle contactless payments and recognize the contactless reader. Contactless readers and their software should be "type approved" by the payment brands, or minimally be in the process of being approved. In addition, electronic cash register (ECR) and POS system software may need to be updated to identify contactless payments.[9]

All hardware and software must be certified with the acquirer and/or processor for each type of transaction accepted at the POS. In order to ensure proper interoperability between the contactless payment device and the contactless reader, it is important for merchants to only implement certified contactless readers. The merchant processor/acquirer must also be certified by the payment brands to process the payment messages.

In addition, current payment terminal receipt printing processes may have to be changed. When transactions do not require a signature or when merchants are using electronic signature capture, the signature line on the receipt must be suppressed. You may also need to identify a method for printing receipts when a stored value (gift) card is used. Work with the processor to determine parameters for gift card and other stored value programs.

3.4 Identify Training Requirements

To implement contactless payments successfully, employees must be trained. Training should focus on the benefits of using contactless payment and be provided to both management and personnel who deal directly with customers. It is critical that employees know how the contactless payment equipment works, what brands are accepted, and what to do if there is a problem.

3.4.1 Training Management

Managers, including store managers, should understand that there is a compelling business case for implementing contactless payments. Educational aids can include computer-based training such as PowerPoint presentations, web seminars, and videos showing contactless payments in use. Potential educational materials include data available from the payments industry and from pilot projects conducted by other merchants. Such materials can be used to substantiate the merchant benefits and the return on investment achieved by adopting contactless payment, both with numerical data and with anecdotal experiences that are not illustrated by the data.

Encourage managers to become involved in payments industry events, web seminars, and associations. Such involvement not only strengthens management buy-in, it also provides continuing education.

3.4.2 Training Staff

It is important to train employees who interact directly with customers, both to increase employee enthusiasm and raise employee comfort level. With proper training, employees look smarter and more technologically savvy, because they are able to help customers understand and use contactless payment devices.

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[9] Note: In most cases, ExpressPay from American Express does not require any changes to POS software, but other contactless payment products do.

Employee training should include how to recognize contactless payment devices and how to accept and process contactless payments using the new POS equipment (e.g., a training video, point-of-sale materials, reference guide). Stress the benefits of using contactless payment for both employees and customers, including:

- Increased transaction speeds
- Decreased requirement to handle cash
- Decreased risk of forgetting to return a customer's card

Ideally, your employees should be advocates for contactless payments and should be able to educate your customers. Create and implement incentive programs for employees. For example, certify employees who complete the training satisfactorily and provide incentives for them to do so. After contactless payments have been implemented, consider awarding contactless payment devices (such as a gift card or a contactless-enabled cell phone) as prizes for any employee contests you conduct.

Some training materials should be kept at the POP. Such materials include visual aids (such as laminated cards) that illustrate how to recognize the various payment devices and how to process a contactless payment properly. It is also helpful to create troubleshooting information (such as a troubleshooting flow chart that includes support contact information) and, if necessary, a quick reference guide for employees, including store managers.

3.5 Identify Marketing Requirements

A good marketing plan is critical to successful implementation of contactless payments. As part of the planning process, identify your marketing requirements and assess the financial and marketing resources can be committed to promoting your acceptance of contactless payments. The result should be a realistic marketing plan.

Effective marketing plans include an analysis of the target market for contactless payments, such as younger consumers who tend to be early adopters for new technology. An effective marketing plan also includes the following components:

- Marketing goals and objectives
- Strategies and tactics (for example, local store marketing versus national advertising)
- A timetable
- Responsibilities and partners

Partners can include issuers, acquirers, processors (especially for gift cards and other closed-loop payment devices), technology providers, and payment brands. Through such partnerships, you may be able to leverage a partner's national, regional, local and in-store marketing initiatives.

Design marketing campaigns that will drive consumer awareness and use of contactless payments. Such campaigns can include both store and company personnel. For example:

- Encourage company personnel to acquire and use contactless payment devices when visiting stores.
- Consider providing contactless prepaid cards or gift cards to store managers.
- Customize materials (such as gift cards) to promote your brand, build loyalty, and encourage customer retention.

POP materials can also help consumers understand that contactless payments are accepted. Consider different types of consumer-focused material, including:

- Graphics near the register or drive-through window illustrating the use of a contactless payment device.
- Window decals indicating the contactless payments are accept.
- Staff buttons promoting contactless payment.

It is important to ensure that your strategy is consistent with any marketing requirements imposed by issuers or payment brands (particularly branding and brand position requirements) and with company policies regarding POP policies and procedures.

3.6 Identify Support Requirements

As part of the planning process, establish a support team and design the processes needed to support an operational system.

Support includes ongoing training, testing, deployment of software updates to the contactless readers and marketing support. As new types of contactless payment devices are released (for example, new form factors), training materials will need to be updated. In addition, store managers and staff will need to receive information about new issuers and devices promptly.

Sites at which contactless payments are implemented should be tested at random (for example, by mystery shoppers), to ensure that quality is not being compromised and that the customer process has been implemented as planned.

Monitor marketing efforts regularly. In addition, adjust the marketing strategy to account for evolutions in contactless payment and incorporate new ways to promote contactless payment. If gift cards are issued, the marketing strategy should include ways to encourage regular use of such cards and incorporate processes by which they can be reloaded.

4   Testing Contactless Payment Implementation

Before broadly rolling out contactless payments, it is highly recommended that you run a pilot project to test the planned implementation. Use the pilot project to perform end-to-end testing on all transactions and processes in a controlled environment with continuous monitoring.

4.1 Planning the Pilot Project

Pilot projects typically test and validate the following system components:

- Equipment
- Transaction processing, including both data and processes for appropriate transactions (i.e., credit, signature debit, PIN debit, PIN suppression, stored value), including both magnetic stripe and contactless transactions
- Troubleshooting procedures
- Training and support processes

Create a pilot test plan that tests all relevant components and establishes goals and objectives for the pilot, including an ROI model that can create a compelling business case for full implementation. Use these goals and objectives to select one or more locations at which to run the pilot project. Identify vendors and partners needed for the pilot project.

4.2 Installing the Equipment

All equipment required to run the pilot must be installed in each chosen location. Before the equipment is installed, be sure it is certified by the acquirer or processor for every type of transaction to be performed during the pilot.

Install terminals or readers in locations where they can be easily accessed by the customer. Terminals or readers must be mounted permanently, to avoid movement and damage, and all cables and wires connected securely and tightly to avoid disconnection. If you are testing a standalone contactless reader, mount it on a non-metallic surface. Mounting the reader directly on metal can reduce the read range.

After installation is complete, confirm that the equipment is set up properly. All equipment must power on, and the reader must be able to communicate with the terminal. Perform end-to-end validation of all types of transactions accepted, with all involved parties touching each type of transaction.

4.3   Running the Pilot Project

Prior to running the pilot project, train all managers and employees on how to use the new contactless payments terminal or reader, how contactless payments work, what brands are accepted and what to do if there is a problem.

While running the pilot project, record all problems, opportunities, and solutions that are encountered at each pilot location. This information can be used to develop or augment materials such as:

- Installation best practices
- Additional/better information for customers and employees at the POP
- Additional/better training and troubleshooting materials and processes

The information obtained during the pilot should then be integrated into a rollout plan.

5   Rolling Out Contactless Payments

The final step in implementation is to roll out contactless payments at all planned locations. Like all other steps, successful rollout requires a plan. Include in the plan the following information:

- How many sites will implement contactless payments, in what order, and over what period of time.
- How to test each installation as it "goes live" (for example, providing installers with test cards to confirm successful installation).
- What training tools will be provided to each site as contactless payments are deployed.
- What marketing strategies should be executed simultaneously with rollout.
- If you issue a reloadable spending card (a gift card), whether to active all cards at rollout.

6   Conclusions

A new era of payment has begun in the United States, thanks to the introduction of contactless payments. Contactless payments are safe, fast, and convenient and provide benefits to consumers, merchants, and issuers. Contactless payments also open the door to additional merchant creativity and differentiation. They support new form factors and value-added applications based on the mature card industry.

Contactless payments represent the most important card payment innovation in the last decade, with early adoption on the part of many major card issuers and top-brand merchants, and investments by and cooperation with the payment brands. Millions of contactless payment cards and devices are being issued, the number of accepting merchant locations is increasing rapidly, and consumer usage is steadily increasing.

Over the coming year, significant growth is expected in the adoption and use of contactless payments in the United States. Consumers enjoy their convenience, and merchants realize faster checkout times and increased throughput. The value propositions offered by contactless payments are clear.

7 References and Resources

For more information about contactless payments, visit the Smart Card Alliance website, at www.smartcardalliance.org, and select the Contactless Payments Resources link (http://www.smartcardalliance.org/pages/activities-councils-contactless-payments-resources). The resources page includes latest news about contactless payments and links to other resources.

- American Express ExpressPay web site, http://www.americanexpress.com/expresspay

- Contactless Payment Deployment: Merchant Implementation Guide, Smart Card Alliance Contactless Payments Council presentation, February 2007

- Contactless Payments: Consumer Attitudes and Acceptance in the United States, Smart Card Alliance and Javelin Strategy & Research report, November 2006

- Contactless Payments: Frequently Asked Questions, Smart Card Alliance Contactless Payments Council publication, February 2007

- Discover Network web site, http://www.discovernetwork.com/indexDN.html

- MasterCard PayPass consumer web site, http://www.mastercard.com/us/personal/en/aboutourcards/paypass/index.html

- Retail Contactless Payment Systems Benchmark Report: Improving Customer Retention and Loyalty, Aberdeen Group report, January 2007

- The What, Who and Why of Contactless Payments, Smart Card Alliance Contactless Payments Council position paper, December 2006

- Visa payWave consumer web site, http://usa.visa.com/personal/cards/paywave/index.html

- Visa payWave merchant web site, http://usa.visa.com/merchants/payment_technologies/paywave.html

8   Contactless Payments Vendors

The following is a partial list of product and service vendors who offer more information about contactless payment deployment. There may be others and certainly manufacturers are developing new devices with contactless capabilities.

8.1   Merchant Processors

- First Data Corporation (http://www.firstdata.com)
- Chase Paymentech (http://www.paymentech.com)

8.2   Contactless Readers

- OTI (http://www.otiglobal.com)
- VeriFone (http://www.verifone.com)
- ViVOtech (http://www.vivotech.com)

8.3   POS Terminals

- Hypercom (http://www.hypercom.com)
- IBM (http://www-03.ibm.com/products/retail/index.html)
- Ingenico (http://www.ingenico-us.com)
- Lipman (http://www.verifone.com)
- Nurit (http://www.verifone.com)
- Micros (http://www.micros.com)
- Radiant (http://www.radiantsystems.com)
- VeriFone (http://www.verifone.com)

8.4   Payment Brand Approved Products

- MasterCard *PayPass* approved products - http://www.paypass.com.
- Visa payWave approved products - http://partnernetwork.visa.com/cd/testing/approved.jsp.

8.4   Contactless Cards

- CPI Card Group (http://www.cpicardgroup.com)
- Giesecke & Devrient (http://www.gi-de.com)
- Gemalto (http://www.gemalto.com)
- Oberthur Card Systems (http://www.oberthurcs.com)
- Perfect Plastic Printing (http://www.perfectplastic.com)
- VCT (http://www.vct.com)

8.4   Personalization Services

- First Data Corporation (http://www.firstdata.com)
- Giesecke & Devrient (http://www.gi-de.com)
- Gemalto (http://www.gemalto.com)
- Oberthur Card Systems (http://www.oberthurcs.com)
- OTI (http://www.otiglobal.com)
- Total Systems (http://www.tsys.com)

9   Publication Acknowledgements

This white paper was developed by the Smart Card Alliance Contactless Payments Council to assist merchants in successfully deploying contactless payments. Publication of this document by the Smart Card Alliance does not imply the endorsement of any of the member organizations of the Alliance.

About the Smart Card Alliance

The Smart Card Alliance is a not-for-profit, multi-industry association working to stimulate the understanding, adoption, use and widespread application of smart card technology. Through specific projects such as education programs, market research, advocacy, industry relations and open forums, the Alliance keeps its members connected to industry leaders and innovative thought. The Alliance is the single industry voice for smart cards, leading industry discussion on the impact and value of smart cards in the U.S. and Latin America. For more information please visit http://www.smartcardalliance.org.

About the Smart Card Alliance Contactless Payments Council

The Contactless Payments Council (http://www.smartcardalliance.org/pages/activities-councils-contactless-payments) is one of several Smart Card Alliance technology and industry councils. The Contactless Payments Council was formed to focus on facilitating the adoption of contactless payments in the U.S. through education programs for consumers, merchants and issuers. The group is bringing together financial payments industry leaders, merchants and suppliers. The Council's primary goal is to inform and educate the market about the value of contactless payment and work to address misconceptions about the capabilities and security of contactless technology. Council participation is open to any Smart Card Alliance member who wishes to contribute to the Council projects.