CONTACTLESS TOOLKIT FOR ACQUIRERS

1.9 billion

AN ESTIMATED 1.9 BILLION CARDS WILL BE USED FOR CONTACTLESS PAYMENTS GLOBALLY IN 2018.*

ADDING CONTACTLESS

By enabling merchants to accept contactless, you're opening the door to powerful benefits. In addition to the convenience it offers customers, contactless can help you increase volume, attract new merchants, and reduce attrition.

With the proliferation of Near Field Communication (NFC) mobile payment devices, enabling contactless is your best entry into mobile payments acceptance. Those cardholders who use a card to tap for purchases today will be the ones who will use a phone to tap for purchases tomorrow.

About this Toolkit

In this document you'll find all the information you'll need for a successful deployment of today's most advanced—and convenient—payment option. From FAQs to implementation steps and best practices, MasterCard is here to help every step of the way.

Potential Benefits of Contactless for Acquirers

Increased volume at currently affiliated merchants
» Cash-to-contactless transactions.
» Increases in average ticket.
» Increased purchase frequency.
» Customers may spend more as they are not limited to cash on hand.

New merchants
» Expansion into new merchant categories.

Reduced merchant attrition
» Lowers costs and investments to re-affiliate merchants.

* Juniper Research, "Contactless Payment Cards: Market Prospects 2013–2018," November 2013.

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Welcome to Contactless

Making payments has never been easier, thanks to MasterCard contactless. All the cardholder needs to do is tap their contactless-enabled card, mobile phone, or other device on a contactless-enabled reader or terminal. Within a fraction of a second, they'll receive payment confirmation, and be on their way.

WHAT IS CONTACTLESS?

Contactless is a payment method that gives cardholders the convenience of making payments without handing over or swiping/dipping a payment card.

Instead, the cardholder simply taps their contactless-enabled card or device (such as a mobile tag, mobile phone, key fob, or wristband) onto a contactless-enabled reader.

The chip and antenna in the device securely transmits payment details wirelessly to a contactless reader connected to a merchant's point-of-sale (POS) system.
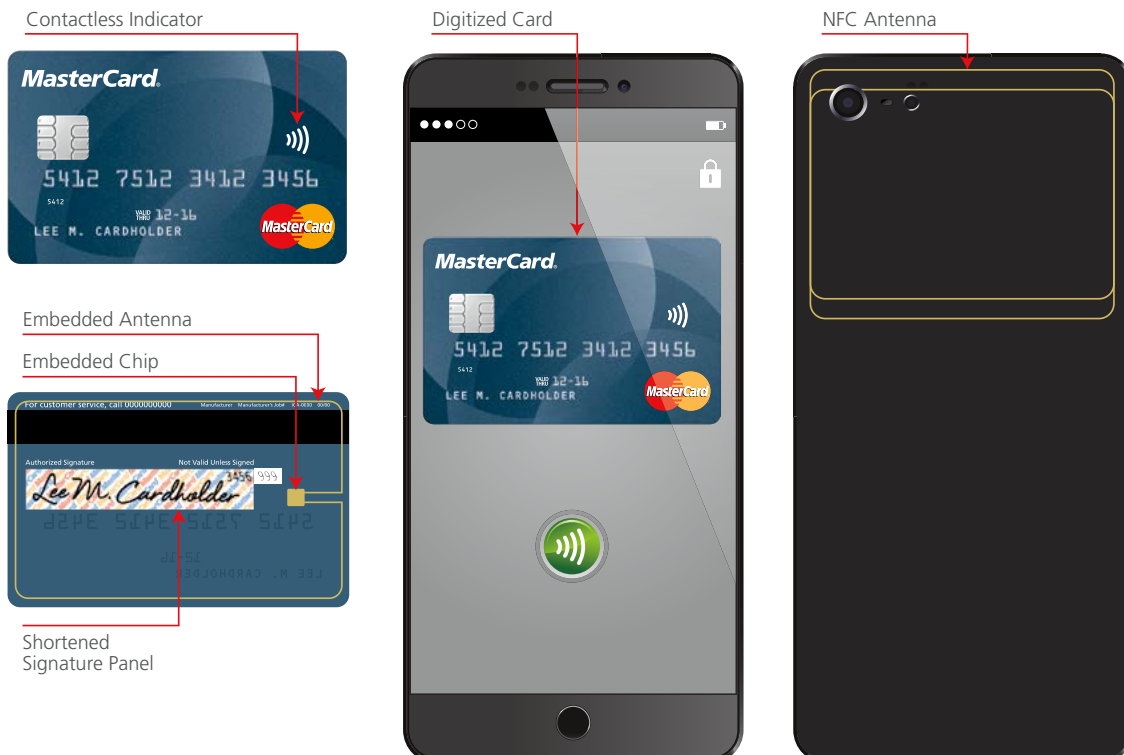
Account details are communicated directly to the contactless terminals and are then processed through the same acceptance network used for regular payment card transactions. Within a fraction of a second after a cardholder taps the terminal with their contactless-enabled card or device, they receive payment confirmation and can be on their way.

Contactless-enabled cards look similar to standard MasterCard and Maestro cards, except that they include the contactless identifier and, as is true for all chip cards, a shorter signature panel on the back. Embedded inside the card is a computer chip that stores and processes the payment account data and a connected antenna that typically runs around the perimeter of the card.

88%

Displace cash with MasterCard contactless. Approximately 88% of contactless transactions in the U.S. are under USD 50, while 76% are under USD 25.

MasterCard Data Warehouse, 4Q2014

Contactless Indicator

Digitized Card

NFC Antenna

Embedded Antenna

Embedded Chip

Shortened Signature Panel

For illustrative purposes only.

How it Works

A computer chip in the payment card or device securely communicates with the merchant terminal. Within a fraction of a second, a light or beep indicates an approved transaction, and the cardholder is on their way.
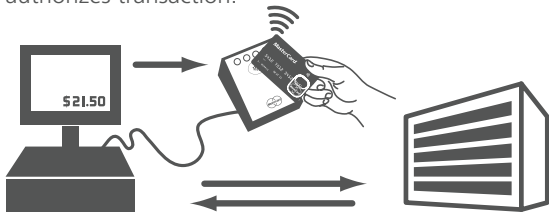
Transaction details are sent to the contactless-enabled terminal from the electronic cash register (ECR).
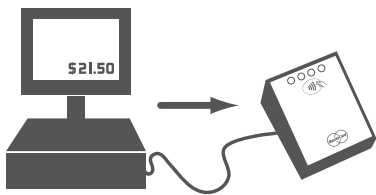
Card or device is tapped. Terminal activates and recognizes the contactess-enabled card or device and exchanges payment account details. The contactless-enabled card or device generates a dynamic cryptogram that creates a secure transaction in a fraction of a second.
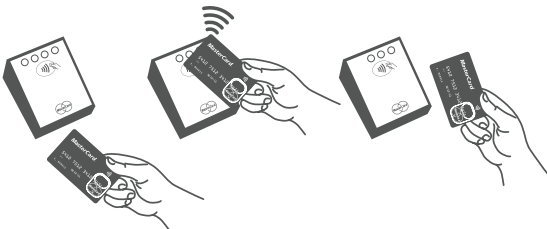
Transaction data is transmitted to issuer along with payment account details via acquirer. Issuer validates the dynamic cryptogram, authenticates the data, and authorizes transaction.

The contactless M/Chip application offers you powerful tools to manage the risk presented by offline cardholder transactions. As there is possibly no connection to the issuer for such transactions, it is the contactless M/Chip application that decides whether to accept transactions offline on the issuer's behalf. Such offline transactions are processed by the issuer during the transaction clearing.

CONTACTLESS MODE

Contactless cards can be dual interface (supporting both a contact and a contactless interface) or can be contactless only (for example: key fobs, wristbands, mobile tags, and mobile phones). There are two applications available when implementing contactless, M/Chip and Magstripe Mode.

Contactless M/Chip Mode
» Online or offline transactions
» Requires an EMV payment issuing platform
» M/Chip data used in contactless transactions if terminal is contactless EMV compliant
» Available for MasterCard and Maestro brands

Contactless Magstripe Mode
» Online transactions only
» Magstripe data with dynamic CVC3
» Available for MasterCard brand

GLOBAL ACCEPTANCE

This universal contactless symbol indicates that contactless payments are available. To pay with a contactless enabled card or device, the cardholder must look for the universal contactless symbol on the terminal.

SECURITY

MasterCard places a strong and consistent emphasis on security through the enforcement of compliance with product specifications and other MasterCard requirements to safeguard cardholders, merchants and other payment system participants.

Frequently Asked Questions

What types of merchants can benefit the most from contactless acceptance?

Contactless acceptance is an excellent choice for any merchant, especially in environments where speed and convenience are valued and cash is the dominant payment method, such as supermarkets, quick-service restaurants (QSRs), drive-thrus, convenience stores, vending machines, tollbooths, taxis, parking venues, public transport, and fuel pumps.

How safe are these transactions—can someone intercept the data or get incorrectly charged for purchases when carrying the card?

Paying with contactless-enabled cards and devices uses the same cryptographic techniques as paying with traditional contact cards where each payment is protected with a dynamic cryptogram. When a new purchase is initiated, a new cryptogram is generated. It is unique to that purchase and can only be used once. Any subsequent purchase attempts with that previously used cryptogram data will fail.

Are signature and PIN requirements waived for contactless purchases—is there a limit?

Contactless is ideal for low-value payments, but high-value payments are also possible in most countries. For purchases above your region's Cardholder Verification Method (CVM) limit, signature, PIN, or On-Device Cardholder Verification (ODCV) is still required.

How are contactless transactions authorized?

Contactless transactions can be authorized online or offline. The decision to send transactions online is subject to existing rules for the payment application enhanced by contactless, any participation in special merchant acceptance programmes, and issuer-determined risk management parameters set within the chip on the card. The risk management rules will depend both on the technology and the underlying payment application (credit, debit, prepaid/stored-value, etc.).

How long does it take to implement contactless?

Implementation times vary based on the merchant's environment. For current MasterCard acquirers, it is estimated to take several months to perform all technical and commercial tasks necessary for a contactless deployment.

What type of technology is used for contactless?

In keeping with our overall strategy to create globally interoperable payment solutions, contactless was built following an open industry standard for radio frequency communications: ISO 14443.

MasterCard contactless replaces cash at new merchant categories.
» Airline In-flight
» Cinemas
» Electric Charging Stations
» Festivals
» Parking Meters
» Public Transport
» Stadiums
» Taxi Cabs
» Toll Roads
» Vending Machines

Five Steps to Implementation

This section suggests how you, as an acquirer, can plan and execute adding contactless to your existing M/Chip or Magstripe acceptance.

1. Pre-acceptance Planning
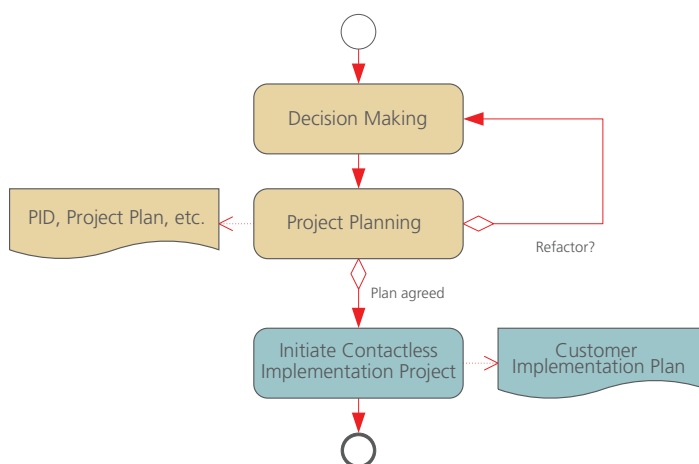
PROJECT INITIATION

The first part of pre-acceptance planning is project initiation. This phase entails the following:

» **Decision making**, which addresses business requirements and the technical means that you use to achieve those requirements. These decisions directly affect how you will implement adding contactless to your M/Chip or Magstripe acceptance and therefore affect the planning required.

» **Planning the implementation**, where you take the business decisions and construct a project plan to determine how you will implement those decisions in the most efficient, cost effective, and timely manner.

MasterCard can also assist you with the following:

» Contactless strategy support and decision making.

» Contactless business case support.

» Workshops covering business, technical, and security needs.

Decision Making

As part of initiating a project, various decisions need to be made that will affect the project. Once the project initiation decisions have been made, you can begin to plan your project. Many of the decisions that you need to make affect each other and will also affect your planning, and vice versa. You may have to do more than one pass through decision making and project planning tasks before they are fully established and you can start the implementation.

Project Planning

When planning your project, it is recommended that you do so against a suitable framework covering the variety of disciplines and activities required within your project.

There are several ways that you can build a project plan for adding contactless to M/Chip or Magstripe card acceptance. The one proposed here should not be considered as universally suitable for all projects. Your project manager(s) should be prepared to customize the specifics to suit your particular projects.

The activities within these phases comprize tasks that are:

» Internal processes that are proprietary to your circumstances (shown in tan).

» Collaborative processes with MasterCard and approved Service Providers to initiate services or obtain certification as certain key milestones are reached (shown in blue).

After formalising your business decisions, you need to contact your regional MasterCard representative to initiate a Contactless Migration Project. MasterCard will assign a MasterCard project manager, who will, with your help, produce a Customer Implementation Plan which details the services and support that MasterCard will provide during your project.

CHANGE COMMUNICATION

Throughout the project, and particularly during the implementation phase, you need to communicate to merchants the changes that you will introduce with contactless, and encourage them to leverage the tap & go™ brand message.

With any new programme launch, the goal is to have as little end-consumer impact as possible while trying to drive incremental usage through added consumer value. Your merchants' employees are often a main contact point for cardholders and they need to not only be aware of the product or feature capabilities, but also be an advocate of its use.

MasterCard has marketing templates, FAQs, and training materials available to help you develop your communications and marketing messages. There are sample POS materials as well as cardholder-specific materials. Having an appropriate communications plan will contribute to the overall success of your programme.
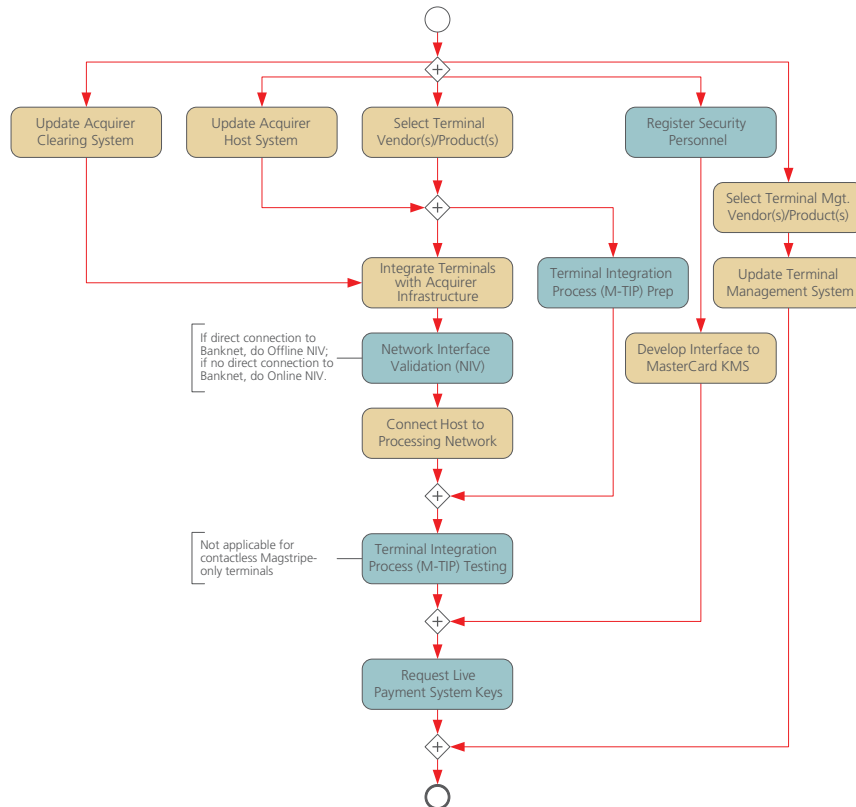
LICENSING

Vendors are required to enter into a license agreement with MasterCard before developing and selling contactless-enabled cards and devices. All cards, devices, and readers used for performing contactless transactions must be approved and licensed by MasterCard prior to their use. Acquirers must only purchase and deploy terminals from properly licensed vendors. Detailed information about the type approval process can be found by linking to the Chip Information Center at **mastercardconnect.com**.

Acquirers must start a project with the relevant MasterCard project team in order to define and complete various certification steps that are required. This can include Network Interface Validation for issuers or Terminal Integration Process for acquirers.

IMPLEMENTATION

Once you've completed your pre-planning, you're ready to move on to the technical changes that are necessary to add contactless to M/Chip or Magstripe acceptance.

2. Terminal and Acquirer Host Changes

Update Acquirer Clearing System · **Update Acquirer Host System** · **Select Terminal Vendor(s)/Product(s)** · **Register Security Personnel** · **Select Terminal Mgt. Vendor(s)/Product(s)** · **Integrate Terminals with Acquirer Infrastructure** · **Terminal Integration Process (M-TIP) Prep** · **Update Terminal Management System** · If direct connection to Banknet, do Offline NIV; if no direct connection to Banknet, do Online NIV. · **Network Interface Validation (NIV)** · **Develop Interface to MasterCard KMS** · **Connect Host to Processing Network** · Not applicable for contactless Magstripe-only terminals · **Terminal Integration Process (M-TIP) Testing** · **Request Live Payment System Keys**

Select Terminal Product and Update

First, be sure to confirm whether your existing terminals already support contactless. If you are buying new, select a terminal product that meets the business requirements for your contactless project. Ascertain that the product that you want to purchase can support and has been tested against your requirements.

It is also essential that the terminal product that you select meets all applicable standards and is certified as required. MasterCard also recommends that you select a product that is compliant with the standards. More information can be found in:

» "MasterCard Contactless Reader Approval Policy," published in *Global Operations Bulletin No. 10*, 1 October 2014

» "New Standards for Migration to MasterCard Contactless Reader Specification Version 3.0," published in *Global Operations Bulletin No. 11*, 3 November 2014

» "New Standards for Proximity Coupling Devices in New Contactless Reader Deployments," published in *Global Operations Bulletin No. 11*, 3 November 2014

The certification that a contactless terminal requires includes, but is not limited to the following:

» EMVCo level 1 Approval.

» Contactless Type Approval.

» Obtained Terminal Quality Management (TQM).

» If the terminal has a PIN Entry Device (PED) this must be approved by the PCI Security Standards Council.

» Having POS Terminal Security (PTS) for standalone IP/wireless-enabled POS devices.

Refer to the publications in the Rules section in MasterCard Connect™ for the terminal requirements you must meet.

Additional information on EMVCo approval can be obtained from **emvco.com**.

Refer to the Chip Information Center at **mastercardconnect.com** for the most current list of approved contactless terminals.

3. Select Terminal Management System (TMS) Vendor, Product and Update

Select a Terminal Management System (TMS) vendor that can be used to manage your chosen terminal products, and in particular to:

» Update terminal risk management parameters.

» Update payment system public key certificates.

» Manage terminal software updates.

After selecting the vendor/product, you need to integrate the solution into your infrastructure. Note: Your current terminals may already support contactless.

Update Authorisation Host

Update the authorisation host to accommodate changes to values in existing data elements with respect to contactless.

Update Acquirer Clearing System

Update the clearing system to cope with changes to values in existing data elements with respect to contactless.

Integrate Terminal Acquirer Infrastructure

Integrate your terminal products with the authorisation host via your acquirer network.

MasterCard recommends that you fully establish and plan this subprocess carefully. Past experience has shown that many acquirers underestimate the complexity and time required to complete these subprocesses.

Obtain Network Interface Validation

Obtain Network Interface Validation (NIV) to ensure that the changes you made to your host with regard to accepting and processing contactless-related transaction data are done in a compliant manner.

Note that NIV is divided into an offline and an online part, and depending on your circumstances you only need to do one of these parts:

» If your acquirer infrastructure has a direct connection to the network, you need to do Online NIV.

» Conversely, if your acquirer infrastructure has no direct connection to the network, you need to do Offline NIV.

Obtain MasterCard Terminal Integration Process

Obtain MasterCard Terminal Integration Process (M-TIP) to ascertain that your terminals are correctly integrated with your acquirer host via your terminal network, MasterCard Terminal Integration Process (M-TIP), and operate in the correct manner with respect to EMV and MasterCard requirements.

The preparation part of M-TIP can be done in parallel with the above subprocesses, and the M-TIP testing part started after you have obtained NIV.

MasterCard recommends that you pretest your terminal integration extensively using one of the available qualified test tools to ensure that it meets the test requirements before doing the formal M-TIP.
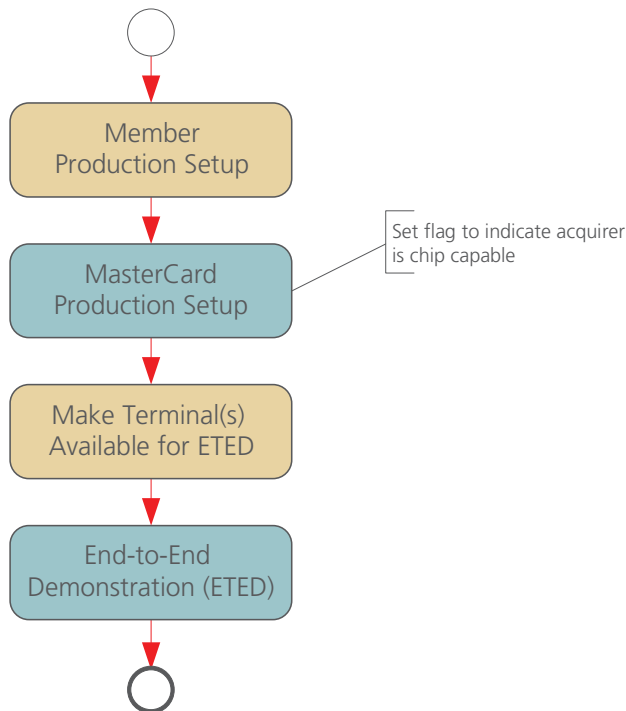
By doing an M-TIP that meets the test requirements you will avoid delays and costs that are incurred if you have to make modifications to your environment and you can redo M-TIP until it is successful.

Obtain Production Payment System Public Keys

Obtain production payment system public keys in preparation for Live Migration.

The payment system keys are independent of the underlying technology, that is, the keys you have for chip can be used for contactless.

4. Live System Migration

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                     v
        ┌──────────────────────┐
        │       Member         │
        │  Production Setup     │
        └──────────────────────┘
                     |
                     v
        ┌──────────────────────┐        ┐ Set flag to indicate acquirer
        │     MasterCard        │ ────── │ is chip capable
        │  Production Setup     │        ┘
        └──────────────────────┘
                     |
                     v
        ┌──────────────────────┐
        │   Make Terminal(s)    │
        │  Available for ETED   │
        └──────────────────────┘
                     |
                     v
        ┌──────────────────────┐
        │     End-to-End        │
        │ Demonstration (ETED)  │
        └──────────────────────┘
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Production Setup

You need to allow for the time needed to move from development to production:

» Switching network connections from development to production.

» Updating terminals by replacing test environment payment system certificates with production payment system certificates.

Obtain End-to-End Demonstration

Obtain a successful End-to-End Demonstration (ETED) to validate that you are able to accept live cards from multiple issuers and operate in the correct manner in a production environment.

5. Project Completion
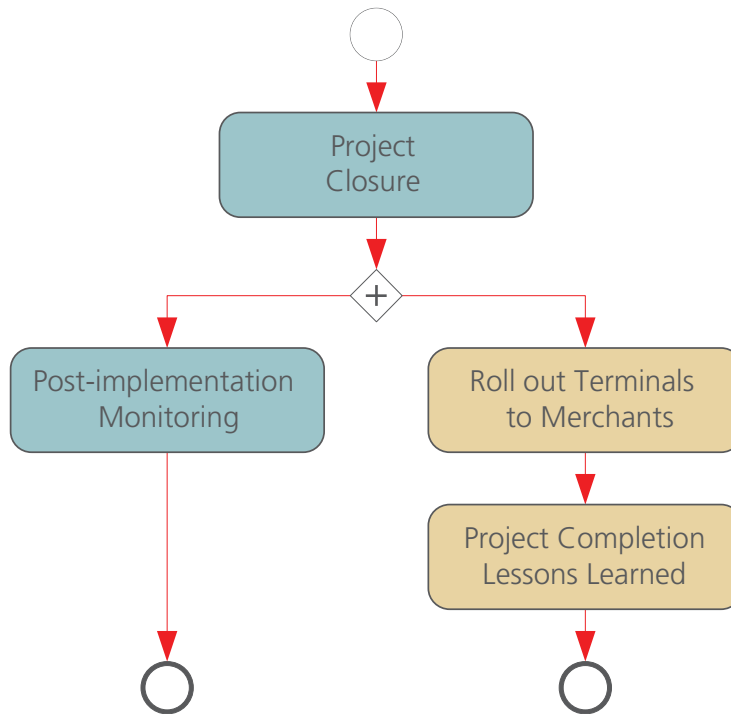
MasterCard Project Closure and Post-implementation Monitoring

Following a successful ETED, MasterCard Customer/ Product Delivery will close the implemented project on its side and will start post-implementation monitoring for 30 days to watch for any problems that may occur as your live contactless transactions begin.

Roll out Terminals

Roll out/upgrade the terminals using the deployment strategy that you decided upon.

Ensure that you communicate appropriately to your internal and external audiences, as migrating to contactless terminals will have an impact on your and your merchants' internal organisations.

Process Diagram: Adding Contactless Acceptance
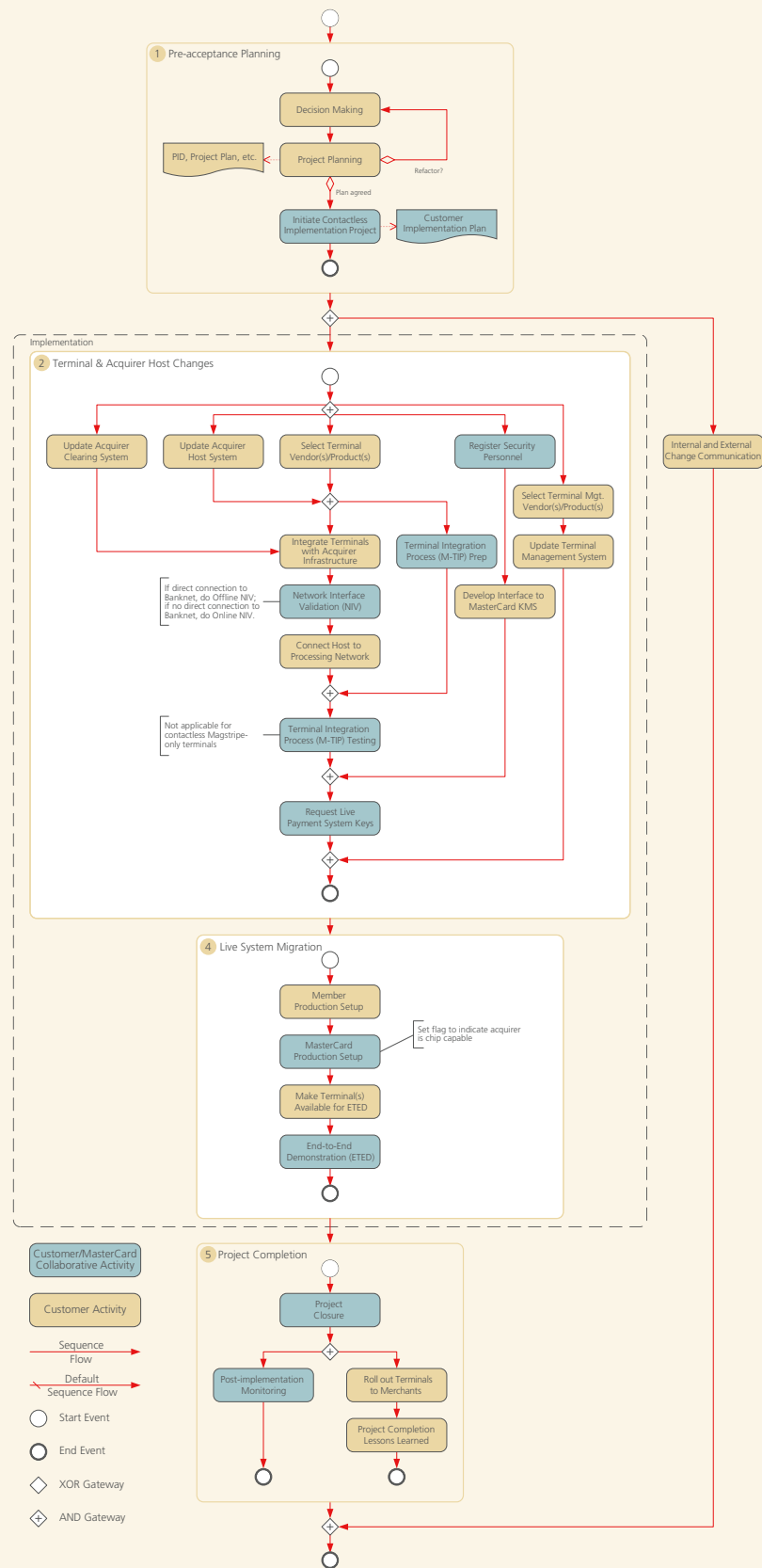
Acquirer Best Practices

In our extensive work with acquirers, MasterCard has identified these best practices when it comes to implementing contactless functionality.

A Note to Acquirers

The best practices listed here will also be valuable for the merchants with whom you do business. We encourage you to put these recommendations to use for yourself, and share them with your merchants early in the deployment process.

TECHNICAL EXCELLENCE

It is important that the technical components of a contactless deployment work flawlessly so the cardholder experience is positive.

» Ensure one streamlined payment process for each cash and card.
» Use equipment that is directly and securely integrated with the cash register.
  – Example: avoid double-entry of purchase totals by using automatic amount transfer between electronic cash registers (ECRs) and terminals.
» Minimize processing time.
  – Example: high-speed authorisation connections/ offline processing, streamlined transaction steps, fast receipt printers.
» Use fit-for-purpose equipment.
  – Example: consider counter space and environmental issues such as temperature and moisture.
» Include end-to-end testing to ensure data element compliance.

SECURITY SAFEGUARDS

Payment security depends on all stakeholders working together to adopt best practices and implement required solutions:

» Deploy only type-approved point-of-sales devices.
» Successfully complete MasterCard required testing.

POS SIGNAGE

Merchants have experienced success with POS signage that clearly and simply illustrates how to use contactless-enabled cards and devices. We recommend simple signage on, near, or surrounding the readers.

USAGE CAMPAIGNS

Getting contactless-enabled cardholders to activate and establish the tapping habit can be done effectively through usage incentives like a tap & get promotion.

Prominent promotion displays, especially near the POS, should be used so that cardholders know the functionality and the reward.

EMPLOYEE TRAINING

Employee training that instills confidence in technology and encourages use by customers is critical to a successful deployment.

» Training must be consistent and ongoing so employees know how to use it and can explain it to customers.
» Employees must learn to prompt customers to use their contactless-enabled cards/devices to encourage activation/usage.

AUDITS

Quality audits performed regularly are critical to deployment success. They can help to:

» Increase the number of installed readers/decrease the number of disabled readers.
» Resolve technical issues and answer questions about how and where to tap on the reader.

McDonald's Usage Campaign. Buy any McMeal and get a free dessert when you pay with your contactless-enabled card or device.

SMYK Usage Campaign. Get a free bag of Haribo sweets when you pay with your contactless-enabled card or device.

Zabka Usage Campaign. Get a free litre of soda when you pay with your contactless-enabled card or device.

Consumer Marketing in the Czech Republic: Portfolio migrations to contactless. Explains usage in the welcome call, welcome pack, statement insert, ATM screens, and social media.

Consumer Marketing in Europe: Posters focus on the availability and benefits of using contactless-enabled cards and devices.

MasterCard

VIDEO

Fast Payments at
Globus Supermarkets
bit.ly/Globusvideo

Just Tap & Go™ with
MasterCard Contactless
bit.ly/ConsumerSecurityVideo

Cashless Pioneers:
Transport for London
bit.ly/TfLvideoMA

Additional Resources

We don't expect you to know everything there is to know about contactless. But we do want you to know how to find the answers.

mastercard.com/contactless
contactless@mastercard.com

mastercardconnect.com
mastercardbrandcenter.com

These are your go-to resources for all things contactless. Connect to country-specific contactless sites and find implementation information and marketing support specific to merchants, issuers, and acquirers.

Cardholders can use mastercard.com/contactless to access the contactless Merchant Locator tool which can help them find contactless-accepting merchants around the world — online or through an app for mobile.

FOR MORE INFORMATION, CONTACT YOUR MASTERCARD RELATIONSHIP MANAGER OR VISIT MASTERCARD.COM.