

# CONTACTLESS TOOLKIT FOR FINANCIAL INSTITUTIONS



## 1.9 billion

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

## ADDING CONTACTLESS

By adding contactless to any payment portfolio, you're opening the door to powerful benefits. In addition to adding convenience for your cardholders, contactless can help you increase spending, displace cash, and reduce attrition.

With the proliferation of Near Field Communication (NFC) mobile payment devices, enabling contactless is your best entry into mobile payment. 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 successful issuance of today's most advanced—and convenient—payment option. From FAQs to issuance guidelines and best practices, MasterCard is here to help every step of the way.

### Potential Benefits of Contactless for Financial Institutions

#### Higher spend

- » Incremental spend—consumer not limited to cash on hand.
- » Incremental transactions—results from increased usage.
- » Expected increases in swiped/dipped transactions.

#### Cash displacement

- » Replacement of cash purchases now paid with contactless-enabled cards and devices.

#### Reduced attrition

- » Reduction in incentives paid by bank toward account retention.
- » Opportunity costs avoided—fewer customers switching banks or moving competitors' products to top of wallet.

\* 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 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 your 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.

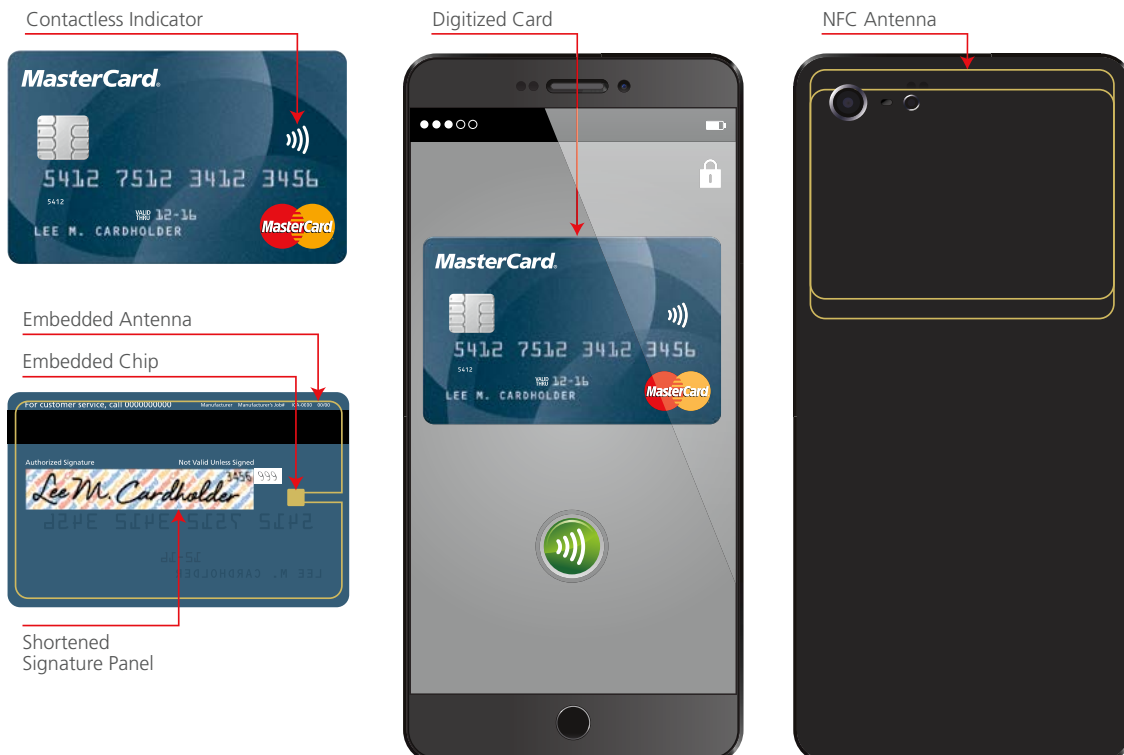
Account details are communicated directly to the contactless terminals and are then processed through the same acceptance network used for regular payment card transactions. Within a fraction of a second after a consumer taps the terminal with their contactless-enabled card or device, they receive payment 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

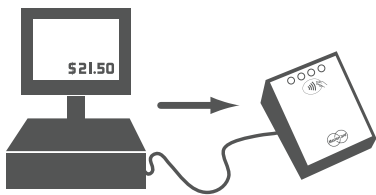


For illustrative purposes only.

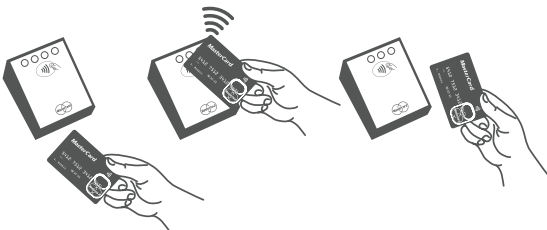
## How it Works

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.

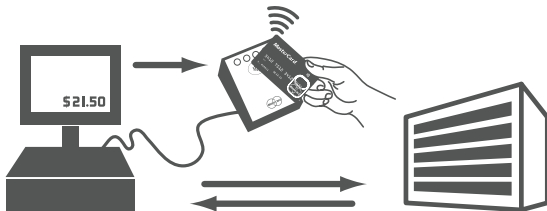
Transaction details are sent to the contactless-enabled terminal from the electronic cash register (ECR).



Card or device is tapped. Terminal activates and recognizes the contactless-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 the 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 are the latest consumer insights on contactless performance?

Since the original contactless trials in 2003, we have continued to see strong usage and an increase in user adoption. Contactless is successfully displacing cash in environments where cash was traditionally the preferred payment method—where the average ticket is low. In fact, approximately 88% of contactless transactions are under USD 50.\* Plus, contactless-enabled accounts increase and maintain higher average spend per account than non-contactless-enabled accounts: 26% YOY net lift in spend among contactless credit accounts and 39% among contactless debit accounts.\*\*

### 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.

### 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



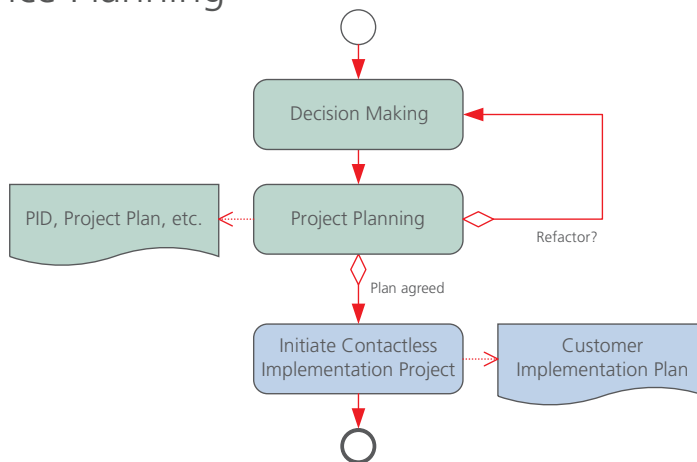
\* MasterCard Data Warehouse, 4Q2014

\*\* MasterCard Data Warehouse, FY2013 and FY2014

## Six Steps to Issuance

This section suggests how you, as a financial institution, can plan and execute, adding contactless to your existing M/Chip or Magstripe issuance.

### 1. Pre-issuance Planning



#### PROJECT INITIATION

The first part of pre-issuance 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 issuance 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 issuance. 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 comprise tasks that are:

- » Internal processes that are proprietary to your circumstances (shown in green).
- » 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 staff and cardholders the changes that you will introduce with contactless, and leverage the tap & go™ brand message.

With any new programme or product launch the goal is to have as little cardholder impact as possible while trying to drive incremental usage through added cardholder value. Communications should be specific and engaging, and explain how this will benefit the cardholder. Additionally, employees are often a main contact point for your 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

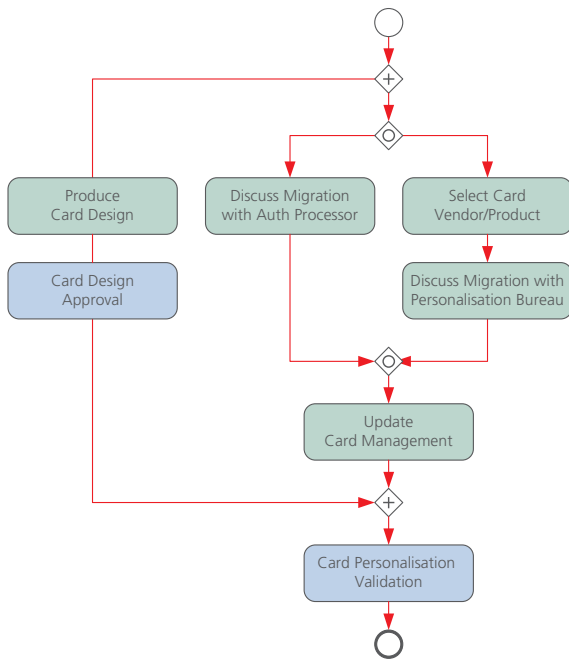
Vendors are required to enter into a license agreement with MasterCard before developing and selling contactless-enabled cards and devices. All cards, devices, and readers used for performing contactless transactions must be approved and licensed by MasterCard prior to their use. Issuers must only purchase and deploy cards and 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](https://www.mastercardconnect.com).

Issuers 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 issuance.

## 2. Card-Oriented Changes



### Design Cards and Obtain Card Design Approval

Redesign your cards to carry the contactless indicator and obtain Card Design Approval.

### Discuss Migration with Your Authorisation Processor

If you use an authorisation processor, discuss with them your plans to add contactless functionality to M/Chip or Magstripe and how they can help you achieve this.

### Select a Card Vendor/Product

Select a card vendor who offers card products that meets your business requirements.

The vendor must be part of the Global Vendor Certification Programme (GVCP), and the vendor product must meet and maintain compliance with other MasterCard requirements, specifically Compliance Assessment and Security Testing (CAST) and Card Quality Management (CQM). The card product itself must meet and maintain

Card Functional Approval (CFA). The device selected also needs a valid non-expired LOA for the product (Maestro/MasterCard) they intend to issue.

Refer to the Chip Information Center at [mastercard.com/contactless](https://www.mastercard.com/contactless) for the list of approved contactless products.

Alternatively, you can choose to develop your own product, under license, based on the contactless specifications and MasterCard requirements. Your product will need to obtain approval.

### Discuss Migration with Your Personalisation Bureau

If you use a personalisation bureau, discuss with them your plans to add contactless to M/Chip or Magstripe and how they can help you achieve this.

The data required for personalisation is similar to that for M/Chip, so you will need to consider the impact this will have on additional data elements you may need to provide to the personalisation bureau.

### Update Card Management

You need to make changes, if necessary, to your card management system, such as preparing and sending additional data for personalisation.

### Obtain Card Personalisation Validation

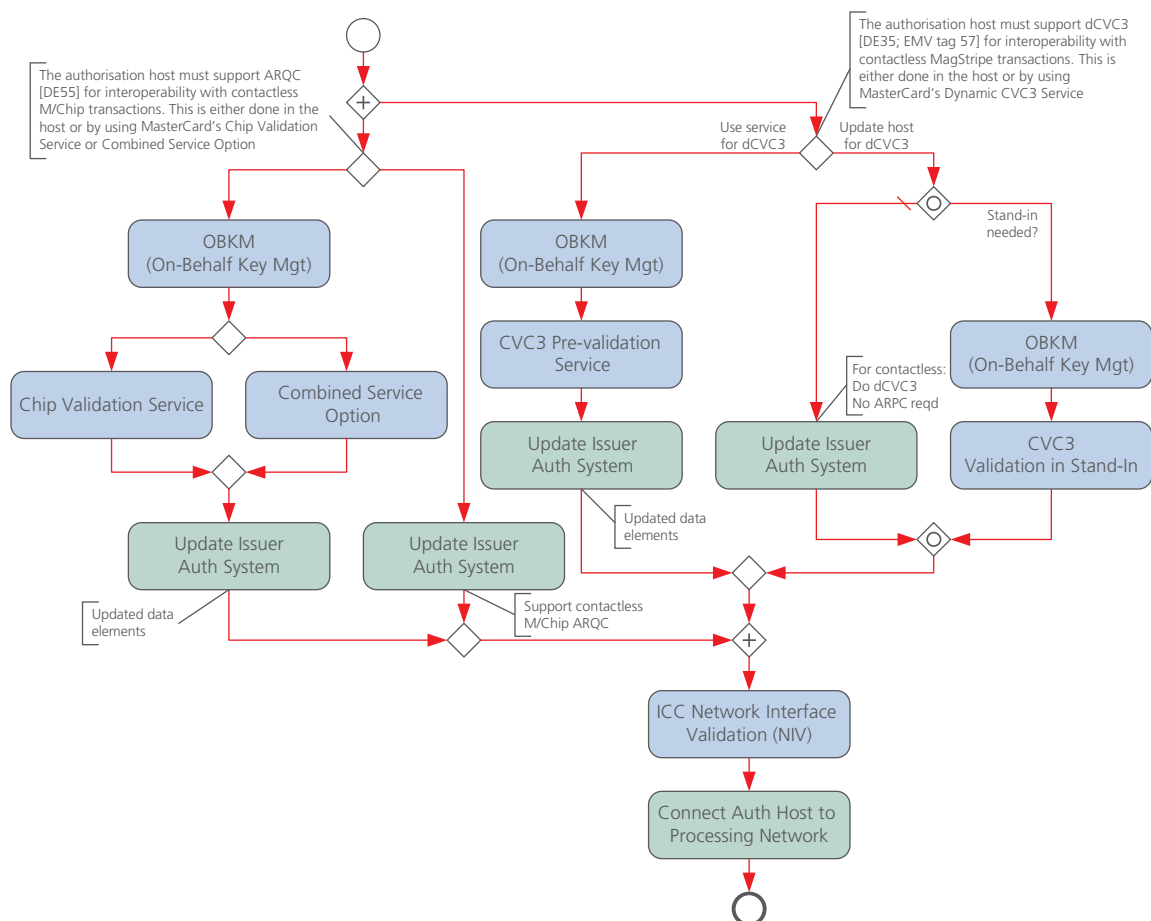
Your contactless-enabled cards must obtain Card Personalisation Validation (CPV) to ensure that the personalisation parameters in them meet all contact, contactless, and other MasterCard requirements.

MasterCard recommends that you use standard personalisation profiles to quickly accomplish CPV. Using non-standard personalisation profiles will result in a longer and costlier CPV due to the need for more extensive testing and analysis.

MasterCard further recommends that you test your cards before submitting them for CPV. This may be achieved by requesting assistance from a test laboratory or by using one of the available qualified test tools.



### 3. Authorisation Host Changes



#### Update Authorisation Host with Support for Authorisation Response Cryptogram (ARQC)

Your authorisation host must be able to support ARQC processing. Based on your business decisions, you will do one of the following set of changes:

- » Update your authorisation host to support ARQC.
- » Use the Chip Validation Service or the Combined Service Option and update your authorisation host to cope with changes to values in existing elements.

#### Update Authorisation Host with Support for Dynamic CVC3

The authorisation host must also support dynamic CVC3 for interoperability with contactless Magstripe transactions.

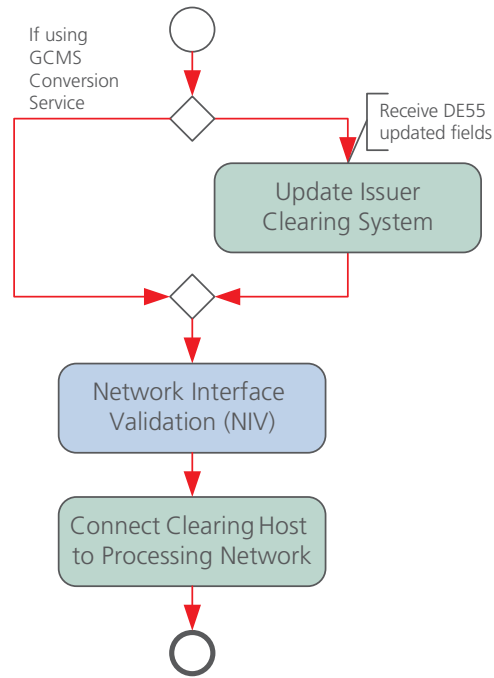
Additionally, order the MasterCard CVC3 Validation Stand-In Service if you decided to use this for business continuity reasons.

Alternatively, if you decided that your authorisation host would not be updated to directly support dynamic CVC3, you may leverage Contactless On-Behalf Services (see back cover).

#### Obtain Network Interface Validation (for Authorisation)

Obtain Network Interface Validation (NIV) to ensure that the changes you made to your authorisation host infrastructure are compliant with MasterCard requirements.

## 4. Clearing Host Changes



### Update Clearing Host

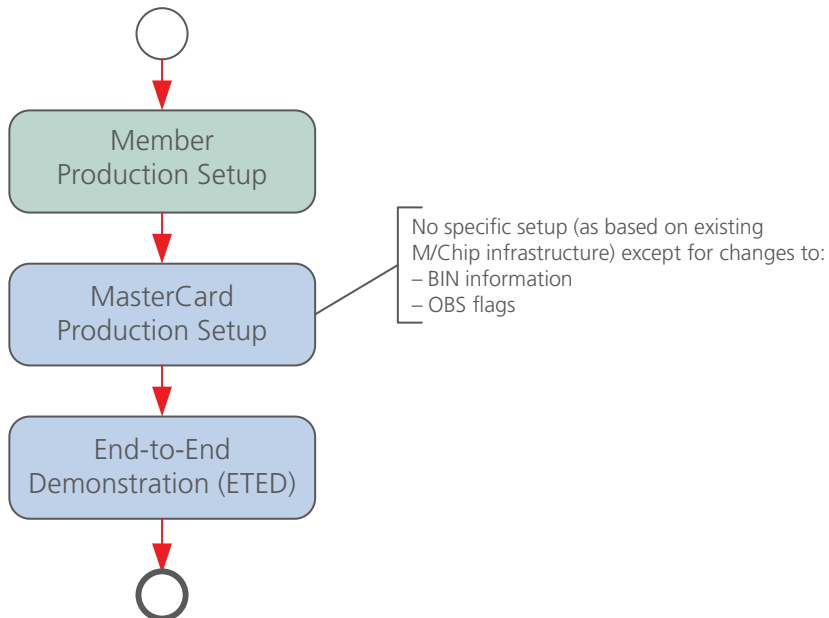
You will have to update your clearing system to accommodate different values in existing data elements for contactless transactions.

Alternatively, if you are already using the MasterCard Global Clearing Management System (GCMS) Chip Conversion Service in your implementation, you do not need to do anything further.

### Obtain Network Interface Validation (for Clearing)

Obtain Network Interface Validation to ensure that the changes you made to your clearing environment with regard to accepting contactless-related transaction data are done in a compliant manner.

## 5. Live System Migration



### Production Setup

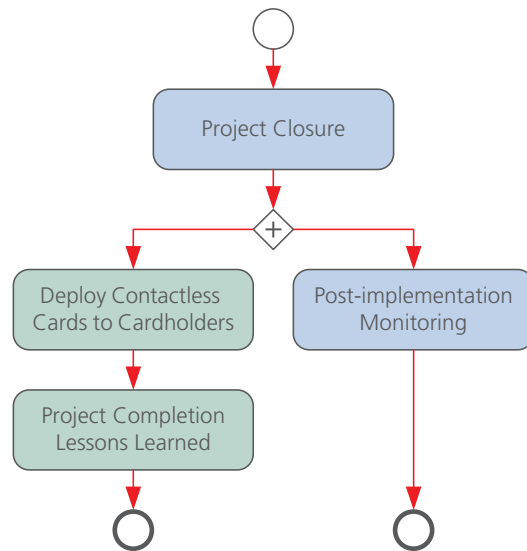
Allow for the time needed to move from development to production:

- » Switching network connections from development to production.
- » Enabling BINs for contactless-enabled cards.
- » Ensuring that personalisation uses live keys instead of test keys.

### Obtain End-to-End Demonstration

Obtain a successful End-to-End Demonstration (ETED) to validate that you are able to issue live contactless-enabled cards that can be accepted and operate in the correct manner in a production environment.

## 6. Project Completion



### MasterCard Project Closure and Post-implementation Monitoring

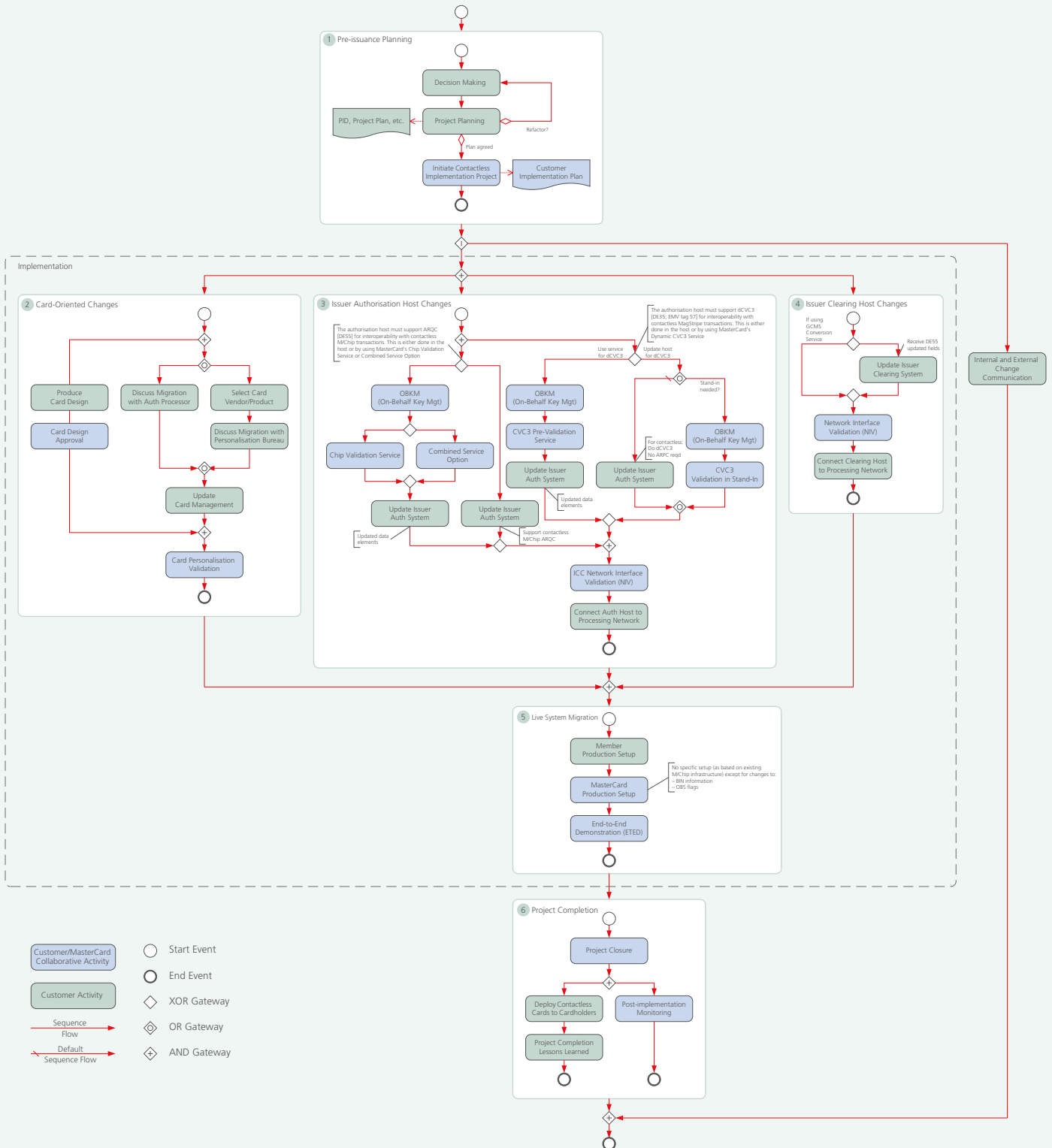
Following a successful ETED, MasterCard Customer/Product Delivery will close the implemented project on its side and will start post-implementation monitoring for 30 days to watch for any problems that may occur as your live contactless transactions begin.

### Deploy Cards to Cardholders

Deploy the contactless-enabled cards using the deployment strategy that you decided upon.

Ensure that you communicate appropriately to your internal and external audiences, as migrating to contactless can have a noticeable impact on your internal organisation and your cardholders.

# Process Diagram: Adding Contactless Issuance



## Issuance Best Practices

In our extensive work with financial institutions, MasterCard has identified these best practices for issuing contactless-enabled cards and devices.

### SEGMENTATION STRATEGY

Identify and target specific cardholder segments that have been shown to be early adopters, like frequent card users. A targeted consumer strategy is designed for programme launch and must include a framework for full rollout.

### CARD DESIGN

Card designs vary by issuer, but there are two critical components of any card design:

- » Adhere to approved contactless brand standards.
- » Place contactless branding on the front of the card.

### TEST PLANS

A comprehensive test plan helps ensure all goes smoothly in a rollout.

**Personalisation Testing (required):** MasterCard will validate the personalisation of a contactless card/device with the issuer (or an issuer-designated payment processor).

This testing covers the requirements for checking that the correct data is being personalized onto contactless products to be issued.

### SECURITY SAFEGUARDS

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

- » Use only type-approved MasterCard payment applications and chips.
- » Successfully complete the required testing.

Follow safeguards to authorize valid transactions by checking POS entry mode and dynamic authentication to avoid the misuse of contactless data.

### PERFORMANCE MONITORING

Ongoing performance monitoring is necessary in order to effectively evaluate the performance of the contactless functionality on any portfolio, and to design programmes that further promote usage.

Issuers need to ensure that they are able to identify their contactless-enabled cardholders and determine when they swipe/dip vs. tap their card/device.

To evaluate the impact of contactless, they can do performance testing. Important elements are:

- » Clearly identify metrics to measure.
- » Define test period.
- » Identify target group and split into test and control segments.
- » Evaluate impact.

### EMPLOYEE TRAINING

Specific contactless training must be incorporated into any ongoing employee training programme. Guiding principles include:

- » Educate employees at least four weeks before cardholders get contactless.
- » Train employees immediately after announcing its launch.
- » Generate excitement with all communications.
- » Consider an employee promotion or sweepstakes during the rollout phase.

Customer-facing employees should be knowledgeable about contactless and act as an advocate of its use. The objective of training is to:

- » Give customer-facing employees product and benefit information so they can answer questions.
- » Highlight typical cardholder questions and give employees rebuttals that could help in the sales process.
- » Encourage employees to promote the card and highlight usage opportunities.

### CONSUMER MARKETING

In order to get cardholders to activate and use the card or device right away, issuers need to:

- » Highlight the benefits of the functionality, including how and where to use it, as well as the security and fraud protections available.
- » Market to card member in a consistent, frequent, and multi-phased manner.

**CONTACTLESS CARDS**

**PAY FASTER AND EASIER THAN EVER BEFORE**

MORE INFORMATION →



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.

GE Money Bank  
Január 2018

Bezkontaktní nálepky vám přinášíme již rok! Kam jste si ji umístili a jak jste s touto inovací spokojeni? Pokud ještě váháte, udělejte první krok a zažádejte o ni v Internet Bance. Více informací zde: <http://bit.ly/1bsmJ1h>

Forděbá megtekinéte




Obchodník zadá částku za nákup, která se objeví na platebním terminálu. Přiložíte kartu ke čtečce terminálu, který Vám vzápětí viditelně i zvukem potvrdí provedení platby. Hotovo. Nákup je zaplacen.

Při nákupu nad 500 Kč částku potvrzujete PINem.



Obchodník zadá částku za nákup, která se objeví na platebním terminálu. Přiložíte bezkontaktní platební kartu ke čtečce terminálu, který Vás vzápětí viditelně i zvukem vyzve k zadání PINu. Hotovo. Nákup je zaplacen.



MasterCard Maestro BANK LOGO

**CHOOSING THE JUICEST APPLE: 3 MINUTES**

**PAYING FOR THE APPLE: FASTER THAN ONE BITE**

MasterCard & Maestro contactless. Tap & Go™

It is quick and easy. Just tap the terminal with your card, no need to dip it. For purchases over 25 EUR you have to enter your pin for added security.\*



MasterCard Maestro BANK LOGO

**I MANAGED TO PAY FOR THE PETROL BEFORE MY KIDS EVEN NOTICED ALL THE SWEETS IN THE SHOP.**

Time to switch to MasterCard Contactless.

MasterCard & Maestro contactless. Tap & Go™

It is quick and easy. Just tap the terminal with your card, no need to dip it. For purchases over 25 EUR you have to enter your pin for added security.\*



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

## VIDEO

Fast Payments at  
Globus Supermarkets  
[bit.ly/Globusvideo](http://bit.ly/Globusvideo)

Just Tap & Go™ with  
MasterCard Contactless  
[bit.ly/ConsumerSecurityVideo](http://bit.ly/ConsumerSecurityVideo)

Cashless Pioneers:  
Transport for London  
[bit.ly/TfLvideoMA](http://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](http://mastercard.com/contactless)  
[contactless@mastercard.com](mailto:contactless@mastercard.com)

[mastercardconnect.com](http://mastercardconnect.com)  
[mastercardbrandcenter.com](http://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](http://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.

## Additional Services

### Contactless On-Behalf Services

In an effort to help you implement and manage a successful programme, we also offer Contactless On-Behalf Services. You can leverage our most advanced security and risk management features and introduce the latest innovations of Contactless Modular Solutions to your cardholders. On your behalf, we can provide:

- » CVC3 Validation Services.
- » Contactless Mapping Service.

**FOR MORE INFORMATION, CONTACT YOUR MASTERCARD RELATIONSHIP MANAGER OR VISIT [MASTERCARD.COM](http://mastercard.com).**