



The Evolution of Payment Specifications and Tokenization

Smart Card Alliance and EMVCo Webinar
October 1, 2015

Presenters and Agenda



- **U.S. Market Progress**
 - Randy Vanderhoof
 - Executive Director
 - Smart Card Alliance & EMV Migration Forum



- **EMVCo: Mission, Structure, Activities and Industry Engagement**
 - Brian Byrne
 - Director of Operations
 - EMVCo



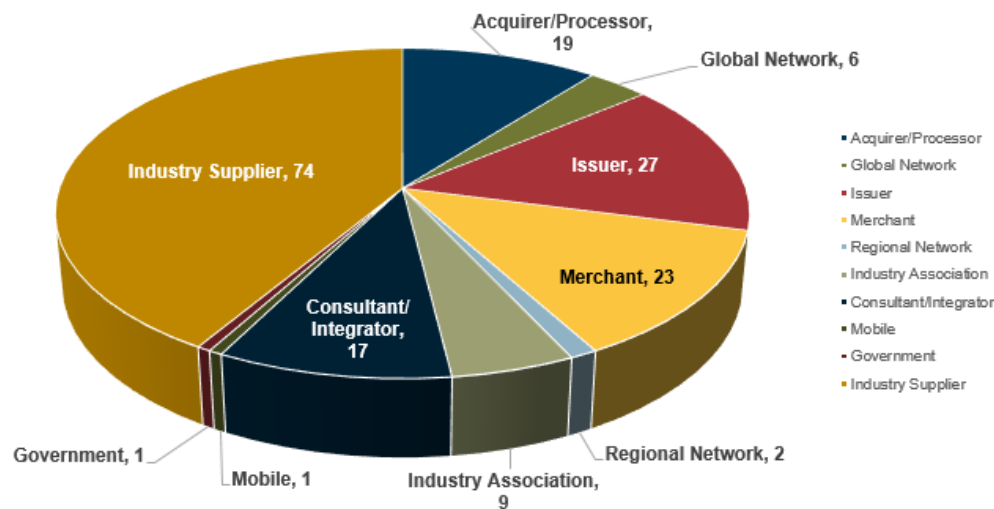


Smart Card
Alliance

Progress for the U.S. Market in Adopting EMV Chip Payments, Contactless Mobile Payments and Payment Tokenization

Randy Vanderhoof
Executive Director

Role of Payments Industry Associations



- “to address issues that require broad cooperation and coordinationto ensure the successful adoption of EMV-enabled cards, devices, and terminals to ensure that migration in the US market is efficient, timely and effective.”

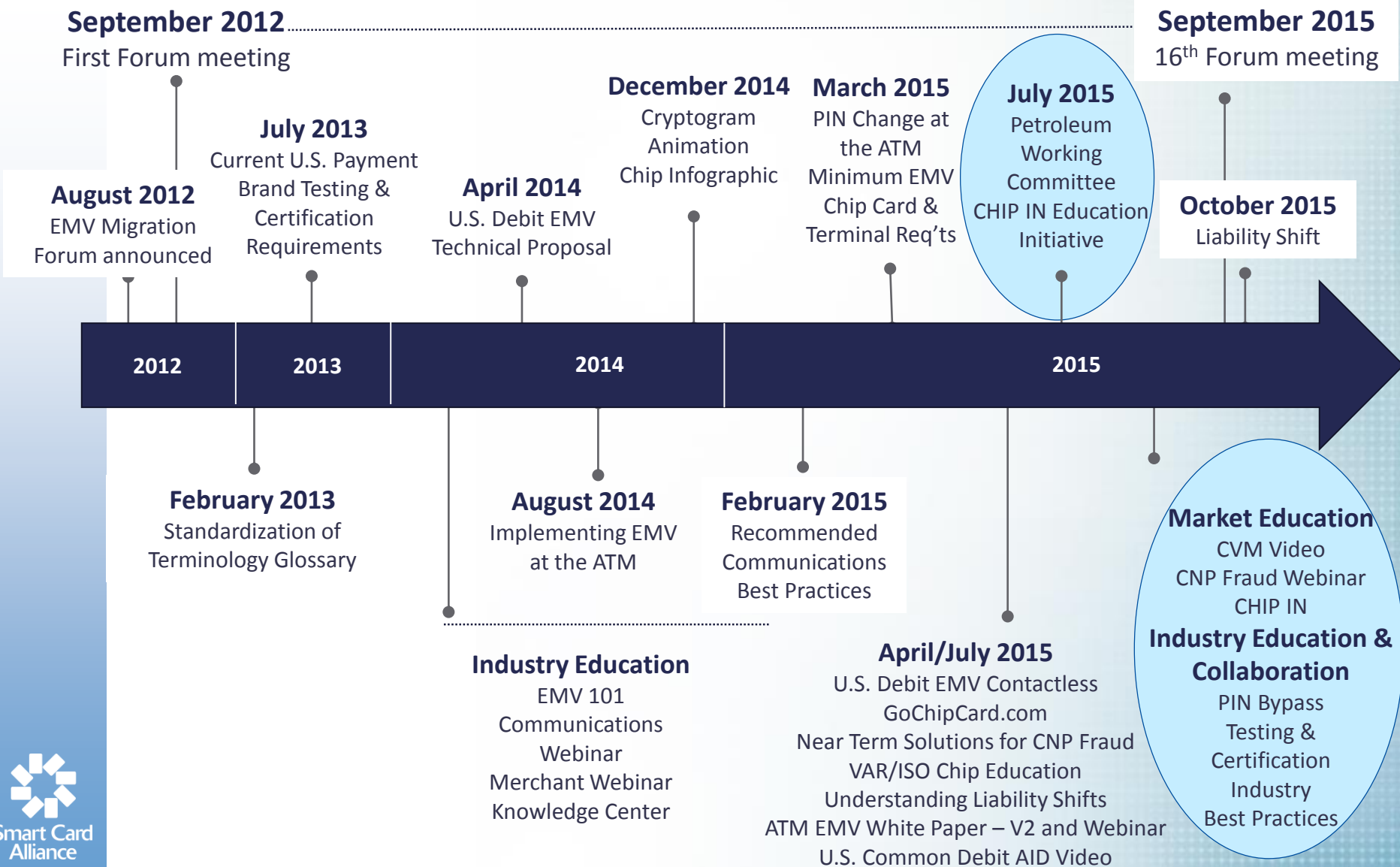


EMV: Why Now? What at All?

- EMV migration is not just about security but also about migrating to a global standard that not only offers better security, but is the baseline for new payment products and solutions like mobile payments.
- Key reasons:
 - Security & fraud – last major market for counterfeit cards
 - Future innovation
 - Global standard and interoperability
 - Fewer fraud events benefit consumers and merchants
 - U.S. travelers experience fewer acceptance problems when traveling internationally



EMV Migration Forum Timeline: Summarizing Major Activities



Smart Card Alliance

Progress in EMV Adoption in the U.S.

- ✓ Currently U.S. has 200+ million EMV cards issued
- ✓ Visa chip card issuance in the U.S. is now higher than any other country
 - 151.8 million Visa chip cards issued in the U.S. as of Sept. 15, 2015
- ✓ Estimated 314,000 merchant locations are now accepting EMV chip transactions
 - SMB retailers account for 50% of Visa's chip payment volume
- ✓ Largest retailers report significant number of chip-on-chip transactions
- ✓ Payments Security Task Force estimates that about 40 percent of terminals will be capable of accepting chip cards by the end of 2015



Resources from the EMV Migration Forum

EMV Resources on www.EMV-Connection.com

- **Web:** GoChipCard.Com
- **Marketing:** CHIP IN campaign
- **Video:** EMV video b-roll
- **White Paper:** “Understanding the 2015 U.S. Fraud Liability Shifts”
- **White Paper:** “Near-Term Solutions to Address the Growing Threat of CNP Fraud”
- **Technical Guidance:** US Debit Technical Proposal
- **Webinar:** Implementing EMV at the ATM – July 14, 2015





EMVCo

Global Payment Specifications

Brian Byrne, EMVCo Director of Operations
Webinar, October 1, 2015

EMVCo

- History, Mission and Scope
- Structure

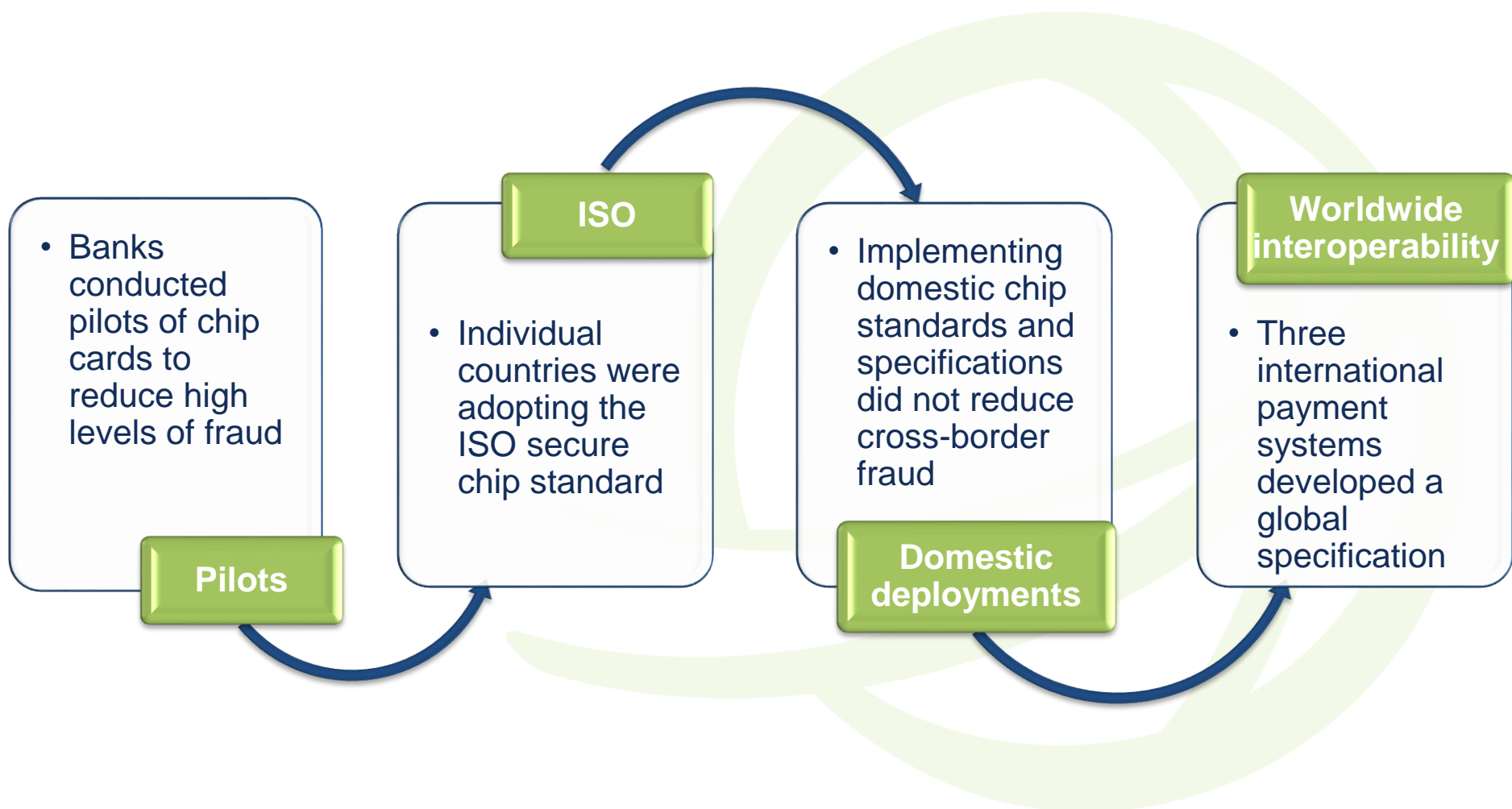
EMVCo's Activities

- Contact and Contactless Chip Specifications for Card and Mobile Payments
- Type Approval – Terminals, Chip Security, Mobile Handsets
- The Next Generation of EMV Chip Specifications
- Payment Tokenisation
- 3D Secure 2.0

Industry Engagement

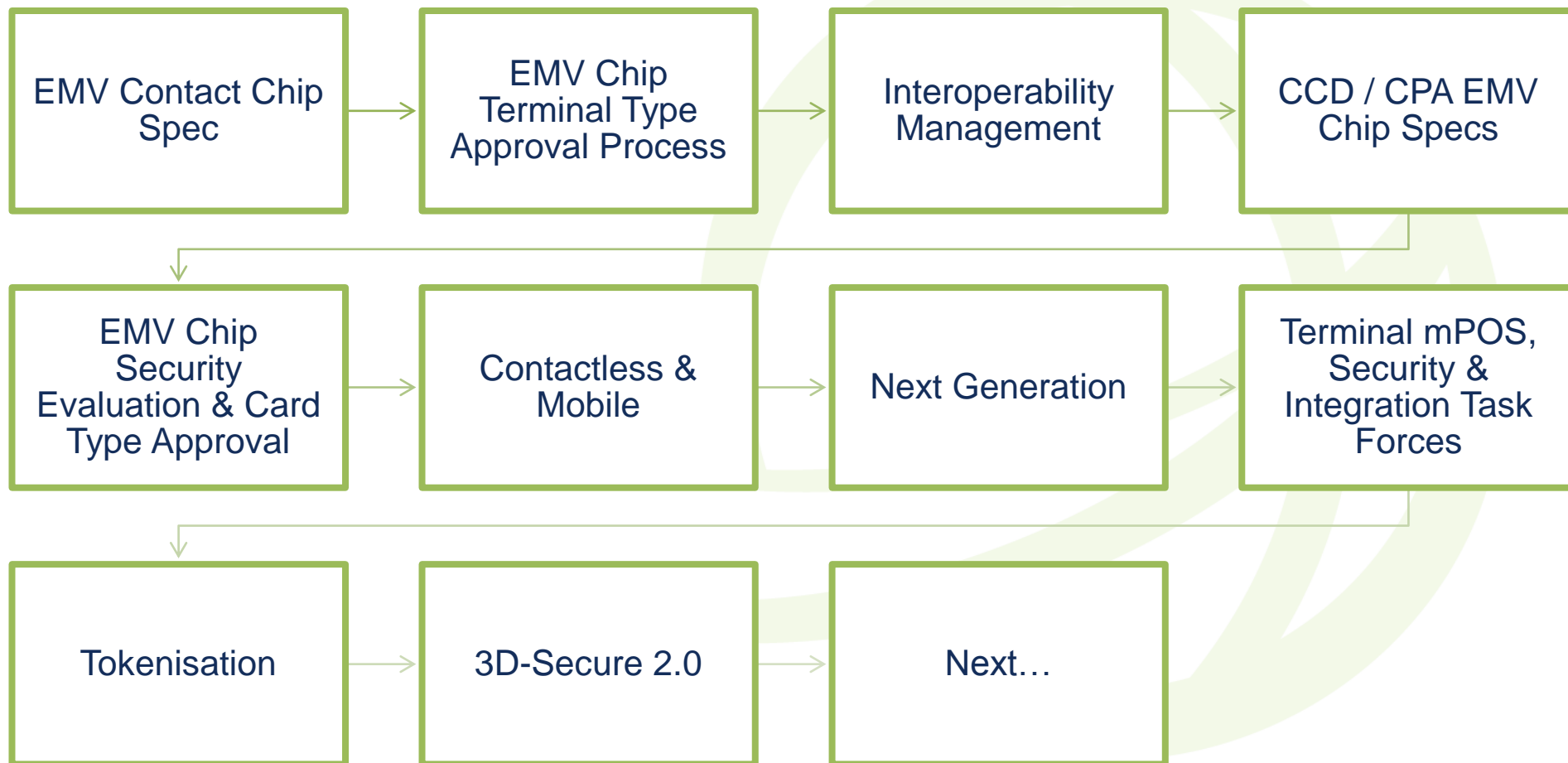


History, Mission and Scope



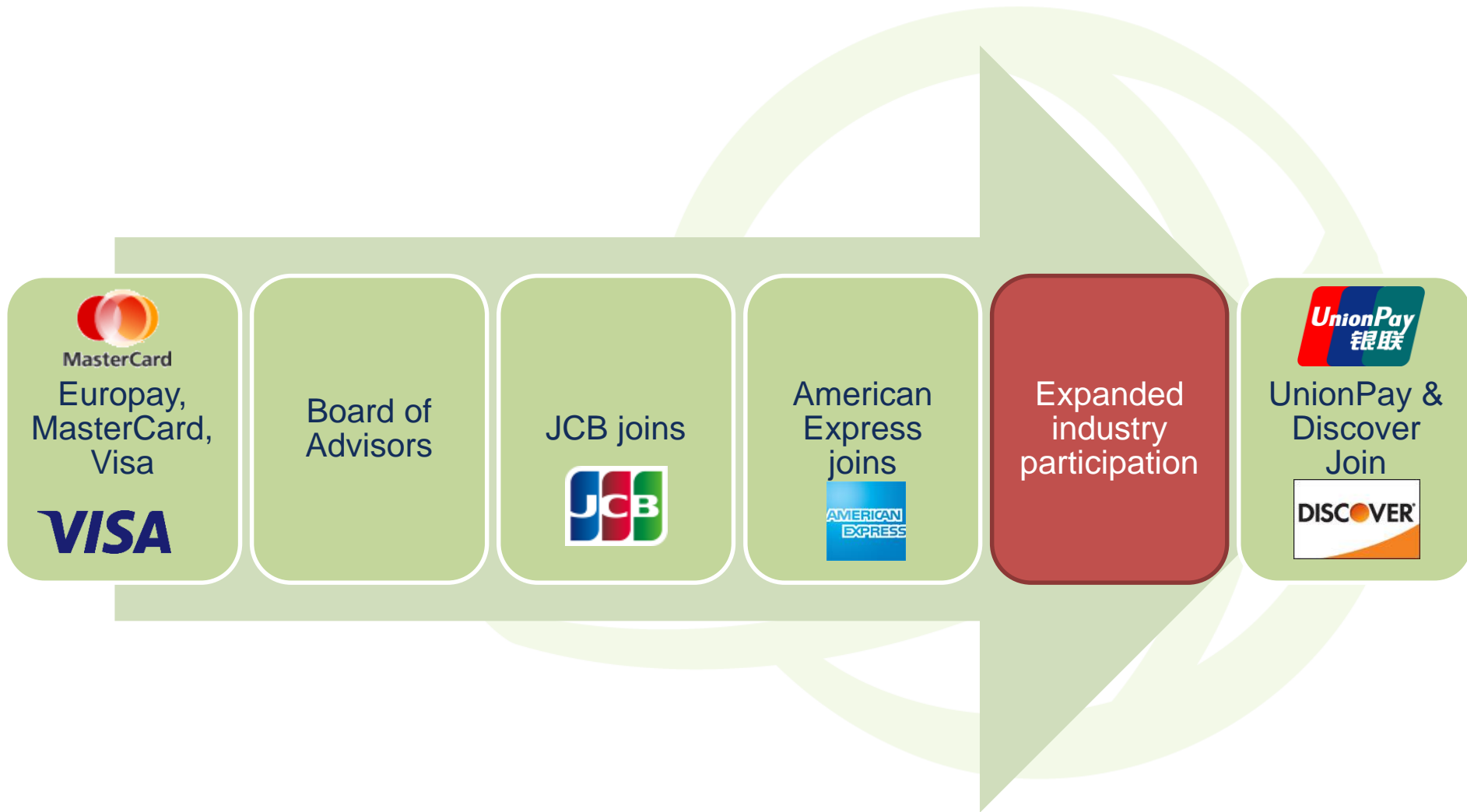
To facilitate the worldwide interoperability and acceptance of secure payment transactions by managing and evolving the EMV Specifications and related testing processes

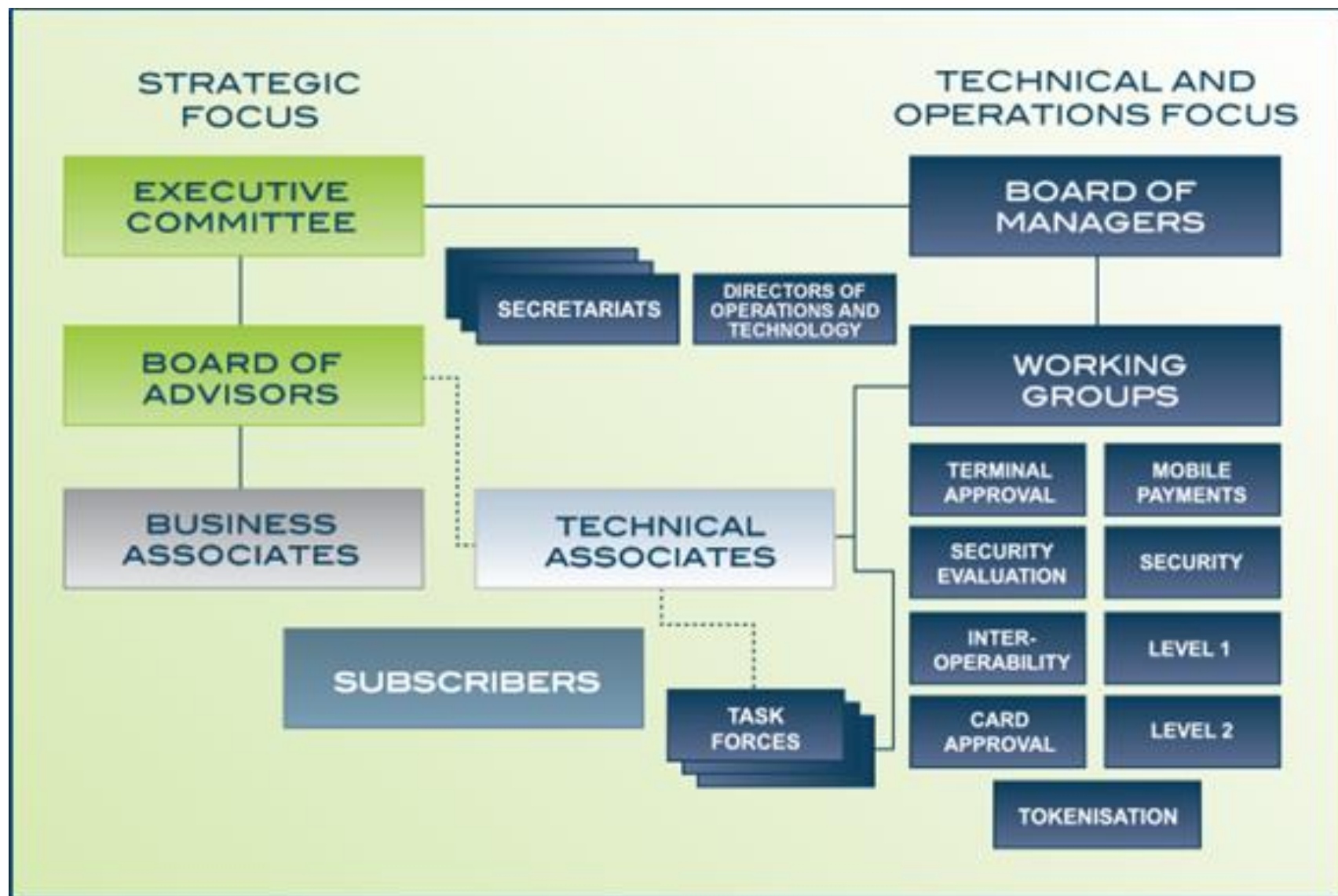






Structure





EMVCo

Manage and evolve EMV Specifications

Perform product testing & certification

Enhance payment security

Support emerging payment technologies

Global, Regional and Domestic Payment Systems

Product development

EMV roadmap

Commercial incentives

Fraud liability shift policy



Activities



Contact and Contactless Chip Specifications for Card and Mobile Payments

Contact EMV Features

Transaction Initiation	Chip Card Insertion
Transaction Time	1 – 2 seconds
Form factors	Contact Chip on Card
Security	EMV cryptography
Implementation	Global Interoperability
Specifications	EMV 4.3 Contact Chip



EMV chip technology is both mature and evolving

**Regularly updated
with a focus on
increased security,
worldwide
interoperability and
acceptance.**

**Actively engaging
regional payments
industry
stakeholders in
shaping the
specifications.**

**Security and
interoperability
actively addressed
via bulletins and
specification
updates.**

Contactless EMV Features

Transaction Initiation	Tap [2-4cm]
Transaction Time	Fast [< 500ms]
Form factors	Multiple: Cards, Stickers, Fobs, Watches, Phones
Security	Secured using the same strong cryptography as contact EMV
Implementation	Global Interoperability
Specifications	EMV Contactless 2.5





Type Approval – Terminals, Chip Security, Mobile Handsets

Terminal Type Approval

- Designed to assess whether EMV chip enabled acceptance terminals sufficiently conform to the functional requirements
- Level 1: verifies conformance to mechanical, electrical and protocol specifications
- Level 2: verifies whether the software demonstrates sufficient conformance

Card / Mobile Handset Type Approval

- Designed to assess whether the chip hardware and embedded EMV functionality sufficiently conforms to electro-mechanical and functional requirements
- Manage the type approval process for payment applications that are compliant with the EMV Common Core Definition (CCD) and Common Payment Application (CPA).
- Expanding to include Level 1 Approval for Mobile Handsets

Chip Security Evaluation

- Designed to assess whether a chip demonstrates sufficient assurance of minimum levels of security
- Including security mechanisms and protections designed to withstand known attacks

EMVCo Role

- Assess the compliance of vendor products developed to the EMV Specifications
- Terminal Type Approval
- Card Type Approval
- Chip Security Evaluation

Payment Systems Role

- Specify the rules regarding how long approved products may be used in the field
- Host system and terminal deployment testing and approval
- Type approval process for chip cards that comply with their card application specifications
- Card functional security evaluation
- Card personalisation approval



EMV Next Generation


To establish a single kernel for acceptance with a common, robust technology platform supporting contact and contactless / mobile interfaces for both online and offline transactions.

Future proof EMV security

Employing a layered, modular and flexible design

Simplified device design (e.g. only one offline data authentication method)

Integrated type approval process for contact and contactless



2011	Start the EMV Next Generation effort
2012	EMVCo Next Generation scope finalisation
2013	EMV Next Generation high-level architecture completed
2014	EMV Next Generation proof of concept
2015	EMV Next Generation Draft Specification completed
2016	EMV Next Generation Specification completed
2017	Terminal Type Approval Process availability
2025	Payment systems may sunset the issuance of legacy contact/contactless cards
2030	Payment systems may remove legacy cryptography (i.e. keys) from terminals

**The timeline and milestones presented are provisional and subject to change*



Payment Tokenisation

EMV payment tokens further enhance security of digital payments and simplify purchase experience when shopping on mobile, computers or other smart devices

Replaces a traditional card account number with a unique payment token

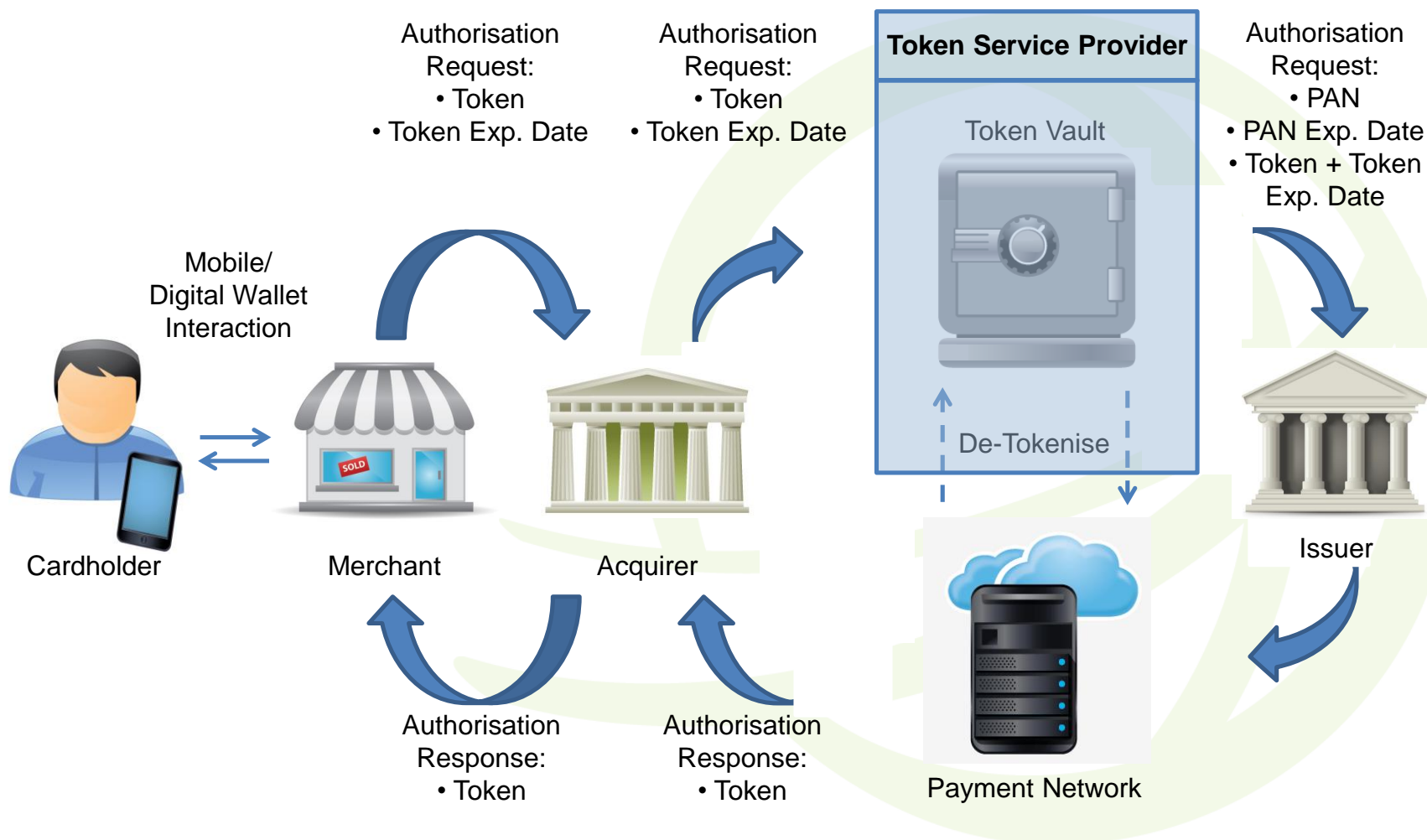
Restricts the use of a payment token by device, merchant, transaction type or channel

Fraudulent activity reduced because:

Payment token is limited to a specific acceptance domain

Payment token can be unlinked from card account number as required

Card account numbers are less available for compromise



Broad proliferation of models (remote and proximity) has accelerated token usage:

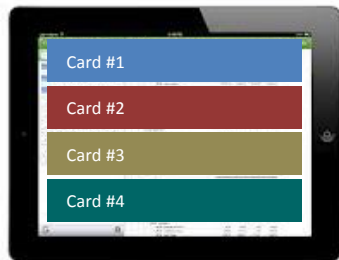
Card-on-File Merchant

Merchant uses tokens in lieu of PANs in card-on-file database



Digital Wallet

Branded Digital Wallet presents “Pay with Wallet” in front of card-on-file



QR and Bar Code

QR or Bar Code supplier put a “bar-code” in front of card-on-file



NFC

Tokens in NFC device



EMV Chip

Tokens in EMV chip device



2015 Goals

Q1-3 2015

TSP registration & listing programme management:

- List and registration process to be made available on the EMVCo website
- Ongoing work with PCI SSC for investigation of industry standard TSP security requirements

2015 - 2016

Payment Tokenisation Specification – Technical Framework Updates:

- Clarifications – including more clarity on assurance levels and aggregator concept
- Payment account reference (PAR)
- Expanded token use cases – transit, EMV chip card offline, 3rd party TSP, ATM, split shipment, receipt-less returns.

2015 - 2016

Ongoing industry engagement:

- Regional payments bodies
- Global standards bodies
- Merchants, processors, issuers, acquirers
- Payment innovators and others

Upcoming Tokenisation Engagement Opportunities:

- Oct 21, 22: Board of Advisors | Boston, USA
- Oct 15: Seminar | Barcelona, Spain
- Nov 3: Seminar | Jakarta, Indonesia
- **November 4th : Webinar in conjunction with SCA**



3D Secure 2.0

3DS is a messaging protocol which enables consumers to directly authenticate their card with the card issuer when shopping online

The additional security layer reduces fraudulent use of online credit and debit transactions by...

... preventing unauthorised use of cards online

... and protecting merchants from exposure to fraud-related chargebacks

Three domains consist of:



Merchant / acquirer domain
Merchant Integrator (MI)



Interoperability domain
Directory Server (DS)



Issuer Domain
Access Control Server (ACS)

Support non-browser e-commerce transactions

- In-app purchases (covers all connected device purchases)

Better integration with a merchants offering

- Enabling a smooth process for the challenge response that does not interrupt the merchant check-out experience

Facilitate a cleaner experience without sacrificing security

- Encourage frictionless authentication (where possible)
- Better use of dynamic one-time-passwords



Deliver web-based service messaging to be used across multiple platforms

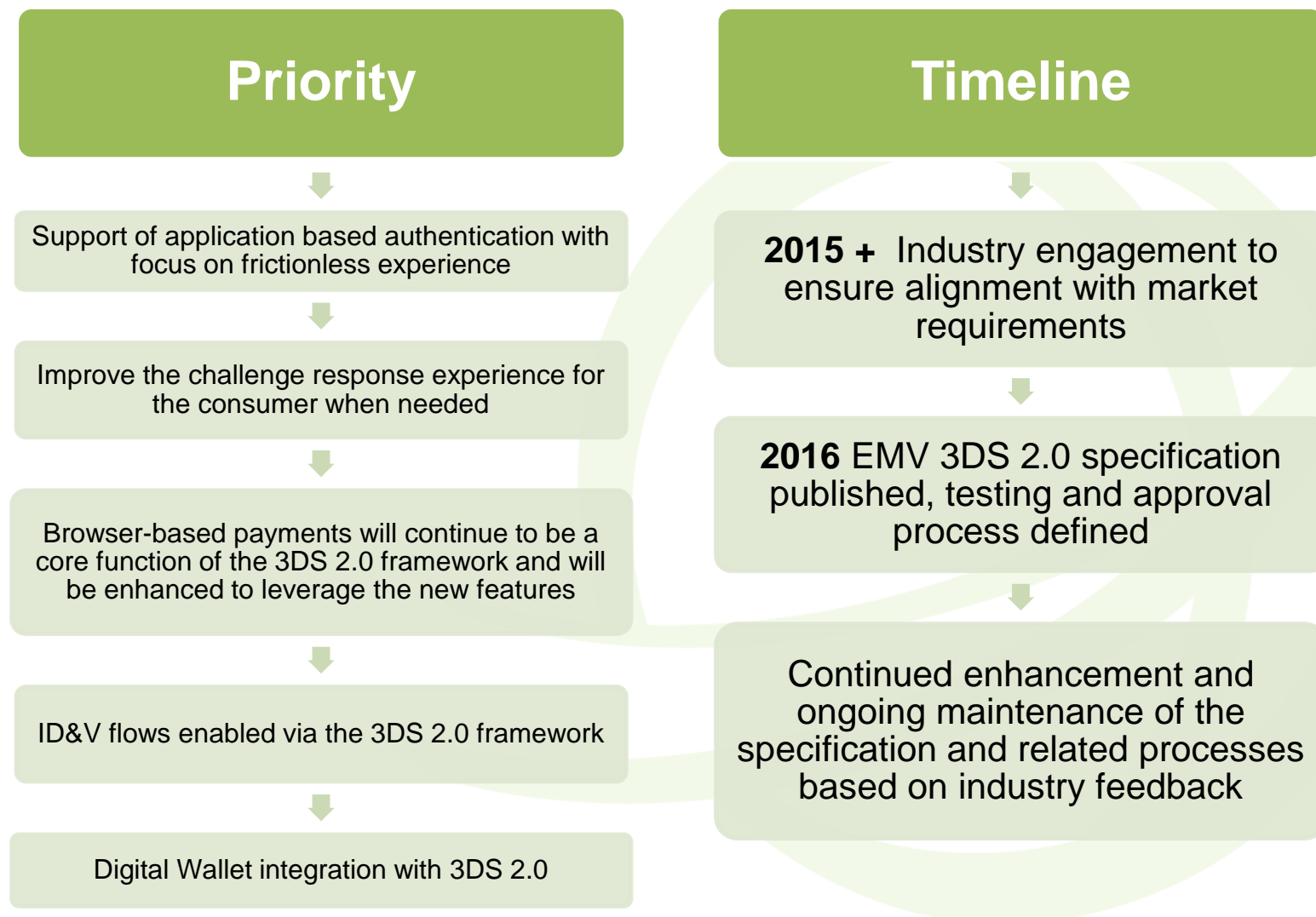
Offer advance intelligent risk-based decisioning



Add support for ID&V and digital wallet in addition to enriching current payment authentication flows

Align to country-specific and regulatory requirements





* The content and timeline presented is provisional and subject to change.



Industry Engagement

EMVCo actively engages the payment community in shaping future specifications

Industry Engagement

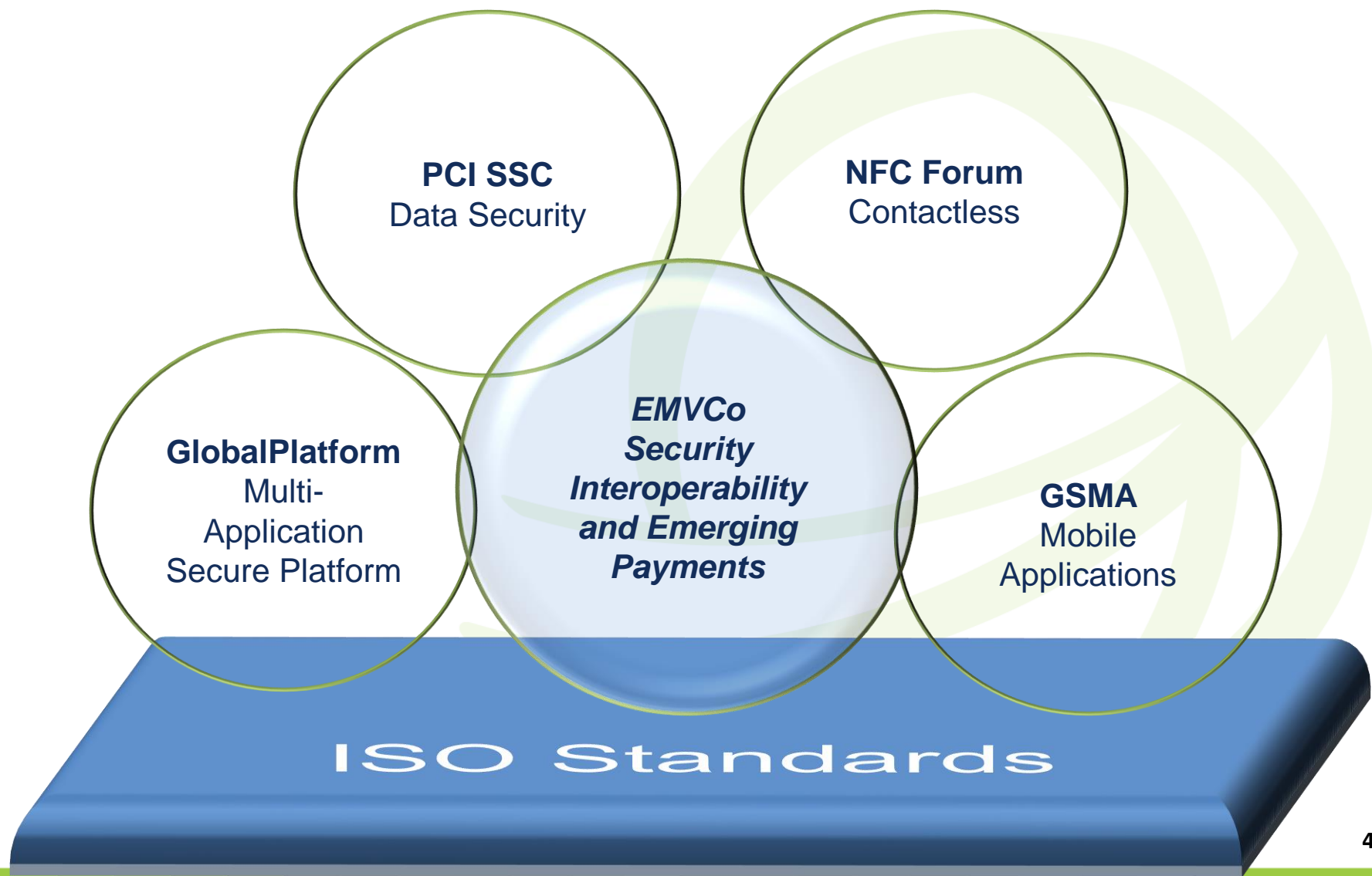
- **EMVCo Associates Programme**
 - **Business Associates**
 - **Technical Associates**
- **Subscriber meetings**
- **Partnership & liaison activity**

Interactive Forums

- **Speaking engagements**
- **Panels**
- **Seminars**
- **Webinars**

Information Sharing

- **Website**
- **LinkedIn**
- **Press releases**
- **Specifications**
- **White papers**
- **Other publicly available content**



Objective – Engage with regional and national bodies as needed to support the continued migration to EMV technology

Other bodies

EMVCo
Security
Interoperability
and Emerging
Payments

Examples include:





EMVCo Associates Programme (EAP)

Benefits:

Access

Engage and connect with EMVCo's Executive Committee, Board of Managers and Working Groups

Insight

Learn more about EMVCo's work programme, including future initiatives

Influence

Contribute to the future evolution of the EMV Specifications by sharing expertise, experience and requirements

Foresight

Receive advanced updates on EMV Specifications and technical amendments

Payment
Tokenisation

Next generation
migration

Terminal security

Terminal
integration testing

Mobile acceptance

Handset approvals

3DS 2.0



Summary

EMVCo serves as an industry utility to promote secure & interoperable payments worldwide by:

Actively engaging regional payments industry stakeholders in shaping the specifications

Promoting interoperability through global monitoring & specification enhancements

Providing royalty free access to specifications aligned with ISO standards

Developing underlying security mechanisms to provide robust protection within EMV environments

Continuously evaluating new payment technology developments relevant to EMVCo's scope

Thank You!

For more information visit www.emvco.com or join us on LinkedIn



The screenshot shows the EMVCo website homepage. At the top is the EMVCo logo and navigation links: HOME, ABOUT, ASSOCIATES, RECENT UPDATES / BULLETINS, MEDIA CENTRE, and CONTACT. A search bar and a LinkedIn link are also present. Below the navigation is a banner with the text "THE OFFICIAL SOURCE FOR INFORMATION ON THE EMV SPECIFICATIONS" and an illustration of a credit card and a payment terminal. A green navigation bar contains links to SPECIFICATIONS, APPROVALS & CERTIFICATION, BEST PRACTICES, INTEROPERABILITY ADVISORIES, and FAQ. Below this is a dark blue section titled "OUR SPECIFICATIONS FOR" with links to Contact, Contactless, Mobile, and Tokenisation. The main content area is titled "Welcome To EMVCo" and contains two paragraphs of text. To the right is a "Recent Updates" section with a "News" tab, listing several updates from October 2014.

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THE OFFICIAL SOURCE FOR INFORMATION ON THE EMV SPECIFICATIONS

SPECIFICATIONS APPROVALS & CERTIFICATION BEST PRACTICES INTEROPERABILITY ADVISORIES FAQ

OUR SPECIFICATIONS FOR

Contact Contactless Mobile Tokenisation

Welcome To EMVCo

EMVCo exists to facilitate worldwide interoperability and acceptance of secure payment transactions. It accomplishes this by managing and evolving the EMV® Specifications and related testing processes. This includes, but is not limited to, card and terminal evaluation, security evaluation, and management of interoperability issues. Today there are EMV Specifications based on contact chip, contactless chip, common payment application (CPA), card personalisation, and tokenisation.

This work is overseen by EMVCo's six member organisations—American Express, Discover, JCB, MasterCard, UnionPay, and Visa—and supported by dozens of banks, merchants, processors, vendors and other industry stakeholders who participate as EMVCo Associates.

Recent Updates

News

- 15 October 2014
Notice Bulletin n°18, EMVCo Annual RSA Key Lengths Assessment
- 10 October 2014
Specification Bulletin 151: Clarification on Cardholder Selection and Cardholder Confirmation
- 10 October 2014
Specification Bulletin 149: Specification Update EMV Book C-2, Version 2.4
- 09 October 2014



Smart Card
Alliance

Wrap-Up

Wrap-Up

- **Next Smart Card Alliance and EMVCo Webinar: Focus on Tokenization**
 - NEW date: November 4, 2015, 1:00pm ET/10:00am PT
 - Register at: <https://attendee.gotowebinar.com/register/9008007764697218561>
- **Events**
 - EMVCo Regional Seminars:
https://www.emvco.com/about_emvco.aspx?id=277
 - October 15, Barcelona, Spain
 - November 3, Jakarta, Indonesia
 - Smart Card Alliance Payments Summit, April 5-7, 2016
 - <http://www.scapayments.com/>
- **Resources**
 - EMVCo web site, <http://www.emvco.com>
 - Smart Card Alliance web site, <http://www.smartcardalliance.org>
 - EMV Connection web site, <http://www.emv-connection.com>
 - GoChipCard.com web site, www.gochipcard.com



Q&A





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